



HEROS – ENVIRONMENTAL REVIEW RECORD REPORT

Liberty Bank, aka Rotary Gardens

500 Linden Avenue
South San Francisco, California 94080

Report Date

October 27, 2025

Program Type:

PART 58 CPF

Partner Project No.

25-551454.1

Prepared for:

HumanGood Affordable Housing



Building
Science



Environmental
Consulting



Construction &
Development



Energy &
Sustainability



October 27, 2025

Mr. Matthew Almonte
HumanGood Affordable Housing

Subject: **HEROS – Environmental Review Record Report**
Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, California 94080
Partner Project No. 25-551454.1

Dear Mr. Almonte:

Partner Assessment Corporation (Partner) is pleased to provide the results of the *environmental review record* that was completed in the U.S. Housing and Urban Development (HUD) online system referred to as *HUD's Environmental Review Online System (HEROS)* for the abovementioned address ("subject property").

We appreciate your trust in Partner and the opportunity to provide environmental services to you. If you have any questions concerning this report, or if we can assist you in any other matter, please contact me at dmccreery@partneresi.com or 310-774-3165.

Sincerely,

Partner Assessment Corporation

Drew McCreery
National Client Manager

SIGNATURES OF NEPA PROFESSIONALS

Partner has performed this environmental assessment in conformance with the scope and limitations as detailed in 24 CFR Part 58.



Jackelyn Goldschmidt
HUD NEPA Professional



Michael Lawlor
Project Manager

Report Expiration Clock - Regulatory Date

To calculate HUD Submission Deadline, please complete the green cell

Project Name/Number:	Liberty Bank, aka Rotary Gardens / 25-551454.1		
	Regulatory Date	Timeframe (Days)	HUD Submission Deadline Date
Date of Radius Map or FOIA Submission (whichever comes first)	10/6/2025	180	4/4/2026

***Phase I ESA Timing:** The Phase I ESA must be conducted (meaning a visual inspection of the site and adjoining properties, and the records review and interviews) within one year of the mortgage insurance application's submission date to HUD (date entered queue). However, a Phase I ESA that was conducted more than 180 days prior to the submission date to HUD, but within the allowable one-year period, must be updated pursuant to Section 4.6 of ASTM E 1527-21 (or similar section of the most recent edition). A Phase I ESA originally prepared more than one year prior to submission to HUD, even if updated within 180 days of submission, is not acceptable.

Report Expiration Clock - Site Visit

To calculate HUD Submission Deadline, please complete the green cell

Project Name/Number:	Liberty Bank, aka Rotary Gardens / 25-551454.1		
	Site Visit Date	Timeframe (Days)	HUD Submission Deadline Date
Date of Site Visit	10/15/2025	180	4/13/2026

***Phase I ESA Timing:** The Phase I ESA must be conducted (meaning a visual inspection of the site and adjoining properties, and the records review and interviews) within one year of the mortgage insurance application's submission date to HUD (date entered queue). However, a Phase I ESA that was conducted more than 180 days prior to the submission date to HUD, but within the allowable one-year period, must be updated pursuant to Section 4.6 of ASTM E 1527-21 (or similar section of the most recent edition). A Phase I ESA originally prepared more than one year prior to submission to HUD, even if updated within 180 days of submission, is not acceptable.

HEROS DOWNLOAD

**Environmental Assessment
Determinations and Compliance Findings
for HUD-assisted Projects
24 CFR Part 58**

Project Information

Project Name: Liberty-Bank,-aka-Rotary-Gardens

HEROS Number: 900000010504179

Start Date: 10/21/2025

Responsible Entity (RE): County of San Mateo Department of Housing, 264 Harbor
Blvd., Building A, Belmont, CA 94002

RE Preparer: Partner Engineering and Science, Inc., Attn: Michael Lawlor, Jr.

State / Local Identifier:

Certifying Officer: Raymond Hodges, Director, San Mateo County Department of Housing

Grant Recipient (if different than Responsible Entity): County of San Mateo, Department of
Housing

Point of Contact: Manasa Hegde

Consultant (if applicable): Partner Engineering and Science, Inc., PN 25-551454.1

Point of Contact: Michael Lawlor

40 CFR 1506.5(b)(4): The lead agency or, where appropriate, a cooperating agency shall prepare a disclosure statement for the contractor's execution specifying that the contractor has no financial or other interest in the outcome of the action. Such statement need not include privileged or confidential trade secrets or other confidential business information.

- ✓ By checking this box, I attest that as a preparer, I have no financial or other interest in the outcome of the undertaking assessed in this environmental review.

Project Location: 500 Linden Avenue, South San Francisco, CA 94080

Additional Location Information:

The subject property is located on the east side of Linden Avenue within a residential and commercial area of San Mateo County. The adjoining properties include: California Avenue, beyond which is Curry Corner (600 Linden Avenue); Stephany Barbie Beauty Shop (602 Linden Avenue); Taqueria Celaya (608 Linden Avenue); Alfredo's Market (612 Linden Avenue); and single-family residences (238, 236, 232, and 230 California Avenue) to the north; Single-family residences (229 California Avenue; 228 6th Lane; and 226 Lux Avenue) to the east; Lux Avenue, beyond which is a multi-family residence (418 Linden Avenue); Los Metates Restaurant (231 and 231A Lux Avenue); and a single-family residence (227 Lux Avenue) to the south; Intersection of Linden Avenue and Lux Avenue, beyond which is storefront retail (433, 435, 437, and 439 Linden Avenue); and storefront retail with residences above (415, 415A, 417, 419, 437, and 429 Linden Avenue) to the southwest; Linden Avenue, beyond which is Colombo Liquors (507 Linden Avenue); Discoteca Ramos (511 Linden Avenue); Ace Furnace Company (513 and 515 Linden Avenue); a vacant lot; multi-family residence (517 Linden Avenue); a drop-off only dry cleaners (519 Linden Avenue); and a beauty salon (523 Linden Avenue) to the west; and Intersection of California Avenue and Linden Avenue, beyond which is Emmanuel Florist (304 California Avenue) to the northwest.

Direct Comments to:

Description of the Proposed Project [24 CFR 50.12 & 58.32; 40 CFR 1508.25]:

The subject property is currently a vacant commercial structure, most recently occupied by Liberty Bank for commercial use. Currently no onsite operations exist. The subject property consists of one two-story building constructed in 1971, on 0.96-acres of land. In addition to the current structure, the subject property is also improved with fencing, asphalt-paved parking areas, and associated landscaping. According to available historical sources, the subject property was formerly undeveloped as early as 1892 until circa at least 1910; developed with an automobile storage structure and an additional structure in 1925; developed with a commercial structure from 1956 until circa 1966; developed with a parking lot in the north plot by 1970; and developed with the current parking lot in the north plot and commercial structure in the south plot from 1971 to present. Tenants on the subject property have included Purity Stores Limited (1966); Bank of America South San Francisco (1977-1982); Liberty Bank (1987-2022); Liberty BanCorp (2016-2022); and Smile Dentistry Fishers (2022). The proposed development at 500 Linden Avenue consists of two new 6-story

residential buildings, each designed as five stories of Type III construction over a one-story plus basement Type I podium. The project will provide 80 affordable senior housing units, including one manager's unit, and will feature structured parking, administrative offices, community spaces, laundry facilities, and landscaped courtyards. Additional site improvements include 52 parking spaces, bicycle parking, and a variety of outdoor amenities such as a meditation corner, bee garden, community patio, exercise and healing gardens, a quiet corner, BBQ area, and other landscaped features to support a vibrant and wellness-focused living environment. A DRAFT Phase I Environmental Site Assessment was completed by Partner ESI in October 2025 for the subject property. No recognized environmental concerns (RECs), historical RECs (HRECs) or condition RECs (CRECs). Based on the conclusions of this assessment, Partner recommends no further investigation of the subject property at this time. The project is seeking funding through San Mateo County Department of Housing Community Project Funding (CPF) grants.

Statement of Purpose and Need for the Proposal [40 CFR 1508.9(b)]:

The subject property is proposed for demolition of the current commercial structure and new construction through the County of San Mateo Department of Housing. The property is needed to provide multi-family housing in the primary market area, an area demonstrating strong growth trends given its proximity to the San Francisco market. This property will address the housing need and benefit from the ongoing desire of many in the metropolitan area to move to the downtown area in order to benefit from the cultural and locational amenities. This proposal is consistent with the County of San Mateo's General Plan Policies (January 2013), which emphasizes the need for a diverse, affordable, and sustainable housing supply that meets the needs of all residents, including seniors, low-income households, and those with special needs. The General Plan promotes compact, transit-oriented, and mixed-use development in urban areas to reduce sprawl, support public transportation, and enhance neighborhood livability. The plan encourages infill development, and the integration of housing with employment, shopping, and recreational opportunities to create balanced, self-contained communities. It also supports the alignment of housing growth with infrastructure capacity, environmental constraints, and hazard mitigation. Additionally, the plan calls for regional coordination, annexation of urban unincorporated areas, and the use of zoning and design standards to ensure compatibility, energy efficiency, and resilience in housing development.

Existing Conditions and Trends [24 CFR 58.40(a)]:

The subject property is currently a vacant commercial structure, most recently occupied by Liberty Bank for commercial use. Currently no onsite operations exist. The subject property consists of one two-story building constructed in 1971, on 0.96-acres of land. In addition to the current structure, the subject property is also improved with fencing, asphalt-paved parking areas, and associated landscaping. The South San Francisco and greater San Francisco metro area is a desirable metropolitan area within the state. The geographical and physical region provide a

positive environment for residents and businesses. The surrounding area of the subject property is in a mixed commercial and residential neighborhood near many amenities. The neighborhood is within walking distance of the downtown areas, which offer accessibility to restaurants, retail, and entertainment options. The economic industry is diverse. The current housing market in San Mateo County, based on the 2025 Affordable Housing Needs Report, is marked by severe affordability challenges and a growing gap between housing costs and income levels. As of 2023, nearly 23,000 low-income renter households lack access to affordable housing, with 81% of extremely low-income households spending more than half their income on rent. The average asking rent has risen to \$3,463 per month, requiring an income of \$66.59 per hour--more than three times the city's minimum wage--placing market-rate housing far out of reach for many essential workers. Despite a 185% increase in Low-Income Housing Tax Credit (LIHTC) production and preservation from 2023 to 2024, state and federal funding for housing in the county has plummeted by 75%, exacerbating the crisis. Additionally, the county's interim housing supply for people experiencing homelessness remains critically low, with only 1,551 beds available in 2024. These conditions underscore the urgent need for sustained investment and policy reform to address the region's deepening housing insecurity.

Maps, photographs, and other documentation of project location and description:

[Site Plan.pdf](#)

[Site Location Map.pdf](#)

[Topo Map.pdf](#)

[Photo Log.pdf](#)

Determination:

	Finding of No Significant Impact [24 CFR 58.40(g)(1); 40 CFR 1508.13] The project will not result in a significant impact on the quality of human environment
	Finding of Significant Impact

Approval Documents:

7015.15 certified by Certifying Officer
on:

7015.16 certified by Authorizing Officer
on:

Funding Information

Grant / Project Identification Number	HUD Program	Program Name	Funding Amount
M-22-DC-06-0216 M-21-DC-06-0216	Other	HOME	\$1,002,197.00

Estimated Total HUD Funded, \$1,002,197.00
Assisted or Insured Amount:

Estimated Total Project Cost [24 CFR 58.2 (a) (5)]: \$78,000,000.00

Compliance with 24 CFR §50.4, §58.5 and §58.6 Laws and Authorities

Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §50.4, §58.5, and §58.6	Are formal compliance steps or mitigation required?	Compliance determination (See Appendix A for source determinations)
STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR §50.4 & § 58.6		
Airport Hazards Clear Zones and Accident Potential Zones; 24 CFR Part 51 Subpart D	☐ Yes ☐ No	The project site is not within 15,000 feet of a military airport or 2,500 feet of a civilian airport. The closest runway of the San Francisco International Airport is located approximately two miles to the southeast of the subject property. According to operational statistics documented for San Francisco International Airport, less than 1% of operations conducted at the airport are for military operations. This airport is therefore not considered to be a military airport. The project is in compliance with Airport Hazards requirements.
Coastal Barrier Resources Act Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 USC 3501]	☐ Yes ☐ No	This project is located in a state that does not contain CBRS units. Therefore, this project is in compliance with the Coastal Barrier Resources Act.
Flood Insurance Flood Disaster Protection Act of 1973 and National Flood Insurance	☐ Yes ☐ No	The structure or insurable property is not located in a FEMA-designated Special Flood Hazard Area. While flood insurance may not be mandatory in this

Reform Act of 1994 [42 USC 4001-4128 and 42 USC 5154a]		instance, HUD recommends that all insurable structures maintain flood insurance under the National Flood Insurance Program (NFIP). According to Community Panel Number 06081C0041E, dated October 16, 2012, the subject property is not located within a Special Flood Hazard Area (SFHA). A Letter of Map Revision was issued in September 2013. The LOMR affected four (4) FEMA FIRM panels, one of which was the subject property Community Panel (ending in 0041E, dated 2012). This did not change the flood zone of the subject property but addressed the flooding sources. The subject property appears to be located in Unshaded Flood Zone X, defined as "areas determined to be outside the 0.2% annual chance floodplain". Based on the review of the online NFIP information, the city and county are active participants within the NFIP. The community identification numbers are as follows: city CID is 065062D and county CID is 060311D. The project is in compliance with flood insurance requirements.
STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR §50.4 & § 58.5		
Air Quality Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR Parts 6, 51, 93	☐ Yes ☐ No	The project's county or air quality management district is in non-attainment status for the following: Carbon monoxide, Ozone, Particulate Matter, <2.5 microns. This project does not exceed de minimis emissions levels or the screening level established by the state or air quality management district for the pollutant(s) identified above. The subject property is an approximate 0.98-acre plot of land planned for residential development. No industrial uses are planned for the subject property, and development of the subject property will follow all municipal permitting requirements. Based on the

		proposed scope of work, the construction of the apartment buildings does not require any air permits because the project does not involve any stationary sources of air emissions, such as industrial equipment, manufacturing processes, or combustion systems that would typically trigger air quality permitting requirements, per the requirements of the Bay Area Air Quality Management District Permit Handbook. The proposed development consists of residential units with associated amenities like parking, community spaces, and landscaping, which are not considered significant sources of air pollutants under local or state air quality regulations. Additionally, any temporary emissions from construction activities (e.g., dust or equipment exhaust) are generally addressed through standard construction best management practices and do not necessitate a formal air permit. For comparison purposes, Partner reviewed other projects in California. Any construction projects that are similar to or smaller in size than the Fairfield Ranch Commons Project's or the Race Street Project's case in terms of duration, square footage and overall size, should not exceed the de minimis levels established by the state and therefore do not need to undergo a detailed conformity analysis. The proposed action is smaller than the Fairfield Ranch Commons and the Race Street and no additional action appears warranted at this time. Lastly, development of the proposed multifamily project will not result in emission levels of criteria pollutants, including de minimis level. The project is in compliance with the Clean Air Act.
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Coastal Zone Management Act Coastal Zone Management Act, sections 307(c) & (d)	☐ Yes ☐ No	Partner reviewed the Coastal Zone Boundary Map for San Francisco County published by the California Coastal Commission; this project is not located in or does not affect a Coastal Zone as defined in the state Coastal Management Plan. The project is in compliance with the Coastal Zone Management Act.
Contamination and Toxic Substances 24 CFR 50.3(i) & 58.5(i)(2)]	☐ Yes ☐ No	Site contamination was evaluated as follows: ASTM Phase I ESA, ASTM Vapor Encroachment Screening. On-site or nearby toxic, hazardous, or radioactive substances that could affect the health and safety of project occupants or conflict with the intended use of the property were not found. The project is exempt from radon consideration. According to online information, there are no fracking activities are conducted on or adjacent to the subject property at this time. Additionally, no oil or gas wells were located within close proximity of the subject property. A Pre-Demolition Survey for ACM and an ACM Operations and Management (O&M) Plan are being prepared concurrently with this report. A PCB Survey is also being prepared concurrently with this report. Results will be included herein upon completion. Partner conducted a Pre-Demolition Asbestos Survey at the subject property, in accordance with the NESHAP and ASTM E2356-18 standards. The survey identified several ACMs, including tan 12"x12" speckled floor tile with black mastic in the first-floor vault, teller, and customer service areas; tan 12"x12" floor tile with tan mastic in the first-floor conference room; brown floor joint vinyl with black adhesive in the teller area and electrical control room; and black/gray and white/gray roof penetration mastic on the main roof. Partner conducted a Hazardous

		Materials Survey and PCB testing at the subject property. The assessment included a visual inspection for regulated materials such as hydraulic lifts, mercury-containing equipment, fluorescent lamps and ballasts, PCB- and CFC-containing equipment, and other hazardous components, along with bulk sampling analyzed by EMSL Analytical using EPA Method 8082A. Observed universal wastes included fluorescent lamp tubes, PCB-containing ballasts, radioactive emergency signs, mercury switches, CFC-containing HVAC compressors, batteries, e-waste, and fire extinguishers. Laboratory results confirmed PCB concentrations greater than 50 ppm in exterior floor joint caulking and wall seam caulking. The subject property was not identified in the regulatory database report. The adjacent properties were identified on various regulatory databases. However, based on the regulatory closures and/or the down-gradient flow of groundwater with respect to the subject property, the listings are not expected to represent a significant environmental concern. Based on the findings of the Tier I screen and VES, in accordance with the scope of work and limitations of ASTM Standard Practice E 2600-15, vapor intrusion can be ruled out because a VEC does not or is not likely to exist. As such, no further assessment is recommended. The project is in compliance with contamination and toxic substances requirements.
Endangered Species Act Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402	☐ Yes ☐ No	This project has been determined to have No Effect on listed species. A summary of the IPaC database indicates eleven endangered, three threatened, two proposed threatened, and no critical habitats are within the project area. A review of the database and species habitat information indicates no

		suitable habitat is present for the subject property at this time. As such, there is no potential for disturbance or effect to the listed species. The subject property is an existing commercial facility and parking lot with limited landscaping, with plans for redevelopment. The current vegetation of the subject property consists of manicured lawns, hedges, and small trees planted along the edges of the subject property. A detailed writeup of species habitats and potential to occur on the subject property is attached. Based on the review of USFWS Official Species List of threatened and endangered species, it is Partner's opinion that a No Effect Determination is applicable for the subject property and no additional action is warranted at this time. This project is in compliance with the Endangered Species Act without mitigation.
Explosive and Flammable Hazards Above-Ground Tanks)[24 CFR Part 51 Subpart C	☐ Yes ☐ No	There are no current or planned stationary aboveground storage containers of concern within 1 mile of the project site. Based on the site reconnaissance, aerial imagery, and the regulatory database report provided by ERIS, no existing industrial facilities handling explosive or fire-prone materials such as liquid propane, gasoline, diesel fuel of 100-gallons or larger are located within one-mile of the subject property. In accordance with the MAP guidelines, a request was made to the City of South San Francisco via the public data request portal for any planned stationary ASTs within a one-mile radius of the subject property. A response will be included once received. According to the online information and site reconnaissance, there is one active natural gas pipeline (Pipeline ID DF3265), located approximately 570-feet (0.11-miles) to

		the east, and operated by Pacific Gas & Electric Co., and one active Non-HVL product (petroleum) pipeline (Pipeline ID 485038BTSE), located approximately 1,119-feet (0.21-miles) to the southeast and operated by SFPP, LP. According to PG&E, Pipeline ID DF3265 contains natural gas, has a diameter of 24 inches, and a maximum allowable operating pressure of 145 pounds per square inch (PSI). According to the MAP Guide on Acceptable Separation Distance and Pipelines Fact Sheet (March 2023), pipelines that have a pressure under 200 PSI are considered to be "exempt" from pipeline hazards. Therefore, no further action pertaining to Pipeline ID DF3265 is warranted. Based on HUD's ASD information, Pipeline ID 485038BTSE is not considered to be a hazard. See attachment for additional detail on pipelines.
Farmlands Protection Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR Part 658	☐ Yes ☐ No	This project includes activities that could potentially convert agricultural land to a non-agricultural use, but an exemption applies. The subject property is an existing commercial facility with plans for redevelopment as a multi-family facility and because the project does not convert agricultural land to non-agricultural land, the Federal Farmland Protection Policy Act (FPPA) is not triggered. Furthermore, according to the USDA mapped soil information, the onsite soils are rated as "Not Prime Farmland". Additionally, according to the Geography Division, U.S. Census Bureau map, the subject property is located within an urban area. As such, no additional action regarding FPPA is warranted at this time. The project is in compliance with the Farmland Protection Policy Act.
Floodplain Management Executive Order 11988, particularly section 2(a); 24 CFR Part 55	☐ Yes ☐ No	This project does not occur in the FFRMS floodplain. According to Community Panel Number

		06081C0041E the subject property is not located within a Special Flood Hazard Area (SFHA). A Letter of Map Revision was issued in September 2013. The LOMR affected four (4) FEMA FIRM panels, one of which was the subject property Community Panel (ending in 0041E, dated 2012). This did not change the flood zone of the subject property but addressed the flooding sources. Of note, a special flood hazard area (SFHA), Flood Zone AH, is located approximately 1,287.8-feet to the northeast of the subject property. A preliminary FEMA FIRM (p-FIRM) is not available for the subject property at this time. Additionally, regulatory floodways are not considered a hazard for the subject property, including ingress and egress, at this time. The FFRMS assessment per EO 13690 is outlined below. (1) Climate Informed Science Approach (CISA) - The Federal Flood Standard Support Tool (FFSST) was implemented to determine the CISA flood information and elevation(s). As of May 7, 2025, the FFSST is no longer supported by FEMA. Moreover, this tool was not adopted by HUD. As such, the CISA is not an applicable FFRMS method. (2) 0.2-Percent Annual Chance Floodplain Approach (PFA) - Because the subject property is not located within the 0.2 PFA (or SFHA) within the current FIRM (no PFIRM available), and the adjoining SFHA is not graphed within the Flood Insurance Study to include a 0.2PFA flood elevation, no additional action regarding FFRMS is warranted as this method is not an acceptable approach at this time. (3) Freeboard Value Approach (FVA) - Because the CISA and 0.2PFA methods do not apply for this evaluation, the FVA is considered to be the applicable method due to the close proximity of a SFHA. Specifically, a
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		SFHA, Flood Zone AH, is located approximately 1,287.8-feet to the northeast of the subject property, and is not listed with a designated BFE. According to 1-foot contour topo map data available on the San Mateo County GIS website, the flood zone AH is located within the 31-foot contour line low lower. Because this site is a non-critical action, the addition of 2-feet is warranted. The approximate FFRMS elevation is 33-feet (31 ft + 2 ft). According to data collected from the United States Geological Survey (USGS) Topo Builder website, the subject property elevation above Mean Sea Level (MSL) is the subject property is located between 33.54 and 44.14 feet above mean sea level (MSL). Based on the topographic differences of the subject property and the SFHA, distance from the nearest floodplain, and the FEMA flood designations for the subject property as Flood Zone X (unshaded), the subject property is not located within a FEMA-designated SFHA or FFRMS floodplain. The project is in compliance with Executive Orders 11988 and 13690.
Historic Preservation National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR Part 800	☐ Yes ☐ No	The proposed project involves demolishing a building over 45 years old and constructing a new multifamily residential facility, triggering review under Section 106. A Secretary of the Interior-qualified Architectural Historian and Professional Archaeologist completed archival and archaeological evaluations, which were included in the County of San Mateo's formal consultation request to the State Historic Preservation Officer (SHPO). Archival research found no significant historical associations with the subject property, noting the building's brief Bank of America occupancy from 1971 to before 1982 and no relevance under

		NRHP Criteria A-D. The building was determined not NRHP-eligible, and reviews concluded the Direct APE contains no NRHP or locally listed historic properties, and the Indirect APE (1/8-mile radius) also contains none; the nearest NRHP property is 16 miles away and not visible from the project area. Accordingly, the undertaking was found to result in No Effect. On November 13, 2025, the County initiated Section 106 tribal consultation for the HUD-funded project with seven tribes, and on November 14, 2025, SHPO received the County's initial consultation package, followed by supplemental submissions on December 16, 2025, and January 22, 2026. On November 14, 2025, the Muwekma Ohlone Tribe requested consultation, which occurred on February 17, 2026. Following consultation, the Muwekma Ohlone Tribe, Inc., formally requested continued tribal consultation under Section 106 for this housing project. Based on Partner's professional assessment (given the extent of planned subsurface excavation), and with agreement from both the Developer and the Tribe, it was understood that cultural sensitivity training for construction personnel and on-site monitoring during all ground-disturbing activities would be as set forth in the Mitigation Measures. On November 19, 2025, the Indian Canyon Band of Costanoan Ohlone People stated the APE overlaps or is near a potentially eligible cultural site and requested archaeological monitoring with the presence of a Native American Monitor; the County responded on January 16, 2026, summarizing archaeological findings, with no further tribal reply to date. No responses were received from local historical organizations, including the South San Francisco Historical Society
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		and San Mateo County Historical Association. In its review, SHPO acknowledged tribes' specialized expertise and requested the County summarize any tribal feedback which was submitted on March 18, 2026. However SHPO stated that, based on submitted documentation and under 36 CFR 800.4(d), it had no objection to the County's finding of No Historic Properties Affected and concurred that the undertaking results in No Adverse Effect, imposing no conditions.
Noise Abatement and Control Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR Part 51 Subpart B	☐ Yes ☐ No	A Noise Assessment was conducted. The noise level was normally unacceptable: 69.0 db. See noise analysis. A total 10-year day-night sound level (DNL) was calculated for multiple noise assessment locations (NALs), as depicted on the attached information, combining roadways with available traffic data within 1,000 feet; railways within 3,000-feet; and airports/military airfields within a 15-mile radius of the subject property, where applicable. A total of six (6) NALs were assessed: NAL 1 (North Building): 69 dB; NAL 2 (South Building): 69 dB; NAL 3 (North Building courtyard): 58 dB, NAL 4 (South Building courtyard): 58 dB; NAL 5 (North Building roof deck): 69 dB; and NAL 6 (North Building roof deck): 69 dB. With respect to NALs 1 and 2, mitigation will be implemented with the completion of a STraCAT. Noise levels were calculated to be "Normally Unacceptable", per HUD guidelines. As such, because there are noise levels for the proposed onsite buildings with noise levels greater than 65dB and less than 76dB. Partner performed a STraCAT analysis, in general accordance with the United States Department of Housing and Urban Development (HUD) guidelines and STraCAT Users Guide, dated 2010, v1.0. Based on the results of the STraCAT, the exterior envelope

		construction as depicted in the Drawings is likely to conform to HUD's requirements for required sound attenuation. The project is in compliance with HUD's Noise regulation with mitigation.
Sole Source Aquifers Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR Part 149	☐ Yes ☐ No	The project is not located on a sole source aquifer area. Based on a review of the Designated Sole Source Aquifers National Map, published by the USEPA, the subject property is not located in a sole source aquifer recharge area. The water supply for the subject property is tied into the public utilities; therefore, it does not impact existing groundwater conditions. The project is in compliance with Sole Source Aquifer requirements.
Wetlands Protection Executive Order 11990, particularly sections 2 and 5	☐ Yes ☐ No	The project will not impact on- or off-site wetlands. According to the U.S. Fish & Wildlife Service National Wetlands Inventory website, there are no federally regulated wetlands located on or adjacent to the subject property. The subject property is an existing commercial facility with plans to redevelop with a multifamily facility. The project is in compliance with Executive Order 11990.
Wild and Scenic Rivers Act Wild and Scenic Rivers Act of 1968, particularly section 7(b) and (c)	☐ Yes ☐ No	This project is not within proximity of a NWSRS river. The subject property is not located within a one-mile radius of a designated Wild and Scenic River. Therefore, consultation review by the National Park Service is not required. The Wild and Scenic Rivers Act protects selected rivers in a free-flowing condition and prohibits federal support for activities that would harm a designated river's free-flowing condition, water quality or outstanding resource values. The project is in compliance with the Wild and Scenic Rivers Act.
HUD HOUSING ENVIRONMENTAL STANDARDS		

ENVIRONMENTAL JUSTICE		
Environmental Justice Executive Order 12898	☐ Yes ☐ No	No adverse environmental impacts were identified in the project's total environmental review. Executive Order 14173 - Ending Illegal Discrimination and Restoring Merit-Based Opportunity was released on January 21, 2025 and effectively rescinded Executive Order 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, dated February 11, 1994. As such, an evaluation of Environmental Justice is no longer warranted. The subject property is not located within an Opportunity Zone. The project is in compliance with Executive Order 12898.

Environmental Assessment Factors [24 CFR 58.40; Ref. 40 CFR 1508.8 &1508.27]

Impact Codes: An impact code from the following list has been used to make the determination of impact for each factor.

- (1) Minor beneficial impact
- (2) No impact anticipated
- (3) Minor Adverse Impact – May require mitigation
- (4) Significant or potentially significant impact requiring avoidance or modification which may require an Environmental Impact Statement.

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
LAND DEVELOPMENT			
Conformance with Plans / Compatible Land Use and Zoning / Scale and Urban Design	2	The subject property at 500 Linden Avenue is zoned DTC for Downtown Transit Core development and the parking lot is zoned LNC for Linden Neighborhood Center development by the City of South San Francisco. The subject property is currently developed with a commercial structure,	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		formerly used as a bank on 0.96-acres of land. The subject property is planned for development with two 6-story multi-family buildings. In addition to the proposed structure, the subject property will also be improved with courtyard, a meditation corner, bee garden, community patio, exercise garden, healing garden, quiet corner, and BBQ area, and landscaping.	
Soil Suitability / Slope/ Erosion / Drainage and Storm Water Runoff	2	Based on information obtained from the United States Department of Agriculture (USDA) Natural Resources Conservation Service Web Soil Survey online database, the subject property is mapped as Urban land and Urban land-Orthents. The Urban land-Orthents and Urban land series consists of well drained soils. The parent material is derived from alluvium. These soils are found on alluvial fans and marine terraces with slopes ranging from 0 to 5 percent. Additionally, Urban Land complex consists of soils in which the soils original structure and content have been so altered by human activities it has lost its original characteristics and is thus unidentifiable. Buildings and pavement typically cover more than 85 percent of the surface. Most areas are nearly level to gently sloping because of extensive grading and smoothing percent. According to the	The project shall obtain a Construction General Permit from the State Water Resources Control Board. The project shall comply with all conditions of the Construction General Permit, including preparation and implementation of a Storm Water Pollution Prevention Plan. The project shall comply with the County Post-Construction Standards, consistent with the County of San Mateo Code of Ordinances.

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		California Geological Survey Note 36- California Geomorphic Provinces, the subject property is located in the Coastal Range geomorphic province of California. The Coast Ranges are northwest-trending mountain ranges (2,000 to 4,000, occasionally 6,000 feet elevation above sea level), and valleys. The ranges and valleys trend northwest, subparallel to the San Andreas Fault. Strata dip beneath alluvium of the Great Valley. To the west is the Pacific Ocean. The coastline is uplifted, terraced and wave-cut. The Coast Ranges are composed of thick Mesozoic and Cenozoic sedimentary strata. The northern and southern ranges are separated by a depression containing the San Francisco Bay. The northern Coast Ranges are dominated by irregular, knobby, landslide-topography of the Franciscan Complex. The eastern border is characterized by strike-ridges and valleys in Upper Mesozoic strata. In several areas, Franciscan rocks are overlain by volcanic cones and flows of the Quien Sabe, Sonoma and Clear Lake volcanic fields. The Coast Ranges are subparallel to the active San Andreas Fault. The San Andreas is more than 600 miles long, extending from Pt. Arena to the Gulf of California. West of the San Andreas is the Salinian Block, a granitic core extending from the southern extremity of	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		the Coast Ranges to the north of the Farallon Islands. According to the contour lines on the topographic map, the subject property is located at approximately 39 feet above mean sea level (MSL). The contour lines in the area of the subject property indicate the area is sloping gently towards the south. Construction of the Proposed Project would involve grading and earth moving activities, as well as construction of project components. Construction would result in the temporary disturbance of soil and would expose disturbed areas to potential storm events. This exposure could generate accelerated runoff, localized erosion, and sedimentation. Construction activities could exacerbate soil erosion and result in the loss of topsoil. However, the Proposed Project would be required to obtain coverage under the National Pollutant Discharge Elimination System Construction General Permit, which requires preparation of a Stormwater Pollution Prevention Plan (SWPPP) and implementation of construction best management practices. This includes limiting ground disturbance areas, restoring disturbed areas to pre-construction contours, erosion control measures, and revegetation.	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
Hazards and Nuisances including Site Safety and Site-Generated Noise	2	The subject property is not expected to be a noise generator and will be used for residential use. Additionally, a Noise Assessment was conducted for the subject property. The noise levels calculated for the 10-year calculations were in the range of "acceptable": 58.0 dB, and "normally unacceptable": 69.0. See noise analysis. Mitigation will include completion of the HUD Sound Transmission Classification Assessment Tool (STraCAT) for the subject property buildings, and a Noise Operations and Maintenance Plan for exterior gathering areas. Based on the results of the STraCAT, the exterior envelope construction as depicted in the Drawings is likely to conform to HUD's requirements for required sound attenuation. No additional known natural hazards will likely affect the subject property. Natural hazards include but are not limited to: faults/fractures, cliffs, bluffs, crevices, slope failure from rains, unprotected water bodies, fire hazard materials, wind/sand storm concerns, poisonous plants/insects/animals, or hazardous terrain features. No built hazards were identified during the field reconnaissance. According to online information, no fracking activities are conducted on or adjacent to the subject property at this time, and no oil and gas wells are located	Based on the proposed development activities, radon mitigation may be warranted as part of the new construction activities. Partner performed radon sampling activities at the subject property. The testing was conducted in general accordance with the American National Standards Institute and American Association of Radon Scientists and Technologists (ANSI/AARST) Protocol for Conducting Measurements of Radon and Radon Decay Products in Multifamily, School, Commercial and Multi-Use Buildings (MA-MFLB-2023), or successor ANSI/AARST standard and any applicable state requirements. Although all measured radon concentrations were below EPA action level, testing was not conducted under normal occupied conditions. Thus, the following is recommended: Re-Testing prior to occupancy - retesting the subject building(s) prior to occupancy.

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		within one-mile of the subject property. The subject property is not located within the fall distance of a high voltage power transmission tower, or other tower. According to the online information and site reconnaissance, there is one active natural gas pipeline (Pipeline ID DF3265), located approximately 570-feet (0.11-miles) to the east, and operated by Pacific Gas & Electric Co., and one active Non-HVL product (petroleum) pipeline (Pipeline ID 485038BTSE), located approximately 1,119-feet (0.21-miles) to the southeast and operated by SFPP, LP. According to PG&E, Pipeline ID DF3265 contains natural gas, has a diameter of 24 inches, and a maximum allowable operating pressure of 145 pounds per square inch (PSI). According to the MAP Guide on Acceptable Separation Distance and Pipelines Fact Sheet (March 2023), pipelines that have a pressure under 200 PSI are considered to be "exempt" from pipeline hazards. Therefore, no further action pertaining to Pipeline ID DF3265 is warranted. Based on HUD's ASD information, Pipeline ID 485038BTSE is not considered to be a hazard. See attachment for additional detail on pipelines. Review of the EPA Radon Zone Map, the subject property is located within radon zone two. Based on the proposed	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		development activities, radon mitigation may be warranted as part of the new construction activities. Per HUD guidelines, radon mitigation activities are required to be implemented during the construction phase of the subject property per CC-1000 (latest edition), Soil Gas Control Systems in New Construction of Buildings. The guidelines require soil gas control for all portions of the foundation system and post-construction testing will be required by a licensed, radon professional.	
SOCIOECONOMIC			
Employment and Income Patterns	2	South San Francisco is located in the U.S. state of California. It is located in San Mateo County, just outside of San Francisco metro area. As of the 2023 census, the population was estimated to be 66,185. This property will have no adverse impact on employment and income patterns in the area. The median age was 42.3 and the median household income was \$127,062. The population declined from 2021 to 2023 from 66,331 to 65,596 at a rate of - 1.11%. The medium income grew from \$112,818 to \$127,062, a 12.6% increase. The 2023 poverty rate for South San Francisco was 7.1%, a 4.83% increase from the prior year. The development will be utilizing commercial/industrial land and converting it to multi-family	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		residential use, and will not displace any existing persons.	
Demographic Character Changes / Displacement	2	As of the 2023 census, the population was estimated to be 66,185. The racial makeup of South San Francisco in 2023 was 43% Asian, 29% Hispanic, and 22% White. 51.9% of the people in South San Francisco, CA speak a non-English language, and 88.9% are U.S. citizens. There were 21,803 households, out of which 32.7% included children under the age of 18, 51.9% were married-couple households, 6.4% were cohabiting couple households, 25.2% had a female householder with no partner present, and 16.5% had a male householder with no partner present. 20.1% of households were one person, and 9.3% were one person aged 65 or older. The average household size was 3.01. There were 15,803 families (72.5% of all households). The age distribution was 18.6% under the age of 18, 7.9% aged 18 to 24, 30.2% aged 25 to 44, 26.1% aged 45 to 64, and 17.1% who were 65 years of age or older. The median age was 40.2 years. For every 100 females, there were 97.7 males.	
Environmental Justice EA Factor	1	Environmental Justice Factors were discussed earlier in this report.	
COMMUNITY FACILITIES AND SERVICES			
Educational and Cultural Facilities (Access and Capacity)	2	South San Francisco is part of the South San Francisco Unified School District. The city is home to two public high schools: El	The project is not expected to substantially increase the numbers of students attending the

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		Camino High School and South San Francisco High School. The city also has three public middle schools: Parkway Heights, Westborough, and Alta Loma, as well as public elementary schools, including: Buri-Buri, Junipero Serra (located in Daly City), Los Cerritos, Martin, Monte Verde (in San Bruno), Ponderosa, Skyline (in Daly City), Spruce, and Sunshine Gardens. The South San Francisco Unified School District currently has a total capacity of 9,571 students across its elementary, middle, and high schools. Enrollment is projected to remain below capacity through 2030-31, with overall utilization decreasing from 82% in 2024-25 to 78% by 2030-31. While most schools will operate under capacity, a few--such as Los Cerritos Elementary and Parkway Heights Middle School--are expected to exceed their capacity due to nearby residential development. The nearest public schools to 500 Linden Avenue in South San Francisco include Los Cerritos Elementary School, Alta Loma Middle School, and South San Francisco High School, all part of the South San Francisco Unified School District. These schools serve students from kindergarten through 12th grade and are located within a short distance of the address.	schools in such a way as to create overcrowding. Safe walking routes to nearby schools appear adequate.

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
Commercial Facilities (Access and Proximity)	2	Multiple commercial facilities such as restaurants, retail businesses, and gas stations are located within a short walk. Several convenience stores, fast-food chains, and restaurants are located less than a quarter mile to the north. Additional restaurants, shopping centers, grocery stores, and other amenities are located within a 1-mile radius of the subject property. The subject property is not displacing any retail or medical services to the community.	
Health Care / Social Services (Access and Capacity)	2	The Kaiser Permanente South San Francisco Medical Center and Emergency Department is located approximately 1.7 miles to the west. Social services including mental health counselling, family support and respite services, employment services, and other disability services are offered at nearby facilities.	
Solid Waste Disposal and Recycling (Feasibility and Capacity)	2	The project will involve demolition waste and construction waste. The finished project will output household type waste. Solid waste disposal and recycling services are provided by an adequate and acceptable municipal system provided by independent solid waste disposal contractors. San Mateo County manages its solid waste through a network of facilities that includes one active landfill--Ox Mountain in Half Moon Bay--and several transfer	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		and material recovery facilities (MRFs) located in Pescadero, San Bruno, San Carlos, and South San Francisco. Ox Mountain is a Class III municipal solid waste landfill that accepts all non-hazardous waste and serves as the county's primary disposal site. In addition to the landfill, the county operates four major transfer/MRFs and one anaerobic digestion facility, which help divert recyclable and organic materials from landfills. As of 2025, the county continues to monitor and regulate these facilities to ensure compliance with state and local standards. While specific tonnage capacity figures for Ox Mountain are not publicly detailed in the latest updates, the county emphasizes waste diversion through recycling, composting, and organics recovery programs to extend landfill life and reduce environmental impact. Therefore, this project will have no negative impact to solid waste disposal and recycling efforts in San Mateo County	
Waste Water and Sanitary Sewers (Feasibility and Capacity)	2	The subject property is currently connected to the city sanitary sewer. Waste water and sanitary sewers are provided by an adequate and acceptable municipal system provided by the City of South San Francisco. Onsite stormwater will drain to the sanitary sewer system. San Mateo County has made significant investments in its	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		water and wastewater infrastructure to ensure long-term sustainability, resilience, and regulatory compliance. The centerpiece of these efforts is the recently completed \$597 million upgrade to the San Mateo Wastewater Treatment Plant--the largest infrastructure project in the county's history. This state-of-the-art facility now has the capacity to treat up to 78 million gallons of wastewater per day, helping to prevent sewer overflows during heavy storms and improving water quality in the San Francisco Bay. The Clean Water Program, which includes this plant and other system-wide improvements, serves over 170,000 residents across San Mateo, Foster City, Hillsborough, Belmont, and nearby unincorporated areas. It features advanced treatment technologies, expanded wet weather capacity, and infrastructure upgrades such as new headworks, clarifiers, and nutrient removal systems. These enhancements not only meet current environmental standards but also support future water reuse opportunities and climate resilience goals.	
Water Supply (Feasibility and Capacity)	2	According to available information, a public water system operated by the California Water Service (Cal Water) serves the subject property vicinity. The sources of public water for South San	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		Francisco are purchased water from the San Francisco Public Utilities Commission (SFPUC). The sources of public water for the SFPUC are surface water from the Hetch Hetchy Reservoir located in the Tuolumne River Water Basin, which collects snowmelt in the Sierra Nevada Mountains. According to the 2024 Annual Water Quality Report, water supplied to the subject property is in compliance with all State and Federal regulations pertaining to drinking water standards, including lead and copper. Water sampling was not conducted to verify water quality.	
Public Safety - Police, Fire and Emergency Medical	2	Police, fire, and emergency services are all located within a 10 minute response time. The closest fire station is located 0.6-mile to the southwest, the closest police station is located 1.3-miles to the northwest, and the closest hospital and emergency room (Kaiser) is located 1.7-miles to the west of the subject property. The nearest fire station is South San Francisco Fire Station 61, located at 480 North Canal Street, which is approximately 0.3 miles away--a short 2-minute drive or a 6-minute walk. For police services, the South San Francisco Police Department is located at 33 Arroyo Drive, about 1.2 miles from 500 Linden Avenue, which translates to roughly a 5-minute drive. This proximity to	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		emergency services ensures timely response and enhanced safety for residents and developments in the area.	
Parks, Open Space and Recreation (Access and Capacity)	2	Several city parks are located in close proximity to the subject property. Several other cultural centers are located in close proximity and are accessible by either car or public transportation. 500 Linden Avenue in South San Francisco is located in proximity to a variety of public parks, open spaces, and recreational amenities that support community health, wellness, and environmental quality. A new public park is currently under development at the intersection of Linden Avenue and Pine Avenue, directly adjacent to the site, and is designed to provide accessible green space, pedestrian connectivity, and recreational features based on community input. Within a one-mile radius, Orange Memorial Park serves as the primary regional recreational facility, offering a full range of amenities including athletic fields, a swimming pool, tennis courts, a sculpture garden, and picnic areas. Additional nearby parks include Sign Hill Park, which provides natural open space and hiking trails with panoramic views; Paradise Valley Park and Alta Loma Park, which offer playgrounds and passive recreation areas; and Centennial Way Trail, a multi-use corridor	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		that connects several parks and includes a dog park, skate park, and pollinator garden. These facilities collectively contribute to a robust network of recreational and open space resources accessible to residents and future occupants of the 500 Linden Avenue development.	
Transportation and Accessibility (Access and Capacity)	2	Various options for public transportation are available in the area. South San Francisco is located near the San Francisco International Airport. The San Francisco metro area is served by the Bay Area Rapid Transit (BART). BART serves 50 stations along six routes and 131 miles (211 kilometers) of track. A South City Shuttle provides service between South San Francisco BART and the city's downtown. South San Francisco also has stops along the Caltrain, a California commuter rail line which serves the San Francisco Peninsula and Santa Clara Valley. South San Francisco also has a ferry terminal with access to the San Francisco Bay Ferry, a public transit passenger ferry service in the San Francisco Bay, administered by the San Francisco Bay Area Water Emergency Transportation Authority (WETA).	
NATURAL FEATURES			
Unique Natural Features /Water Resources	2	The property has no unique or natural features. The subject property is currently developed with commercial use. The subject property is connected to the city	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		municipal supply for water. The planned uses of the subject property will be multi-family residential and surface water runoff is not anticipated to generate significant pollutants to the surrounding area.	
Vegetation / Wildlife (Introduction, Modification, Removal, Disruption, etc.)	2	The property is located within the city limits of South San Francisco among other commercial and residentially developed areas. The subject property is developed with commercial property and paved parking lots with manicured landscaping including grassy lawns and sporadic trees and low-lying vegetation. Partner reviewed the U.S. Fish & Wildlife Service (USFW) Planning and Conservation (IPaC) database for threatened and endangered species and critical habitats for the project area. A summary of the IPaC database indicates eleven endangered, three threatened, two proposed threatened, and no critical habitats are within the project area. Endangered species were discussed further earlier in the Endangered species section of the report.	
Other Factors 1	1	No other factors	
Other Factors 2	1	No other factors	
CLIMATE AND ENERGY			
Climate Change	2	Executive Order 14148 - Initial Rescissions of Harmful Executive Orders and Actions was released on January 20, 2025 and effectively rescinded Executive Order 14008 - Tackling the	

Environmental Assessment Factor	Impact Code	Impact Evaluation	Mitigation
		Climate Crisis at Home and Abroad, dated January 27, 2021. As such, an evaluation of Climate Change is no longer warranted.	
Energy Efficiency	2	Based on 2015 information from the Energy Information Administration, the estimated amount of energy consumption by the proposed multifamily structure would be approximately 1.3 billion BTU annually. The average consumption per unit, 26.6 million BTU, is significantly less than for single-family residences, duplexes, four-plexes, and mobile homes. The energy provider, PG&E, has adequate resources to supply the project. The project site is in the vicinity of the South San Francisco Caltrain station. Therefore, gasoline consumption by project residents is expected to not be substantial. The Project would meet current state and local codes concerning energy consumption, including Title 24 of the California Code of Regulations. The residential development would not have a substantial effect on the use, extraction, or depletion of a natural resource.	The subject property will be developed to meet a nationally recognized green building standard. Energy efficient mechanical systems and light fixtures will be used at the site to minimize utility consumption.

Supporting documentation[San Mateo Housing Report.pdf](#)[SMC GP Policies 2013.pdf](#)[FacilitiesMasterPlanPresentation62322.pdf](#)[Electric Transmission Lines Map.pdf](#)[Fire Station Map.pdf](#)[Executive Order 14148 Climate Change.pdf](#)

[CA State Parks.pdf](#)
[2024 Water Quality Report.pdf](#)
[11 Bay Area Rapid Transit BART Map.pdf](#)
[Zoning Map of South San Francisco.pdf](#)
[Walk Score 500 Linden Avenue South San Francisco CA.pdf](#)
[Soil Map.pdf](#)
[Social Services Map.pdf](#)
[School Map.pdf](#)
[Police Station Map.pdf](#)
[Park Map.pdf](#)
[Hospital Map.pdf](#)

Additional Studies Performed:

Phase I Environmental Site Assessment prepared by Partner Engineering and Science, Inc., dated October 2025. USFWS Information for Planning and Consultation (IPaC)/Official Species List Endangered Species Regulatory Review

Field Inspection [Optional]: Date and completed

by:

Kenny Mort, Assessor, Partner ESI

10/15/2025 12:00:00 AM

[Photo Log.pdf](#)

List of Sources, Agencies and Persons Consulted [40 CFR 1508.9(b)]:

National/State: Coastal Barrier Resource Map, U.S Fish & Wildlife Service (FWS), FEMA - Flood Zone Map USEPA, State Planning Electronic Collaboration System (SPeCS) for SIPs, California Coastal Commission, U.S. Fish and Wildlife Service (FWS) Endangered Species, U.S. Dept. of Agriculture (USDA), Natural Resources Conservation Service (NRCS), Farmland Classification Map, USDA Soil Survey ISGS, ArcGIS USA Urban Areas, EPA Sole Source Aquifer Map, U.S. FWS, National Wetlands Inventory (NWI) map, National Wild and Scenic Rivers System, Environmental Protection Agency (EPA) "EJ Screen" Tool, EPA Cleanups in My Community Map, FracTracker Alliance California Map, National Pipeline Mapping System (NPMS), Homeland Infrastructure Foundation Level Database Transmission Lines, Map of radon Zones, Pipeline Association for Public Awareness, FEMA National Risk Index Map, United States Geological Survey (USGS) Topographic Maps Local: City of South San Francisco, City of South San Francisco Public Works, California State Parks, etc. San Mateo County General Plan Policies (Updated January 2013) San Mateo County Affordable Housing Needs Report 2025 South San Francisco Unified School District Long Range Facility Master Plan 2022

List of Permits Obtained:

Permits, reviews and approvals required for construction activities will be issued by local, city/county and state regulatory agencies with implementation by project contractor and oversight by engineer/architect.

Public Outreach [24 CFR 58.43]:

In the course of conducting this environmental compliance review, any public outreach will be documented in the appropriate review section and uploaded hereto. Upon acceptance by the HUD Certifying Official, the FONSI will be posted on a publicly available website for one year at:
<https://www.hudexchange.info/programs/environmental?review/environmental?review-records>

Cumulative Impact Analysis [24 CFR 58.32]:

The proposed transaction will allow for the redevelopment of the Liberty Bank site into a multi-family residential property. No significant impacts to the environmental were encountered during the research of this project.

Alternatives [24 CFR 58.40(e); 40 CFR 1508.9]

No Action Alternative [24 CFR 58.40(e)]

The "no action" alternative was considered; however, no action would not meet the demand for additional housing for the community. Additionally, the site is already developed for commercial use and redevelopment of the site would not negatively impact the area.

Summary of Findings and Conclusions:

The project site was thoroughly evaluated for any environmental conditions that might pose a threat, and under certain conditions, it is determined to be appropriate for the proposed project. The environmental review has determined that the development will have a beneficial impact overall on the community.

Mitigation Measures and Conditions [CFR 1505.2(c)]:

Summarized below are all mitigation measures adopted by the Responsible Entity to reduce, avoid or eliminate adverse environmental impacts and to avoid non-compliance or non-conformance with the above-listed authorities and factors. These measures/conditions must be incorporated into project contracts, development agreements and other relevant documents. The staff responsible for implementing and monitoring mitigation measures should be clearly identified in the mitigation plan.

Law, Authority, or Factor	Mitigation Measure or Condition	Comments on Completed Measures	Mitigation Plan	Complete
Noise Abatement and Control	Based on the results of the STraCAT, the exterior envelope construction as depicted in the Drawings is likely to conform to HUD's requirements for required sound attenuation. No further action regarding noise at the subject property is warranted at this time.	N/A		
Soil Suitability / Slope/ Erosion / Drainage and Storm Water Runoff	The project shall obtain a Construction General Permit from the State Water Resources Control Board. The project shall comply with all conditions of the Construction General Permit, including preparation and implementation of a Storm Water Pollution Prevention Plan. The project shall comply with the County Post-Construction Standards, consistent with the County of San Mateo Code of Ordinances.	N/A	Refer to guidelines in the construction stormwater permit.	
Hazards and Nuisances including Site Safety and Site- Generated Noise	Based on the proposed development activities, radon mitigation may be warranted as part of the new construction activities. Partner performed radon sampling activities at the subject property. The testing was conducted in general accordance with the American National Standards Institute and American Association of Radon Scientists and Technologists (ANSI/AARST) Protocol for Conducting Measurements of Radon and Radon Decay Products in Multifamily, School, Commercial and Multi-Use	N/A		

	Buildings (MA-MFLB-2023), or successor ANSI/AARST standard and any applicable state requirements. Although all measured radon concentrations were below EPA action level, testing was not conducted under normal occupied conditions. Thus, the following is recommended: Re-Testing prior to occupancy - retesting the subject building(s) prior to occupancy.			
Educational and Cultural Facilities (Access and Capacity)	The project is not expected to substantially increase the numbers of students attending the schools in such a way as to create overcrowding. Safe walking routes to nearby schools appear adequate.	N/A		
Energy Efficiency	The subject property will be developed to meet a nationally recognized green building standard. Energy efficient mechanical systems and light fixtures will be used at the site to minimize utility consumption.	N/A		
Contamination and Toxic Substances- Multifamily and Nonresidential Properties	Partner recommends that all identified ACMs be managed and removed in compliance with local, state, and federal regulations. Additionally, if any suspect ACMs not addressed in this report are encountered during demolition, work must cease immediately until further sampling and laboratory analysis are completed. Partner recommends confirming and properly removing all identified universal wastes prior to renovation or demolition, following federal, state, and local regulations for packaging, transport, and disposal. PCB-	N/A		

	containing caulking should be removed by trained personnel using protective measures and managed as PCB bulk product waste.			
Historic Preservation	Partner is preparing an Archaeology Treatment and Monitoring Plan to guide these measures. As the Responsible Entity, the County will require that earth-moving crews receive cultural sensitivity training and that a qualified archaeologist, along with any Muwekma Ohlone Tribal representative choosing to participate, be present during subsurface work to assess potential disturbances to native soils and monitor for archaeological or historic resources. If potential archaeological materials are encountered, all soil-disturbing activity must cease in the affected area until a qualified archaeologist evaluates the find pursuant to Section 106 of the National Historic Preservation Act (36 CFR 60.4). If human remains are discovered, work must halt until the County Coroner conducts an assessment, and if the remains are determined to be Native American, the Coroner will notify the Native American Heritage Commission and all required procedures will be followed.	N/A		

Project Mitigation Plan

See mitigation plans outlined above.

Supporting documentation on completed measures

APPENDIX A: Related Federal Laws and Authorities

Airport Hazards

General policy	Legislation	Regulation
It is HUD's policy to apply standards to prevent incompatible development around civil airports and military airfields.		24 CFR Part 51 Subpart D

1. To ensure compatible land use development, you must determine your site's proximity to civil and military airports. Is your project within 15,000 feet of a military airport or 2,500 feet of a civilian airport?

✓ No

Based on the response, the review is in compliance with this section. Document and upload the map showing that the site is not within the applicable distances to a military or civilian airport below

Yes

Screen Summary

Compliance Determination

The project site is not within 15,000 feet of a military airport or 2,500 feet of a civilian airport. The closest runway of the San Francisco International Airport is located approximately two miles to the southeast of the subject property. According to operational statistics documented for San Francisco International Airport, less than 1% of operations conducted at the airport are for military operations. This airport is therefore not considered to be a military airport. The project is in compliance with Airport Hazards requirements.

Supporting documentation

[Aug 2025 and CYTD SFO Air Traffic Summary.pdf](#)

[Airport Map 15000 ft radius.pdf](#)

[Airport Map 2500 ft radius.pdf](#)

Are formal compliance steps or mitigation required?

Yes

Liberty-Bank,-aka-Rotary-
Gardens

South San Francisco, CA

900000010504179

No

Coastal Barrier Resources

General requirements	Legislation	Regulation
HUD financial assistance may not be used for most activities in units of the Coastal Barrier Resources System (CBRS). See 16 USC 3504 for limitations on federal expenditures affecting the CBRS.	Coastal Barrier Resources Act (CBRA) of 1982, as amended by the Coastal Barrier Improvement Act of 1990 (16 USC 3501)	

This project is located in a state that does not contain CBRA units. Therefore, this project is in compliance with the Coastal Barrier Resources Act.

Compliance Determination

This project is located in a state that does not contain CBRS units. Therefore, this project is in compliance with the Coastal Barrier Resources Act.

Supporting documentation

[Coastal Barrier Map.pdf](#)

Are formal compliance steps or mitigation required?

Yes

No

Flood Insurance

General requirements	Legislation	Regulation
Certain types of federal financial assistance may not be used in floodplains unless the community participates in National Flood Insurance Program and flood insurance is both obtained and maintained.	Flood Disaster Protection Act of 1973 as amended (42 USC 4001-4128)	24 CFR 50.4(b)(1) and 24 CFR 58.6(a) and (b); 24 CFR 55.1(b).

1. Does this project involve financial assistance for construction, rehabilitation, or acquisition of a mobile home, building, or insurable personal property?

No. This project does not require flood insurance or is excepted from flood insurance.

✓ Yes

2. Upload a FEMA/FIRM map showing the site here:

[FEMA Map.pdf](#)

The Federal Emergency Management Agency (FEMA) designates floodplains. The [FEMA Map Service Center](#) provides this information in the form of FEMA Flood Insurance Rate Maps (FIRMs). For projects in areas not mapped by FEMA, use the best available information to determine floodplain information. Include documentation, including a discussion of why this is the best available information for the site. Provide FEMA/FIRM floodplain zone designation, panel number, and date within your documentation.

Is the structure, part of the structure, or insurable property located in a FEMA-designated Special Flood Hazard Area?

✓ No

Based on the response, the review is in compliance with this section.

Yes

4. While flood insurance is not mandatory for this project, HUD strongly recommends that all insurable structures maintain flood insurance under the National Flood Insurance Program (NFIP). Will flood insurance be required as a mitigation measure or condition?

Yes

✓ No

Screen Summary

Compliance Determination

The structure or insurable property is not located in a FEMA-designated Special Flood Hazard Area. While flood insurance may not be mandatory in this instance, HUD recommends that all insurable structures maintain flood insurance under the National Flood Insurance Program (NFIP). According to Community Panel Number 06081C0041E, dated October 16, 2012, the subject property is not located within a Special Flood Hazard Area (SFHA). A Letter of Map Revision was issued in September 2013. The LOMR affected four (4) FEMA FIRM panels, one of which was the subject property Community Panel (ending in 0041E, dated 2012). This did not change the flood zone of the subject property but addressed the flooding sources. The subject property appears to be located in Unshaded Flood Zone X, defined as "areas determined to be outside the 0.2% annual chance floodplain". Based on the review of the online NFIP information, the city and county are active participants within the NFIP. The community identification numbers are as follows: city CID is 065062D and county CID is 060311D. The project is in compliance with flood insurance requirements.

Supporting documentation

[Community status book report for state CA extracted pages.pdf](#)

Are formal compliance steps or mitigation required?

Yes

No

Air Quality

General requirements	Legislation	Regulation
The Clean Air Act is administered by the U.S. Environmental Protection Agency (EPA), which sets national standards on ambient pollutants. In addition, the Clean Air Act is administered by States, which must develop State Implementation Plans (SIPs) to regulate their state air quality. Projects funded by HUD must demonstrate that they conform to the appropriate SIP.	Clean Air Act (42 USC 7401 et seq.) as amended particularly Section 176(c) and (d) (42 USC 7506(c) and (d))	40 CFR Parts 6, 51 and 93

1. Does your project include new construction or conversion of land use facilitating the development of public, commercial, or industrial facilities OR five or more dwelling units?

✓ Yes

No

Air Quality Attainment Status of Project's County or Air Quality Management District

2. Is your project's air quality management district or county in non-attainment or maintenance status for any criteria pollutants?

No, project's county or air quality management district is in attainment status for all criteria pollutants.

✓ Yes, project's management district or county is in non-attainment or maintenance status for the following criteria pollutants (check all that apply):

✓ Carbon Monoxide

Lead

Nitrogen dioxide

Sulfur dioxide

- ✓ Ozone
- ✓ Particulate Matter, <2.5 microns
- Particulate Matter, <10 microns

3. What are the *de minimis* emissions levels (40 CFR 93.153) or screening levels for the non-attainment or maintenance level pollutants indicated above

Carbon monoxide	1.70	ppm (parts per million)
Ozone	0.07	ppb (parts per million)
Particulate Matter, <2.5 microns	36.00	µg/m3 (micrograms per cubic meter of air)

Provide your source used to determine levels here:

US EPA

4. Determine the estimated emissions levels of your project. Will your project exceed any of the *de minimis* or threshold emissions levels of non-attainment and maintenance level pollutants or exceed the screening levels established by the state or air quality management district?

- ✓ No, the project will not exceed *de minimis* or threshold emissions levels or screening levels.

Enter the estimate emission levels:

Carbon monoxide	0.00	ppm (parts per million)
Ozone	0.00	ppb (parts per million)
Particulate Matter, <2.5 microns	0.00	µg/m3 (micrograms per cubic meter of air)

Based on the response, the review is in compliance with this section.

Yes, the project exceeds *de minimis* emissions levels or screening levels.

Screen Summary

Compliance Determination

The project's county or air quality management district is in non-attainment status for the following: Carbon monoxide, Ozone, Particulate Matter, <2.5 microns. This project

does not exceed de minimis emissions levels or the screening level established by the state or air quality management district for the pollutant(s) identified above. The subject property is an approximate 0.98-acre plot of land planned for residential development. No industrial uses are planned for the subject property, and development of the subject property will follow all municipal permitting requirements. Based on the proposed scope of work, the construction of the apartment buildings does not require any air permits because the project does not involve any stationary sources of air emissions, such as industrial equipment, manufacturing processes, or combustion systems that would typically trigger air quality permitting requirements, per the requirements of the Bay Area Air Quality Management District Permit Handbook. The proposed development consists of residential units with associated amenities like parking, community spaces, and landscaping, which are not considered significant sources of air pollutants under local or state air quality regulations. Additionally, any temporary emissions from construction activities (e.g., dust or equipment exhaust) are generally addressed through standard construction best management practices and do not necessitate a formal air permit. For comparison purposes, Partner reviewed other projects in California. Any construction projects that are similar to or smaller in size than the Fairfield Ranch Commons Project's or the Race Street Project's case in terms of duration, square footage and overall size, should not exceed the de minimis levels established by the state and therefore do not need to undergo a detailed conformity analysis. The proposed action is smaller than the Fairfield Ranch Commons and the Race Street and no additional action appears warranted at this time. Lastly, development of the proposed multifamily project will not result in emission levels of criteria pollutants, including de minimis level. The project is in compliance with the Clean Air Act.

Supporting documentation

[BAAQMD Permit Handbook.pdf](#)
[CA SIP.pdf](#)

Are formal compliance steps or mitigation required?

Yes

No

Coastal Zone Management Act

General requirements	Legislation	Regulation
Federal assistance to applicant agencies for activities affecting any coastal use or resource is granted only when such activities are consistent with federally approved State Coastal Zone Management Act Plans.	Coastal Zone Management Act (16 USC 1451-1464), particularly section 307(c) and (d) (16 USC 1456(c) and (d))	15 CFR Part 930

1. Is the project located in, or does it affect, a Coastal Zone as defined in your state Coastal Management Plan?

Yes

✓ No

Based on the response, the review is in compliance with this section. Document and upload all documents used to make your determination below.

Screen Summary

Compliance Determination

Partner reviewed the Coastal Zone Boundary Map for San Francisco County published by the California Coastal Commission; this project is not located in or does not affect a Coastal Zone as defined in the state Coastal Management Plan. The project is in compliance with the Coastal Zone Management Act.

Supporting documentation

[California Coastal Counties Map.pdf](#)
[CZM Map Panel 06CZB SanFrancisco.pdf](#)

Are formal compliance steps or mitigation required?

Yes

No

Contamination and Toxic Substances

General Requirements	Legislation	Regulations
It is HUD policy that all properties that are being proposed for use in HUD programs be free of hazardous materials, contamination, toxic chemicals and gases, and radioactive substances, where a hazard could affect the health and safety of the occupants or conflict with the intended utilization of the property.		24 CFR 58.5(i)(2) 24 CFR 50.3(i)
Reference		
https://www.onecpd.info/environmental-review/site-contamination		

1. How was site contamination evaluated?* Select all that apply.

☒ ASTM Phase I ESA

ASTM Phase II ESA

Remediation or clean-up plan

☒ ASTM Vapor Encroachment Screening.

None of the above

* HUD regulations at 24 CFR § 58.5(i)(2)(ii) require that the environmental review for multifamily housing with five or more dwelling units or non-residential property include the evaluation of previous uses of the site or other evidence of contamination on or near the site.

For acquisition and new construction of multifamily and nonresidential properties HUD strongly advises the review include an ASTM Phase I Environmental Site Assessment (ESA) to meet real estate transaction standards of due diligence and to help ensure compliance with HUD's toxic policy at 24 CFR §58.5(i) and 24 CFR §50.3(i). Also note that some HUD programs require an ASTM Phase I ESA.

2. Were any on-site or nearby toxic, hazardous, or radioactive substances* (excluding radon) found that could affect the health and safety of project occupants or conflict with the intended use of the property? (Were any recognized environmental conditions or RECs identified in a Phase I ESA and confirmed in a Phase II ESA?)

Provide a map or other documentation of absence or presence of contamination** and explain evaluation of site contamination in the Screen Summary at the bottom of this screen.

✓ No

Explain:

This assessment has revealed no evidence of RECs, CRECs, or HRECs in connection with the subject property. Based on the findings of the limited non-intrusive vapor screening, vapor intrusion is unlikely to be an issue of concern in connection with the existing structure on the subject property. As such, no further assessment is recommended.

Yes

* This question covers the presence of radioactive substances excluding radon. Radon is addressed in the Radon Exempt Question.

** Utilize EPA's Enviromapper, NEPAAssist, or state/tribal databases to identify nearby dumps, junk yards, landfills, hazardous waste sites, and industrial sites, including EPA National Priorities List Sites (Superfund sites), CERCLA or state-equivalent sites, RCRA Corrective Action sites with release(s) or suspected release(s) requiring clean-up action and/or further investigation. Additional supporting documentation may include other inspections and reports.

3. Evaluate the building(s) for radon. Do all buildings meet any of the exemptions* from having to consider radon in the contamination analysis listed in CPD Notice [CPD-23-103](#)?

✓ Yes

Explain:

The subject property is an existing commercial building that is planned to be demolished. Review of the EPA Radon Zone Map, the subject property is located within radon zone two. Based on the proposed development activities, radon mitigation may be warranted as part of the new construction activities. Partner performed radon sampling activities at the subject property. The testing was conducted in general accordance with the American National Standards Institute and American Association of Radon Scientists and Technologists (ANSI/AARST) Protocol for Conducting Measurements of Radon and Radon Decay Products in Multifamily, School, Commercial and Multi-Use Buildings (MA-MFLB-2023), or successor ANSI/AARST standard and any applicable state requirements. Although all measured radon concentrations were below EPA action level, testing was not conducted under normal occupied conditions. Thus, the following is recommended: Re-Testing prior to occupancy - retesting the subject building(s) prior to occupancy.

No

* Notes:

- Buildings with no enclosed areas having ground contact.
- Buildings containing crawlspaces, utility tunnels, or parking garages would not be exempt, however buildings built on piers would be exempt, provided that there is open air between the lowest floor of the building and the ground.
- Buildings that are not residential and will not be occupied for more than 4 hours per day.
- Buildings with existing radon mitigation systems - document radon levels are below 4 pCi/L with test results dated within two years of submitting the application for HUD assistance and document the system includes an ongoing maintenance plan that includes periodic testing to ensure the system continues to meet the current EPA recommended levels. If the project does not require an application, document test results dated within two years of the date the environmental review is certified. Refer to program office guidance to ensure compliance with program requirements.
- Buildings tested within five years of the submission of application for HUD assistance: test results document indoor radon levels are below current the EPA's recommended action levels of 4.0 pCi/L. For buildings with test data older than five years, any new environmental review must include a consideration of radon using one of the methods in Section A below.

Screen Summary

Compliance Determination

Site contamination was evaluated as follows: ASTM Phase I ESA, ASTM Vapor Encroachment Screening. On-site or nearby toxic, hazardous, or radioactive substances that could affect the health and safety of project occupants or conflict with the intended use of the property were not found. The project is exempt from radon consideration. According to online information, there are no fracking activities are conducted on or adjacent to the subject property at this time. Additionally, no oil or gas wells were located within close proximity of the subject property. A Pre-Demolition Survey for ACM and an ACM Operations and Management (O&M) Plan are being prepared concurrently with this report. A PCB Survey is also being prepared concurrently with this report. Results will be included herein upon completion. Partner conducted a Pre-Demolition Asbestos Survey at the subject property, in accordance with the NESHAP and ASTM E2356-18 standards. The survey identified several ACMs, including tan 12"x12" speckled floor tile with black mastic in the first-floor vault, teller, and customer service areas; tan 12"x12" floor tile with tan mastic in the first-floor conference room; brown floor joint vinyl with black adhesive in the teller area and electrical control room; and black/gray and white/gray roof penetration mastic on the main roof. Partner conducted a Hazardous Materials Survey and PCB testing at the subject property. The assessment included a visual inspection for regulated materials such as hydraulic lifts, mercury-containing equipment, fluorescent lamps and ballasts, PCB- and CFC-containing equipment, and other hazardous components, along with bulk sampling analyzed by EMSL Analytical using EPA Method 8082A. Observed universal wastes included

fluorescent lamp tubes, PCB-containing ballasts, radioactive emergency signs, mercury switches, CFC-containing HVAC compressors, batteries, e-waste, and fire extinguishers. Laboratory results confirmed PCB concentrations greater than 50 ppm in exterior floor joint caulking and wall seam caulking. The subject property was not identified in the regulatory database report. The adjacent properties were identified on various regulatory databases. However, based on the regulatory closures and/or the down-gradient flow of groundwater with respect to the subject property, the listings are not expected to represent a significant environmental concern. Based on the findings of the Tier I screen and VES, in accordance with the scope of work and limitations of ASTM Standard Practice E 2600-15, vapor intrusion can be ruled out because a VEC does not or is not likely to exist. As such, no further assessment is recommended. The project is in compliance with contamination and toxic substances requirements.

Supporting documentation

[Radon Survey Report Liberty Bank aka Rotary Gardens San Francisco CA 121725.pdf](#)

[Asbestos OM Plan Liberty Bank aka Rotary Gardens South San Francisco CA 112425.pdf](#)

[Hazardous Materials and PCB Survey Liberty Bank aka Rotary Gardens South San Francisco CA 120325.pdf](#)

[Pre Demolition Asbestos Survey Report Liberty Bank aka Rotary Gardens South San Francisco CA 112425.pdf](#)

[Phase I Report Rotary Gardens aka Liberty Bank San Francisco CA 1.pdf](#)

[Oil and Gas Wells in California 2025.pdf](#)

[CA Radon Map.pdf](#)

[VAPORR~1.PDF](#)

[ERIS Database Report.pdf](#)

Are formal compliance steps or mitigation required?

Yes

No

Endangered Species

General requirements	ESA Legislation	Regulations
Section 7 of the Endangered Species Act (ESA) mandates that federal agencies ensure that actions that they authorize, fund, or carry out shall not jeopardize the continued existence of federally listed plants and animals or result in the adverse modification or destruction of designated critical habitat. Where their actions may affect resources protected by the ESA, agencies must consult with the Fish and Wildlife Service and/or the National Marine Fisheries Service ("FWS" and "NMFS" or "the Services").	The Endangered Species Act of 1973 (16 U.S.C. 1531 <i>et seq.</i>); particularly section 7 (16 USC 1536).	50 CFR Part 402

1. Does the project involve any activities that have the potential to affect species or habitats?

No, the project will have No Effect due to the nature of the activities involved in the project.

No, the project will have No Effect based on a letter of understanding, memorandum of agreement, programmatic agreement, or checklist provided by local HUD office

- ✓ Yes, the activities involved in the project have the potential to affect species and/or habitats.

2. Are federally listed species or designated critical habitats present in the action area?

No, the project will have No Effect due to the absence of federally listed species and designated critical habitat

- ✓ Yes, there are federally listed species or designated critical habitats present in the action area.

3. What effects, if any, will your project have on federally listed species or designated critical habitat?

- ✓ No Effect: Based on the specifics of both the project and any federally listed species in the action area, you have determined that the project will have absolutely no effect on listed species or critical habitat. in the action area.

Document and upload all documents used to make your determination below. Documentation should include a species list and explanation of your conclusion, and may require maps, photographs, and surveys as appropriate

May Affect, Not Likely to Adversely Affect: Any effects that the project may have on federally listed species or critical habitats would be beneficial, discountable, or insignificant.

Likely to Adversely Affect: The project may have negative effects on one or more listed species or critical habitat.

6. For the project to be brought into compliance with this section, all adverse impacts must be mitigated. Explain in detail the exact measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation. This information will be automatically included in the Mitigation summary for the environmental review. If negative effects cannot be mitigated, cancel the project using the button at the bottom of this screen.

Mitigation as follows will be implemented:

- ✓ No mitigation is necessary.

Explain why mitigation will not be made here:

The subject property is an existing commercial facility and parking lot with limited landscaping, with plans for redevelopment. The current vegetation of the subject property consists of manicured lawns, hedges, and small trees planted along the edges of the subject property.

Screen
Compliance Determination

Summary

This project has been determined to have No Effect on listed species. A summary of the IPaC database indicates eleven endangered, three threatened, two proposed threatened, and no critical habitats are within the project area. A review of the database and species habitat information indicates no suitable habitat is present for the subject property at this time. As such, there is no potential for disturbance or effect to the listed species. The subject property is an existing commercial facility and parking lot with limited landscaping, with plans for redevelopment. The current vegetation of the subject property consists of manicured lawns, hedges, and small trees planted along the edges of the subject property. A detailed writeup of species habitats and potential to occur on the subject property is attached. Based on the review of USFWS Official Species List of threatened and endangered species, it is Partner's opinion that a No Effect Determination is applicable for the subject property and no additional action is warranted at this time. This project is in compliance with the Endangered Species Act without mitigation.

Supporting documentation

[Species List Sacramento Fish And Wildlife Office.pdf](#)

[Species Table .pdf](#)

[IPaC Explore Location resources.pdf](#)

Are formal compliance steps or mitigation required?

Yes

No

Explosive and Flammable Hazards

General requirements	Legislation	Regulation
HUD-assisted projects must meet Acceptable Separation Distance (ASD) requirements to protect them from explosive and flammable hazards.	N/A	24 CFR Part 51 Subpart C

1. Is the proposed HUD-assisted project itself the development of a hazardous facility (a facility that mainly stores, handles or processes flammable or combustible chemicals such as bulk fuel storage facilities and refineries)?

☒ No

☐ Yes

2. Does this project include any of the following activities: development, construction, rehabilitation that will increase residential densities, or conversion?

☐ No

☒ Yes

3. Within 1 mile of the project site, are there any current or planned stationary aboveground storage containers that are covered by 24 CFR 51C? Containers that are NOT covered under the regulation include:

- Containers 100 gallons or less in capacity, containing common liquid industrial fuels OR

- Containers of liquified petroleum gas (LPG) or propane with a water volume capacity of 1,000 gallons or less that meet the requirements of the 2017 or later version of National Fire Protection Association (NFPA) Code 58.

If all containers within the search area fit the above criteria, answer "No." For any other type of aboveground storage container within the search area that holds one of the flammable or explosive materials listed in Appendix I of 24 CFR part 51 subpart C, answer "Yes."

☒ No

Based on the response, the review is in compliance with this section. Document and upload all documents used to make your determination below.

Yes

Screen Summary

Compliance Determination

There are no current or planned stationary aboveground storage containers of concern within 1 mile of the project site. Based on the site reconnaissance, aerial imagery, and the regulatory database report provided by ERIS, no existing industrial facilities handling explosive or fire-prone materials such as liquid propane, gasoline, diesel fuel of 100-gallons or larger are located within one-mile of the subject property. In accordance with the MAP guidelines, a request was made to the City of South San Francisco via the public data request portal for any planned stationary ASTs within a one-mile radius of the subject property. A response will be included once received. According to the online information and site reconnaissance, there is one active natural gas pipeline (Pipeline ID DF3265), located approximately 570-feet (0.11-miles) to the east, and operated by Pacific Gas & Electric Co., and one active Non-HVL product (petroleum) pipeline (Pipeline ID 485038BTSF), located approximately 1,119-feet (0.21-miles) to the southeast and operated by SFPP, LP. According to PG&E, Pipeline ID DF3265 contains natural gas, has a diameter of 24 inches, and a maximum allowable operating pressure of 145 pounds per square inch (PSI). According to the MAP Guide on Acceptable Separation Distance and Pipelines Fact Sheet (March 2023), pipelines that have a pressure under 200 PSI are considered to be "exempt" from pipeline hazards. Therefore, no further action pertaining to Pipeline ID DF3265 is warranted. Based on HUD's ASD information, Pipeline ID 485038BTSF is not considered to be a hazard. See attachment for additional detail on pipelines.

Supporting documentation

[AST FOIA Request.pdf](#)

[Pipeline Map and discussion.pdf](#)

[Explosive Map 1 mi radius map.pdf](#)

Are formal compliance steps or mitigation required?

Yes

No

Farmlands Protection

General requirements	Legislation	Regulation
The Farmland Protection Policy Act (FPPA) discourages federal activities that would convert farmland to nonagricultural purposes.	Farmland Protection Policy Act of 1981 (7 U.S.C. 4201 et seq.)	7 CFR Part 658

1. Does your project include any activities, including new construction, acquisition of undeveloped land or conversion, that could convert agricultural land to a non-agricultural use?

✓ Yes

No

2. Does your project meet one of the following exemptions?

- Construction limited to on-farm structures needed for farm operations.
- Construction limited to new minor secondary (accessory) structures such as a garage or storage shed
- Project on land already in or committed to urban development or used for water storage. (7 CFR 658.2(a))

✓ Yes

Based on the response, the review is in compliance with this section. Document and upload all documents used to make your determination below.

No

Screen Summary

Compliance Determination

This project includes activities that could potentially convert agricultural land to a non-agricultural use, but an exemption applies. The subject property is an existing commercial facility with plans for redevelopment as a multi-family facility and because the project does not convert agricultural land to non-agricultural land, the Federal Farmland Protection Policy Act (FPPA) is not triggered. Furthermore, according to the USDA mapped soil information, the onsite soils are rated as "Not Prime Farmland". Additionally, according to the Geography Division, U.S. Census Bureau map, the subject property is located within an urban area. As such, no

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Gardens

South San Francisco, CA

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additional action regarding FPPA is warranted at this time. The project is in compliance with the Farmland Protection Policy Act.

Supporting documentation

[Urban Areas.pdf](#)

[Farmland Classification.pdf](#)

Are formal compliance steps or mitigation required?

Yes

No

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Gardens

South San Francisco, CA

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Floodplain Management

General Requirements	Legislation	Regulation
Executive Order 11988, Floodplain Management, requires Federal activities to avoid impacts to floodplains and to avoid direct and indirect support of floodplain development to the extent practicable.	Executive Order 11988 * Executive Order 13690 * 42 USC 4001-4128 * 42 USC 5154a * only applies to screen 2047 and not 2046	24 CFR 55

1. Does this project meet an exemption at 24 CFR 55.12 from compliance with HUD's floodplain management regulations in Part 55?

Yes

(a) HUD-assisted activities described in 24 CFR 58.34 and 58.35(b).

(b) HUD-assisted activities described in 24 CFR 50.19, except as otherwise indicated in § 50.19.

(c) The approval of financial assistance for restoring and preserving the natural and beneficial functions and values of floodplains and wetlands, including through acquisition of such floodplain and wetland property, where a permanent covenant or comparable restriction is place on the property's continued use for flood control, wetland projection, open space, or park land, but only if:

(1) The property is cleared of all existing buildings and walled structures; and

(2) The property is cleared of related improvements except those which:

(i) Are directly related to flood control, wetland protection, open space, or park land (including playgrounds and recreation areas);

(ii) Do not modify existing wetland areas or involve fill, paving, or other ground disturbance beyond minimal trails or paths; and

(iii) Are designed to be compatible with the beneficial floodplain or wetland function of the property.

(d) An action involving a repossession, receivership, foreclosure, or similar acquisition of property to protect or enforce HUD's financial interests under previously approved loans, grants, mortgage insurance,

or other HUD assistance.

(e) Policy-level actions described at 24 CFR 50.16 that do not involve site-based decisions.

(f) A minor amendment to a previously approved action with no additional adverse impact on or from a floodplain or wetland.

(g) HUD's or the responsible entity's approval of a project site, an incidental portion of which is situated in the FFRMS floodplain (not including the floodway, LiMWA, or coastal high hazard area) but only if: (1) The proposed project site does not include any existing or proposed buildings or improvements that modify or occupy the FFRMS floodplain except de minimis improvements such as recreation areas and trails; and (2) the proposed project will not result in any new construction in or modifications of a wetland .

(h) Issuance or use of Housing Vouchers, or other forms of rental subsidy where HUD, the awarding community, or the public housing agency that administers the contract awards rental subsidies that are not project-based (i.e., do not involve site-specific subsidies).

(i) Special projects directed to the removal of material and architectural barriers that restrict the mobility of and accessibility to elderly and persons with disabilities.

Describe:

✓ No

2. Does the project include a Critical Action? Examples of Critical Actions include projects involving hospitals, fire and police stations, nursing homes, hazardous chemical storage, storage of valuable records, and utility plants.

Yes

Describe:

✓ No

3. Determine the extent of the FFRMS floodplain and provide mapping documentation in support of that determination

The extent of the FFRMS floodplain can be determined using a Climate Informed Science Approach (CISA), 0.2 percent flood approach (0.2 PFA), or freeboard value approach (FVA). For projects in areas without available CISA data or without FEMA Flood Insurance Rate Maps (FIRMs), Flood Insurance Studies (FISs) or Advisory Base Flood Elevations (ABFEs), use the best available information¹ to determine flood elevation. Include documentation and an explanation of why this is the best available information² for the site. Note that newly constructed and substantially improved³ structures must be elevated to the FFRMS floodplain regardless of the approach chosen to determine the floodplain.

Select one of the following three options:

CISA for non-critical actions. If using a local tool , data, or resources, ensure that the FFRMS elevation is higher than would have been determined using the 0.2 PFA or the FVA.

0.2-PFA. Where FEMA has defined the 0.2-percent-annual-chance floodplain, the FFRMS floodplain is the area that FEMA has designated as within the 0.2-percent-annual-chance floodplain.

- ✓ FVA. If neither CISA nor 0.2-PFA is available, for non-critical actions, the FFRMS floodplain is the area that results from adding two feet to the base flood elevation as established by the effective FIRM or FIS or — if available — a FEMA-provided preliminary or pending FIRM or FIS or advisory base flood elevations, whether regulatory or informational in nature. However, an interim or preliminary FEMA map cannot be used if it is lower than the current FIRM or FIS.

¹ Sources which merit investigation include the files and studies of other federal agencies, such as the U. S. Army Corps of Engineers, the Tennessee Valley Authority, the Soil Conservation Service and the U. S. Geological Survey. These agencies have prepared flood hazard studies for several thousand localities and, through their technical assistance programs, hydrologic studies, soil surveys, and other investigations have collected or developed other floodplain information for numerous sites and areas. States and communities are also sources of information on past flood 'experiences within their boundaries and are particularly knowledgeable about areas subject to high-risk flood hazards such as alluvial fans, high velocity flows, mudflows and mudslides, ice jams, subsidence and liquefaction.

² If you are using best available information, select the FVA option below and provide supporting documentation in the screen summary. Contact your [local environmental officer](#) with additional compliance questions.

³ Substantial improvement means any repair or improvement of a structure which costs at least 50 percent of the market value of the structure before repair or improvement or results in an increase of more than 20 percent of the number of dwelling units. The full definition can be found at [24 CFR 55.2\(b\)\(12\)](#).

5. Does your project occur in the FFRMS floodplain?

Yes

✓ No

Screen Summary

Compliance Determination

This project does not occur in the FFRMS floodplain. According to Community Panel Number 06081C0041E the subject property is not located within a Special Flood Hazard Area (SFHA). A Letter of Map Revision was issued in September 2013. The LOMR affected four (4) FEMA FIRM panels, one of which was the subject property Community Panel (ending in 0041E, dated 2012). This did not change the flood zone of the subject property but addressed the flooding sources. Of note, a special flood hazard area (SFHA), Flood Zone AH, is located approximately 1,287.8-feet to the northeast of the subject property. A preliminary FEMA FIRM (p-FIRM) is not available for the subject property at this time. Additionally, regulatory floodways are not considered a hazard for the subject property, including ingress and egress, at this time. The FFRMS assessment per EO 13690 is outlined below. (1) Climate Informed Science Approach (CISA) - The Federal Flood Standard Support Tool (FFSST) was implemented to determine the CISA flood information and elevation(s). As of May 7, 2025, the FFSST is no longer supported by FEMA. Moreover, this tool was not adopted by HUD. As such, the CISA is not an applicable FFRMS method. (2) 0.2-Percent Annual Chance Floodplain Approach (PFA) - Because the subject property is not located within the 0.2 PFA (or SFHA) within the current FIRM (no PFIRM available), and the adjoining SFHA is not graphed within the Flood Insurance Study to include a 0.2PFA flood elevation, no additional action regarding FFRMS is warranted as this method is not an acceptable approach at this time. (3) Freeboard Value Approach (FVA) - Because the CISA and 0.2PFA methods do not apply for this evaluation, the FVA is considered to be the applicable method due to the close proximity of a SFHA. Specifically, a SFHA, Flood Zone AH, is located approximately 1,287.8-feet to the northeast of the subject property, and is not listed with a designated BFE. According to 1-foot contour topo map data available on the San Mateo County GIS website, the flood zone AH is located within the 31-foot contour line low lower. Because this site is a non-critical action, the addition of 2-feet is warranted. The approximate FFRMS elevation is 33-feet (31 ft + 2 ft). According to data collected from the United States Geological Survey (USGS) Topo Builder website, the subject property elevation above Mean Sea Level (MSL) is the subject property is located between 33.54 and 44.14 feet above mean sea level (MSL). Based on the topographic differences of the subject property and the SFHA, distance from the nearest floodplain, and the FEMA flood

designations for the subject property as Flood Zone X (unshaded), the subject property is not located within a FEMA-designated SFHA or FFRMS floodplain. The project is in compliance with Executive Orders 11988 and 13690.

Supporting documentation

[FEMA Map\(1\).pdf](#)

[Floodplain distance.pdf](#)

[Subject Property Elevation.pdf](#)

[No pFIRM.pdf](#)

[Floodplain Topo Map 1 ft contour.pdf](#)

Are formal compliance steps or mitigation required?

Yes

No

Historic Preservation

General requirements	Legislation	Regulation
Regulations under Section 106 of the National Historic Preservation Act (NHPA) require a consultative process to identify historic properties, assess project impacts on them, and avoid, minimize, or mitigate adverse effects	Section 106 of the National Historic Preservation Act (16 U.S.C. 470f)	36 CFR 800 "Protection of Historic Properties" https://www.govinfo.gov/content/pkg/CFR-2012-title36-vol3/pdf/CFR-2012-title36-vol3-part800.pdf

Threshold

Is Section 106 review required for your project?

No, because the project consists solely of activities listed as exempt in a Programmatic Agreement (PA). (See the PA Database to find applicable PAs.)

No, because the project consists solely of activities included in a No Potential to Cause Effects memo or other determination [36 CFR 800.3(a)(1)].

- ✓ Yes, because the project includes activities with potential to cause effects (direct or indirect).

Step 1 – Initiate Consultation

Select all consulting parties below (check all that apply):

- ✓ State Historic Preservation Offer (SHPO) Completed

- ✓ Indian Tribes, including Tribal Historic Preservation Officers (THPOs) or Native Hawaiian Organizations (NHOs)

- ✓ Indian Canyon Band of Costanoan Ohlone People Completed

- ✓ Muwekma Ohlone Tribe In progress

✓ Other Consulting Parties

✓ Bank of America	Completed
✓ Grand Library, South San Francisco	Completed
✓ San Mateo County Historical Association	Completed
✓ South San Francisco Historical Society	Completed
✓ South San Francisco Historical Society Museum	Completed

Describe

the process of selecting consulting parties and initiating consultation here:

Parties selected based on HUD guidelines.

Document and upload all correspondence, notices and notes (including comments and objections received below).

Was the Section 106 Lender Delegation Memo used for Section 106 consultation?

Yes

No

Step 2 – Identify and Evaluate Historic Properties

- 1. Define the Area of Potential Effect (APE), either by entering the address(es) or uploading a map depicting the APE below:**

In the chart below, list historic properties identified and evaluated in the APE. Every historic property that may be affected by the project should be included in the chart.

Upload the documentation (survey forms, Register nominations, concurrence(s) and/or objection(s), notes, and photos) that justify your National Register Status determination below.

Address / Location / District	National Register Status	SHPO Concurrence	Sensitive Information
--	-------------------------------------	-------------------------	----------------------------------

Additional Notes:

- 2. Was a survey of historic buildings and/or archeological sites done as part of the**

project?

✓ Yes

Document and upload surveys and report(s) below.

For Archeological surveys, refer to HP Fact Sheet #6, Guidance on Archeological Investigations in HUD Projects.

Additional Notes:

No

Step 3 –Assess Effects of the Project on Historic Properties

Only properties that are listed on or eligible for the National Register of Historic Places receive further consideration under Section 106. Assess the effect(s) of the project by applying the Criteria of Adverse Effect. (36 CFR 800.5)] Consider direct and indirect effects as applicable as per guidance on direct and indirect effects.

Choose one of the findings below - No Historic Properties Affected, No Adverse Effect, or Adverse Effect; and seek concurrence from consulting parties.

No Historic Properties Affected

✓ No Adverse Effect

Based on the response, the review is in compliance with this section.

Document reason for finding:

A Historic Architecture and Cultural Resources Section 106 Assessment was prepared by Partner. Historic properties were identified; however, although over 50-years old and technically historically aged, has no known significant associations with events (A), persons (B), architecture (C), or information potential (D).

Does the No Adverse Effect finding contain conditions?

Yes (check all that apply)

✓ No

Based on the response, the review is in compliance with this section. Document and upload concurrence(s) or objection(s) below.

Adverse Effect

Screen Summary

Compliance Determination

The proposed project involves demolishing a building over 45 years old and constructing a new multifamily residential facility, triggering review under Section 106. A Secretary of the Interior-qualified Architectural Historian and Professional Archaeologist completed archival and archaeological evaluations, which were included in the County of San Mateo's formal consultation request to the State Historic Preservation Officer (SHPO). Archival research found no significant historical associations with the subject property, noting the building's brief Bank of America occupancy from 1971 to before 1982 and no relevance under NRHP Criteria A-D. The building was determined not NRHP-eligible, and reviews concluded the Direct APE contains no NRHP or locally listed historic properties, and the Indirect APE (1/8-mile radius) also contains none; the nearest NRHP property is 16 miles away and not visible from the project area. Accordingly, the undertaking was found to result in No Effect. On November 13, 2025, the County initiated Section 106 tribal consultation for the HUD-funded project with seven tribes, and on November 14, 2025, SHPO received the County's initial consultation package, followed by supplemental submissions on December 16, 2025, and January 22, 2026. On November 14, 2025, the Muwekma Ohlone Tribe requested consultation, which occurred on February 17, 2026. Following consultation, the Muwekma Ohlone Tribe, Inc., formally requested continued tribal consultation under Section 106 for this housing project. Based on Partner's professional assessment (given the extent of planned subsurface excavation), and with agreement from both the Developer and the Tribe, it was understood that cultural sensitivity training for construction personnel and on-site Native American monitoring during all ground-disturbing activities would be appropriate. On November 19, 2025, the Indian Canyon Band of Costanoan Ohlone People stated the APE overlaps or is near a potentially eligible cultural site and requested Native

American and archaeological monitoring; the County responded on January 16, 2026, summarizing archaeological findings, with no further tribal reply to date. No responses were received from local historical organizations, including the South San Francisco Historical Society and San Mateo County Historical Association. In its review, SHPO acknowledged tribes' specialized expertise and requested the County summarize any tribal feedback but stated that, based on submitted documentation and under 36 CFR 800.4(d), it had no objection to the County's finding of No Historic Properties Affected and concurred that the undertaking results in No Adverse Effect, imposing no conditions.

Supporting documentation

[Muwekma Ohlone Tribe Consultation Request and Supplemental Research.pdf](#)
[Rotary Gardens Reply to Muwekma Tribe.pdf](#)
[Scope of Services.docx](#)
[HUD 2025 1114001 South San Francisco 500 Linden Avenue Multifamily Residential Construction21026.pdf](#)
[SHPO Letter Liberty Bank aka Rotary Gardens San Francisco CA 103025.pdf](#)
[THPO Correspondence.pdf](#)
[Section 106 Assessment Report Rotary Gardens aka Liberty Bank San Francisco CA 103025.pdf](#)
[Tribal Consultation Letters Liberty Bank aka Rotary Gardens San Francisco CA 103025.docx](#)
[National Historic Registry Map.pdf](#)

Are formal compliance steps or mitigation required?

Yes

No

Noise Abatement and Control

General requirements	Legislation	Regulation
HUD's noise regulations protect residential properties from excessive noise exposure. HUD encourages mitigation as appropriate.	Noise Control Act of 1972 General Services Administration Federal Management Circular 75-2: "Compatible Land Uses at Federal Airfields"	Title 24 CFR 51 Subpart B

1. What activities does your project involve? Check all that apply:

- ☒ New construction for residential use

NOTE: HUD assistance to new construction projects is generally prohibited if they are located in an Unacceptable zone, and HUD discourages assistance for new construction projects in Normally Unacceptable zones. See 24 CFR 51.101(a)(3) for further details.

Rehabilitation of an existing residential property

A research demonstration project which does not result in new construction or reconstruction

An interstate land sales registration

Any timely emergency assistance under disaster assistance provision or appropriations which are provided to save lives, protect property, protect public health and safety, remove debris and wreckage, or assistance that has the effect of restoring facilities substantially as they existed prior to the disaster
None of the above

4. Complete the Preliminary Screening to identify potential noise generators in the vicinity (1000' from a major road, 3000' from a railroad, or 15 miles from an airport).

Indicate the findings of the Preliminary Screening below:

There are no noise generators found within the threshold distances above.

- ✓ Noise generators were found within the threshold distances.

5. **Complete the Preliminary Screening to identify potential noise generators in the**

Acceptable: (65 decibels or less; the ceiling may be shifted to 70 decibels in circumstances described in §24 CFR 51.105(a))

- ✓ Normally Unacceptable: (Above 65 decibels but not exceeding 75 decibels; the floor may be shifted to 70 decibels in circumstances described in §24 CFR 51.105(a))

Is your project in a largely undeveloped area?

- ✓ No

Document and upload noise analysis, including noise level and data used to complete the analysis below.

Yes

Unacceptable: (Above 75 decibels)

HUD strongly encourages conversion of noise-exposed sites to land uses compatible with high noise levels.

Check here to affirm that you have considered converting this property to a non-residential use compatible with high noise levels.

Document and upload noise analysis, including noise level and data used to complete the analysis below.

6. **HUD strongly encourages mitigation be used to eliminate adverse noise impacts. Explain in detail the exact measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation. This information will be automatically included in the Mitigation summary for the environmental review.**

✓ Mitigation as follows will be implemented:

Based on the results of the STraCAT, the exterior envelope construction as depicted in the Drawings is likely to conform to HUD's requirements for required sound attenuation. No further action regarding noise at the subject property is warranted at this time.

Based on the response, the review is in compliance with this section. Document and upload drawings, specifications, and other materials as needed to describe the project's noise mitigation measures below.

No mitigation is necessary.

Screen Summary

Compliance Determination

A Noise Assessment was conducted. The noise level was normally unacceptable: 69.0 db. See noise analysis. A total 10-year day-night sound level (DNL) was calculated for multiple noise assessment locations (NALs), as depicted on the attached information, combining roadways with available traffic data within 1,000 feet; railways within 3,000-feet; and airports/military airfields within a 15-mile radius of the subject property, where applicable. A total of six (6) NALs were assessed: NAL 1 (North Building): 69 dB; NAL 2 (South Building): 69 dB; NAL 3 (North Building courtyard): 58 dB, NAL 4 (South Building courtyard): 58 dB; NAL 5 (North Building roof deck): 69 dB; and NAL 6 (North Building roof deck): 69 dB. With respect to NALs 1 and 2, mitigation will be implemented with the completion of a STraCAT. Noise levels were calculated to be "Normally Unacceptable", per HUD guidelines. As such, because there are noise levels for the proposed onsite buildings with noise levels greater than 65dB and less than 76dB. Partner performed a STraCAT analysis, in general accordance with the United States Department of Housing and Urban Development (HUD) guidelines and STraCAT Users Guide, dated 2010, v1.0. Based on the results of the STraCAT, the exterior envelope construction as depicted in the Drawings is likely to conform to HUD's requirements for required sound attenuation. The project is in compliance with HUD's Noise regulation with mitigation.

Supporting documentation

[Liberty Bank aka Rotary Gardens Noise Assessment Report 2025 v3.pdf](#)

Are formal compliance steps or mitigation required?

Liberty-Bank,-aka-Rotary-
Gardens

South San Francisco, CA

900000010504179

Yes

No

Sole Source Aquifers

General requirements	Legislation	Regulation
The Safe Drinking Water Act of 1974 protects drinking water systems which are the sole or principal drinking water source for an area and which, if contaminated, would create a significant hazard to public health.	Safe Drinking Water Act of 1974 (42 U.S.C. 201, 300f et seq., and 21 U.S.C. 349)	40 CFR Part 149

1. Does the project consist solely of acquisition, leasing, or rehabilitation of an existing building(s)?

Yes

✓ No

2. Is the project located on a sole source aquifer (SSA)?

A sole source aquifer is defined as an aquifer that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. This includes streamflow source areas, which are upstream areas of losing streams that flow into the recharge area.

✓ No

Based on the response, the review is in compliance with this section. Document and upload documentation used to make your determination, such as a map of your project (or jurisdiction, if appropriate) in relation to the nearest SSA and its source area, below.

Yes

Screen Summary

Compliance Determination

The project is not located on a sole source aquifer area. Based on a review of the Designated Sole Source Aquifers National Map, published by the USEPA, the subject property is not located in a sole source aquifer recharge area. The water supply for

the subject property is tied into the public utilities; therefore, it does not impact existing groundwater conditions. The project is in compliance with Sole Source Aquifer requirements.

Supporting documentation

[Sole Source Aquifer Map.pdf](#)

Are formal compliance steps or mitigation required?

Yes

No

Wetlands Protection

General requirements	Legislation	Regulation
Executive Order 11990 discourages direct or indirect support of new construction impacting wetlands wherever there is a practicable alternative. The Fish and Wildlife Service's National Wetlands Inventory can be used as a primary screening tool, but observed or known wetlands not indicated on NWI maps must also be processed Off-site impacts that result in draining, impounding, or destroying wetlands must also be processed.	Executive Order 11990	24 CFR 55.20 can be used for general guidance regarding the 8 Step Process.

1. Does this project involve new construction as defined in Executive Order 11990, expansion of a building's footprint, or ground disturbance? The term "new construction" shall include draining, dredging, channelizing, filling, diking, impounding, and related activities and any structures or facilities begun or authorized after the effective date of the Order

No

✓ Yes

2. Will the new construction or other ground disturbance impact an on- or off-site wetland? The term "wetlands" means those areas that are inundated by surface or ground water with a frequency sufficient to support, and under normal circumstances does or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.

"Wetlands under E.O. 11990 include isolated and non-jurisdictional wetlands."

✓ No, a wetland will not be impacted in terms of E.O. 11990's definition of new construction.

Based on the response, the review is in compliance with this section. Document and upload a map or any other relevant documentation below which explains your determination

Yes, there is a wetland that be impacted in terms of E.O. 11990's definition of new construction.

Screen Summary

Compliance Determination

The project will not impact on- or off-site wetlands. According to the U.S. Fish & Wildlife Service National Wetlands Inventory website, there are no federally regulated wetlands located on or adjacent to the subject property. The subject property is an existing commercial facility with plans to redevelop with a multifamily facility. The project is in compliance with Executive Order 11990.

Supporting documentation

[Wetland Map.pdf](#)

Are formal compliance steps or mitigation required?

Yes

No

Wild and Scenic Rivers Act

General requirements	Legislation	Regulation
The Wild and Scenic Rivers Act provides federal protection for certain free-flowing, wild, scenic and recreational rivers designated as components or potential components of the National Wild and Scenic Rivers System (NWSRS) from the effects of construction or development.	The Wild and Scenic Rivers Act (16 U.S.C. 1271-1287), particularly section 7(b) and (c) (16 U.S.C. 1278(b) and (c))	36 CFR Part 297

1. Is your project within proximity of a NWSRS river?

✓ No

Yes, the project is in proximity of a Designated Wild and Scenic River or Study Wild and Scenic River.

Yes, the project is in proximity of a Nationwide Rivers Inventory (NRI) River.

Screen Summary

Compliance Determination

This project is not within proximity of a NWSRS river. The subject property is not located within a one-mile radius of a designated Wild and Scenic River. Therefore, consultation review by the National Park Service is not required. The Wild and Scenic Rivers Act protects selected rivers in a free-flowing condition and prohibits federal support for activities that would harm a designated river's free-flowing condition, water quality or outstanding resource values. The project is in compliance with the Wild and Scenic Rivers Act.

Supporting documentation

[Wild Scenic River map.pdf](#)

[Study River List 2022.pdf](#)

[Nationwide Inv Map.pdf](#)

Are formal compliance steps or mitigation required?

Yes

No

Environmental Justice

General requirements	Legislation	Regulation
Determine if the project creates adverse environmental impacts upon a low-income or minority community. If it does, engage the community in meaningful participation about mitigating the impacts or move the project.	Executive Order 12898	

HUD strongly encourages starting the Environmental Justice analysis only after all other laws and authorities, including Environmental Assessment factors if necessary, have been completed.

1. Were any adverse environmental impacts identified in any other compliance review portion of this project's total environmental review?

Yes

✓ No

Based on the response, the review is in compliance with this section.

Screen Summary

Compliance Determination

No adverse environmental impacts were identified in the project's total environmental review. Executive Order 14173 - Ending Illegal Discrimination and Restoring Merit-Based Opportunity was released on January 21, 2025 and effectively rescinded Executive Order 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, dated February 11, 1994. As such, an evaluation of Environmental Justice is no longer warranted. The subject property is not located within an Opportunity Zone. The project is in compliance with Executive Order 12898.

Supporting documentation

[Opportunity Zone Map.pdf](#)

[Executive Order 14173 Environmental Justice.pdf](#)

Are formal compliance steps or mitigation required?

Liberty-Bank,-aka-Rotary-
Gardens

South San Francisco, CA

900000010504179

Yes

No

Determination:

☒ **Finding of No Significant Impact** [24 CFR 58.40(g)(1); 40 CFR 1508.27]

The project will not result in a significant impact on the quality of the human environment.

☐ **Finding of Significant Impact** [24 CFR 58.40(g)(2); 40 CFR 1508.27]

The project may significantly affect the quality of the human environment.

Preparer Signature: _____

Michael Lawlor Jr.

March 18, 2025

Date: _____

Name/Title/Organization: Michael Lawlor, Jr. / Project Manager / Partner Engineering and Science, Inc.

Certifying Officer Signature: _____

Date: _____

Name/Title: Raymond Hodges / Director, County of San Mateo Department of Housing

This original, signed document and related supporting material must be retained on file by the Responsible Entity in an Environmental Review Record (ERR) for the activity/project (ref: 24 CFR Part 58.38) and in accordance with recordkeeping requirements for the HUD program(s).

FIGURES / PHOTOGRAPHS / SCOPE OF WORK



1. South elevation of the building



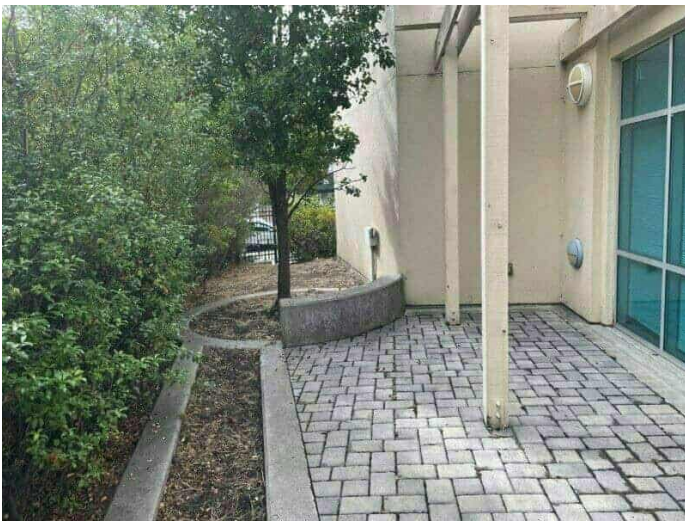
2. East elevation of the building



3. North elevation of the building



4. West elevation of the building



5. Walkway east of the building



6. Parking lot on the north plot, observed from the southeast corner



7. Parking lot on the north plot, observed from the northeast corner



8. Parking lot on the north plot, observed from the northwest corner



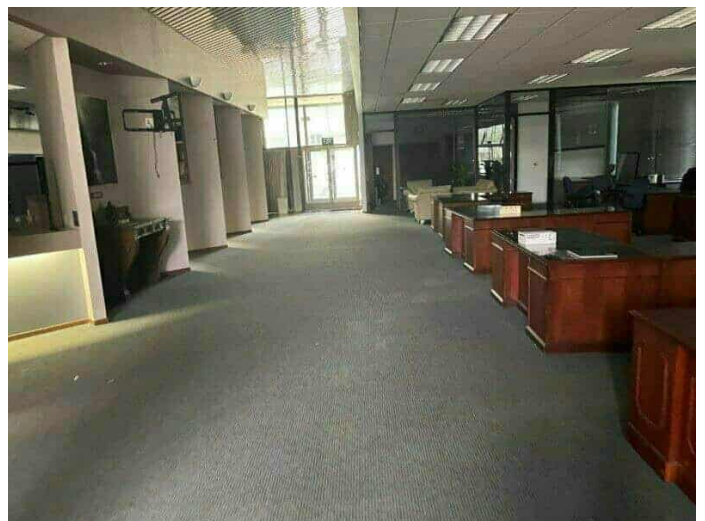
9. Parking lot on the north plot, observed from the southwest corner



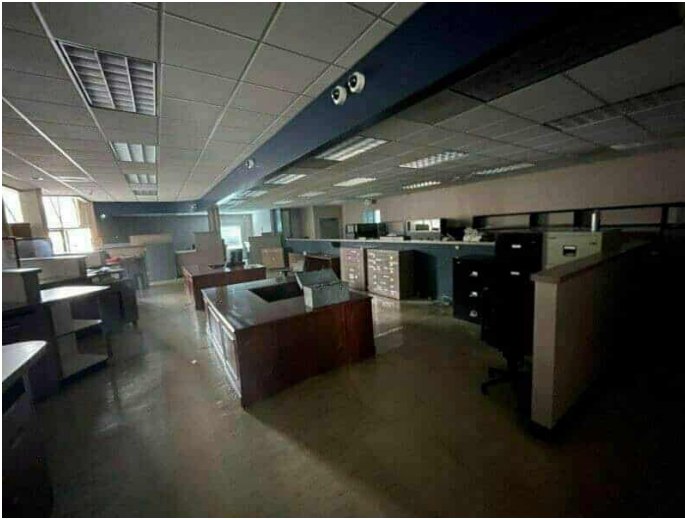
10. Parking lot on the north plot



11. Parking lot on the north plot



12. Transaction areas



13. Transaction area



14. Meeting room



15. Storage room



16. First floor office



17. Electrical room



18. First floor office



19. Second floor office



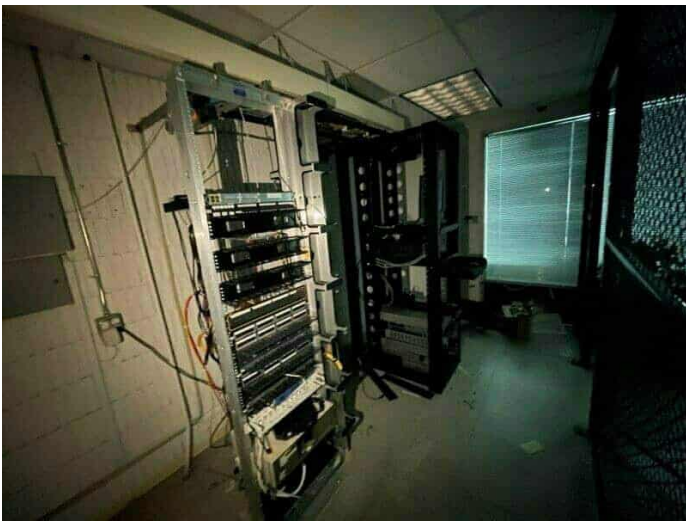
20. Second floor office



21. Break room



22. Second floor office



23. Server room on the second floor



24. Typical maintenance chemicals



25. Typical maintenance chemicals



26. Electric water heater



27. Solid waste bins southeast of the building



28. Pad-mounted transformer



29. North adjoining property



30. North adjoining properties



31. North and northeast adjoining properties



32. East adjoining property



33. East adjoining property



34. East adjoining property



35. Southeast and south adjoining properties



36. South adjoining property



37. South adjoining property



38. Southwest adjoining property



39. West adjoining properties



40. West adjoining property



41. West adjoining properties



42. Northwest adjoining property



SCOPE OF WORK

- CONSTRUCTION OF TWO NEW 6-STORY BUILDINGS (5-STORY TYPE III OVER 1-STORY + BASEMENT TYPE I) IN 500 LINDEN AVENUE.
- 1. TO ACCOMMODATE 80 UNITS OF AFFORDABLE SENIOR APARTMENTS INCLUDING 1 MANAGER UNIT. BUILDING INCLUDES STRUCTURED PARKING, OFFICES, COMMUNITY SPACES, LAUNDRY ROOM, COURTYARDS, AND OTHER SUPPORT SPACES. SCOPE ALSO INCLUDES THE CONSTRUCTION OF LANDSCAPE, BIKE PARKING, AND OTHER SITE IMPROVEMENTS.
 - 2. TOTAL NUMBER OF PARKING SPACES PROPOSED: 52 PARKING SPOTS

BUILDING INFORMATION

- STORIES: 6 + BASEMENT
 - HEIGHT: 73' 0"
 - BUILDING AREA:
 - 1. BASEMENT: 19,707 SF*
 - 2. LEVEL 1: 18,984 SF
 - 3. LEVEL 2: 14,420 SF
 - 4. LEVEL 3: 13,485 SF
 - 5. LEVEL 4: 14,306 SF
 - 6. LEVEL 5: 14,300 SF
 - 7. LEVEL 6: 11,768 SF
- TOTAL: 87,263 SF (* DOES NOT INCLUDED IN TOTAL BUILDING AREA)

SHEET INDEX

EXHIBIT	
EX0.00	COVER SHEET
EX0.01	PROPERTY LAYOUT
EX0.02	PARCEL MAP
EX1.00	SITE PLAN
EX2.01	FLOOR PLANS - BASEMENT AND LEVEL 1
EX2.02	FLOOR PLANS - LEVEL 2 AND LEVEL 3
EX2.03	FLOOR PLANS - LEVEL 4 AND LEVEL 5
EX2.04	FLOOR PLANS - LEVEL 6 AND ROOF
EX3.01	BUILDING ELEVATIONS - SOUTH / WEST
EX3.02	BUILDING ELEVATIONS - NORTH / EAST
Grand total: 10	

UNIT MIX

FLOOR	STUDIO	1BR	2BR	Subtotal
1	0	0		0
2	2	13		15
3	2	13		15
4	2	15		17
5	2	15		17
6	2	13	1	16
	10	69	1	80
	13%	86%	1%	

PROJECT DIRECTORY

OWNER

Rotary Club of South San Francisco
312 Miller Avenue
South San Francisco, CA 94080
Attn:
650.871.5323
Email:

CIVIL ENGINEER

Luk and Associates
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Hercules, CA 94547
Chris Wood
510.829.2035
chris@lukassociates.com

DEVELOPER

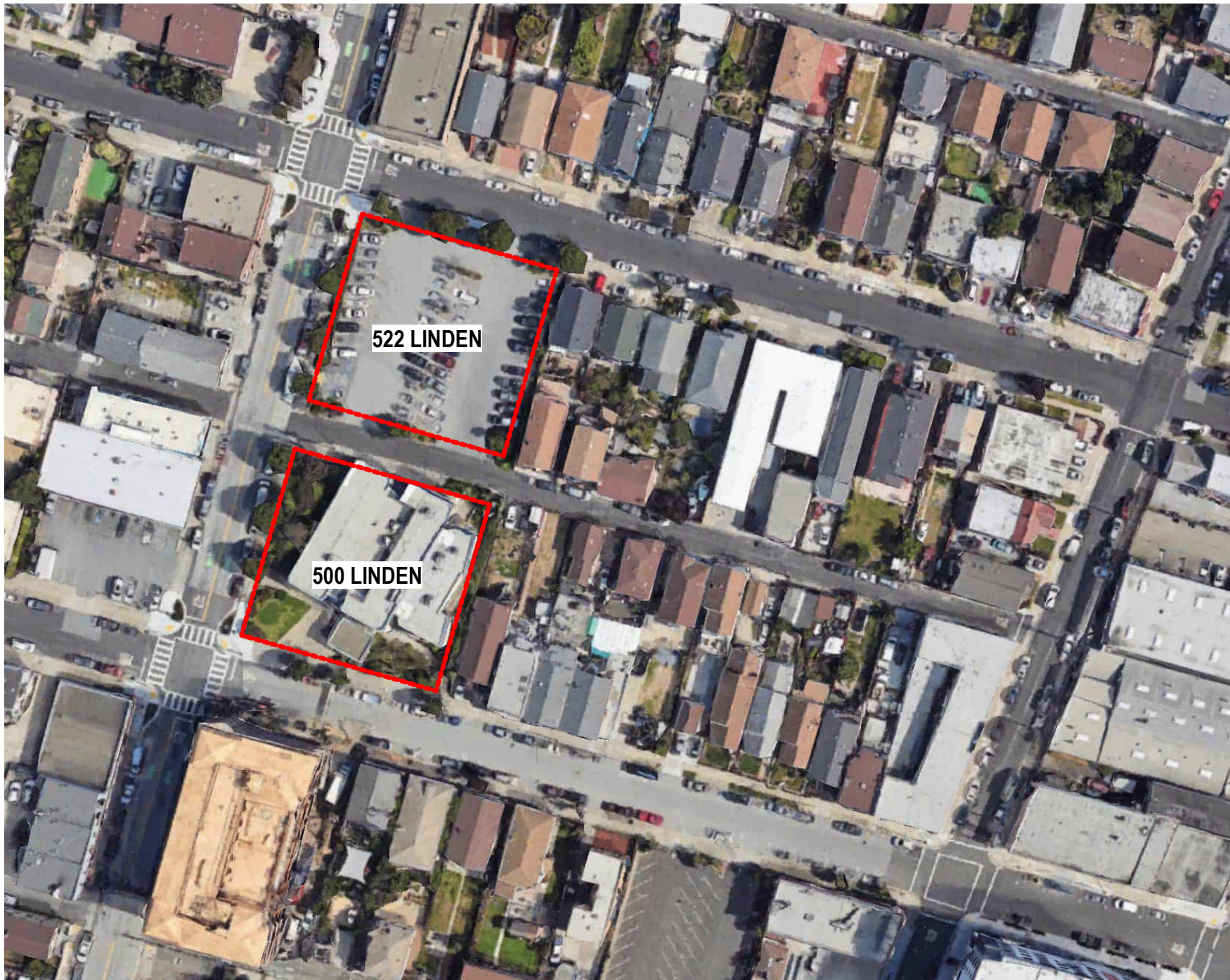
Beacon Development Group
1900 Huntington Drive
Duarte, CA 91010
Peggy Lichthart
310.600.0237
peggy@beacondevgroup.com

LANDSCAPE ARCHITECT

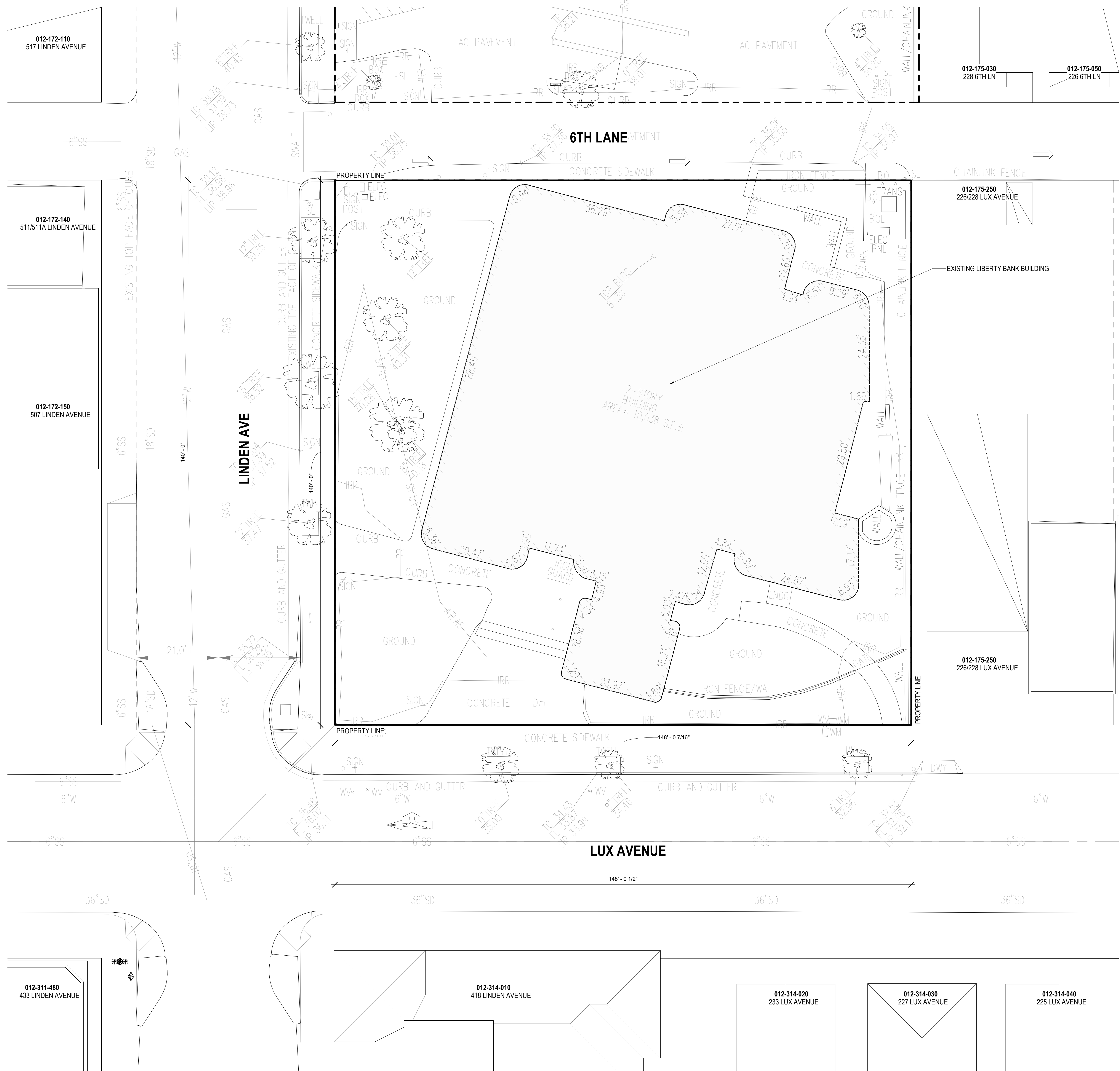
Urban Arena
66 Franklin Street, Suite 300
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Misa Sullivan
415.857.3388
misa@urbanarena.com

ARCHITECT

HKIT Architects
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Oakland, CA 94608
Christophe Laverne
510.625.9800
claverne@hkit.com



VICINITY MAP



1 EXISTING SITE PLAN - 500 LINDEN_EX

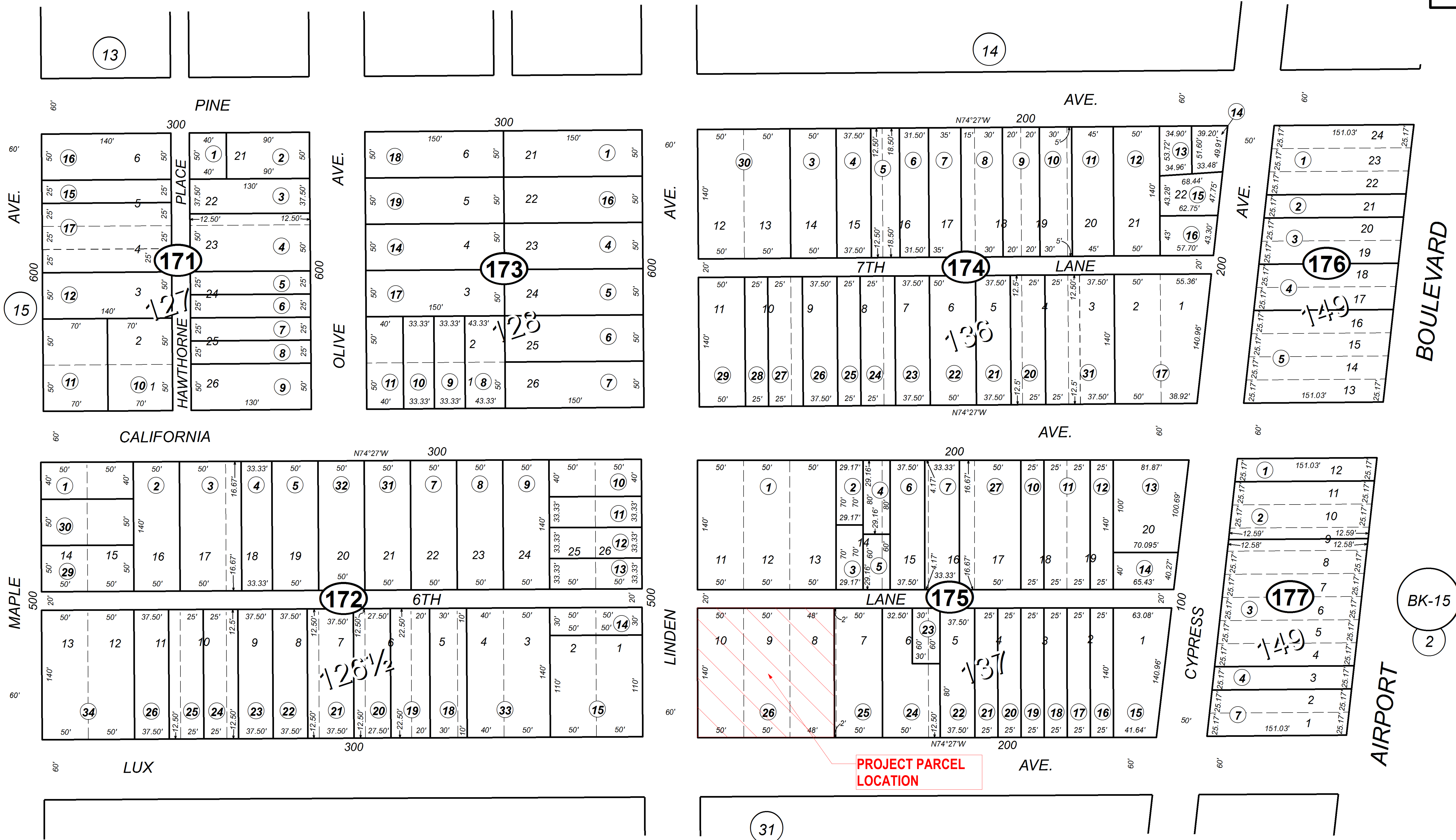
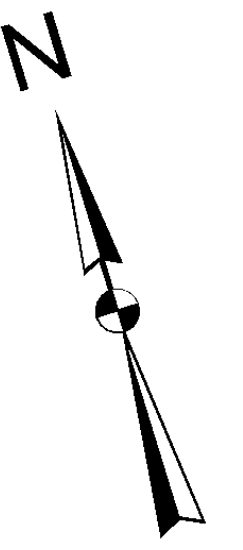
PROPERTY LAYOUT

07/31/24

ROTARY GARDENS
Beacon Development Group
500 LINDEN AVENUE,
SOUTH SAN FRANCISCO, CA
94080

EX0.01

1" = 100'



R.M.

ASSESSOR'S MAP COUNTY OF SAN MATEO, CALIF.

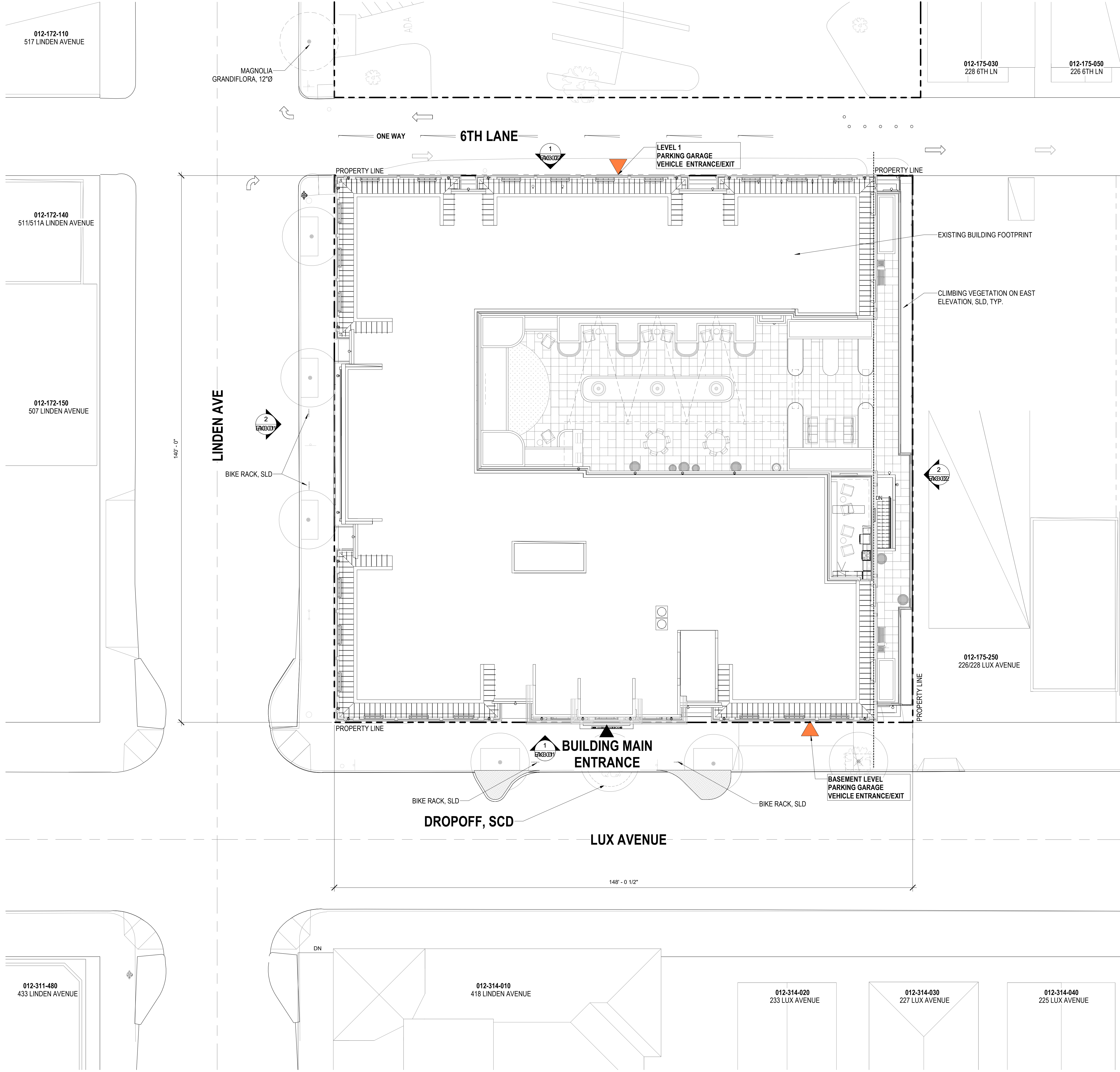
10/5/1974

PARCEL MAP

07/31/24



ROTARY GARDENS
Beacon Development Group
500 LINDEN AVENUE,
SOUTH SAN FRANCISCO, CA
94080
EX0.02



1 SITE PLAN - 500 LINDEN-TCAC
3/32" = 1'-0"

SITE PLAN

07/31/24



1 FLOOR PLAN - BASEMENT
1/8" = 1'-0"

BASEMENT: 19,707 SF



2 FLOOR PLAN - LEVEL 1
1/8" = 1'-0"

LEVEL 1: 18,984 SF

FLOOR PLANS - BASEMENT AND LEVEL 1

08/01/24



1 FLOOR PLAN - LEVEL 2
1/8" = 1'-0"

2 FLOOR PLAN - LEVEL 3
1/8" = 1'-0"

LEVEL 2: 13,420 SF

LEVEL 3: 13,485 SF

FLOOR PLANS - LEVEL 2 AND LEVEL 3

08/01/24



1 FLOOR PLAN - LEVEL 4
1/8" = 1'-0"

2 FLOOR PLAN - LEVEL 5
1/8" = 1'-0"

LEVEL 4: 14,306 SF

LEVEL 5: 14,300 SF

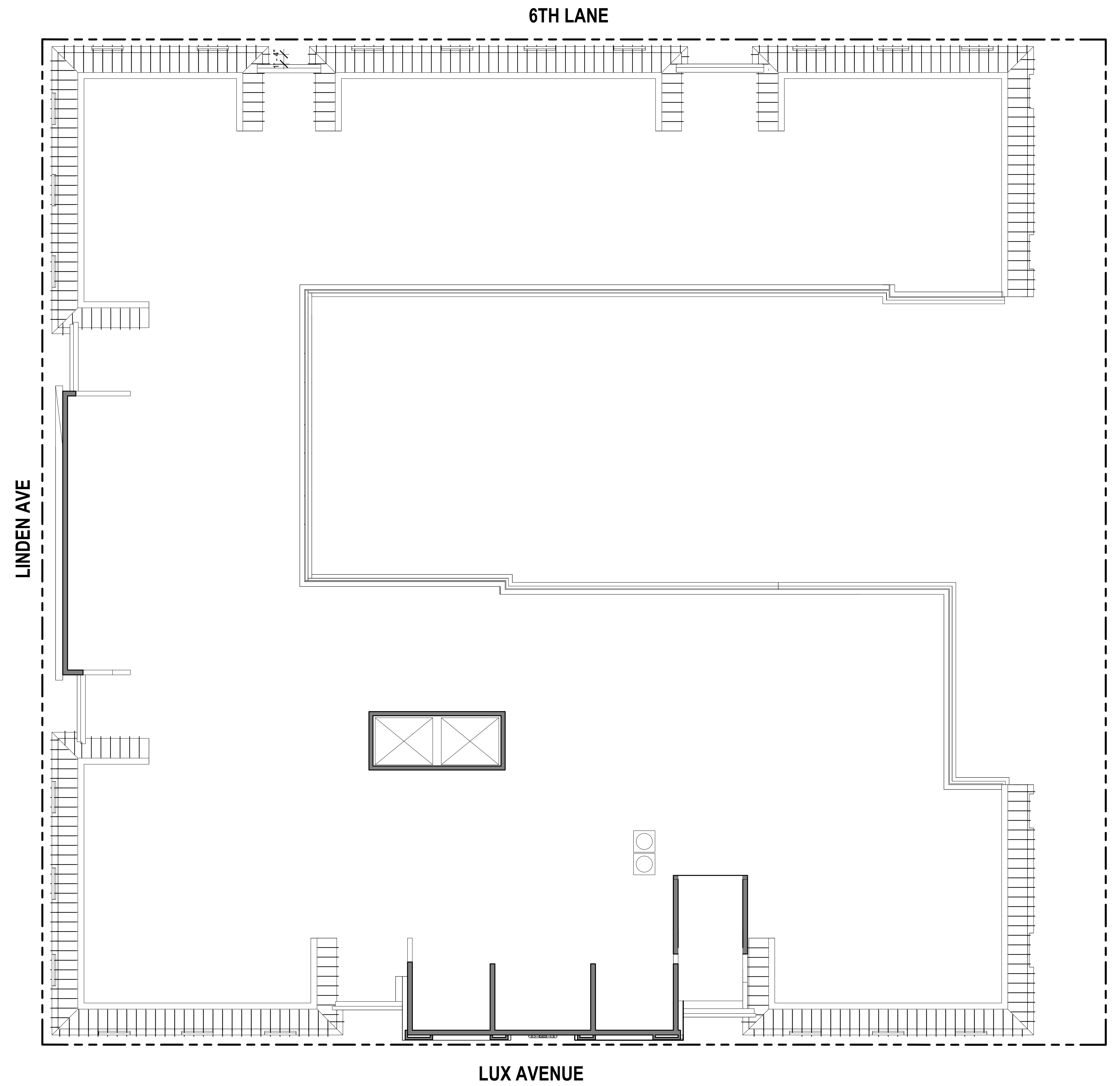
FLOOR PLANS - LEVEL 4 AND LEVEL 5



08/01/24

ROTARY GARDENS
Beacon Development Group
500 LINDEN AVENUE,
SOUTH SAN FRANCISCO, CA
94080

EX2.03



1 FLOOR PLAN - LEVEL 6
1/8" = 1'-0"

2 FLOOR PLAN - ROOF
1/8" = 1'-0"

LEVEL 6: 11,768 SF

FLOOR PLANS - LEVEL 6 AND ROOF



2 WEST EXTERIOR ELEVATION
1/8" = 1'-0"



1 SOUTH EXTERIOR ELEVATION
1/8" = 1'-0"

BUILDING ELEVATIONS - SOUTH / WEST

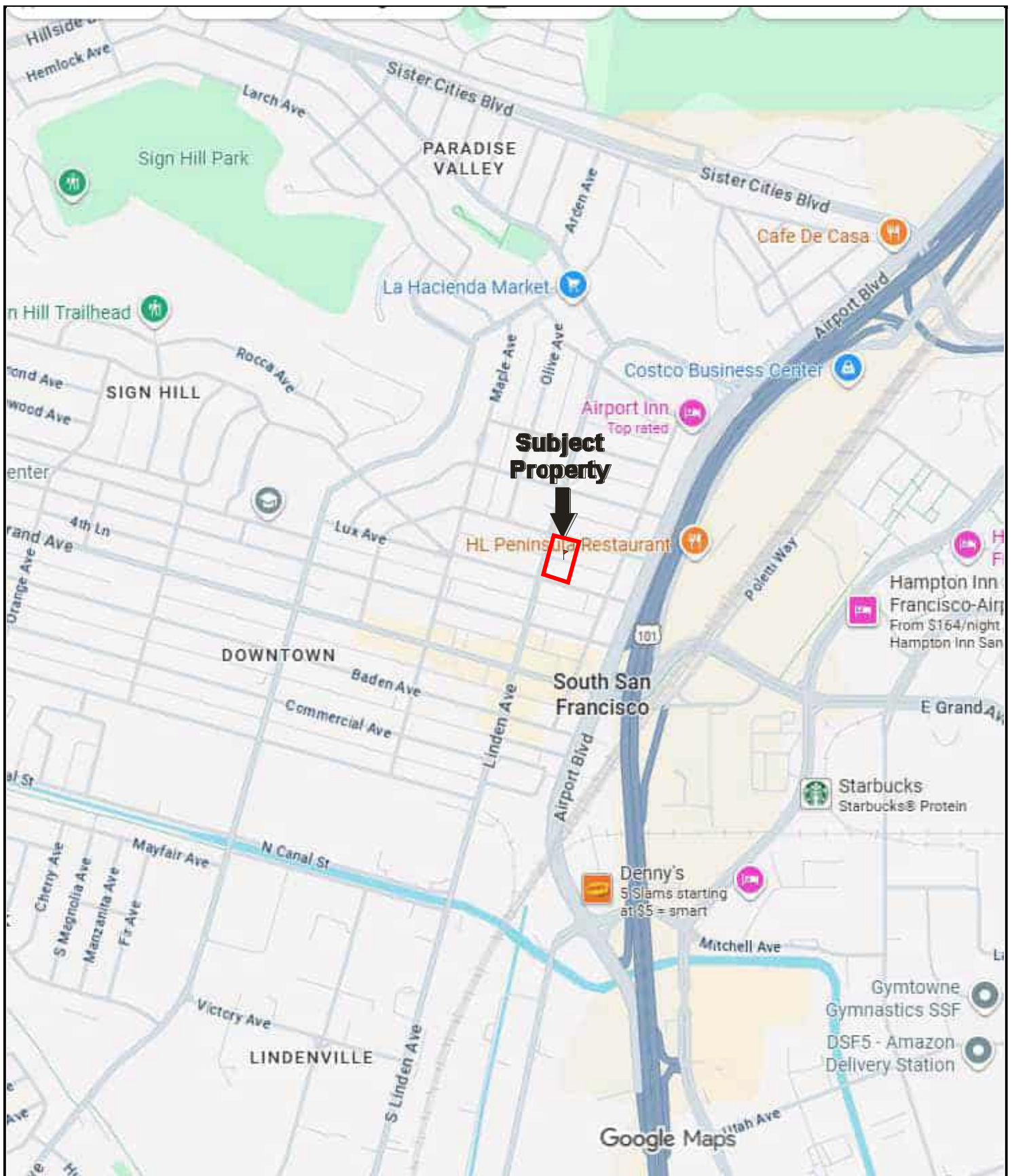
08/01/24



2 EAST EXTERIOR ELEVATION
1/8" = 1'-0"



1 NORTH EXTERIOR ELEVATION
1/8" = 1'-0"



Drawing Not To Scale

KEY:
Subject Property 

FIGURE 1: SITE LOCATION MAP
Project No. 25-551454.1



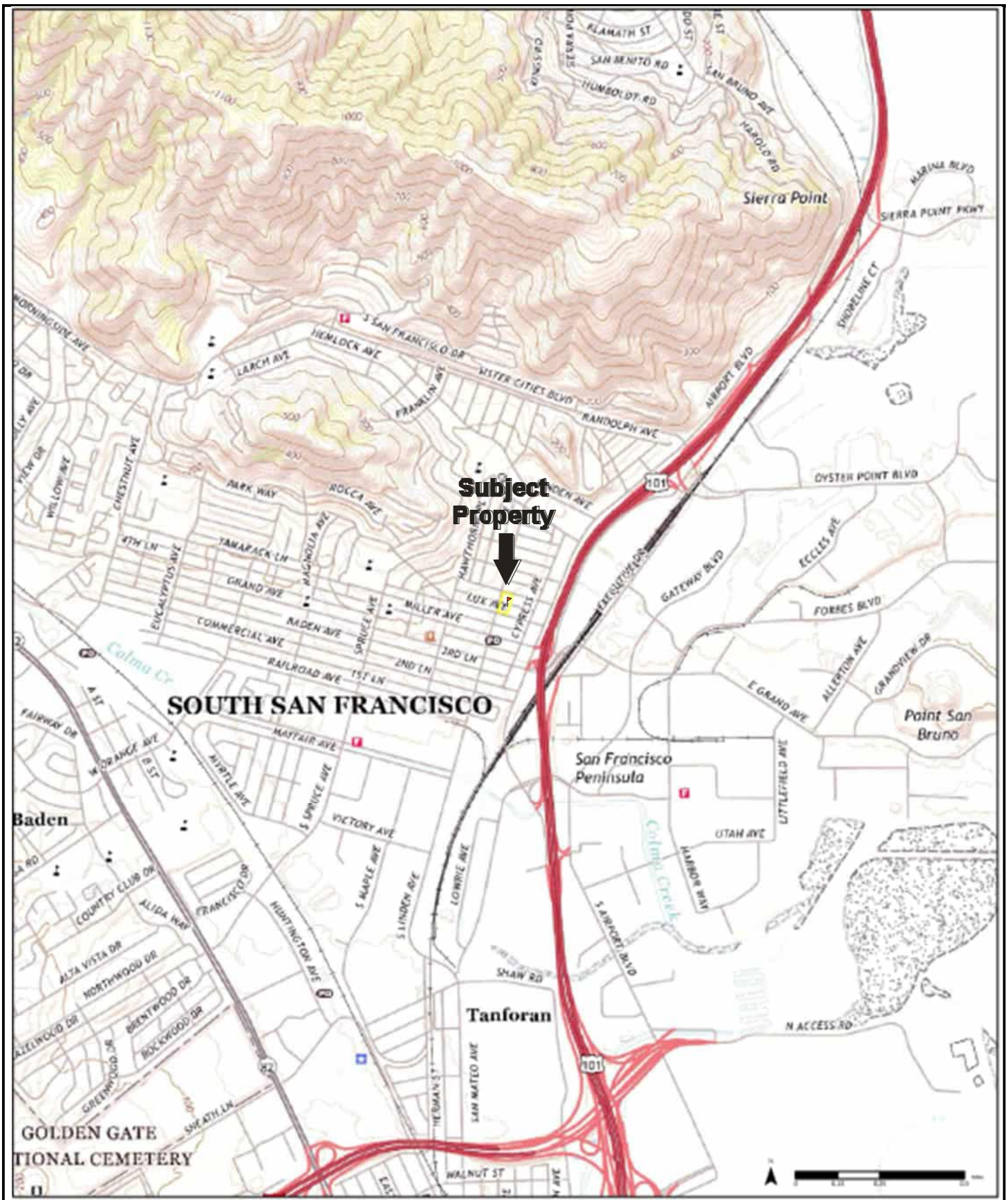
**GROUNDWATER
FLOW**



KEY:
Subject Property 
T: Transformer

FIGURE 2: SITE PLAN
Project No. 25-551454.1

PARTNER



USGS 7.5-Minute *San Francisco South, California* Quadrangle
Created: 2021/Revised: 2025

KEY:
Subject Property 

FIGURE 3: TOPOGRAPHIC MAP
Project No. 25-551454.1

APPENDIX A: AIRPORT HAZARDS

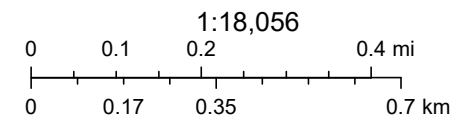
2500-Ft Radius Map



October 20, 2025

-  Project Buffer
-  Liberty Bank, aka Rotary Gardens

 Search Result (point)



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, Maxar, EPA OEI

15000-Ft Radius Map



October 20, 2025

-  Project Buffer
-  Liberty Bank, aka Rotary Gardens
-  Search Result (point)
-  Airport Points
-  Airport Polygons

1:72,224

0 0.5 1 2 mi

0 0.75 1.5 3 km

Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, EPA

Analysis of Scheduled Airline Traffic

COMPARATIVE TRAFFIC REPORT

Aug 2025

Monthly Comparison

Calendar Year-to-Date

	Aug 2025	Aug 2024	% Change	2025	2024	% Change
Air Traffic Control Tower Operations Count ¹	36,521	34,733	5.1%	277,513	248,772	11.6%
Air Carrier	33,661	32,224	4.5%	253,880	229,345	10.7%
Air Taxi	2,113	1,735	21.8%	17,382	13,394	29.8%
Civil	564	564	0.0%	4,781	4,229	13.1%
Military	183	210	-12.9%	1,470	1,804	-18.5%
Total Revenue Landings	16,880	16,077	5.0%	127,339	114,924	10.8%
Mainline Passenger	13,527	13,076	3.4%	99,338	91,248	8.9%
Commuter Passenger	3,137	2,769	13.3%	26,296	21,897	20.1%
Cargo Only	216	232	-6.9%	1,705	1,779	-4.2%
Revenue Landed Weight (000 lbs.)	3,367,667	3,235,464	4.1%	25,162,360	23,345,283	7.8%
Total Airport Passengers ²	4,835,126	4,868,579	-0.7%	36,444,389	34,365,197	6.1%
Total Enplaned & Deplaned	4,813,444	4,851,557	-0.8%	36,322,193	34,260,545	6.0%
Total Enplaned	2,470,549	2,385,664	3.6%	18,160,602	17,047,544	6.5%
Total Deplaned	2,342,895	2,465,893	-5.0%	18,161,591	17,213,001	5.5%
Domestic	3,354,441	3,354,366	0.0%	25,533,041	23,642,956	8.0%
Enplanements	1,777,051	1,683,238	5.6%	12,840,400	11,819,785	8.6%
Deplanements	1,577,390	1,671,128	-5.6%	12,692,641	11,823,171	7.4%
International	1,459,003	1,497,191	-2.6%	10,789,152	10,617,589	1.6%
Enplanements	693,498	702,426	-1.3%	5,320,202	5,227,759	1.8%
Deplanements	765,505	794,765	-3.7%	5,468,950	5,389,830	1.5%
Total U.S. Mail (metric tons)	788	1,007	-21.7%	7,194	8,805	-18.3%
Domestic	389	432	-10.0%	3,400	4,172	-18.5%
International	399	575	-30.6%	3,794	4,633	-18.1%
Total Cargo ³ (metric tons)	45,163	47,793	-5.5%	350,373	362,716	-3.4%
Domestic	13,772	16,441	-16.2%	103,860	126,315	-17.8%
International	31,391	31,352	0.1%	246,513	236,401	4.3%
Total Cargo and U.S. Mail (metric tons)	45,951	48,801	-5.8%	357,566	371,521	-3.8%
Cars Exited (Garage and Lot)	254,175	268,999	-5.5%	1,952,517	2,123,187	-8.0%

¹Categories defined as follows:

- Air Carrier - Commercial airlines and charters of aircraft with more than 60 seats (Terminal and FBO operations included).
- Air Taxi - Commercial airlines and charters of aircraft with 60 seats or less (Terminal and FBO operations included).
- Civil - Privately operated aircraft
- Military - Military Aircraft

²Total airport passengers include total enplaned and deplaned passengers and passengers who fly into and out of SFO on the same aircraft.

³Excludes mail

Analysis of Scheduled Airline Traffic

INTERNATIONAL SUMMARY REPORT

Aug 2025

Monthly Comparison

	Aug 2025	Aug 2024	% Change
International Flight Operations	7,498	7,404	1.3%
Domestic Carriers	3,290	2,972	10.7%
Foreign Flag Carriers	4,208	4,432	-5.1%

Calendar Year-to-Date

	2025	2024	% Change
International Flight Operations	55,360	53,168	4.1%
Domestic Carriers	24,504	21,820	12.3%
Foreign Flag Carriers	30,854	31,348	-1.6%

Total Airport International Passengers **	1,475,721	1,513,257	-2.5%	10,892,720	10,707,367	1.7%
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Total International Enplaned and Deplaned	1,459,003	1,497,191	-2.6%	10,789,152	10,617,589	1.6%
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Europe	446,712	465,783	-4.1%	2,788,931	2,786,705	0.1%
Enplanements	222,735	227,349	-2.0%	1,402,608	1,401,233	0.1%
Deplanements	223,977	238,434	-6.1%	1,386,323	1,385,472	0.1%

Asia/Middle East	578,444	583,464	-0.9%	4,700,662	4,548,139	3.4%
Enplanements	260,087	258,397	0.7%	2,271,884	2,205,404	3.0%
Deplanements	318,357	325,067	-2.1%	2,428,778	2,342,735	3.7%

Australia/Oceania	72,490	74,785	-3.1%	658,312	660,275	-0.3%
Enplanements	34,245	34,039	0.6%	324,958	319,810	1.6%
Deplanements	38,245	40,746	-6.1%	333,354	340,465	-2.1%

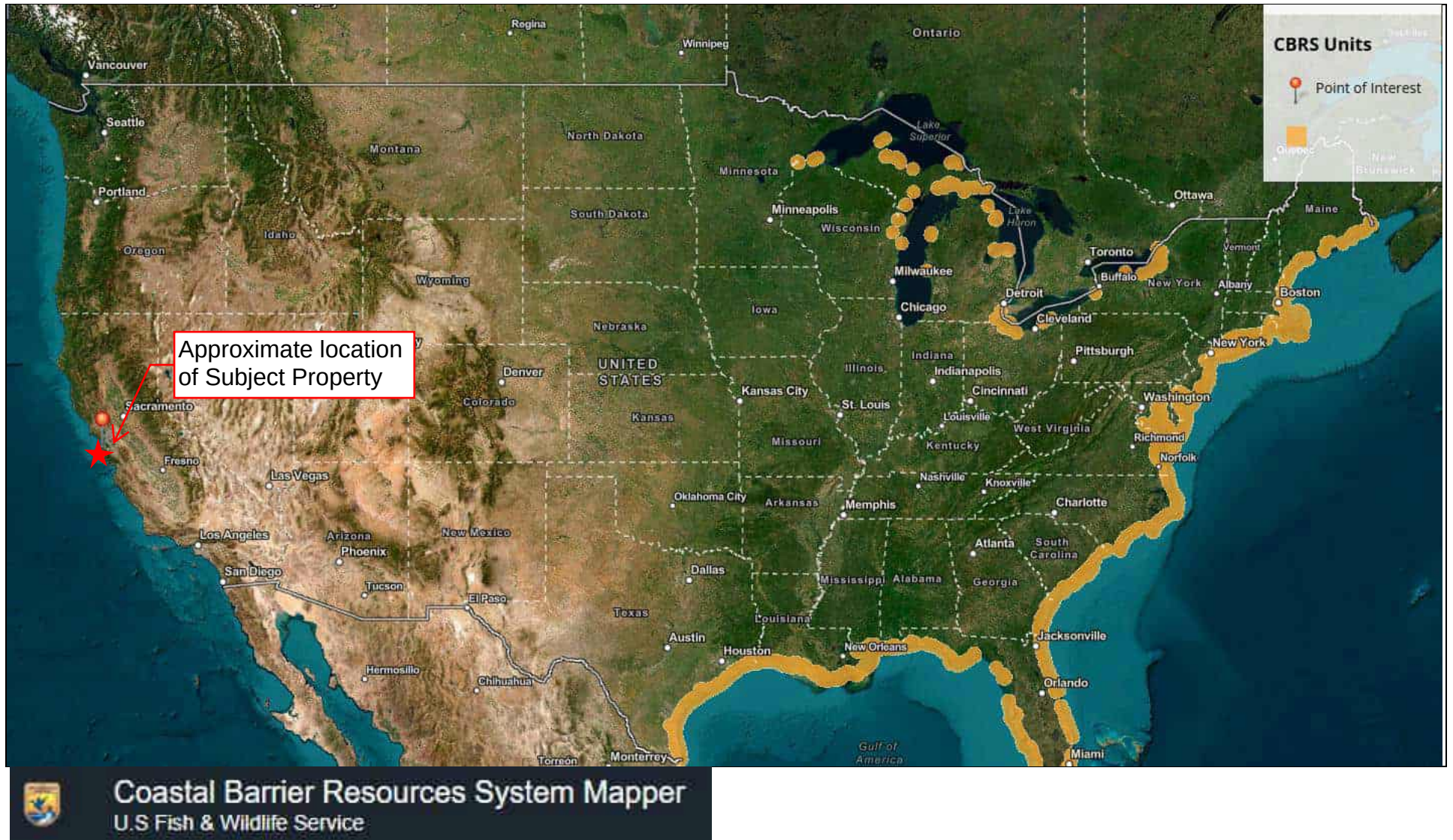
Latin America	158,793	145,927	8.8%	1,363,795	1,310,536	4.1%
Enplanements	74,135	68,104	8.9%	675,912	646,031	4.6%
Deplanements	84,658	77,823	8.8%	687,883	664,505	3.5%

Canada	202,564	227,232	-10.9%	1,277,452	1,311,934	-2.6%
Enplanements	102,296	114,537	-10.7%	644,840	655,281	-1.6%
Deplanements	100,268	112,695	-11.0%	632,612	656,653	-3.7%

Total International Cargo & Mail (metric tons)	31,790	31,927	-0.4%	250,306	241,034	3.8%
Europe	7,838	7,214	8.7%	60,261	51,606	16.8%
Asia/Middle East	22,131	21,722	1.9%	172,332	164,833	4.5%
Australia/Oceania	1,696	2,896	-41.4%	16,928	23,944	-29.3%
Latin America	96	79	21.1%	585	425	37.8%
Canada	29	15	86.2%	200	226	-11.9%

** Total airport international passengers include total enplaned and deplaned passengers and passengers who fly into and out of SFO on the same aircraft

APPENDIX B: COASTAL BARRIER



APPENDIX C: FLOOD INSURANCE

Community Status Book Report

Communities Participating in the National Flood Program



CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Curr Eff Map Date	Tribal	Reg-Emer Date	CRS Entry Date	Curr Eff Date	Curr Class	% Disc
060055#	SAN JOAQUIN, CITY OF	FRESNO COUNTY	05/10/74	07/19/01	(NSFHA)	No	04/30/82				
060349#	SAN JOSE, CITY OF	SANTA CLARA COUNTY	01/24/75	08/02/82	02/19/14	No	08/02/82	10/01/91	10/01/01	7	15%
060269#	SAN JUAN BAUTISTA, CITY OF	SAN BENITO COUNTY	02/08/74	09/24/84	04/16/09	No	09/24/84				
060231C	SAN JUAN CAPISTRANO, CITY OF	ORANGE COUNTY	05/10/74	09/14/79	03/21/19	No	09/14/79	10/01/91	05/01/17	8	10%
060013B	SAN LEANDRO, CITY OF	ALAMEDA COUNTY	06/07/74	03/18/80	12/21/18	No	03/18/80	10/01/06	10/01/06	8	10%
060304D	SAN LUIS OBISPO COUNTY *	SAN LUIS OBISPO COUNTY	01/03/75	07/05/82	06/06/24	No	07/05/82				
060310D	SAN LUIS OBISPO, CITY OF	SAN LUIS OBISPO COUNTY	10/26/73	04/16/79	06/06/24	No	04/16/79	10/01/91	10/01/22	7	15%
060296#	SAN MARCOS, CITY OF	SAN DIEGO COUNTY	05/24/74	08/01/78	05/16/12	No	08/01/78				
065057#	SAN MARINO, CITY OF	LOS ANGELES COUNTY	03/18/72	09/26/08	(NSFHA)	No	04/30/79				
060311D	SAN MATEO COUNTY *	SAN MATEO COUNTY	11/01/74	07/05/84	04/05/19	No	07/05/84	10/01/10	10/01/22	8	10%
060328D	SAN MATEO, CITY OF	SAN MATEO COUNTY	10/17/75	10/19/01	04/05/19	No	03/30/81				
060036C	SAN PABLO, CITY OF	CONTRA COSTA COUNTY	03/15/74	08/01/77	03/21/17	No	08/01/77	10/01/13	10/01/24	9	05%
065058D	SAN RAFAEL, CITY OF	MARIN COUNTY	07/31/71	05/01/84	03/16/16	No	05/01/84				
060710#	SAN RAMON, CITY OF	CONTRA COSTA COUNTY		09/27/85	06/16/09	No	09/27/85	10/01/91	05/01/11	6	20%
060435G	SAND CITY, CITY OF	MONTEREY COUNTY	12/03/76	06/03/86	06/21/17	No	06/03/86				
060054#	SANGER, CITY OF	FRESNO COUNTY	06/28/74	12/01/82	02/18/09	No	12/01/82				
060232#	SANTA ANA, CITY OF	ORANGE COUNTY	06/21/74	09/14/79	12/03/09	No	09/14/79				
060331D	SANTA BARBARA COUNTY *	SANTA BARBARA COUNTY	12/20/74	03/15/79	09/28/18	No	03/15/79	10/01/91	05/01/06	6	20%
060335D	SANTA BARBARA, CITY OF	SANTA BARBARA COUNTY	06/14/74	12/15/78	09/28/18	No	12/15/78				
060337#	SANTA CLARA COUNTY*	SANTA CLARA COUNTY	06/20/78	08/02/82	02/19/14	No	08/02/82	05/01/04	05/01/09	10	
060350#	SANTA CLARA, CITY OF	SANTA CLARA COUNTY	04/12/74	07/16/80	02/19/14	No	07/16/80	05/01/02	10/01/19	7	15%
060729F	SANTA CLARITA, CITY OF	LOS ANGELES COUNTY	10/24/78	12/02/80	06/02/21	No	03/23/89	10/01/01	04/01/25	6	20%
060353F	SANTA CRUZ COUNTY *	SANTA CRUZ COUNTY	08/16/74	04/15/86	09/29/17	No	04/15/86	10/01/12	10/01/12	8	10%
060355F	SANTA CRUZ, CITY OF	SANTA CRUZ COUNTY	03/08/74	02/15/85	09/29/17	No	02/15/85	10/01/92	05/01/02	7	15%
060158#	SANTA FE SPRINGS, CITY OF	LOS ANGELES COUNTY	06/28/74	04/15/80	09/26/08	No	04/15/80				
060336#	SANTA MARIA, CITY OF	SANTA BARBARA COUNTY	05/15/74	06/01/81	12/04/12	No	06/01/81				
060159F	SANTA MONICA, CITY OF	LOS ANGELES COUNTY	07/26/74	09/26/08	04/21/21	No	04/30/82				
060420F	SANTA PAULA, CITY OF	VENTURA COUNTY	05/24/74	04/15/80	04/11/24	No	04/15/80				
060381G	SANTA ROSA, CITY OF	SONOMA COUNTY	07/26/74	08/03/81	07/31/24	No	08/03/81				
060703#	SANTEE, CITY OF	SAN DIEGO COUNTY	09/07/82	09/28/84	05/16/12	No	09/28/84				
060351#	SARATOGA, CITY OF	SANTA CLARA COUNTY	03/22/74	01/17/79	02/19/14	No	01/17/79				
060182D	SAUSALITO, CITY OF	MARIN COUNTY	05/17/74	09/30/80	08/15/17	No	09/30/80	05/01/19	05/01/19	9	05%
060356#	SCOTTS VALLEY, CITY OF	SANTA CRUZ COUNTY	05/31/74	10/18/83	05/16/12	No	10/18/83				
060233C	SEAL BEACH, CITY OF	ORANGE COUNTY	06/21/74	07/03/78	03/21/19	No	07/03/78				
060203G	SEASIDE, CITY OF	MONTEREY COUNTY	06/07/74	07/02/81	06/21/17	No	07/02/81				
060382#	SEBASTOPOL, CITY OF	SONOMA COUNTY	03/08/74	06/18/80	10/16/12	No	06/18/80				
060082B	SHAFTER, CITY OF	KERN COUNTY	02/06/76	09/29/89	10/21/21	No	09/29/89				
060358C	SHASTA COUNTY *	SHASTA COUNTY	12/13/77	09/27/85	05/22/24	No	09/27/85				
	Reinstated per request from Region 9 received on Feb 10, 2022 from Ramona Sudbeck.					No					
060758#	SHASTA LAKE, CITY OF	SHASTA COUNTY	12/13/77	09/27/85	03/17/11	No	10/22/97				

Community Status Book Report

Communities Participating in the National Flood Program

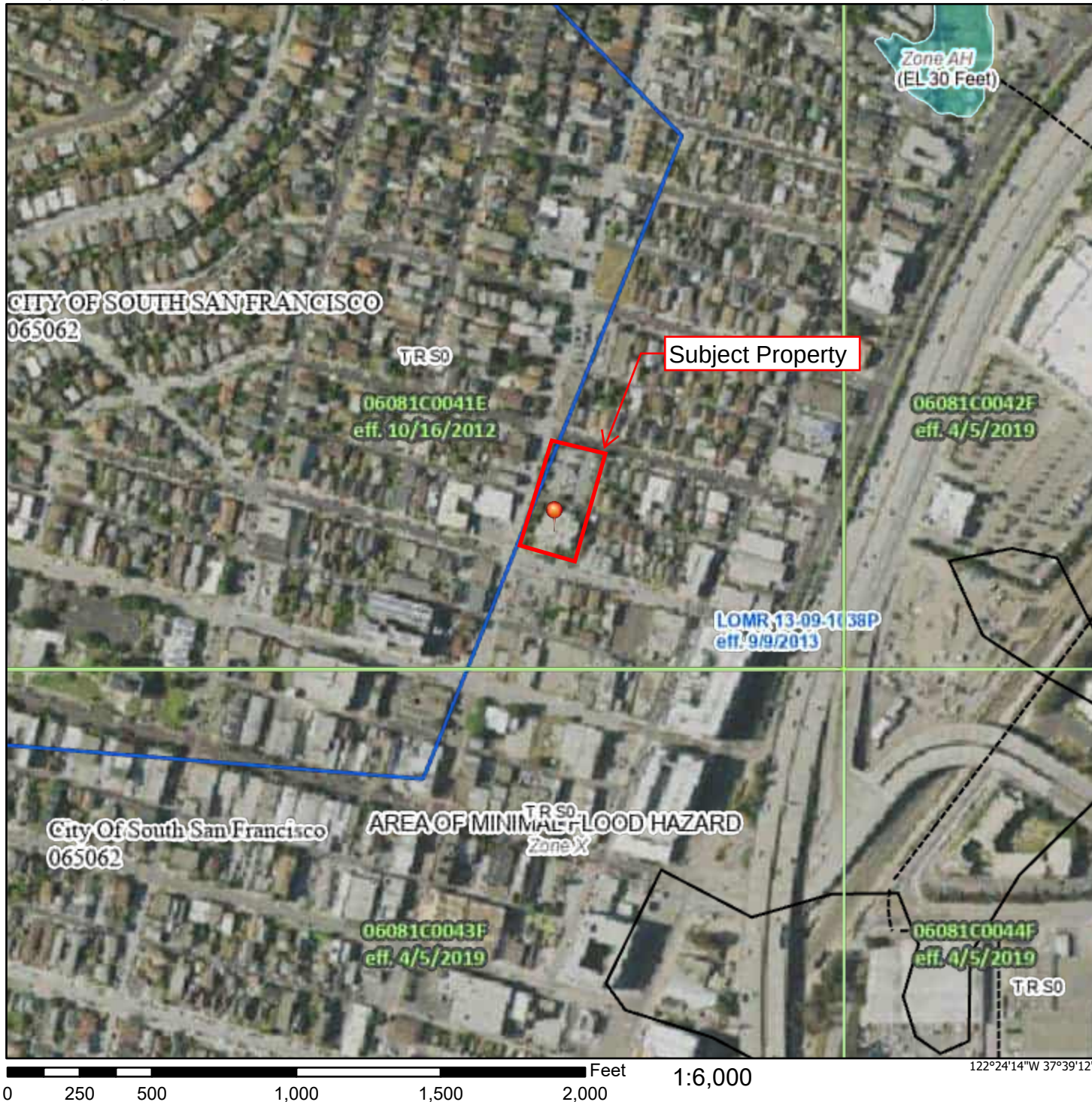


CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Curr Eff Map Date	Tribal	Reg-Emer Date	CRS Entry Date	Curr Eff Date	Curr Class	% Disc
060630B	SIERRA COUNTY *	SIERRA COUNTY		09/01/88	04/19/19	No	11/12/93				
065059#	SIERRA MADRE, CITY OF	LOS ANGELES COUNTY	05/25/73	09/26/08	(NSFHA)	No	09/07/84				
060161F	SIGNAL HILL, CITY OF	LOS ANGELES COUNTY	06/28/74	09/26/08	04/21/21	No	03/30/79				
060421#	SIMI VALLEY, CITY OF	VENTURA COUNTY	05/17/74	09/27/91	01/20/10	No	09/27/91	10/01/93	04/01/23	6	20%
060362#	SISKIYOU COUNTY*	SISKIYOU COUNTY	11/15/77	05/17/82	01/19/11	No	05/17/82				
060725F	SOLANA BEACH,CITY OF	SAN DIEGO COUNTY		06/03/88	12/20/19	No	09/19/89				
060631D	SOLANO COUNTY *	SOLANO COUNTY	02/14/78	08/02/82	08/03/16	No	08/02/82	10/01/91	10/01/18	7	15%
060204C	SOLEDAD, CITY OF	MONTEREY COUNTY	05/14/74	07/18/83	11/30/23	No	11/30/78				
060756#	SOLVANG, CITY OF	SANTA BARBARA COUNTY	12/20/74	03/15/74	12/04/12	No	10/09/97				
	USE THE SANTA BARBARA COUNTY (060331) FIRM PANELS 0558 AND 0559.					No					
060375G	SONOMA COUNTY *	SONOMA COUNTY	06/19/70	01/20/82	07/31/24	No	01/20/82	10/01/91	10/01/92	10	
060383#	SONOMA, CITY OF	SONOMA COUNTY	02/22/74	01/17/79	12/02/08	No	01/17/79				
060412#	SONORA, CITY OF	TUOLUMNE COUNTY	10/10/75	04/16/09	04/16/09(M)	No	05/25/78				
060162#	SOUTH EL MONTE, CITY OF	LOS ANGELES COUNTY	06/21/74	09/26/08	(NSFHA)	No	11/14/75				
060163#	SOUTH GATE, CITY OF	LOS ANGELES COUNTY	06/28/74	07/06/98	09/26/08(M)	No	04/15/79				
065060#	SOUTH LAKE TAHOE, CITY OF	EL DORADO COUNTY	07/19/74	07/03/78	04/03/12	No	07/03/78				
065061#	SOUTH PASADENA, CITY OF	LOS ANGELES COUNTY	04/18/74	09/26/08	(NSFHA)	No	11/14/75				
065062D	SOUTH SAN FRANCISCO, CITY OF	SAN MATEO COUNTY	06/27/70	09/02/81	04/05/19	No	09/02/81				
060208#	ST. HELENA, CITY OF	NAPA COUNTY	05/31/74	05/01/80	09/26/08	No	05/01/80				
060384B	STANISLAUS COUNTY *	STANISLAUS COUNTY		08/01/80	08/24/21	No	08/01/80				
060234#	STANTON, CITY OF	ORANGE COUNTY	07/16/76	09/15/89	12/03/09(M)	No	03/16/79				
060302#	STOCKTON, CITY OF	SAN JOAQUIN COUNTY	02/22/74	01/03/79	10/16/09	No	01/03/79	10/01/96	10/01/97	8	10%
060372D	SUISUN CITY, CITY OF	SOLANO COUNTY	03/22/74	06/01/82	08/03/16	No	06/01/82				
060352#	SUNNYVALE, CITY OF	SANTA CLARA COUNTY	05/31/74	05/15/78	05/18/09	No	05/15/78	10/01/98	05/01/09	7	15%
060093#	SUSANVILLE, CITY OF	LASSEN COUNTY	02/01/74	06/19/85	09/03/10	No	06/19/85				
060394B	SUTTER COUNTY*	SUTTER COUNTY	06/07/77	04/05/88	06/16/15	No	04/05/88	10/01/08	05/01/20	6	20%
060458#	SUTTER CREEK, CITY OF	AMADOR COUNTY	01/10/75	09/24/84	05/20/10	No	09/24/84				
065063#	TAFT, CITY OF	KERN COUNTY	06/28/74	09/30/92	09/26/08	No	08/23/82				
060084#	TEHACHAPI, CITY OF	KERN COUNTY	07/30/76	06/15/82	09/26/08	No	06/15/82				
065064#	TEHAMA COUNTY*	TEHAMA COUNTY	03/07/78	06/01/82	09/29/11	No	06/01/82				
060400#	TEHAMA, CITY OF	TEHAMA COUNTY	12/24/74	09/17/80	09/29/11	No	09/17/80	10/01/03	05/01/13	5	25%
060742#	TEMECULA, CITY OF	RIVERSIDE COUNTY		09/02/93	08/28/08	No	08/28/91				
060422F	THOUSAND OAKS, CITY OF	VENTURA COUNTY	06/07/74	09/29/78	04/04/18	No	09/29/78				
060430D	TIBURON, TOWN OF	MARIN COUNTY	06/07/74	05/16/77	03/16/16	No	05/16/77				
060165F	TORRANCE, CITY OF	LOS ANGELES COUNTY	08/02/74	12/18/79	04/21/21	No	12/18/79				
060303#	TRACY, CITY OF	SAN JOAQUIN COUNTY	06/28/74	06/18/87	10/16/09	No	12/22/80				
060401C	TRINITY COUNTY *	TRINITY COUNTY	12/13/77	08/16/88	07/20/16	No	08/16/88	05/01/11	05/01/11	9	05%
060762#	TRUCKEE, TOWN OF	NEVADA COUNTY	09/06/77	01/19/83	02/03/10	No	05/17/95				
	USE THE NEVADA COUNTY [060210] FIRM.					No					
065066#	TULARE COUNTY*	TULARE COUNTY	02/14/75	09/29/86	12/18/12	No	09/29/86				

National Flood Hazard Layer FIRMette



122°24'51"W 37°39'40"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped
		The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.



This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **10/20/2025 at 8:41 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Basemap Imagery Source: USGS National Map 2023

APPENDIX D: AIR QUALITY



BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Engineering Division

Permit Handbook

PERMIT HANDBOOK

ENGINEERING DIVISION

Permit Handbook

Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105
Phone (415) 749-4990

BAY AREA AIR QUALITY MANAGEMENT DISTRICT PERMIT HANDBOOK

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PERMIT HANDBOOK

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INTRODUCTION

March 1, 2024

The Bay Area Air Quality Management District (BAAQMD or Air District) Permit Handbook (Handbook) is intended to be used by permit applicants, Air District permit engineers, Air District inspectors, and other Air District staff.

The purpose of this Handbook is to set forth the fixed standards and objective measurements to be used by Air District engineers in the evaluation of a permit application for a particular project belonging to a given source category.

The Handbook provides Air District permit engineers with the tools necessary to evaluate the emissions and the compliance status of a source. The Air District also expects the Handbook to be useful to permit applicants, as it defines all elements of a complete permit application and provides an explanation of the factors considered during the permit evaluation process. Air District inspectors will find the Handbook useful because it will help them better understand the processes and emissions they are enforcing. Other Air District staff may find the Handbook useful where their duties require involvement with the permitting process.

GENERAL APPLICATION GUIDANCE

February 28, 2024

Air Quality Permit Requirements

The Bay Area Air Quality Management District's Regulation 2 Rule 1 describes the permit requirements for sources of air pollution. In general, any new, modified, relocated, or altered equipment or operation that emits pollutants into the atmosphere requires a Permit to Operate from the Air District unless it is excluded from Air District Regulations per Regulation 1 or exempted from Air District permit requirements by a specific section of Regulation 2 Rule 1. Any air pollution control equipment, associated with a source that requires an Air District permit, is also required to have a Permit to Operate from the Air District. Facilities may use the [Permit Exemption Guidance](#) to aid in determining whether a source is required to have a permit or is exempt from permit requirements. This document does not cover operations or equipment eligible for a certificate of registration. For registrations, information is available on the Air District [Register Equipment webpage](#).

Once it has been determined that a permit is required for a particular source or operation for a new, modified, relocated, or altered source, a facility applies for the required permit by submitting a permit application package to the Air District's Engineering Division for review. The Engineering Division issues and renews air quality permits for equipment that emits or controls the emission of air pollution from large, medium, and small facilities. If a facility is unsure about whether a permit is required, it is advisable to submit a permit application package for the operation and the Air District will review the application and make the final determination.

A [flow diagram](#) of the Air District's permitting process is provided for illustrative purposes. A [Frequently Asked Questions](#) document is also available. If you cannot find an answer to your question, you can contact the Engineering Division at permits@baaqmd.gov (preferred) or (415) 749-4990.

Minimum Requirements for a Permit Application Package

The Air District has minimum requirement before a permit application is considered submitted. Failure to submit the minimum forms and supplemental documents in the format specified may result in the return of all submitted material.

The minimum submittal requirements to create an application are:

1. Application Cover Form: P-101B
2. Facility Creation Form (For first time permittees only) and Facility Contacts Form (For first time permittees, but can be used to update contacts for existing facilities with permits)
3. Cover letter on company letterhead or email describing the project
4. At least one (1) Data Form or a Permit Condition Change Request form
5. If the application contains Trade Secret information, submit the documents specified under Trade Secret section of the P-101B.

Electronic submittals (preferred):

- Attachments must be PDF files only.
- Email plus attachments is limited to 35 megabytes or less in size.

Paper submissions:

- No staples
- Two (2) copies of all data forms must be provided
- Paper size limited to 11"x 17"

Completeness Determination

Applications for an authority to construct or a permit to operate must include applicable Air District forms and contain the information required for the Air Pollution Control Officer (APCO) to make a permit decision. Permit Handbook chapters (chapters) have a listing of the Air District forms and additional information required for each of the sources in the various source categories. In addition, the chapters refer to the applicable fee calculation procedures to determine the required fee. A [Completeness Determination Checklist](#) has been developed to aid in the preparation of a complete application.

If an application is not complete, the APCO shall notify the applicant in writing and indicate what additional data or fees are required to complete the application. Typically, the Air District must review and determine whether an application is complete within 30 days of receipt of the application or upon receipt of any resubmittal of the application addressing completeness deficiencies. The APCO may cancel an application if the applicant fails to furnish the requested information or pay all appropriate fees during the requested time frame in [Regulation 2-1-309](#) (90 days with an additional 90 days upon written request and Air District approval).

In general, the APCO notifies the applicant in writing of the approval or denial of their application within 90 days of receipt of a completed application per [Regulation 2-1-408](#).

The deadlines are different for the following permit types:

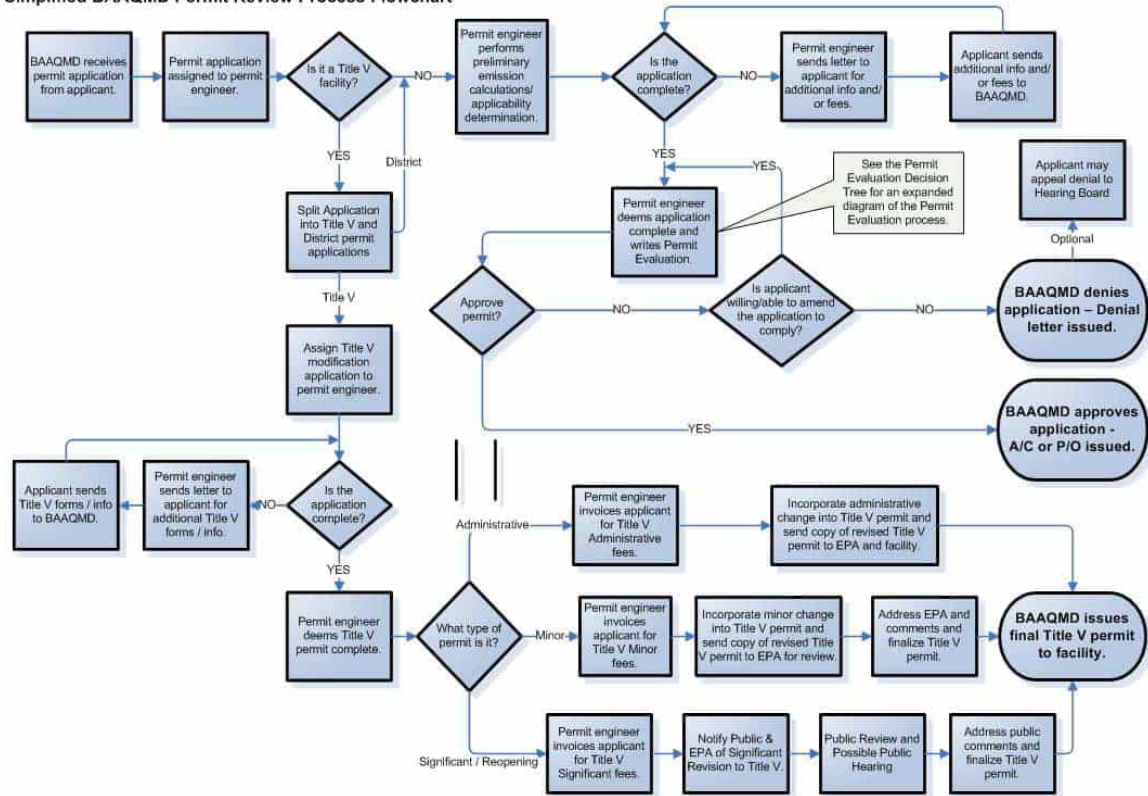
- ☐ Major Facility Review (Title V);
- ☐ Prevention of Significant Deterioration (PSD);
- ☐ Projects within 1000 feet of a school boundary;
- ☐ Projects within an overburdened community that trigger a health risk assessment;
- ☐ Projects that require CEQA environmental review and documentation;
- ☐ Projects that trigger publication, and public comment requirements of Regulation 2-2-404, 2-4-405, or 2-9-405.

In addition, the deadlines may be extended upon mutual consent of the applicant and the APCO. Project changes after an application is deemed complete may require a new permit application.

PERMIT HANDBOOK

Permitting Process Flow Diagrams

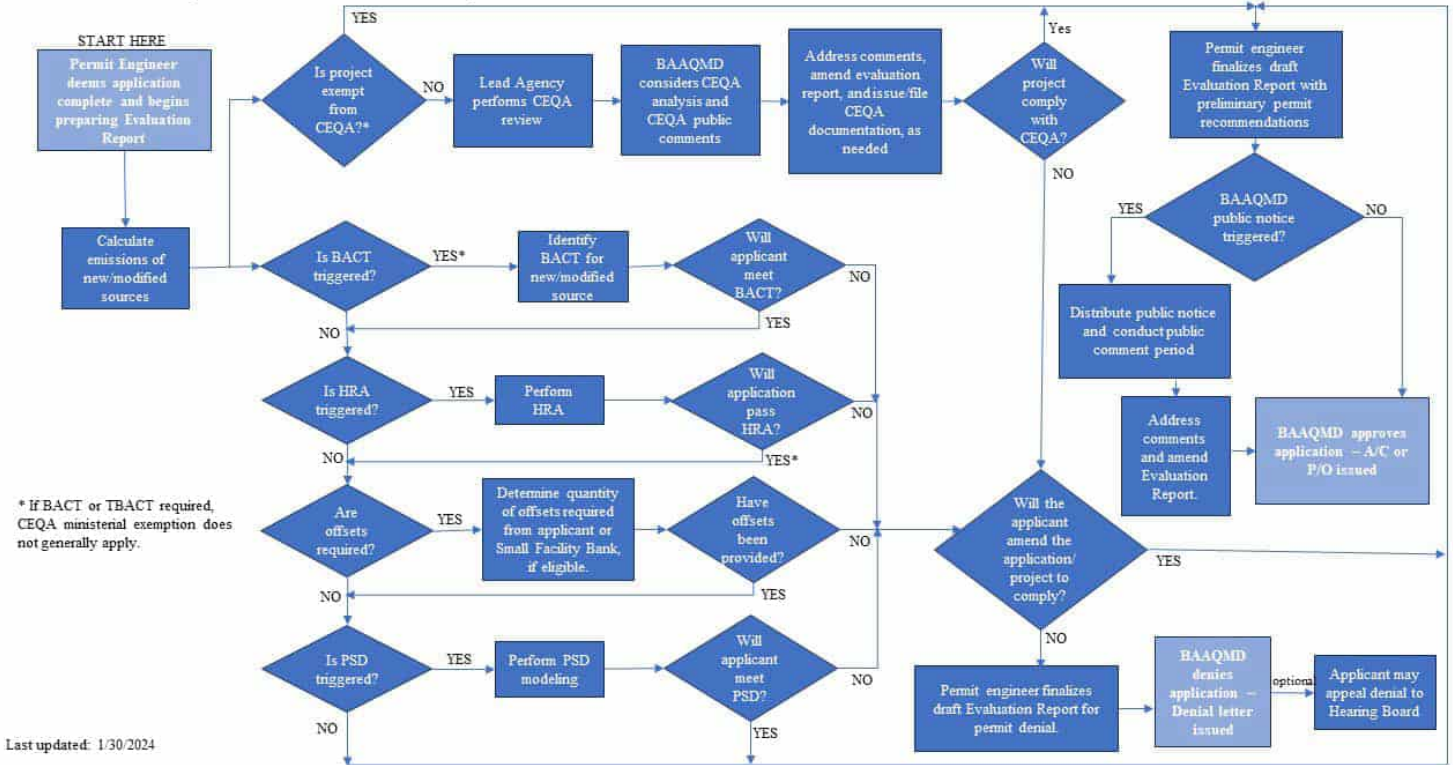
Simplified BAAQMD Permit Review Process Flowchart



PERMIT HANDBOOK

BAAQMD Permit Evaluation Decision Tree

This decision tree is an expanded version of the Permit Evaluation step of the Permit Review Process flowchart.



BAAQMD Permit Evaluation Decision Tree

GENERAL EVALUATION GUIDANCE

February 28, 2024

The permit evaluator prepares an “evaluation report” which documents the evaluation and the resulting decision (approval or denial) of the application. The sections within the evaluation report include a brief background description of the application, emission calculations, applicable requirements, and recommended permit conditions. The following sections of this guidance will provide the details to be considered in preparing the evaluation report. [Evaluation Report Template Guidance](#) has been prepared to aid in the preparation of the report.

Background

The permit evaluator should include a list and description of the sources or operations to be permitted in the project. Relevant historical information regarding sources should be included in the background.

Examples include but not limited to:

- Initial date of operation, if already operating
- Proposed date of construction
- Compliance history

Emission Calculations

The emissions from the proposed source(s) will normally be calculated using the specific procedures and/or emission factors referenced in the chapter for that source type. Deviations from these procedures may make the permitting decision non-ministerial and therefore subject to CEQA. Emission calculations should include all relevant criteria pollutants including toxic air contaminants (TAC) and for all relevant time periods:

- Annual;
- Maximum daily; and
- Maximum 1-hour (if TAC has an acute trigger level listed in Table 2-5-1 of [Regulation 2-5](#))

[Regulations 2-2-604](#) and [2-5-601](#) provide the emission calculation procedures for criteria pollutants and TACs, respectively.

Applicable Requirements

For each source, the permit evaluator must list, and determine compliance with, each applicable requirement identified in the chapter for the source type. A permit cannot be approved without the source being in compliance with all applicable regulatory requirements.

Air District Rules and Regulations

The chapters identify all applicable Air District rules that may apply to each specific source type in each source category.

Best Available Control Technology (BACT)

In accordance with [Regulation 2-2-301](#), BACT is triggered if emissions of a Air District BACT Pollutant for a new source (defined in [Regulation 2-1-232](#)) has the potential to emit in an amount of 10.0 or more pounds on any one day.

2-2-202 Best Available Control Technology (BACT): An emission limitation, control device, or control technique applied at a source that is the most stringent of: 202.1 The most effective emission control device or technique that has been successfully utilized for the type of equipment comprising such a source; or 202.2 The most stringent emission limitation achieved by an emission control device or technique for the type of equipment comprising such a source; or 202.3 The most effective control device or technique or most stringent emission limitation that the APCO has determined to be technologically feasible for a

source, taking into consideration cost-effectiveness, any ancillary health and environmental impacts, and energy requirements; or 202.4 The most effective emission control limitation for the type of equipment comprising such a source that is contained in an approved implementation plan of any state, unless the applicant demonstrates to the satisfaction of the APCO that such limitation is not achievable. Under no circumstances shall BACT be less stringent than any emission control required by any applicable provision of federal, state or District laws, rules or regulations.

Once a source has been determined modified per [Regulation 2-1-234](#) for one or more Air District BACT pollutant(s), a BACT review is required for the pollutant(s) which triggered a modified source. For those Air District BACT pollutants for which there will be an increase within the language of [Regulation 2-1-234](#), BACT must be re-evaluated if (i) there is an increase from baseline to future Potential to Emit (as determined in procedures specified in proposed [Section 2-2-603 and 2-2-605](#)) and (ii) emissions will be over 10 pounds per day. If there is a criteria pollutant for which there is not going to be an increase within the language of [Regulation 2-2-234](#), then BACT would not be re-evaluated for that pollutant. Air District BACT Pollutants are defined in [Regulation 2-2-210](#) as the following: Precursor Organic Compounds (POC), Non-Precursor Organic Compounds (NPOC), Nitrogen Oxides (NO_x), or Sulfur Dioxides (SO₂), PM₁₀, and PM_{2.5} and carbon monoxide (CO). The [Complex Permitting Handbook for BAAQMD New Source Review Permitting](#) should be reviewed for more detailed information.

1) Technologically Feasible/Cost-Effective and 2) Achieved in Practice. The level of control that satisfies BACT evolves and becomes stricter over time, so each BACT determination must be made on a case-by-case basis. Any emission control or emission limitation has already been achieved in practice is the minimum level of BACT control. Once that is determined, the permit engineer must also consider whether a more stringent level of control is technologically feasible and cost effective.

The BACT/TBACT Workbook may assist in the BACT determination because it will list known emission controls or limitations that have already been determined to be “technologically feasible/cost-effective” or have been “achieved in practice.” However, because BACT is constantly evolving and becoming more stringent, entries in the workbook may be obsolete. For instance, there may be a technology that has since become cost-effective, or a new technology may have become achieved in practice since the workbook was last updated. Accordingly, the workbook can inform the BACT analysis but cannot be relied upon alone.

To use the BACT/TBACT Workbook, the user should look for a BACT entry in the first BACT level of control, technologically feasible/cost-effective controls or emission limitations, and determine whether the control or emission limitation is appropriate for the specific application under review. The Air Pollution Control Officer, with the assistance of Air District staff, will make the final determination of the applicability of that BACT determination for the specific source equipment, usage, and operating condition under review. Staff must also review the proposed control equipment and/or emission control level for obsolescence and determine whether a more efficient control technique and/or more stringent emission limitation has been shown to be feasible and cost effective as well as whether a more efficient control technique and/or more stringent emission limitation has been achieved in practice. As discussed in the Cost Effectiveness Determination section, such factors as the material usage or process throughput limits expected on the permit to operate will have a major impact on the final cost-effectiveness determination. Once staff has reviewed the BACT/TBACT workbook and researched whether any more stringent control technique or emission limitation is “technologically feasible/cost-effective” or has been “achieved in practice,” the BACT determination can be made. BACT must be the most stringent level of control found to be “technologically feasible/cost-effective” or “achieved in practice.”

Offsets

In accordance with [Regulation 2-2-302](#), offsets are triggered if a facility has the potential to emit (PTE) more than 10 ton per year of POC or NO_x. If the facility has a PTE above 10 but below 35 tons per year of POC or NO_x, then the facility is eligible to receive offsets from the Small Facility Bank provided that the SFB is funded and the facility or its parent company do not already own banked emission reduction credits (see [Policy: Clarification Regarding Provider of Emission Reductions Credits/Offsets](#)). If the facility has emissions above 35 tons per year and the project emissions are not eligible for SFB credits per H&S Code 42314, the facility shall provide the offsets. The evaluation report should document the quantity of offsets

required, how offsets are provided and, if applicable, any rationale as to why offsets are not required by noting the post project PTE of the emitted pollutant(s) for the facility. A permit cannot be approved without the required offsets. The [Complex Permitting Handbook for BAAQMD New Source Review Permitting](#) provides more detailed information.

In accordance with Regulation 2-2-303, offsets are also triggered if a new or modified source at a facility emits 100 tons per year of PM_{2.5}, PM₁₀, or sulfur dioxide after the new or modified source is constructed (including emissions from cargo carriers per Section 2-2-610. A permit cannot be approved without the required offsets.

Prevention of Significant Deterioration (PSD)

A new or modified source or a combination thereof that are part of a single common project which meets the definition of a PSD Project set forth in [Regulation 2-2-224](#) is subject to the following PSD requirements:

PSD BACT – In accordance with [Regulation 2-2-304](#), PSD Projects must use the “Best Available Control Technology (BACT) to control emissions of the pollutants that are subject to PSD review.

PSD Source Impact Analysis – In accordance with [Regulation 2-2-305](#), PSD Projects must demonstrate that they will not cause or contribute to a violation of (i) any applicable ambient air quality standard or (ii) any PSD “increment in air quality that is allowed before it is considered “significant” (defined in [Regulation 2-2-227](#)).

PSD Additional Impacts Analysis – In accordance with [Regulation 2-2-306](#), PSD Projects must prepare an analysis of any impacts to visibility, soil, and vegetation that will occur as a result of the project and any commercial, residential, industrial or other growth associated with the project.

The [Complex Permitting Handbook for BAAQMD New Source Review Permitting](#) should be reviewed for more detailed information.

A permit application cannot be approved unless the PSD analysis demonstrates that the proposed source emissions will not interfere with the attainment or maintenance of a National Ambient Air Quality Standard (NAAQS), and, if applicable, will not cause an exceedance of a PSD increment. For Air District purposes, NAAQS is defined to include both California and national standards. Guidance from the Air District’s Engineering Division is available for the applicant’s use to give the permit applicant specific assumptions, requirements, conventions, and procedures for the preparation of a modeling analysis. Because this guidance cannot cover every aspect of the analysis needed for a proposed source without becoming unwieldy, the applicant should submit a PSD plan (protocol) with their application before beginning the analysis.

The Air District permit evaluator shall include reference of the PSD analysis and summarize the results in the evaluation report and attach the analysis to the evaluation report. If PSD modeling is triggered, then the publication and public comment requirement of [Regulation 2-2-404](#) is also triggered.

California Environmental Quality Act (CEQA)

CEQA requires public agencies (e.g., local, county, regional, and state government) to consider and disclose the environmental effects of their decisions to the public and governmental decisionmakers before approving a project. CEQA also mandates that agencies implement feasible mitigation measures or alternatives that would mitigate significant adverse effects on the environment. Projects must comply with the provisions of CEQA, which are found in the California Public Resources Code, Sections 21000 *et seq.* as well as the State CEQA Guidelines, title 14 of the California Code of Regulations, Sections 15000 *et seq.*, which are administrative regulations governing the implementation of CEQA. The Air District also publishes guidance for evaluating the air quality and climate impacts of projects under CEQA. CEQA is intended to address a broad range of environmental issues, including air quality, water quality, noise, land use, transportation, energy, and greenhouse gases. As a public agency, the Air District takes an active part in the CEQA intergovernmental review process. In carrying out its CEQA duties, the Air District may act

as a Lead Agency, a Responsible Agency, or a Reviewing Agency [Link to 2024 State CEQA Statutes and Guidelines: https://www.califaep.org/docs/2024_CEQA_Statute_and_Guidelines_Handbook.pdf].

Step 1: During the completeness determination phase of the permit review, the permit evaluator shall seek early guidance from their supervisor and/or Permit Ombudsman (if needed) to determine the Air District's planned approach for CEQA compliance, or compliance through other functionally-equivalent environmental review programs such as the federal National Environmental Protection Act (NEPA) or CEQA "certified regulatory programs".

- CEQA Section 21080.5 and CEQA Guidelines Sections 15250 and 15251 contain an exemption for Certified State Regulatory Programs, such as those that the Agricultural Departments get through the State Department of Pesticide Regulation's "Restricted Materials and Permitting Program Section 15251 (i). Certified regulatory programs substitute for the normal CEQA process. A Certified State Regulatory Program is exempt from the requirements for preparing EIRs, Negative Declarations, and Initial Studies if the criteria in Section 21080.5 are met. A certified program remains subject to other provisions of CEQA such as the policy of avoiding significant adverse effects on the environment where feasible.

Common CEQA compliance approaches include determinations such as: Not a project, subject to a statutory exemption (i.e., ministerial/emergency/Title V/etc.), subject to a categorical exemption, CEQA review has been/is being undertaken by another public agency, and CEQA review will be undertaken by the Air District.

Step 2:

For applications that are determined to be statutorily exempt (i.e., ministerial/emergency/Title V/etc.) from CEQA or emissions banking applications, skip Step 2.

For all other applications, the permit evaluator shall determine whether the CEQA information for the permit application is complete. If the CEQA information is not complete, request the specific information in the incomplete letter to the applicant. (Basis: Regulation 2-1-426.1 and 2-1-426.2).

After the receipt of any required CEQA information, the permit evaluator shall state in the Engineering Evaluation that the application has been deemed complete for CEQA per Regulation 2-1-426.1 and 2-1-426.2.

Step 3a: Exemption Determinations

The permit evaluator shall cite the specific CEQA statutory exemption/s and/or CEQA Guidelines categorical exemption/s that apply to the project along with the rationale that supports each determination. If multiple CEQA exemptions apply to the project, the permit evaluator shall list each exemption citation along with the rationale for each.. In addition, for high public interest facilities, a Notice of Exemption shall be filed with the County Clerk where the project is to be located.

Step 3b: CEQA Review

For projects which are not exempt from CEQA and are therefore subject to CEQA review, consult with your supervisor and/or the Permit Ombudsman for instructions and guidance. The Engineering Evaluation would provide a chronology of the CEQA review process including background on the CEQA lead agency determination, CEQA documents prepared, public comment periods, County Clerk filings, and if the BAAQMD was CEQA lead agency, a summary of comments received with responses.

Overburdened Communities

Permit applications for projects located within an overburdened community (OBC), as defined in [Regulation 2-1-243](#), are subject to additional permitting requirements including: additional fees (pending citation: Regulation 3-302.7), more stringent cancer risk limitations ([Regulation 2-5-302.1](#)), and public notification requirements ([Regulation 2-1-412](#)). The Air District has developed an interactive mapping tool that enables staff, facilities, and the public to easily identify if a project location is within an OBC by entering an address, intersection, or latitude/longitude location in the mapping tool. Shaded areas and color-

coded location pins will identify if the location is within an OBC. The OBC mapping tool is available on the [Air District Interactive Map webpage](#).

Overburdened Community Notification

Any project that includes new or modified sources that are located within an overburdened community and that triggers a health risk assessment for that project is required to undergo public notification pursuant to [Reg. 2, Rule 1 \(baaqmd.gov\)](#). A notification shall be prepared that fully describes the project, proposed emissions, and health risks determined pursuant to [Regulation 2, Rule 5](#). The notification shall be distributed to each address located within 1000 feet of any source within the project. The APCO shall review and consider all comments received during the 30 days after the notice is distributed and shall include a written response to the comments in the permit application file prior to taking final action on the application.

School Notification

AB 3205 ([H&S Code Section, 42301.6 through 42301.9](#)) addresses sources of hazardous air pollutants near schools. It requires new or modified sources of “hazardous air emissions” located within 1000 feet of the outer boundary of a school to give public notice to the parents or guardians of children enrolled in any school located within one-quarter mile of the source and to each address within a 1000-foot radius.

As a result, any new or modified source located within 1000 feet of the outer boundary of a school and which results in the increase of any “hazardous air emissions” into the ambient air, triggers the public notice requirement of [Regulation 2-1-412](#). A school is defined as any public or private school of more than 12 children in kindergarten or any grades 1 to 12, excluding private schools in which education is primarily conducted in private homes. H&S Code Section 42301.6(h)(1) defines “hazardous air emissions” as the following:

"Hazardous air emissions" means emissions into the ambient air of air contaminants which have been identified as a toxic air contaminant by the state board or by the air pollution control officer for the jurisdiction in which the project is located. As determined by the air pollution control officer, hazardous air emissions also means emissions into the ambient air from any substances identified in subdivisions (a) to (f), inclusive, of Section 44321 of the Health and Safety Code."

As indicated in the definition, “hazardous air emissions” are identified on the following lists:

- [AB2588](#) List
- [Regulation 2-5](#), Table 2-5-1
- [Proposition 65](#) List
- [CalARP Program](#) List

All four lists should be reviewed to determine whether the applicant will emit a “hazardous air emission”.

The permit evaluator should check whether the facility is located within 1000 feet of a school. The Air District evaluator shall use the [Google Earth Pro](#) program. [Applicants may use the following web sites to check the facility location and the location of the nearest schools: [Google Earth](#) or [Google Maps](#).] If the preliminary check indicates that the facility location is within 1500 feet of a school, then the permit evaluator should verify whether each site operating at the identified location is indeed a K-12 school of more than 12 children. Verification can be done by looking at individual school website, looking up the student profile on a website such as [GreatSchools.org](#) or by contacting the school(s) directly. If the school is large enough to trigger public notice requirements, the applicant must provide a satellite map showing 1) the location of the source, 2) the boundary of the school, and 3) the scale of the map. Once one school is identified within 1000 feet, the search radius must be enlarged to 0.25 mile (1320 feet) to determine whether there are more schools within this new search radius. Once all the schools have been identified, and prior to approving any authority to construct or permit to operate, a public notice must be distributed to all parents/guardians of students going to the school and all addresses within 1000 feet of the school. The public notice shall describe the proposed new or modified source, and the proposed emissions and allow 30

days for public comment. The APCO shall review and consider all comments received during the 30 days after the notice is distributed and shall include a written response to the comments in the permit application file prior to taking final action on the application.

Health Risk Assessment (HRA)

In accordance with [Regulation 2-5](#), the total emissions of each applicable TAC from all new and modified sources contained within a permit application shall constitute the “project” for the purpose of determining whether an HRA must be prepared. In addition, in order to prevent circumvention which might be achieved by breaking a project into smaller pieces and submitting more than one permit application over a period of time, a project shall include those new or modified sources of TACs at a facility that have been permitted within the five-year period immediately preceding the date a complete application is received and any projects at the facility where an Authority to Construct has been issued and has not expired, unless the applicant demonstrates to the satisfaction of the APCO that construction or modification of the sources included in the current application was neither (1) a reasonably foreseeable consequence of the previous project, nor (2) a critical element or integral part of the previous project. If the estimated project emission of any identified TAC exceeds its respective acute or chronic trigger level listed in [Table 2-5-1 of Regulation 2-5](#), then an HRA is required for the project.

The permit evaluator should calculate TAC emission rates, including annual average emission rates, and maximum hourly emission rates (if the TAC has an acute trigger level) to determine if an HRA is required. If an HRA is required, the permit evaluator should submit a completed HRA form with accompanying facility plot plan and local street map indicating the location of the facility, the source location(s), any surrounding building(s), application information from other new or modified sources of TACs at the facility that have been determined to be related to the current application (permitted within the last five-years or issued a valid Authority to Construct), and a transmittal interoffice memorandum to the Air District’s Toxics Section Manager. [Regulation 2-5](#) dictates that the cancer risk is acceptable if it is below one in a million, or if TBACT is applied and the cancer risk is below 6 in a million for projects located in overburdened communities or below 10 in a million for all other locations; the non-cancer risk is acceptable if the chronic hazard index is less than or equal to 0.2, or if TBACT is applied and the chronic hazard index is less than or equal to 1.0, and the acute hazard index is less than or equal to 1.0. The Air District permit evaluator should summarize the risk assessment in the evaluation report. Unless the cancer and non-cancer risks are acceptable in accordance with [Regulation 2-5](#), a permit application cannot be approved.

Airborne Toxics Control Measures (ATCM)

The California Air Resources Board (CARB) has adopted ATCMs for several source categories to protect public health from harmful effects of air pollution. CARB ATCMs may apply to both new and existing mobile sources, portable sources, temporary sources, and stationary sources. The chapters will identify any applicable ATCM that may apply for each specific source type in each source category.

[New Source Performance Standards \(NSPS\)](#)

Section 111 of the Clean Air Act, "Standards of Performance of New Stationary Sources," requires EPA to establish federal emission standards for source categories, which cause or contribute significantly to air pollution. These standards are intended to promote use of the best air pollution control technologies, taking into account the cost of such technology and any other non-air quality, health, and environmental impact and energy requirements. These standards apply to sources, which have been constructed or modified since the proposal of the standard. Since December 23, 1971, the Administrator has promulgated nearly 75 standards. These standards can be found in the Code of Federal Regulations at Title 40 (Protection of Environment), Part 60 ([Standards of Performance for New Stationary Sources](#)).

The chapters will identify any applicable [NSPS](#) that may apply for each specific source type in each source category.

[National Emissions Standards for Hazardous Air Pollutants \(NESHAP\)](#)

The Federal Clean Air Act requires the Environmental Protection Agency (EPA) to regulate emissions of [hazardous air pollutants](#) from a published list of industrial sources referred to as "source categories." As

required under the Act, EPA has developed a [list of source categories](#) that must meet control technology requirements for these toxic air pollutants. The EPA is required to develop [NESHAP](#) for all industries that emit one or more of the pollutants in significant quantities in 40 CFR 63. In addition, in 40 CFR 61, they also adopted NESHAPs based on control of certain types of hazardous pollutants.

The chapters will identify any applicable [NESHAP](#) that may apply for each specific source type in each source category. These standards are also called Maximum Achievable Control Technology (MACT) standards. Most apply in the event that the facility is a Title V facility and a major source of HAPs. However, there are many MACT standards that now apply to small sources or area sources (facilities that are not a major source of HAPs). The source-specific chapters will identify these cases.

Permit Conditions

Standardized conditions for the various source types for each source category are available from each chapter and the [Permit Condition Guidance](#). Deviations from standard permit conditions must be clearly indicated in the permit evaluation and may result in a project being deemed non-ministerial, thereby triggering further CEQA review. Each of the chapters contains applicable permit conditions for each source type.

PERMIT CONDITION GUIDANCE

March 7, 2024

Background

Authorities to Construct or Permits to Operate may be subject to permit conditions (conditions). A condition may contain parts that limit material usage rates, set allowable operating parameter ranges, require emissions or parametric monitoring, require compliance demonstration tests, or establish record keeping requirements, per the [Policy: Records Retention for Permit Conditions](#). The standardized and template permit conditions that are provided in this guidance are to be used in uniform treatment of ministerial sources. A standardized permit condition has fixed language that can be assigned to a source or operation category. A template permit condition has the framework of the text and can be tailored to the specific source(s) in the application such as source/device IDs and usage limits.

In general permit conditions should follow the following guidance:

- Each condition part limiting source operations shall include a method of demonstrating compliance if not already required by rule.
- Except for standardized conditions, the text should not cite specific rule citations or requirements already required by rule.
- Conditions should not contain trade secret information.

Microsoft Word versions of these permit conditions are available from the [Evaluation Report Template Guidance](#).

Condition Basis Codes

Each permit condition part limiting source operations shall include a basis code. Basis codes shall be based on requirements in Air District, State, or Federal regulations. Limits should be deemed necessary to ensure a source complies with that regulation. The following are abbreviations and descriptions for each basis code. The Permit Evaluator should use the abbreviated identifiers at the end of each part and provide a legend at the end of the condition text.

<u>Abbreviation</u>	<u>Description</u>
ATCM	Airborne Toxic Control Measure
BACT	Best Available Control Technology, per Regulation 2-2-301 ;
Offsets	Offset requirements of Regulation 2-2-302/303 ;
ERC	Emission Reduction Credit from banked emissions.
IERC	Interchangeable Emission Reduction Credit banking per Regulation 2-9 ;
PSD	Prevention of Significant Deterioration, Regulation 2-2-304 through 306 ;
Toxics	Health Risk Assessment, per Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants ;
TBACT	Best Available Control Technology for Toxics, per Regulation 2-5-301
NSPS	New Source Performance Standard , Regulation 10;
NESHAPS	National Emission Standard for Hazardous Air Pollutants , Regulation 11;
MACT	Maximum Achievable Control Technology;
Cumulative Increase	Cumulative emission increase, as defined in Regulation 2-2-208 , and as calculated in permit application; and
Other	Provide a brief description.

Each part should usually have three sections:

1. Limit
2. Monitoring

3. Reporting/recordkeeping (see [Policy: Records Retention for Permit Conditions](#))

Template Permit Conditions

An index of the various permit conditions is provided below:

- 2.1 Boilers, Steam Generators & Process Heaters
 - [Natural Gas](#)
 - [Natural Gas w/Diesel Fuel Backup](#)
 - [Other Gas Fuel](#)
- 2.2 (deleted)
- 2.3 Internal Combustion Engines
 - [Emergency Stationary Diesel Engines](#)
 - [Single > 1,000 BHP Emergency Stationary Diesel Engine](#)
 - [Tier 2 Engines equipped with add-on SCR but no DPF, ST for NOx/CO](#)
 - [Tier 2 Engines, equipped with add-on SCR but no DPF, ST for NOx/CO and POC](#)
 - [Tier 2 Engines, equipped with add-on SCR and DPF, ST for NOx/CO](#)
 - [Tier 2 Engines, equipped with add-on SCR and DPF, ST for NOx/CO and POC](#)
 - [Tier 2 Engines, equipped with add-on SCR and DPF, ST for NOx/CO & PM](#)
 - [Tier 2 Engines, equipped with add-on SCR and DPF, ST for NOx/CO and POC](#)
 - [Emergency Stationary Natural Gas Engines](#)
 - [Essential Emergency Natural Gas Engines](#)
 - [Portable Diesel Engine](#)
 - [Biogas Engines](#)
- 3.1 Bulk Loading
 - [General](#)
 - [Marine](#)
- 3.3 [Oil-Water Separators](#)
- 3.4 [Petroleum Refinery Fugitive Emissions](#)
- 3.5 Natural Gas Facilities and Crude Oil Facilities
 - [Dehydrator](#)
 - [Injection Wells](#)
 - [Natural Gas Fired Engine](#)
 - [Facility-Wide](#)
 - [General Conditions \(fixed roof tanks\)](#)
 - [Oil-Water Separators](#)
- 4 Organic Liquid Storage Tanks
 - [General Conditions \(fixed roof tanks\)](#)
 - [Additional for Internal or External Floating Roofs](#)
 - [Additional for Vapor Recovery System](#)
- 5.1&5.3 [Coating Operations \(including Graphic Arts\)](#)
- 5.2 Coating, Adhesives, and Ink Manufacturing
 - [Mixing Vats](#)
 - [Screening Mill](#)
- 6 Solvent Cleaning
- 7.2 [Wave Solder Machine](#)
- 7.3 [Flexible and Rigid Disc Manufacturing](#)
- 7.4 [Semiconductor Fabs](#)
 - [Abatement by thermal oxidation](#)
 - [Additional for Thermal Oxidizer RACT](#)
 - [Additional for source testing](#)
 - [Additional for allowable temperature excursion](#)
- 8.0 Wastewater Treatment Facilities
 - [Anaerobic Digester Flares](#)
 - [POTW Flares](#)
 - [High Strength Waste](#)
 - [Carbon Abatement for H₂S at Wastewater Treatment Facilities](#)

- 9.1 [Throughput Limit at Wastewater Treatment Facilities](#)
 - Airstripping
 - [Using Carbon Adsorption](#)
 - [Using Thermal Oxidation](#)
 - [Portable Using Carbon Adsorption](#)
- 9.2 Soil Vapor Extraction
 - [Using Carbon Adsorption](#)
 - [Using Thermal Oxidation](#)
 - [Portable Using Carbon Adsorption](#)
- 9.3 [Sub-Slab Depressurization](#)
- 10.1 Chrome Plating (Hexavalent)
 - [Decorative Chrome Plating](#)
 - [Hard Chrome Plating](#)
 - [Trivalent Chrome Plating](#)
- 10.2 [Ethylene Oxide Sterilizers](#)
 - [Ethylene Oxide Sterilizer w/Catalytic Oxidation](#)
 - [Small Sterilizers that are abated by integral carbon adsorption](#)
- 10.4 [Petroleum Solvent Dry Cleaning](#)
- 11.1 Abrasive Blasting
 - [non-BACT with no abatement](#)
 - [non-BACT with abatement](#)
 - [BACT with abatement](#)
- 11.2 Asphalt Facilities
 - [Asphalt Drum Mixer](#)
 - [Portable Asphalt Rubber Blending Plant](#)
- 11.2 Coffee Roasters
 - [Smaller Coffee Roasting Operation](#)
 - [Larger Coffee Roasting Operations](#)
- 11.4 Cooling Towers
 - [Non-BACT](#)
 - [BACT](#)
- 11.5 [Concrete Batch Plants](#)
 - [Abatement by Baghouse](#)
- 11.6 Crematories
 - [Human](#)
 - [Animal](#)
- 11.7 [Crushing and Grinding](#)
 - [Abatement by Baghouse](#)
- 11.8.1 [Methyl Bromide Fumigation](#)
- 11.8.2 [Phosphine Fumigation](#)
- 11.9 [Miscellaneous Organic Operations](#)
- 11.10 Portable Equipment
 - [Portable Diesel Engine](#)
 - [Portable Tub Grinders w/Diesel Engines](#)
 - [Portable Oil/Water Separation and Sludge Dewatering Operations](#)
- 11.11 [Polyester Resin Manufacturing](#)
- 11.12 [Polyester Resin Operation](#)
- 11.13 Tub Grinders
 - [Powered by Electricity \(stationary\)](#)
 - [Powered by Diesel Engine \(stationary\)](#)
- 11.14 [Landfill Gas Flares](#)
- 11.15 [Material Recovery Operations](#)
- 11.16 [Composting Operations](#)
- 12 Procedures
- 12.1 [Banking](#)

PERMIT HANDBOOK

The chapters provide recommended permit conditions for each source type. Moreover, additional parts may be added in circumstances when BACT-required abatement or other circumstances warrant source testing and/or additional monitoring. These additional parts are identified below:

- A. [Abatement by Thermal Oxidizer](#)
- B. [Allowable Temperature Excursions](#)
- C. [Source Testing](#)
- D. [Abatement by Carbon](#)
- E. [Abatement by Baghouse](#)
- F. [Thermal Oxidizer RACT](#)

PERMIT HANDBOOK

Permit Conditions for Boilers, Steam Generators & Process Heaters, fired with natural gas and diesel fuel as backup fuel:

1. The owner/operator of S- shall operate this source on natural gas fuel exclusively, except that diesel fuel may be used when natural gas is unavailable and also to test the performance of the source using diesel fuel. (basis: Cumulative Increase)
2. The owner/operator shall not use more than therms of natural gas fuel at S- in any consecutive twelve-month period. (basis: Cumulative Increase)
3. The owner/operator shall not use more than gallons of diesel fuel in any consecutive twelve-month period and only during times of natural gas curtailment and to test the performance of the source using diesel fuel. (basis: Cumulative Increase)
4. To determine compliance with the above parts, the owner/operator shall maintain the monthly records of natural gas and diesel fuel consumption at S- in an Air District approved log. Monthly throughput shall be totaled for each consecutive twelve-month period. These logs shall be kept for at least 24 months (five years if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit) and shall be made available to the Air District upon request. (basis: Cumulative Increase)
5. The owner/operator shall not exceed the following emission factors when operating S- using natural gas as a fuel:

NO_x = ppm @ 3% O₂

CO = ppm @ 3% O₂

POC = ppm @ 3% O₂

(basis: BACT or Regulation 9-7-307, Cumulative Increase)

[Add [Source Test Conditions](#) after part 5 and renumber the [Source Test Conditions](#), as needed.]

PERMIT HANDBOOK

Permit Conditions for Boilers, Steam Generators & Process Heaters, fired with natural gas only:

1. The owner/operator of S- shall operate this source on natural gas fuel exclusively. (basis: Cumulative Increase)
2. The owner/operator shall not use more than terms of natural gas fuel at S- in any consecutive twelve-month period. (basis: Cumulative Increase)
3. To determine compliance with the above parts, the owner/operator shall maintain the monthly records of natural gas consumption at S- in an Air District approved log. Monthly throughput shall be totaled for each consecutive twelve-month period. These logs shall be kept for at least 24 months (five years if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit) and shall be made available to the Air District upon request. (basis: Cumulative Increase)
4. The owner/operator shall not exceed the following emission factors when operating using natural gas as a fuel:

NO_x = ppm @ 3% O₂

CO = ppm @ 3% O₂

POC = ppm @ 3% O₂

(basis: BACT or Regulation 9-7-307, Cumulative Increase)

[Add [Source Test Conditions](#) after part 4 and renumber the [Source Test Conditions](#), as needed.]

PERMIT HANDBOOK

Permit Conditions for Boilers, Steam Generators & Process Heaters, fired with other gaseous fuel:

1. The owner/operator of S- shall operate this source on gas fuel exclusively. (basis: Cumulative Increase)
2. The owner/operator shall not use more than standard cubic feet of gas fuel at S- in any consecutive twelve-month period. (basis: Cumulative Increase)
3. To determine compliance with the above parts, the owner/operator shall maintain the monthly records of gas consumption at S- in an Air District approved log. Monthly throughput shall be totaled for each consecutive twelve-month period. These logs shall be kept for at least 24 months (five years if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit) and shall be made available to the Air District upon request. (basis: Cumulative Increase)
4. The owner/operator shall not exceed the following emission factors when operating S- using gas as a fuel:

NO_x = ppm @ 3% O₂
CO = ppm @ 3% O₂
POC = ppm @ 3% O₂
(basis: BACT or Regulation 9-7-307, Cumulative Increase)

[Add [Source Test Conditions](#) after part 4 and renumber the [Source Test Conditions](#), as needed.]

PERMIT HANDBOOK

Permit Conditions for Emergency Stationary Diesel Engines: (Condition # 22850)

1. The owner/operator shall not exceed 50 hours per year per engine for reliability-related testing. [Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]
2. The owner/operator shall operate each emergency standby engine only for the following purposes: to mitigate emergency conditions, for emission testing to demonstrate compliance with a District, State or Federal emission limit, or for reliability-related activities (maintenance and other testing but excluding emission testing). Operating while mitigating emergency conditions or while emission testing to show compliance with District, State or Federal emission limits is not limited. [Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]
3. The owner/operator shall operate each emergency standby engine only when a non-resettable totalizing meter (with a minimum display capability of 9,999 hours) that measures the hours of operation for the engine is installed, operated, and properly maintained. [Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]
4. Records: The owner/operator shall maintain the following monthly records in a District- approved log for at least 36 months from the date of entry (60 months if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit). Log entries shall be retained on-site, either at a central location or at the engine's location and made immediately available to the District staff upon request.
 - a. Hours of operation for reliability-related activities (maintenance and testing).
 - b. Hours of operation for emission testing to show compliance with emission limits.
 - c. Hours of operation (emergency).
 - d. For each emergency, the nature of the emergency condition.
 - e. Fuel usage for each engine(s).[Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]
5. At School and Near-School Operation: If the emergency standby engine is located on school grounds or within 500 feet of any school grounds, the following requirements shall apply:

The owner/operator shall not operate each stationary emergency standby diesel-fueled engine for non-emergency use, including maintenance and testing, during the following periods:

- a. Whenever there is a school sponsored activity (if the engine is located on school grounds)
- b. Between 7:30 a.m. and 3:30 p.m. on days when school is in session. "School" or "School Grounds" means any public or private school used for the purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in a private home(s). "School" or "School Grounds" includes any building or structure, athletic field, or other areas of school property but does not include unimproved school property.

[Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]

PERMIT HANDBOOK

Permit Conditions for Single $\geq 1,000$ BHP Emergency Stationary Diesel Engine:

[Conditions are not for agricultural or for direct drive fire pumps.]

I. Tier 4 Certified Engines, equipped with SCR and DPF

Notes: This condition should be used for Tier 4 certified engines. Source testing is not required.

1. The owner/operator shall abate the engine at all times of operation by an approved Selective Catalytic Reduction (SCR) System and Diesel Particulate Filter (DPF) equipped with a backpressure monitor or other approved Diesel Exhaust Particulate Matter Abatement System. The engine, SCR System, and DPF with backpressure monitor or other approved system shall be installed, maintained, and operated in accordance with the manufacturer specifications and/or best modern practices. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
2. The owner/operator shall take all corrective actions recommended by the manufacturer in response to backpressure monitor notifications. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
3. The owner/operator shall commence urea injection as soon as the SCR catalyst bed reaches minimum operating temperature as specified by the manufacturer. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
4. The owner/operator shall not exceed an ammonia (NH₃) slip of 10 ppmv, dry @ 15% O₂ from the SCR system. If deemed necessary to demonstrate compliance with Regulation 2, Rule 5, the Air District may require a source test to determine compliance with this emission limit. [Basis: Regulation 2, Rule 5]
5. To determine compliance with the above conditions, the owner/operator shall maintain the following records in a Air District-approved log and shall make these records available to Air District staff upon request. All records shall be retained for at least 36 months from the date of entry (60 months if the facility has been issued a Title V Major Facility Review Permit or Synthetic Minor Operating Permit). These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District or state regulations.
 - a. Engine, SCR, and DPF maintenance records
 - b. SCR system owner's manual or manufacturer's specifications
 - c. DPF owner's manual or manufacturer's specifications
 - d. All backpressure monitor notifications and corrective actions[Basis: BACT, Cumulative Increase, Recordkeeping]

Tier 2 Engines, equipped with add-on SCR but no DPF; ST for NOX/CO (Condition # 27780)

1. The owner/operator shall ensure the engine is abated at all times of operation by an approved Selective Catalytic Reduction (SCR) System. The engine and SCR System shall be installed, maintained, and operated in accordance with the manufacturer specifications and/or best modern practices. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT]
2. The owner/operator shall ensure urea injection commences as soon as the SCR catalyst bed reaches the minimum operating temperature as specified by the manufacturer. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT]
3. The owner/operator shall ensure engine emissions do not exceed an ammonia (NH₃) slip of 10 ppmv, dry @ 15% O₂ from the SCR system. If deemed necessary to demonstrate compliance with Regulation 2, Rule 5, the Air District may require a source test to determine compliance with this emission limit. [Basis: Regulation 2, Rule 5]
4. The owner/operator shall ensure engine emissions do not exceed the following limit:
NO_x: 0.50 g/bhp-hour
CO: 2.60 g/bhp-hour
[Basis: BACT and Cumulative Increase]
5. To demonstrate compliance with Part 4, the owner/operator shall conduct an initial Air District-approved source test on the engine within 60 days of startup and once every three years thereafter at the normal or expected load during emergency operation using Air District approved source test methods. The owner/operator shall document urea usage (gallons per minute) and average kW during all tests, preferable as digital records. The owner/operator shall submit the source test results to the Air District's Source Test Section no later than 60 days after source test completion. [Basis: BACT and Cumulative Increase]
6. The owner/operator shall comply with all applicable testing, sampling port location and safe access requirements as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall notify the Air District's Source Test Section, in writing, of the source test protocols, sampling port locations, layout, access and projected test dates at least 30 days prior to testing. The following test methods shall be used for each pollutant:
NO_x EPA Method 7E or Air District-approved equivalent
CO EPA Method 10 or Air District-approved equivalent
[Basis: Regulation 2-1-403]
7. To determine compliance with the above, the owner/operator shall maintain the following records in a Air District-approved log and shall make these records available to Air District staff upon request. All records shall be retained for at least 36 months from the date of entry (60 months if the facility has been issued a Title V Major Facility Review Permit or Synthetic Minor Operating Permit). These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District or state regulations.
 - a. Source Test Notifications
 - b. All source test reports
 - c. Engine serial number and source number for each source test
 - d. Engine load percentage
 - e. Engine and SCR maintenance records
 - f. SCR system owner's manual or manufacturer's specifications
 - g. SCR urea injection rate (gpm)[Basis: BACT, Cumulative Increase, Recordkeeping]

Tier 2 Engines, equipped with add-on SCR but no DPF; ST for NOx/CO and POC (Condition # 27781)

1. The owner/operator shall ensure the engine is abated at all times of operation by an approved Selective Catalytic Reduction (SCR) System. The engine and SCR System shall be installed, maintained, and operated in accordance with the manufacturer specifications and/or best modern practices. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT]
2. The owner/operator shall ensure urea injection commences as soon as the SCR catalyst bed reaches the minimum operating temperature as specified by the manufacturer. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT]
3. The owner/operator shall ensure engine emissions do not exceed an ammonia (NH₃) slip of 10 ppmv, dry @ 15% O₂ from the SCR system. If deemed necessary to demonstrate compliance with Regulation 2, Rule 5, the Air District may require a source test to determine compliance with this emission limit. [Basis: Regulation 2, Rule 5]
4. The owner/operator shall ensure engine emissions do not exceed the following limits:
NOx: 0.50 g/bhp-hour
POC: 0.14 g/bhp-hour
CO: 2.60 g/bhp-hour
[Basis: BACT and Cumulative Increase]
5. To demonstrate compliance with Part 4, the owner/operator shall conduct an initial Air District-approved source test on the engine within 60 days of startup and once every three years thereafter at the normal or expected load during emergency operation using Air District approved source test methods. The owner/operator shall document urea usage (gallons per minute) and average kW during all tests, preferable as digital records. The owner/operator shall submit the source test results to the Air District's Source Test Section no later than 60 days after source test completion. [Basis: BACT and Cumulative Increase]
6. The owner/operator shall comply with all applicable testing, sampling port location and safe access requirements as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall notify the Air District's Source Test Section, in writing, of the source test protocols, sampling port locations, layout, access and projected test dates at least 30 days prior to testing. The following test methods shall be used for each pollutant:
NOx EPA Method 7E or Air District- approved equivalent
POC EPA Method 25A and EPA Method 18 or Air District-approved equivalent
CO EPA Method 10 or Air District- approved equivalent
[Basis: Regulation 2-1-403]
7. To determine compliance with the above, the owner/operator shall maintain the following records in a Air District-approved log and shall make these records available to Air District staff upon request. All records shall be retained for at least 36 months from the date of entry (60 months if the facility has been issued a Title V Major Facility Review Permit or Synthetic Minor Operating Permit). These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable District or state regulations.
 - a. Source Test Notifications
 - b. All source test reports
 - c. Engine serial number and source number for each source test
 - d. Engine load percentage
 - e. Engine and SCR maintenance records
 - f. SCR system owner's manual or manufacturer's specifications
 - g. SCR urea injection rate (gpm)

Tier 2 Engines, equipped with add-on SCR and DPF; ST for NOx/CO (Condition # 27782)

1. The owner/operator shall ensure the engine is abated at all times of operation by an approved Selective Catalytic Reduction (SCR) System and Diesel Particulate Filter (DPF) equipped with a backpressure monitor or other approved Diesel Exhaust Particulate Matter Abatement System. The engine, SCR System, and DPF with backpressure monitor, or other approved system shall be installed, maintained, and operated in accordance with the manufacturer specifications and/or best modern practices. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
2. The owner/operator shall take all corrective actions recommended by the manufacturer in response to backpressure monitor notifications. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
3. The owner/operator shall ensure urea injection commences as soon as the SCR catalyst bed reaches the minimum operating temperature as specified by the manufacturer. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
4. The owner/operator shall ensure engine emissions do not exceed an ammonia (NH₃) slip of 10 ppmv, dry @ 15% O₂ from the SCR system. If deemed necessary to demonstrate compliance with Regulation 2, Rule 5, the Air District may require a source test to determine compliance with this emission limit. [Basis: Regulation 2, Rule 5]
5. The owner/operator shall ensure engine emissions do not exceed the following limit:
NOx: 0.50 g/bhp-hour
CO: 2.60 g/bhp-hour
[Basis: BACT and Cumulative Increase]
6. To demonstrate compliance with Part 5, the owner/operator shall conduct an initial Air District-approved source test on the engine within 60 days of startup and once every three years thereafter at the normal or expected load during emergency operation using Air District approved source test methods. The owner/operator shall document urea usage (gallons per minute) and average kW during all tests, preferable as digital records. The owner/operator shall submit the source test results to the Air District's Source Test Section no later than 60 days after source test completion. [Basis: BACT and Cumulative Increase]
7. The owner/operator shall comply with all applicable testing, sampling port location and safe access requirements as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall notify the Air District's Source Test Section, in writing, of the source test protocols, sampling port locations, layout, access and projected test dates at least 30 days prior to testing. The following test methods shall be used for each pollutant:
NOx EPA Method 7E or Air District-approved equivalent
CO EPA Method 10 or Air District-approved equivalent
[Basis: Regulation 2-1-403]
8. To determine compliance with the above parts, the owner/operator shall maintain the following records in a Air District-approved log and shall make these records available to Air District staff upon request. All records shall be retained for at least 36 months from the date of entry (60 months if the facility has been issued a Title V Major Facility Review Permit or Synthetic Minor Operating Permit). These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable District or state regulations.
 - a. Source Test Notifications
 - b. All source test reports
 - c. Engine serial number and source number for each source test
 - d. Engine load percentage
 - e. Engine, SCR, and DPF maintenance records

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- f. SCR system owner's manual or manufacturer's specifications
- g. DPF owner's manual or manufacturer's specifications
- h. All backpressure monitor notifications and corrective actions
- i. SCR urea injection rate (gpm)

[Basis: BACT, Cumulative Increase, Recordkeeping]

Tier 2 Engines, equipped with add-on SCR and DPF; ST for NOX/CO and POC (Condition # 27783)

1. The owner/operator shall ensure the engine is abated at all times of operation by an approved Selective Catalytic Reduction (SCR) System and Diesel Particulate Filter (DPF) equipped with a backpressure monitor or other approved Diesel Exhaust Particulate Matter Abatement System. The engine, SCR System, and DPF with backpressure monitor, or other approved system shall be installed, maintained, and operated in accordance with the manufacturer specifications and/or best modern practices. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
2. The owner/operator shall take all corrective actions recommended by the manufacturer in response to backpressure monitor notifications. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
3. The owner/operator shall ensure urea injection commences as soon as the SCR catalyst bed reaches the minimum operating temperature as specified by the manufacturer. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
4. The owner/operator shall ensure engine emissions do not exceed an ammonia (NH₃) slip of 10 ppmv, dry @ 15% O₂ from the SCR system. If deemed necessary to demonstrate compliance with Regulation 2, Rule 5, the Air District may require a source test to determine compliance with this emission limit. [Basis: Regulation 2, Rule 5]
5. The owner/operator shall ensure engine emissions do not exceed the following limits:
NO_x: 0.50 g/bhp-hour
POC: 0.14 g/bhp-hour
CO: 2.60 g/bhp-hour
[Basis: BACT and Cumulative Increase]
6. To demonstrate compliance with Part 5, the owner/operator shall conduct an initial Air District-approved source test within 60 days of startup and once every three years thereafter at the normal or expected load during emergency operation using Air District approved source test methods. The owner/operator shall document urea usage (gallons per minute) and average kW during all tests, preferable as digital records. The owner/operator shall submit the source test results to the Air District's Source Test Section no later than 60 days after source test completion. [Basis: BACT and Cumulative Increase]
7. The owner/operator shall comply with all applicable testing, sampling port location and safe access requirements as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall notify the Air District's Source Test Section, in writing, of the source test protocols, sampling port locations, layout, access and projected test dates at least 30 days prior to testing. The following test methods shall be used for each pollutant:
NO_x EPA Method 7E or Air District- approved equivalent
POC EPA Method 25A and EPA Method 18 or Air District-approved equivalent
CO EPA Method 10 or Air District- approved equivalent
[Basis: Regulation 2-1-403]
8. To determine compliance with the above parts, the owner/operator shall maintain the following records in a Air District-approved log and shall make these records available to Air District staff upon request. All records shall be retained for at least 36 months from the date of entry (60 months if the facility has been issued a Title V Major Facility Review Permit or Synthetic Minor Operating Permit). These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District or state regulations.
 - a. Source Test Notifications
 - b. All source test reports
 - c. Engine serial number and source number for each source test

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- d. Engine load percentage
 - e. Engine, SCR, and DPF maintenance records
 - f. SCR system owner's manual or manufacturer's specifications
 - g. DPF owner's manual or manufacturer's specifications
 - h. All backpressure monitor notifications and corrective actions
 - i. SCR urea injection rate (gpm)
- [Basis: BACT, Cumulative Increase, Recordkeeping]

Tier 2 Engines, equipped with add-on SCR and DPF; ST for NOx/CO & PM. (Condition # 27784)

1. The owner/operator shall ensure the engine is abated at all times of operation by an approved Selective Catalytic Reduction (SCR) System and Diesel Particulate Filter (DPF) equipped with a backpressure monitor or other approved Diesel Exhaust Particulate Matter Abatement System. The engine, SCR System, and DPF with backpressure monitor or other approved system shall be installed, maintained, and operated in accordance with the manufacturer specifications and/or best modern practices. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
2. The owner/operator shall take all corrective actions recommended by the manufacturer in response to backpressure monitor notifications. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
3. The owner/operator shall ensure urea injection commences as soon as the SCR catalyst bed reaches minimum operating temperature as specified by the manufacturer. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
4. The owner/operator shall ensure engine emissions do not exceed an ammonia (NH₃) slip of 10 ppmv, dry @15% O₂ from the SCR system. If deemed necessary to demonstrate compliance with Regulation 2, Rule 5, the Air District may require A source test to determine compliance with this emission limit. [Basis: Regulation 2, Rule 5]
5. The owner/operator shall ensure engine emissions do not exceed the following limits:
NOx: 0.50 g/bhp-hour
PM: 0.02 g/bhp-hour
CO: 2.60 g/bhp-hour
[Basis: BACT and Cumulative Increase]
6. To demonstrate compliance with Part 5, the owner/operator shall conduct an initial Air District-approved source test on the engine within 60 days of startup and once every three years thereafter at the normal or expected load during emergency operation using Air District approved source test methods. The owner/operator shall document urea usage (gallon per minute) and average kW during all tests, preferable as digital records. The owner/operator shall submit the source test results to the Air District's Source Test Section no later than 60 days after source test completion. [Basis: BACT and Cumulative Increase]
7. The owner/operator shall comply with all applicable testing, sampling port location and safe access requirements as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall notify the Air District's Source Test Section, in writing, of the source test protocols, sampling port locations, layout, access and projected test dates at least 30 days prior to testing. The following test methods shall be used for each pollutant:
PM (filterable) EPA Method 5 or Air District- approved equivalent
NOx EPA Method 7E or Air District- approved Equivalent
CO EPA Method 10 or Air District- approved equivalent
[Basis: Regulation 2-1-403]
8. To determine compliance with the above conditions, the owner/operator shall maintain the following records in a Air District- approved log and shall make these records available to Air District staff upon request. All records shall be retained for at least 36 months from the date of entry (60 months if the facility has been issued a Title V Major Facility Review Permit or Synthetic Minor Operating Permit). These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District or state regulations.
 - a. Source Test Notifications
 - b. All source test reports
 - c. Engine serial number and source number for each source test

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- d. Engine load percentage
 - e. Engine, SCR, and DPF maintenance records
 - f. SCR system owner's manual or manufacturer's specifications
 - g. DPF owner's manual or manufacturer's specifications
 - h. All backpressure monitor notifications and corrective actions
 - i. SCR urea injection rate (gpm)
- [Basis: BACT, Cumulative Increase, Recordkeeping]

Tier 2 Engines, equipped with add-on SCR and DPF; ST for NOx/CO and POC (Condition # 27785)

1. The owner/operator shall ensure the engine is abated at all times of operation by an approved Selective Catalytic Reduction (SCR) System and Diesel Particulate Filter (DPF) equipped with a backpressure monitor or other approved Diesel Exhaust Particulate Matter Abatement System. The engine, SCR System, and DPF with backpressure monitor or other approved system shall be installed, maintained, and operated in accordance with the manufacturer specifications and/or best modern practices. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
2. The owner/operator shall take all corrective actions recommended by the manufacturer in response to backpressure monitor notifications. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
3. The owner/operator shall ensure urea injection commences as soon as the SCR catalyst bed reaches minimum operating temperature as specified by the manufacturer. [Basis: Cumulative Increase, Title 17 CCR Section 93115.6(a)(3), 40 CFR 1039.101, BACT, TBACT]
4. The owner/operator shall ensure engine emissions do not exceed an ammonia (NH₃) slip of 10 ppmv, dry @ 15% O₂ from the SCR system. If deemed necessary to demonstrate compliance with Regulation 2, Rule 5, the Air District may require a source test to determine compliance with this emission limit. [Basis: Regulation 2, Rule 5]
5. The owner/operator shall ensure engine emissions do not exceed the following limits:
NOx: 0.50 g/bhp-hour
POC: 0.14 g/bhp-hour
CO: 2.60 g/bhp-hour
PM: 0.02 g/bhp-hour
[Basis: BACT and Cumulative Increase]
6. To demonstrate compliance with Part 5, the owner/operator shall conduct an initial Air District-approved source test within 60 days of startup and once every three years thereafter at the normal or expected load during emergency operation using Air District approved source test methods. The owner/operator shall document urea usage (gallons per minute) and average kW during all tests, preferable as digital records. The owner/operator shall submit the source test results to the Air District's Source Test Section no later than 60 days after source test completion. [Basis: BACT and Cumulative Increase]
7. The owner/operator shall comply with all applicable testing, sampling port location and safe access requirements as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall notify the Air District's Source Test Section, in writing, of the source test protocols, sampling port locations, layout, access and projected test dates at least 30 days prior to testing. The following test methods shall be used for each pollutant:
PM (filterable) EPA Method 5 or Air District-approved equivalent
NOx EPA Method 7E or Air District-approved equivalent
POC EPA Method 25A and EPA Method 18 or Air District-approved equivalent
CO EPA Method 10 or Air District-approved equivalent.
[Basis: Regulation 2-1-403]
8. To determine compliance with the above conditions, the owner/operator shall maintain the following records in a Air District- approved log and shall make these records available to Air District staff upon request. All records shall be retained for at least 36 months from the date of entry (60 months if the facility has been issued a Title V Major Facility Review Permit or Synthetic Minor Operating Permit). These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District or state regulations.
 - a. Source Test Notifications

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- b. All source test reports
- c. Engine serial number and source number for each source test
- d. Engine load percentage
- e. Engine, SCR, and DPF maintenance records
- f. SCR system owner's manual or manufacturer's specifications
- g. DPF owner's manual or manufacturer's specifications
- h. All backpressure and corrective actions
- i. SCR urea injection rate (gpm)

Basis: BACT, Cumulative Increase, Recordkeeping]

Permit Conditions for Emergency Stationary Natural Gas Engines:

1. Operating for reliability-related activities is limited to 100 hours per year per engine. [Basis: Regulation 9-8-330.2]
2. The owner or operator shall operate each emergency standby engine only for the following purposes: to mitigate emergency conditions, for emission testing to demonstrate compliance with an Air District, state or Federal emission limit, or for reliability-related activities (maintenance and other testing but excluding emission testing). Operating while mitigating emergency conditions or while emission testing to show compliance with Air District, state or Federal emission limits is not limited. [Basis: Regulation 9-8-330]
3. The owner/operator shall operate each emergency standby engine only when a non-resettable totalizing meter (with a minimum display capability of 9,999 hours) that measures the hours of operation for the engine is installed, operated and properly maintained. [Basis: Regulation 9-8-530]
4. Records: The owner/operator shall maintain the following monthly records in an Air District-approved log for at least 24 months from the date of entry (5 years if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit). Log entries shall be retained on-site, either at a central location or at the engine's location and made immediately available to the Air District staff upon request.
 - a. Hours of operation for reliability-related activities (maintenance and testing).
 - b. Hours of operation (emergency).
 - c. For each emergency, the nature of the emergency condition.
 - d. Fuel usage for each engine(s).
 - e. Monthly hours of operation for parts 4a and 4b shall be totaled for each consecutive twelve-month period.

[Basis: Regulation 9-8-502]

Permit Conditions for Essential Emergency Natural Gas Engines (Condition # 23110):

REQUIREMENTS FOR ESSENTIAL EMERGENCY ENGINES:

An essential emergency engine is one that is used in the service of an essential public service. An essential public service is defined in Reg. 9-8-233 as:

- A sewage treatment facility, and associated collection system, which is publicly owned and operated;
- Water treatment and delivery operations;
- Public transit;
- Police or fire fighting facility;
- Airport runway lights; or
- Hospital or other medical emergency facility.

"Emergency Conditions" is defined as any of the following:

- Loss of regular natural gas supply.
- Failure of regular electric power supply.
- Flood mitigation.
- Sewage overflow mitigation.
- Fire.
- Failure of a primary motor, but only for such time as needed to repair or replace the primary motor.

[Basis: Reg. 9-8-231]

"Reliability-related activities" is defined as any of the following:

- Operation of an emergency standby engine to test its ability to perform for an emergency use, or
- Operation of an emergency standby engine during maintenance of a primary motor.

[Basis: Reg. 9-8-232]

1. Hours of Operation: The owner/operator shall operate the emergency standby engine(s) only to mitigate emergency conditions or for reliability-related activities. Operating while mitigating emergency conditions is unlimited. Operating for reliability-related activities is limited to 100 hours per any calendar year. [Basis: Reg. 9-8-331]
2. The owner/operator shall equip the emergency standby engine(s) with either:
 - a. a non-resettable totalizing meter that measures and records the hours of operation for the engine.
 - b. a non-resettable fuel usage meter.[Basis: Reg. 9-8-530]
3. Records: The owner/operator shall maintain the following monthly records in an Air District-approved log for at least 2 years and shall make the log available for Air District inspection upon request:
 - a. Hours of operation (total).
 - b. Hours of operation (emergency).
 - c. For each emergency, the nature of the emergency condition.[Basis: Reg. 9-8-530, 1-441]

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Permit Conditions for Portable Diesel Engine:

- This condition can be for a portable engine that is portable on-site or that can leave the site. 2-1-413 applies only if it leaves the site.
1. The owner/operator of S- Diesel Engine has been given a permit for a portable source and is subject to Regulation 2-1-413 and the CARB Portable Engine ATCM. (basis: CARB ATCM for Portable Diesel Engines, BAAQMD 2-1-413.7)
 2. The owner/operator shall not store or operate the sources in one location (footprint) for more than 12 consecutive months, following the date of initial operation. Any backup or standby engine, which replaces S-1 IC Engine at the same location and is intended to perform the same function will be counted toward this time limitation. The owner/operator shall not move the equipment and then return it to the same location in an attempt to circumvent the portable equipment time requirement. (basis: CARB ATCM for Portable Diesel Engines, BAAQMD 2-1-413.7)
 3. The owner/operator shall not operate within 1000 feet of the outer boundary of any K-12 school site. (basis: Regulation 2-1-413.3)
 4. The owner/operator shall comply with the risk requirements of Regulation 2, Rule 5. The owner/operator shall not operate this equipment within an overburdened community, as defined in Regulation 2-1-243, unless the applicable public noticing requirements of Regulation 2-1-412 and the applicable project risk limits of Regulation 2-5-302 have been met. This will require submittal and Air District approval of an application for a revised permit to operate. (basis: Regulations 2-1-412, 2-1-413.2, and 2-5-302)
 5. The owner/operator shall emit no more than 10 tons per year of each pollutant, including POC, CO, NOx, PM10, NPOC or SO2. (basis: Regulation 2-1-413.1)
 6. The owner/operator shall fire S- Diesel Engine exclusively with CARB diesel fuel. (basis: Cumulative increase, BACT, Toxics; Section 93116.3(a) of the ATCM for Portable Diesel Engines)
 7. The total operation is limited to hours of operation in any consecutive 12-month period. The total operation is limited to hours of operation in any consecutive 12-month period. [Note: To qualify for as a “low-use” engine, the engine operations cannot exceed 80 hours in a calendar year. Also, if “low-use”, add Section 93116.3(b)(2)(B) of ATCM for Portable Diesel Engines to basis.](basis: Cumulative increase, BACT, Toxics)
 8. The owner/operator shall equip S- Diesel Engine with either:
 - a. a non-resettable totalizing meter that measures hours of operation for the engine; or
 - b. a non-resettable fuel usage meter, the maximum hourly fuel rate shall be used to convert fuel usage to hours of operation.(basis: Cumulative Increase)
 9. To determine compliance with the above conditions, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions.
 - a. Daily hours of operation.
 - b. Monthly consumption of diesel fuel (in gallons).
 - c. Hours of operation and amount of diesel fuel in parts a) and b) shall be totaled on a rolling consecutive 12-month basis.
 - d. The owner/operator shall record all records in an Air District-approved log. The owner/operator shall retain the records with the equipment for 24 months (five years if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit), from the date of entry, and make them available for inspection by Air

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District staff upon request. These record-keeping requirements shall not replace the record-keeping requirements contained in any applicable Air District Regulations. (basis: Toxics, Cumulative Increase, Regulation 1-441)

10. The owner/operator shall notify the Compliance and Enforcement Division by email to compliance@baaqmd.gov (Attention: Director of Compliance and Enforcement), at least 3 days in advance, of the new location in which it intends to operate. The notification shall include:
 - a. Permit number
 - b. Brief description of the nature of the operation
 - c. Estimated duration of the operation at the new location
 - d. Name and telephone number of a contact person at the new location(basis: Regulation 2-1-403)
11. Within 30 days after the end of the calendar year, the owner/operator shall provide the Director of the Compliance and Enforcement Division a year-end summary with the following information:
 - a. The location(s) and dates at which the equipment was operated.
 - b. The total amount of diesel fuel consumed in this operation for the previous 12 months (in gallons).
 - c. The total hours of operation.(basis: Regulation 2-1-403)

[The following condition applies only to “in-use” portable diesel engines:]

12. Effective January 1, 2010, the owner/operator of S- Diesel Engine shall comply with one of the following:
 - a. S- Diesel Engine complies with the Tier emission standards. A copy of its CARB certification or approved source test data is submitted to the Air District’s Engineering Division for review.
 - b. The owner/operator submits a permit application to replace S- Diesel Engine with a portable diesel-fueled engine certified to the Tier 4 emission standards.(basis: Section 93116.3(b)(2)(A) of ATCM for Portable Diesel Engines)

[The following condition applies only to “low-use” or “emergency” portable diesel engines:]

13. Effective January 1, 2020, the owner/operator of S- Diesel Engine shall comply with one of the following:
 - a. S- Diesel Engine complies with Tier 4 emission standards for newly manufactured nonroad engines.
 - b. The owner/operator submits a permit application to equip S- Diesel Engine with a properly functioning level-3 verified technology.
 - c. The owner/operator submits a permit application to equip S- Diesel Engine with a combination of verified emission control strategies that have been verified together to achieve at least 85% reduction in diesel PM.
 - d. The owner/operator submits a permit application to replace S- Diesel Engine with a portable diesel-fueled engine certified to the Tier 4 emission standards.(basis: Section 93116.3(b)(3) of ATCM for Portable Diesel Engines)

Permit Conditions for Biogas Engines:

Note: The amount of natural gas allowed may be limited if resource recovery credits were given to the facility.

1. The owner/operator shall fire S-_____ exclusively on (digester/landfill) gas from S-_____, (Anaerobic Digesters/Landfill), and/or pipeline quality natural gas. (basis: Cumulative Increase)
2. The owner/operator of S-_____ shall not allow the combined heat input to exceed _____ million BTU (HHV) during any consecutive 12-month period. (basis: Cumulative Increase)
3. The owner/operator shall ensure that all digester/landfill gas combusted in S-_____ is treated by A-_____ prior to combustion. The owner/operator shall not allow the concentration of total sulfur in the gas exiting A-_____ to exceed _____ ppm. (basis: Cumulative Increase)
4. The owner/operator shall properly maintain and operate A-_____ in accordance to the manufacturer's specifications during all periods of operation of S-_____. The owner/operator shall not regenerate A-_____ media on site. (basis: Cumulative Increase)
5. The owner/operator shall abate NOx emissions from S-_____ by A-_____ at all times of operation except during startup and shutdown of S-_____. The owner/operator shall ensure that each SCR catalyst bed is equipped with a temperature monitor and continuous recorder that accurately measures and records the temperature of exhaust gas from the catalyst during all periods of operation. Except during periods of startup or shutdown, the owner/operator shall maintain the exhaust gas temperature within a range of 575 degrees Fahrenheit and 960 degrees Fahrenheit while the engine is in operation. (basis: Cumulative Increase)
6. The owner/operator shall properly maintain and operate A-_____ in accordance to manufacturer's specifications during all periods of operation of S-_____. (basis: BACT)
7. The owner/operator shall abate CO and organic compound emissions from S-_____ by A-_____ at all times of operation except during startup and shutdown of S-_____. (basis: BACT, Regulation 2-5-302)
8. The owner/operator shall properly maintain and operate A-_____ in accordance to manufacturer's specifications during all periods of operation of S-_____. (basis: BACT)
9. The owner/operator shall not allow NOx emissions from each of S-_____ to exceed an emission rate of _____ grams of NOx (calculated as NO2) per brake-horsepower-hour, or the equivalent outlet concentration of _____ ppmv of NOx, corrected to 15% oxygen, dry basis, averaged over the test period. The owner/operator shall not allow total NOx emissions from S-_____ to exceed _____ tons per year. The concentration and grams per brake-horsepower-hour limits do not apply during periods of startup or shutdown. The startup period shall not exceed 2 hours and the shutdown period shall not exceed 1 hour. (basis: Cumulative Increase, BACT)
10. The owner/operator shall not allow CO emissions from each of S-_____ to exceed an emission rate of _____ grams of CO per brake-horsepower-hour, or the equivalent outlet concentration of _____ ppmv of CO, corrected to 15% oxygen, dry basis, averaged over the source test period. The owner/operator shall not allow total CO emissions from S-_____ to exceed _____ tons per year. The concentration and grams per brake-horsepower-hour limits do not apply during periods of startup and shutdown. The startup period shall not exceed 2 hours and the shutdown period may not exceed 1 hour. (Basis: Cumulative Increase, BACT)
11. In order to demonstrate compliance with the limits in Parts 9 and 10, the owner/operator shall use a portable analyzer to take NOx and CO emission readings to verify compliance with Parts 9 and 10 at least once on each engine every calendar quarter in which the engine operates. All emission readings shall be taken with the engine operating at conditions representative of normal operations.

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NOx emission readings shall be averaged over a consecutive 15-minute period. (Basis: BACT, Cumulative Increase, and Regulation 2-1-403 and 9-8-503)

The following two conditions are likely to apply only to larger facilities.

12. The owner/operator shall not allow PM10 or PM2.5 emissions from each of S- to exceed grams of PM10 or PM2.5 per brake-horsepower-hour. The owner/operator shall not allow total PM10 or PM2.5 emissions from S- to exceed tons per year. This includes condensable and filterable PM. (Basis: Cumulative Increase, BACT) .
13. The owner/operator shall not allow a net increase of PM2.5 emissions to exceed 10 tons per year from this project. The project includes . (Basis: Regulation 2-2-308)
14. The owner/operator shall not allow POC measured as NMOC emissions from each of S- to exceed grams of POC per brake-horsepower-hour, or the equivalent outlet concentration of ppmv of POC (as methane), corrected to 15% oxygen, dry basis, averaged over the source test period. The owner/operator shall not allow formaldehyde emissions from each of S- to exceed pounds per hour. (Basis: Cumulative Increase, BACT, Regulation 2, Rule 5)
15. The owner/operator shall not allow the ammonia (NH3) concentration in the exhaust from each of S- to exceed ppmv, corrected to 15% oxygen, dry basis. (Basis: Regulation 2-5-302)

The following condition will only apply to engines with PM10 or PM2.5 limits.

16. The owner/operator shall ensure that S- is equipped with source test sampling ports and safe access as specified in Volume IV of the Air District's Manual of Procedures. Sampling ports shall be installed in the exhaust stack after control in a straight section of piping with at least six (6) diameters clear downstream of any bends, inlets, constriction, flow altering device or change of area or geometry and two (2) diameters upstream of the stack exit or other flow disturbance. The sample ports shall be at least 6" in diameter. The owner/operator shall obtain approval of the sampling ports locations, layout and access from the Air District's Source Test Section prior to installation and construction. (Basis: BACT; Cumulative Increase)

The requirements for PM10 and PM2.5 testing will apply only to engines with PM10 and PM2.5 limits. If the engine is fired on landfill gas, the source test should show compliance with Regulation 8-34-301.4.

17. In order to demonstrate compliance with Parts 9, 10, and 12 through 15 above and Regulations 9-1-302, 9-8-302.1, 9-8-302.3, the owner/operator shall ensure that an Air District approved source test is conducted in each engine not later than 60 days after startup and once every 8,760 hours of operation or three years, whichever comes first. Each source test shall be conducted at the exhaust stack after control while the engine is operating under normal operating conditions while fired on digester gas or a digester gas and natural gas blend and shall not include startup or shutdown periods. Each source test shall determine all items identified below. The owner/operator shall submit the source test results to the Air District's Source Test Section no later than 60 days after source test completion. (Basis: BACT, Cumulative Increase, and Regulations 2-5-302, 9-1-302, 9-8-302.1, and 9-1-302.3)
 - a. Actual gross electrical output (kW-hrs) from the tested engine(s) during the test period and the calculated power output (bhp) from each engine determined using the following equation: $bhp = 1.34 * kW$;
 - b. Total flow rate (standard cubic feet per minute, dry basis, or scfm) of all gaseous fuel to the tested engine(s);

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- c. Concentrations (percent by volume or ppmv, dry basis) of carbon dioxide (CO₂), nitrogen (N₂), oxygen (O₂), methane (CH₄), total non-methane organic compounds (NMOC), and total sulfur compounds (TS) in the gaseous fuel burned in the tested engine(s);
 - d. Higher heating value (BTU/scf) for the biogas;
 - e. Heat input rate (BTU/hour) to the tested engine(s) averaged over the test period;
 - f. Exhaust gas flow rate (sdscfm) from the tested engine(s) based on EPA Method 2 or Method 19;
 - g. Concentrations (ppmv or percent by volume, dry basis) of NO_x, CO, CH₄, NMOC, SO₂, NH₃, formaldehyde, and O₂ in the exhaust gas from the tested engine(s);
 - h. Corrected concentrations (ppmv, corrected to 15% O₂, dry basis) of NO_x, CO, CH₄, SO₂, NH₃, and H₂S in the exhaust gas from the tested engine(s);
 - i. Corrected concentration (ppmv, dry basis) of NMOC in the fuel to the tested engine(s);
 - j. NMOC destruction efficiency (weight percent) achieved by the tested engine(s);
 - k. Emission rates (grams/bhp-hour) of NO_x, CO, POC, and PM₁₀ from each engine;
 - l. Emissions (pounds/hour) of PM₁₀ from each engine and the PM₁₀ grain loading rate (grains/dscf) from the tested engine(s). This includes filterable and condensable particulate.
 - m. Emission rate (pounds/hour) of formaldehyde from the tested engine(s);
 - n. Average temperature of the SCR catalyst exhaust gas temperature for the tested engine(s) during the test period.
 - o. During the source test, the owner/operator shall also measure concentrations of NO_x, CO, and O₂ (ppmv) in the exhaust from the tested engine(s) using the portable analyzer procedures described in Part 12. The portable analyzer measurements of corrected NO_x and CO concentrations shall be compared to the values measured pursuant to Part 17h.
18. The owner/operator shall measure and record the flowrate of the biogas and natural gas supplied to each engine on a continuous basis (at least one measurement every 15-minutes) using an Air District approved method. The flow meters and recorder shall be installed and properly calibrated prior to any engine operation; this equipment shall be maintained in good working condition. (Basis: Cumulative Increase)
19. To demonstrate compliance with the limit in Part 3, the owner/operator shall monitor and record the sulfur content of the treated digester gas at least once each month. (Basis: Cumulative Increase)
20. The owner/operator shall monitor and record the heat content of the (digester/landfill) gas at least once each month. (Basis: Cumulative Increase)
21. The owner/operator shall maintain the following plans and records on-site for a minimum of 5 years from the date of entry. The plans and records shall be made available to Air District staff upon request.
- a. Records of heat input to each engine for each calendar month and for each rolling 12-month period. Heat input shall be calculated using Air District approved procedures based on measured biogas flow rate data and measured biogas methane concentration data. The calculated heat input rates shall be recorded in a data acquisition system or electronic spreadsheet.

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- b. Records of all monitoring or source testing conducted to demonstrate compliance with this permit condition and Air District rules.
- c. An engine maintenance plan.
- d. Records of all maintenance conducted on each engine.
- e. Records of start-ups, shut-downs, and malfunctions for each engine. For any malfunction, the records shall include the cause of the malfunction, the actions taken to correct the malfunction, the date and time that the malfunction was corrected, and the actions taken to prevent such malfunctions in the future.

(Basis: Cumulative Increase; Recordkeeping)

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Permit Conditions for Bulk Loading:

1. The owner/operator of A- Vapor Recovery Unit shall receive obtain appropriate certification from the California Air Resources Board (CARB) for installation of the modified new equipment prior to commencement of operation. (Basis: Regulation.8-33)
2. The owner/operator of A- shall install an Air District approved exhaust flow measurement and continuous hydrocarbon emission monitor at each exhaust outlet of the vapor recovery system. This monitor shall continuously measure hydrocarbon concentration in parts per million as C1. (Basis: Cumulative Increase)
3. Not later than 60 days from the startup of S- , the owner/operator shall conduct Air District approved source tests to determine the following:
 - a. Determine the relationship between the organic emission concentration measured on the continuous hydrocarbon monitor and the corresponding emission rate in pounds per 1000 gallons of gasoline loaded. This test shall establish the maximum allowable organic concentration level that meets the pounds organic per 1000 gallons of gasoline loaded criteria of .
 - b. Maximum gasoline loading rate (gallons per calendar day)
 - c. Maximum Refrigeration Unit discharge temperature.(Basis: Cumulative Increase)
The owner/operator shall submit the source test results to the Air District's Source Test Section no later than 60 days after source test completion. (basis: BACT, Cumulative Increase)
4. The owner/operator shall comply with all applicable testing requirements as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall notify the Air District's Source Test Section, in writing, of the source test protocols and projected test dates at least 30 days prior to testing. (basis: BACT, Cumulative Increase)
5. The owner/operator shall ensure that S- is equipped with source test sampling ports and safe access as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall obtain approval of the sampling ports locations, layout and access from the Air District's Source Test Section prior to installation. (Basis: BACT; Cumulative Increase)
6. The total amount of fuel loaded at source S- shall not exceed gallons during any consecutive twelve-month period. (Basis: Cumulative Increase)
7. To demonstrate compliance with the above, the owner/operator shall maintain the following daily records in an Air District-approved log:
 - a. The type and amount of material loaded
 - b. Date of each loading event
 - c. Part 7a shall be totaled for each consecutive twelve-month period.All records shall be retained on site for at least five years from the date of entry and be made available for inspection by Air District staff on request. (Basis: Recordkeeping; Regulation 8-33-500)

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Permit Conditions for Marine Loading/Offloading Facility:

1. The owner/operator of Marine Loading/Offloading Facility (S-) and its associated equipment shall ensure that it is properly maintained and leak free at all time. (Basis: Regulation 8-44-304)
2. The owner/operator of source S- shall not exceed gallons of fuel loaded during any consecutive twelve-month period. (Basis: Cumulative Increase)
3. The owner/operator of source S- shall not exceed 2 pounds of POC emissions per 1000 barrels of fuel loaded. (Basis: Regulation 8-44-301)
4. To demonstrate compliance with the above, the owner/operator shall maintain the following daily records in an Air District-approved log:
 - a. The type and amount of material loaded
 - b. Date of each loading event
 - c. The identification/name of each marine vessel calling at the dock
 - d. Part 4a shall be totaled for each consecutive twelve-month period.All records shall be retained on site for at least five years from the date of entry and be made available for inspection by Air District staff on request. (Basis: Recordkeeping; Regulation 8-44-500)

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Permit Conditions for Oil-Water Separator:

1. The owner/operator of S- shall not exceed wastewater throughput limits of gallons during any consecutive twelve-month period. (Basis: Cumulative Increase)
2. To determine compliance with the above part, the owner/operator shall maintain the following records:
 - a. Quantities of wastewater processed on a monthly basis.
 - b. Monthly throughput shall be totaled for each consecutive twelve-month period.All records shall be retained on-site for 24 months (five years if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit), from the date of entry, and made available for inspection by Air District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District Regulations. (Basis: Cumulative Increase)

Permit Conditions for Petroleum Refinery Fugitive Emissions:

1. Not more than 30 days after the start-up of S- , the owner/operator shall provide the Air District's Engineering Division with a final count of fugitive components installed. The owner/operator has been permitted for an increase in the following fugitive components:
 - valves in gas service
 - valves in liquid service
 - pumps
 - PRV in gas service
 - PRVs in liquid service
 - connectors/flanges

(basis: Cumulative Increase, offsets, Toxics)
2. If there is an increase in the total fugitive component emissions, the plant's cumulative emissions for the project shall be adjusted to reflect the difference between emissions based on predicted versus actual component counts. The owner/operator shall provide to the Air District all additional required offsets at an offset ratio of 1.15:1 no later than 14 days after submittal of the final POC fugitive count. If the actual component count is less than the predicted, the total will be adjusted accordingly, and all emission offsets applied by the owner/operator in excess of the actual total fugitive emissions will be credited back to the owner/operator. (basis: offsets)
3. The owner/operator shall install valves, in light hydrocarbon service, that are of Air District approved BACT compliant technology (bellows valves, diaphragm valves, live loaded valves, or the equivalent) such that fugitive organic emissions shall not exceed 100 ppm. (basis: BACT, Regulation 8-18, Toxics)
4. The owner/operator shall install flanges and connectors, in light hydrocarbon service, that are of Air District approved BACT compliant technology (graphitic gaskets or the equivalent) such that fugitive organic emissions shall not exceed 100 ppm. (basis: BACT, Regulation 8-18, Toxics)
5. The owner/operator shall install pump seals, in light hydrocarbon service, that are of Air District approved BACT compliant technology (double mechanical seals with barrier fluid or the equivalent) such that fugitive organic emissions shall not exceed 500 ppm. (basis: BACT, Regulation 8-18, Toxics)
6. The owner/operator shall ensure that each pressure relief valve installed in hydrocarbon service is vented back to the process, to the refinery fuel gas system, or to an abatement device with a capture and destruction efficiency of at least 98% by weight. (basis: BACT, Regulation 8-28, Toxics)
7. In accordance with the provisions of Regulation 8-18, the owner/operator shall integrate all new fugitive equipment in organic service installed as part of the S- into the facility fugitive equipment monitoring and repair program. (basis: BACT, Regulation 8-18)

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Permit Conditions for Dehydrator, Injection Wells, Natural Gas Fired Engine and Facility-Wide Permit Conditions for Natural Gas Production Facilities and Crude Oil Production Facilities:

Conditions for S- Dehydrator:

1. The owner/operator of S- shall not exceed the following dry gas flow rates:

MMSCF per day
(Basis: Cumulative Increase)
2. The owner/operator of S- shall not use stripping gas. (Basis: Cumulative Increase, Toxics)
3. The owner/operator of S- shall ensure that all emissions from the reboiler stack of S- shall be abated at all times of operation by routing the emissions first to the gallon cooling tank and then to the reboiler burner of S- . (Basis: Cumulative Increase)
4. The owner/operator of S- shall ensure that all emissions from the flash tank of S- shall be abated at all times of operation by routing the emissions to the reboiler burner of S- as fuel gas. (Basis: Cumulative Increase)
5. The owner/operator of S- shall not exceed the following limits for the combined emissions from the regenerator vent and flash gas at any time.

Combined Regenerator Vent/Flash Gas Emission Limit

Benzene	lb/hr	lb/yr
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VOC*	lb/hr	lb/yr
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* Non-methane Hydrocarbon

(basis: Cumulative Increase, Toxics)

6. The owner/operator of S- Natural Gas Dehydrator including Reboiler and A- Air-Condenser Tank shall ensure that Air District approved sample ports are installed in the following locations for use during Air District approved source tests to measure emissions of benzene and VOCs.
 - a. Regenerator vent stack (regenerator emissions before abatement)
 - b. A- Air-Condenser tank vent (regenerator emissions after abatement)
 - c. Reboiler exhaust stack (flash gas emissions after abatement)(basis: Cumulative Increase, Toxics)
7. Within 60 days of startup and annually within the months of June through August, the owner/operator shall source test each of the locations in part 6 under the following conditions:
 - a. The dehydrator shall run at maximum capacity.
 - b. The specification for the dry gas shall be lb water per million cubic feet or less.
 - c. The test shall consist of determining the flowrates at each point; taking a sample for lab analysis; determining the concentration of the following components: VOC, benzene; and determining the hourly mass emission rates of VOC and benzene.The owner/operator shall submit the source test results to the Air District's Source Test Section no later than 60 days after source test completion. (basis: BACT, Cumulative Increase)(basis: Cumulative Increase, Toxics)
8. The owner/operator shall comply with all applicable testing requirements as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall notify the Air District's Source Test Section, in writing, of the source test protocols and projected test dates at least 30 days prior to testing. (basis: BACT, Cumulative Increase)
9. The owner/operator shall ensure that S- is equipped with source test sampling ports and safe access as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator

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shall obtain approval of the sampling ports locations, layout and access from the Air District's Source Test Section prior to installation. (Basis: BACT; Cumulative Increase)

Conditions for S- Natural Gas-Fired Engine:

1. The owner/operator shall operate S- engine only when NO_x, CO and POC emissions are abated by the properly maintained and properly operated A- 3-Way Catalyst. (Basis: Cumulative Increase)
2. The owner/operator of S- shall not exceed the following limits: ppmv of NO_x corrected to 15% oxygen, dry Basis, ppmv of CO corrected to 15% oxygen, dry Basis. (Basis: Regulation 9-8-301, Cumulative Increase)
3. The owner/operator of S- shall demonstrate compliance with the emissions limits of Part 2 by use of a portable analyzer to take NO_x and CO emission readings. Reading shall be taken at least once each calendar quarter in which a source test is not performed. All emissions readings shall be taken with the engine operating at conditions representative of normal operations. NO_x emissions readings shall be averaged over a consecutive 15-minute period. (Basis: Regulation 9-8-503)
4. Within 60 calendar days of permit issuance under Application , the owner/operator of S- shall conduct an Air District approved source test at the outlet of A- to demonstrate compliance with Part 2 and with Regulation 9-8-301.1. The owner/operator shall notify the Air District's Source Test Section, in writing, of the source test protocol and projected test date at least 7 days prior to testing. The owner/operator shall submit the source test results of S- to the Air District's Source Test Section no later than 30 days after the source test. This condition does not replace any other regulatory requirement to conduct source tests. (Basis: Regulation 9-8-301, Cumulative Increase)
5. Not later than 60 days from the startup of S- and A- , the owner/operator shall conduct Air District approved source tests to determine initial compliance with the limits of Regulation 9-8-301. The owner/operator shall submit the source test results to the Air District's Source Test Section no later than 60 days after source test completion. (basis: BACT, Cumulative Increase)
6. The owner/operator shall comply with all applicable testing requirements as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall notify the Air District's Source Test Section, in writing, of the source test protocols and projected test dates at least 30 days prior to testing. (basis: BACT, Cumulative Increase)
7. The owner/operator shall ensure that S- is equipped with source test sampling ports and safe access as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall obtain approval of the sampling ports locations, layout and access from the Air District's Source Test Section prior to installation. (Basis: BACT; Cumulative Increase)
8. To determine compliance with the above parts, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:
 - a. Each monitor reading or analysis result for the day of operation that the monitoring reading or analysis result is taken.
 - b. All source test data results.All records shall be retained on-site for two years, from the date of entry, and made available for inspection by Air District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District Regulations. (Basis: Recordkeeping)

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Conditions for S- Injection Wells:

1. The owner/operator of S- shall reinject all gas from the facility, including all gas from S- Tank and all excess gas from S- Crude Oil Wells, into the gas injection well of S- . Excess gas from S- Crude Oil Wells is defined as all gas from S- that is not consumed as fuel by S- engine. (Basis: Cumulative Increase)
2. The owner/operator of S- shall reinject all produced water from the facility into the water injection well of S- . (Basis: Cumulative Increase)

Facility-Wide Conditions:

1. The owner/operator shall not exceed the following fugitive component counts at the facility:

 valves in service
 connectors in service
 flanges in service
 miscellaneous components in service
(Basis: Cumulative Increase)
2. The owner/operator shall ensure that the concentration of organic compounds at every valve, flange, connector, compressor, or pump shall be inspected every calendar quarter. The first inspection shall take place within 60 days of issuance of the permit to operate pursuant to Application . The inspections shall be conducted as prescribed by EPA Reference Method 21 (40 CFR 60, Appendix A). Any instrument used for the measurement of organic compounds shall be a combustible gas detector or any other type of instrument approved by the APCO that meets the specifications and performance criteria of, and is calibrated in accordance with, EPA Reference Method 21. (Cumulative Increase, Regulation 8-37)
3. The owner/operator shall ensure that any valve, flange, connector, compressor, or pump that leaks total organic compounds in excess of 10,000 ppm as C1 shall be minimized within 24 hours and repaired within 7 days. (Basis: Cumulative Increase)
4. The owner/operator shall not exceed emissions of pounds TOC in any consecutive 12-month period from all components listed in Part 1. This emissions limit includes emissions from non-leaking components and from pegged leakers. Pegged leakers are defined as components leaking at or greater 10,000 ppmv measured as C1. Compliance with this Part is achieved if the number of days identified under Part 6d does not exceed 90 days in any consecutive 12-month period.

If the number of days identified under Part 25d exceeds 90 days in any consecutive 12-month period, the owner/operator shall calculate the actual TOC emissions from all components using the measured leak concentrations determined under Part 6b, and compliance with Part 4 is achieved if the calculated actual TOC emissions from all components does not exceed pounds in any consecutive 12-month period. (Basis: Cumulative Increase)
5. The owner/operator shall assign an identification code to each valve, flange, connector, compressor, pump seal, and miscellaneous component. The facility shall keep the following records: The fitting identification code, the date of each inspection, and the corresponding leak concentration measured. Records shall be maintained for at least 5 years and shall be made available for inspection by Air District staff upon request. (basis: Cumulative Increase, Recordkeeping)
6. To determine compliance with the above parts, the owner/operator shall maintain a monthly log of the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:

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- a. Identification code of each component.
- b. Date of each inspection, and the corresponding leak concentration measured.
- c. Number of days that each individual component leaks at or greater than 10,000 ppmv (measured as C1), type of component, identification number of component.
- d. The total number of days identified in Part 6c.
- e. Each monitor reading or analysis result for the day of operation that the monitoring reading or analysis result is taken.

All records shall be retained on-site for two years, from the date of entry, and made available for inspection by Air District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District Regulations. (Basis: Recordkeeping)

7. The owner/operator shall ensure that there shall be no open liquid pools of crude oil or condensate in the lease area. (Basis: Cumulative Increase, Regulation 8-37-302)
8. The owner/operator shall ensure that all spills of crude oil and condensate which causes a liquid pool shall be cleaned up by removal of the liquid within 24 hours of the spill detection. (Basis: Cumulative Increase, Regulation 8-37-304)
9. The owner/operator shall ensure that no open or uncovered vessels of crude material larger than 250 ml shall be kept in the lease area. (Basis: Cumulative Increase, Regulation 8-37-303)
10. The owner/operator of S- Tank shall ensure that all access hatches shall remain closed except during active maintenance or repairs. (Basis: Cumulative Increase, Regulation 8-37-308)
11. The owner/operator shall properly install, use, and maintain vapor tight piping rated for oil/gas/water service at this facility. (Basis: Cumulative Increase)
12. The owner/operator shall properly install, operate, and maintain all pressure relief protection equipment at this facility. (Basis: Cumulative Increase)
13. The owner/operator shall not install and shall not use pneumatic devices at this facility. (Basis: Cumulative Increase)
14. The owner/operator shall ensure that there are no open-ended lines at this facility. (Basis: Cumulative Increase)
15. Within 60 days of issuance of the Authority to Construct for Application , the owner/operator shall conduct a pressure decay test for the produced gas system to demonstrate its structural integrity and to demonstrate compliance with Part 11.
The owner/operator shall submit the source test results to the Air District's Source Test Section no later than 60 days after source test completion. (basis: BACT, Cumulative Increase)
16. The owner/operator shall comply with all applicable testing requirements as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall notify the Air District's Source Test Section, in writing, of the source test protocols and projected test dates at least 30 days prior to testing. (basis: BACT, Cumulative Increase)
17. The owner/operator shall ensure that S- is equipped with source test sampling ports and safe access as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall obtain approval of the sampling ports locations, layout and access from the Air District's Source Test Section prior to installation. (Basis: BACT; Cumulative Increase)
18. The owner/operator shall report non-compliance with any of the above conditions within 10 days of discovering such non-compliance. The report shall be sent to the Compliance and Enforcement

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Division by email to compliance@baaqmd.gov (Attention: Director of Compliance and Enforcement). (Basis: Regulation 2-1-403)

Permit Conditions for Storage Tanks (general conditions):

1. The owner/operator of S- shall not exceed the following throughput limits during any consecutive twelve-month period:
 {Liquid #1} Gallons
 {Liquid #2} Gallons
 [Include the following daily limits if physical daily Potential To Emit can equal or exceed 10 lbs/day:]
 The owner/operator of S- shall not exceed the following throughput limits during any consecutive 24-hour period:
 {Liquid #1} Gallons
 {Liquid #2} Gallons
 (Basis: Cumulative Increase)

2. The owner/operator may store alternate liquid(s) other than the materials specified in Part 1 and/or usages in excess of those specified in Part 1, provided that the owner/operator can demonstrate that all of the following are satisfied:
 - a. Total POC emissions from S- do not exceed pounds in any consecutive twelve-month period;
 - b. Total NPOC emissions from S- do not exceed pounds in any consecutive twelve-month period; and
 - c. The use of these materials does not increase toxic emissions above any health risk assessment trigger level of Table 2-5-1 in Regulation 2-5.
 [Include the following daily limits if physical daily Potential To Emit can equal or exceed 10 lbs/day:]
 - d. Total POC emissions from S- do not exceed pounds in any consecutive 24-hour period; and
 - e. Total NPOC emissions from S- do not exceed pounds in any consecutive 24-hour period.
 (Basis: Cumulative Increase; Toxics)

3. To determine compliance with the above parts, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:
 - a. Quantities and maximum true vapor pressure of each type of liquid stored at this source on a monthly [or daily] basis.
 - b. If a material other than those specified in Part 1 is stored, POC/NPOC and toxic component contents of each material used; and mass emission calculations to demonstrate compliance with Part 2, on a monthly basis.
 - c. Monthly [or daily] throughput and/or emission calculations shall be totaled for each consecutive twelve-month period.
 All records shall be retained on-site for 24 months (five year if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit), from the date of entry, and made available for inspection by Air District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District Regulations. (Basis: Cumulative Increase; Toxics)

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Permit Conditions for Storage Tanks (additional conditions for internal or external floating roofs):

4. The owner/operator of S- shall equipped the source with a liquid mounted primary seal and a zero-gap secondary seal. There shall be no ungasketed roof fittings. Except for roof legs, each roof fitting shall be of the design, which yields the minimum roof fitting losses (per EPA Compilation of Air Pollution Emission Factors, AP-42, Supplement E, Section 12.3.2, Table 12.3-11). The following list indicates the type of control required for a variety of typical roof fittings. Control techniques for roof fittings not included in this list shall be subject to Air District approval, prior to installing the roof on the tank.

Fitting Type	Control Technique
Access hatch	Bolted cover, gasketed
Guide pole / Well	Unslotted guide pole, gasketed sliding cover; or Slotted with controls per API 2517 Addendum (See Note 1)
Gauge float well	Bolted cover, gasketed
Gauge hatch / Sample well	Weighted mechanical actuation, gasketed
Vacuum breaker	Weighted mechanical actuation, gasketed
Roof drain	Roof drain does not drain water into product
Roof leg	Fixed; or adjustable with vapor seal boot, or gasket between roof leg and leg sleeve
Rim vent	Weighted mechanical actuation, gasketed

Note 1: Slotted Guide Pole Control Configuration, per Addendum to API Publication 2517, May 1994, shall include the following components:

- Sliding cover;
 - Well gasket;
 - Pole sleeve with pole wiper approximately 6 inches above sliding cover, or Air District approved equivalent; and
 - Float with float wiper approximately 1 inch above the sliding cover, or alternately a float with multiple wipers.
- (Basis: BACT)

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Permit Conditions for Vapor Recovery Systems:

1. The owner/operator of S- shall abate the source with A- , Vapor Recovery System with , with an overall collection and destruction efficiency of at least 95%, by weight (basis: Regulation 8-5-311.3)

[Add [Source Test Conditions](#) after part 2 and renumber the [Source Test Conditions](#), as needed.]

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Permit Conditions for Coating Operations (including Graphic Arts):

1. The owner/operator of S- shall not exceed the following usage limits during any consecutive twelve-month period:

{Coating or Ink #1}	Gallons	
{Coating or Ink #2}	Gallons	
{Cleanup Solvent or Blanket Wash #1}		Gallons
{Cleanup Solvent or Blanket Wash #2}		Gallons
{Other #1}	Gallons	
{Other #2}	Gallons	
(Basis: Cumulative Increase)		

2. The owner/operator may use an alternate coating(s) or cleanup solvent(s) other than the materials specified in Part 1 and/or usages in excess of those specified in Part 1, provided that the owner/operator can demonstrate that all of the following are satisfied:

- a. Total POC emissions from S- do not exceed pounds in any consecutive twelve-month period;
- b. Total NPOC emissions from S- do not exceed pounds in any consecutive twelve-month period; and
- c. The use of these materials does not increase toxic emissions above any health risk assessment trigger level of Table 2-5-1 in Regulation 2-5.

(Basis: Cumulative Increase and Toxics)

3. To determine compliance with the above parts, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:

- a. Quantities of each type of coating and cleanup solvent used at this source on a monthly basis.
- b. If a material other than those specified in Part 1 is used, POC/NPOC and toxic component contents of each material used; and mass emission calculations to demonstrate compliance with Part 2, on a monthly basis;
- c. Monthly usage and/or emission calculations shall be totaled for each consecutive twelve-month period.

All records shall be retained on-site for 24 months (36 months for graphic arts operations; 5 years if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit), from the date of entry, and made available for inspection by Air District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District Regulations. (Basis: Recordkeeping)

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Permit Conditions for Mixing Vats for Coating, Adhesives, and Ink Manufacturing:

1. The owner/operator of S- shall not exceed the following throughput limits during any consecutive twelve-month period:

{Coating or Ink Component #1}	Gallons
{Coating or Ink Component #2}	Gallons
{Coating or Ink Component #3}	Gallons
{Coating or Ink Component #4}	Gallons
{Cleanup Solvent #1}	Gallons
{Cleanup Solvent #2}	Gallons

(Basis: Cumulative Increase)
2. To determine compliance with the above part, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:
 - a. Quantities of each type of component listed in Part 1 used at this source on a monthly basis.
 - b. Monthly throughput shall be totaled for each consecutive twelve-month period.All records shall be retained on-site for two years (five years if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit), from the date of entry, and made available for inspection by Air District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District Regulations. (Basis: Cumulative Increase)
3. The owner/operator of S- shall comply with the requirements of Regulation 8-35-301 and 305 in maintenance of the source and its cleaning. (Basis: Regulation 8-35-301 and 305)

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Permit Conditions for Screening Mill for Coating, Adhesives, and Ink Manufacturing:

1. The owner/operator of S- shall not exceed the following throughput limits during any consecutive twelve-month period:
 {Coating Pigment#1} Gallons
 {Coating Pigment #2} Gallons
 (Basis: Cumulative Increase)
2. To determine compliance with the above part, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:
 - a. Quantities of each type of component listed in Part 1 used at this source on a monthly basis.
 - b. Monthly throughput shall be totaled for each consecutive twelve-month period.
All records shall be retained on-site for two years (5 years if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit), from the date of entry, and made available for inspection by Air District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District Regulations. (Basis: Cumulative Increase)
3. The owner/operator of S- shall comply with the requirements of Regulation 8-35-304.
 (Basis: Regulation 8-35-304)

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Permit Conditions for Cold Solvent Cleaning:

1. The Owner/Operator of Cold Cleaner S- shall not exceed the following usage limit for each cleaner during any consecutive twelve-month period:

gallons/year/cleaner
(Basis: Cumulative Increase)
2. The Owner/Operator of source S- may use solvent other than the material specified in Part 1 above, and/or usages in excess of those specified in Part 1 above, provided that the Owner Operator can demonstrate that all of the following are satisfied:
 - a. S- Cold Cleaner comply with Regulation 8-16-303.5;
 - b. The total NPOC combined emissions from S202 and S318 do not exceed 632 pounds in any consecutive twelve-month period; and
 - c. The use of these alternate materials does not increase toxic air contaminant (TAC) emissions above any acute and/or chronic TAC health risk assessment trigger level in Table 2-5-1 of Regulation 2, Rule 5. The owner/operator shall maintain records of any TAC component contents of each alternate material used and supporting mass emission calculations demonstrating TAC emissions do not exceed the acute and/or chronic TAC trigger levels in Table 2-5-1 of Regulation 2, Rule 5 by calculating TAC emissions on a pound per hour and pound per year basis, respectively..
(Basis: Cumulative Increase)
3. To determine compliance with the above conditions, the Owner/Operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions, including the following information:
 - a. Quantities of solvent used at each source on a monthly basis.
 - b. If a material other than that specified in Part 1 above is used, NPOC and toxic component contents of each alternate material used; and mass emission calculations to demonstrate compliance with Part 2.b. on a monthly basis and 2.c. on a daily basis
 - c. Monthly usage and/or daily emission calculations shall be totaled for each consecutive twelve-month period.
(Basis: Cumulative Increase)

Permit Conditions for Wipe Cleaning Operations:

1. The Owner/Operator of S- shall not exceed the following usage limit for each cleaner during any consecutive twelve-month period:

{Cleaning Solvent #1} gallons
 {Cleaning Solvent #2} gallons
 (Basis: Cumulative Increase)

2. The Owner/Operator of sources S- may use solvents other than the material(s) specified in Part 1 above, and/or usages in excess of those specified in Part 1 above, provided that the owner operator can demonstrate that all of the following are satisfied:

- a. S- complies with Regulation 8-16.
- b. The total POC emissions from S- do not exceed pounds in any consecutive twelve-month period;
- c. The total NPOC emissions from S- do not exceed pounds in any consecutive twelve-month period; and,
- d. The use of these alternate materials does not increase toxic air contaminant (TAC) emissions above any acute and/or chronic TAC health risk assessment trigger level in Table 2-5-1 of Regulation 2, Rule 5. The owner/operator shall maintain records of any TAC component contents of each alternate material used and supporting mass emission calculations demonstrating TAC emissions do not exceed the acute and/or chronic TAC trigger levels in Table 2-5-1 of Regulation 2, Rule 5 by calculating TAC emissions on a pound per hour and pound per year basis, respectively.

(Basis: Cumulative Increase and Toxics)

3. To determine compliance with the above conditions, the Owner/Operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions, including the following information:

- a. Quantities of solvent used at each source on a monthly basis.
- b. If a material other than that specified in Part 1 above is used, POC, NPOC, and toxic component contents of each alternate material used and mass emission calculations to demonstrate compliance with Parts 2(b) and 2(c) on a monthly basis and Part 2(d) on a daily basis.
- c. Monthly usage and/or emissions shall be totaled for each consecutive twelve-month period.

All records shall be retained on-site for two years (5 years if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit), from the date of entry, and made available for inspection by Air District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District Regulations. (Basis: Recordkeeping)

Permit Conditions for Wave Solder Flux Applicator:

1. The owner/operator of S- [redacted] shall not exceed the following usage limits during any consecutive twelve-month period:

Chemical	Gallons
[redacted]	[redacted]

(Basis: Cumulative Increase)

2. The owner/operator may use an alternate material(s) other than the materials specified in Part 1 and/or usages in excess of those specified in Part 1. Provided that the owner/operator can demonstrate that all of the following are satisfied:
 - a. Total POC emissions from S- [redacted] do not exceed [redacted] pounds in any consecutive twelve-month period;
 - b. Total NPOC emissions from S- [redacted] do not exceed [redacted] pounds in any consecutive twelve-month period;
 - c. The use of these materials does not increase toxic emissions above any health risk assessment trigger levels of Table 2-5-1 in Regulation 2-5

(Basis: Cumulative Increase and Toxics)

3. The owner/operator of S- [redacted] shall minimize emissions by covering or emptying the flux bath when S- [redacted] is not operating.

(Basis: Cumulative Increase)

4. In order to demonstrate compliance with Part 1, the owner/operator of S- [redacted] shall maintain the following records in an Air District approved log:
 - a. Monthly records of the type and amount of materials added to the flux applicator.
 - b. Monthly records of the amount of materials removed from the flux applicator.
 - c. Monthly Summary of net material used (Difference between Parts 4(a) and 4(b)).
 - d. Material Safety Data Sheet (MSDS)/Technical Data Sheet (from chemical manufacturer) of all the materials used. MSDS/Technical Data Sheet should contain all the necessary information to calculate the POC, NPOC, and toxic emissions.
 - e. If a material other than that specified in Part 1 is used, POC, NPOC, and toxic component contents of each material used; and mass emission calculations to demonstrate compliance with Part 2, on a monthly basis.
 - f. Monthly usage and/or emission calculations shall be totaled for each consecutive twelve-month period.

All records shall be retained on-site for 24 months, from the date of entry, and made available for inspection by Air District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District Regulations.

(Basis: Record Keeping)

Permit Conditions for Flexible and Rigid Disc Manufacturing:

1. The owner/operator of S- shall not exceed the following usage limits during any consecutive twelve-month period:

Chemical	Gallons

(Basis: Cumulative Increase)

2. The owner/operator may use an alternate solvent(s) other than the materials specified in Part 1 and/or usages in excess of those specified in Part 1, provided that the owner/operator can demonstrate that all of the following are satisfied:

- a. Total POC emissions from S- do not exceed pounds in any consecutive twelve-month period;
- b. Total NPOC emissions from S- do not exceed pounds in any consecutive twelve-month period; and
- c. The use of these materials does not increase toxic emissions above any health risk assessment trigger level of Table 2-5-1 in Regulation 2-5.

(Basis: Cumulative Increase and Toxics)

3. To determine compliance with the above parts, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:

- a. Net quantity of each type of solvent used at this source on a monthly basis.
- b. Material Safety Data Sheet (MSDS)/Technical Data Sheet (from chemical manufacturer) of all the materials used. MSDS/Technical Data Sheet should contain all the necessary information to calculate the POC, NPOC, and toxic emissions.
- c. If a material other than those specified in Part 1 is used, POC, NPOC, and toxic component contents of each material used; and mass emission calculations to demonstrate compliance with Part 2, on a monthly basis.
- d. Monthly usage and/or emission calculations shall be totaled for each consecutive twelve-month period.

All records shall be retained on-site for 24 months, from the date of entry, and made available for inspection by Air District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District Regulations.

(Basis: Record Keeping)

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Permit Conditions for Semiconductor Manufacturing Operations:

- 1a. The owner/operator of S- shall not exceed the following gross usage limits at any solvent station during any consecutive twelve-month period:
- | | |
|--------------|---------|
| {Solvent #1} | Gallons |
| {Solvent #2} | Gallons |
- (Basis: Cumulative Increase)
- 1b. The owner/operator of S- shall not exceed the following gross usage limits for wipe cleaning within the source during any consecutive twelve-month period:
- | | |
|--------------|---------|
| {Solvent #1} | Gallons |
| {Solvent #2} | Gallons |
- (Basis: Cumulative Increase)
- 1c. The owner/operator of S- shall not exceed the following gross usage limits at any photoresist spinner during any consecutive twelve-month period:
- | | |
|---------------------------------|---------|
| {Photoresist Maskant} | Gallons |
| {Organic Photoresist Developer} | Gallons |
| {Organic solvent mixture} | Gallons |
- (Basis: Cumulative Increase)
- 1d. The owner/operator of S- shall not exceed the following gross usage limits at any toxic inorganic operation during any consecutive twelve-month period:
- | | |
|-------------|--------------|
| {Toxics #1} | {Usage unit} |
| {Toxics #2} | {Usage unit} |
- (Basis: Toxics)
2. The owner/operator may use an alternate coating(s) or cleanup solvent(s) other than the materials specified in Part 1a through 1c and/or usages in excess of those specified in Part 1a through 1c, provided that the owner/operator can demonstrate that all of the following are satisfied:
- Total POC emissions from S- do not exceed pounds in any consecutive twelve-month period;
 - Total NPOC emissions from S- do not exceed pounds in any consecutive twelve-month period; and
 - The use of these materials does not increase toxic emissions above any health risk assessment trigger level.
- For the purposes of emission calculations, 30% of the gross usage at solvent stations shall be assumed to be emitted, 100% of the gross usage for wipe cleaning shall be assumed to be emitted, and 90% of the gross usage at photoresist spinners shall be assumed to be emitted, unless the Air Pollution Control Officer has provided written approval to the owner/operator of this source to use other emission factors. (Basis: Cumulative Increase; Toxics)
3. To determine compliance with the above parts, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:
- Quantities of each type of coating and solvent used at this source on a monthly basis.
 - If a material other than those specified in Part 1 is used, POC/NPOC and toxic component contents of each material used; and mass emission calculations to demonstrate compliance with Part 2, on a monthly basis.
 - Monthly usage and/or emission calculations shall be totaled for each consecutive twelve-month period.
- All records shall be retained on-site for 24 months from the date of entry and made available for inspection by Air District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District Regulations. (Basis: Cumulative Increase; Toxics)

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Permit Conditions for Anaerobic Digester Flares:

1. The owner/operator shall ensure that emissions from S-_____ are abated at all times by combustion at any of the following sources except as specified in part 2: S-_____. (Basis: Regulation 1-301)
2. The owner/operator may only combust digester gas from S-_____ in the flare(s) A-_____ under the following circumstances:
 - a. During equipment failure or other emergencies which require the flaring of digester gas.
 - b. During maintenance, testing, and/or emergencies which require the flaring of digester gas.
 - c. *(optional if the facility has an old, redundant candlestick flare)* A-_____ shall be used as the primary flare when it is functional and has sufficient capacity to combust the entirety of the digester gas in need of flaring.
3. The owner/operator shall ensure that digester gas total sulfur content does not exceed _____ ppm. (Basis: Cumulative Increase)
4. The owner/operator shall ensure that SO₂ emissions from digester gas combustion do not exceed _____ tons in any consecutive 12-month period. The owner/operator shall use daily records of H₂S content and digester gas production to calculate SO₂ emissions. For the purposes of this part, the owner/operator shall assume that all H₂S in the digester gas is combusted. (Basis: Cumulative Increase)
5. To demonstrate compliance with the limits in part 3 and part 4, the owner/operator shall monitor and record the following:
 - a. Sulfur content of the digester gas at least once every calendar day. The sulfur content of the digester gas shall be used to calculate SO₂ emissions from all combustion sources firing untreated digester gas.
 - b. Sulfur content for digester gas combusted in S-_____ will be determined from the outlet of the gas treatment system, A-_____.
 - c. Total digester gas production.
(Basis: Cumulative increase)
6. The owner/operator shall record the dates, hours of use, and purpose of flaring in a Air District approved logbook, whenever the flares are used. (Basis: Regulation 2-6-409.2)
7. The owner/operator shall have installed pressure sensors at each digester, S-_____. Over-pressurization is assumed to cause opening of the pressure/vacuum valve and thus digester gas release. The owner/operator shall perform an inspection of the pressure/vacuum valve in all instances of over-pressurization to confirm proper functioning of the valve following the event. The owner/operator shall record the dates, the times, and the H₂S concentration in a Air District approved logbook whenever digester gas is vented from any pressure relief valve at S-_____, Digesters. (Basis: 2-1-403)
8. A release of digester gas at a pressure relief valve on a digester shall not be considered a violation of Parts 1 or 2 of this permit condition under the following conditions:
 - a. H₂S emissions from the digester gas release are less than _____ lb per hour, or
 - b. The owner/operator prepares an air dispersion modeling analysis within 30 days of the incident that shows that the limits in BAAQMD Regulation 9, Rule 2, were not exceeded.The owner/operator shall ensure that, if detected and known, the occurrence, duration, and cause of emissions of digester gas from any cause or activity are recorded. Notwithstanding this part 8, the owner/operator shall not cause or allow any digester gas emissions otherwise allowed by this Part to create a violation of Air District regulations. (Basis: 2-1-403)

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9. The owner/operator shall ensure that the heat input to A- , Enclosed Flare, does not exceed MMBtu/day. (Basis: Cumulative Increase)
10. The owner/operator shall install flow meters and recorders to monitor the digester gas flow to (flare) A- . (Basis: Cumulative Increase)
11. The owner/operator shall install a temperature monitor and recorders to monitor the temperature at (flare) A- . (Basis: Cumulative Increase)
12. The combustion zone temperature of (flare) A- shall be maintained at a minimum of 1,400 degrees F, except upon start-up where a 15-minute warm-up period is allowed and a residence time of at least 0.6 seconds is maintained. If a source test demonstrates compliance with all applicable requirements at a different temperature, the owner/operator can submit a petition to revise the minimum combustion zone temperature limit. (Basis: Regulation 2-1-403)
13. The owner/operator shall ensure that the emissions of nitrogen oxides (NO_x) from A- do not exceed pounds per million BTU (calculated as NO₂). (Basis: RACT)
Note: 0.06 lb/MMBtu is RACT.
14. The owner/operator shall ensure that the emissions of carbon monoxide (CO) from A- do not exceed pounds per million BTU. (Basis: RACT)
Note: 0.2 lb/MMBtu is RACT.
15. The owner/operator shall ensure that hydrogen sulfide (H₂S) emissions are less than lb/hr at the outlet of A- . (Basis: 2-1-301)
16. The owner/operator shall ensure that the emissions of methane (CH₄) from A- do not exceed pounds per million BTU. (Basis: 2-1-301)
17. In order to demonstrate compliance with parts 13, 14, 15, and 16 of these conditions, the owner/operator shall conduct an initial Air District approved source test on A- , Enclosed Flare within 60 days of startup. The source test shall determine the following:
 - a. digester gas flow rate (dry basis);
 - b. concentrations (dry basis) of carbon dioxide (CO₂), nitrogen (N₂), oxygen (O₂), methane (CH₄) and hydrogen sulfide (H₂S) and total non-methane organic compounds (NMOC) in the digester gas;
 - c. stack gas flow rate (dry basis);
 - d. concentrations (dry basis) of NO_x, CO, H₂S, CH₄, NMOC, SO₂, and O₂ in the stack gas;
 - e. the H₂S and methane destruction efficiencies achieved by each flare; and
 - f. the average combustion temperature during the test period.

In addition, source tests shall be repeated every 8,760 hours of operation or every five years, whichever comes first. The periodic source test is not required if the flare has not been operated since the last Air District-approved source test. The Source Test Section shall be notified of the scheduled test date at least 7 days in advance of each source test. The source test report shall be submitted to the Compliance and Enforcement Division and to the Source Test Section within 60 days of the test date. (Basis: Regulations 2-1-301 and 9-1-302)
18. The owner/operator shall comply with all applicable testing requirements as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall notify the Air District's Source Test Section, in writing, of the source test protocols and projected test dates at least 30 days prior to testing. (basis: BACT, Cumulative Increase)
19. The owner/operator shall ensure that A- is equipped with source test sampling ports and safe access as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall obtain approval of the sampling ports locations, layout and access from the Air District's Source Test Section prior to installation. (Basis: BACT; Cumulative Increase)

20. In order to demonstrate compliance with the above conditions, the owner/operator shall maintain the following records in an Air District approved logbook.
- a. Record the operating times and the digester gas flow rate to A- on a daily basis when operating. Summarize these records on a monthly basis.
 - b. Maintain continuous records of the combustion zone temperature for A- , Enclosed Flare during all hours of operation.
 - c. Maintain records of all test dates and test results performed to demonstrate compliance with part 17 above and any applicable rule or regulation.

All records shall be maintained on site or shall be made readily available to Air District staff upon request for a period of at least 5 years from the date of entry. These record keeping requirements do not replace the record keeping requirements contained in any applicable rules or regulations. (Basis: Cumulative Increase, 2-1-301, 2-6-501/1-543, 9-1-302, and 9-2-301)

21. In order to demonstrate compliance with the maintenance/construction activity provisions of Part 2, the owner/operator shall maintain the following records in a Air District approved logbook:
- a. Record the operating times of each flare listed within part 2, operated during maintenance/construction activities;
 - b. Record the combined daily thermal throughput of all listed flares within part 2 during maintenance/construction activities;
 - c. Record the total amount of digester gas from S- , anaerobic digesters, which is abated by the listed flares in part 2 during maintenance/construction activities, on a monthly basis.

All records shall be maintained on site or shall be readily available to Air District staff upon request for a period of at least 24 months (5 years if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit) from the date of entry. These record keeping requirements do not replace the record keeping requirement contained in any applicable rule or regulation. (Basis: Cumulative increase and Regulation 2-6-501 or Regulation 1-543)

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Permit Conditions for POTW Flares:

1. The owner/operator shall ensure that the minimum destruction efficiency for H₂S at A- is % (98% is typical). The owner/operator shall ensure that the minimum destruction efficiency for VOC at A- is % (99% is typical). (Basis: Cumulative Increase; Regulation 9, Rule 2)
2. The owner/operator shall equip A- with a combustion temperature readout monitor and continuous recorder to measure and record the temperature in the combustion zone. (Basis: 2-1-403)
3. The owner/operator shall ensure that the emissions of Nitrogen Oxides (NO_x) from A- do not exceed pounds per million BTU (calculated as NO₂). (Basis: Cumulative Increase, RACT)
Note: 0.06 lb/MMBtu is RACT.
4. The owner/operator shall ensure that the emissions of Carbon Monoxide (CO) from A- do not exceed pounds per million BTU. (Basis: Cumulative Increase, RACT)
Note: 0.2 lb/MMBtu is RACT.
5. The combustion zone temperature of A- shall be maintained at a minimum of 1,400 degrees F and a minimum residence time of 0.6 seconds while digester gas is being fed to the flare. The owner/operator may perform a source test to determine if the flare can operate at a lower temperature while complying with parts 1, 3, and 4. The flare shall be at the minimum temperature within 15 minutes of digester gas introduction to the flare and for one minute after flow of digester gas is discontinued. (Basis: Regulation 2-1-403)
6. The temperature limit in Part 5 shall not apply during a 16-hour period of optional source testing conducted by the owner/operator. The owner/operator shall notify the District's Engineering Division, in writing, of the projected test date at least 7 days in advance. The owner/operator shall submit the source test results to the District's Engineering Division no later than 30 days after the source test. (Basis: 2-1-403, Cumulative Increase)
7. In order to demonstrate compliance with parts 3 and 4, the owner/operator shall conduct an initial District approved source test on A-, Enclosed Waste Gas Flare within 60 days of startup. The source test shall determine the following:
 - a. Digester gas flow rate (dry basis)
 - b. Concentration (dry basis) of hydrogen sulfide (H₂S) in the digester gas to be combusted at A-
 - c. Concentration (dry basis) of non-methane organic compounds (NMOC) in the digester gas to be combusted at A-
 - d. Stack gas flow rate (dry basis)
 - e. Concentration (dry basis) of nitrogen (NO_x), carbon monoxide (CO), hydrogen sulfide (H₂S), and total non-methane organic compounds (NMOC) in the stack gas
 - f. The H₂S and VOC destruction efficiencies achieved by A-
 - g. The average combustion temperature during the test period.The source test report shall be submitted to the Compliance and Enforcement Division and to the Source Test Section within 60 days of the test date. In addition, source tests shall be repeated every 8,760 of operation or every five years, whichever comes first. The periodic source test is not required if the flare has not been operated since the last District-approved source test. (Basis: BACT, Cumulative Increase, Regulation 2-5)
8. The owner/operator shall comply with all applicable testing requirements as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall notify the Air District's

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Source Test Section, in writing, of the source test protocols and projected test dates at least 30 days prior to testing. (basis: BACT, Cumulative Increase)

9. The owner/operator shall ensure that A-_____ is equipped with source test sampling ports and safe access as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall obtain approval of the sampling ports locations, layout and access from the Air District's Source Test Section prior to installation. (Basis: BACT; Cumulative Increase)
10. The owner/operator shall record and maintain the following in a District approved log for a period of five years from the date of entry and shall make them readily available to District staff upon request:
 - a. Digester gas flow to the flare, A-_____.
 - b. A-_____ combustion zone temperature.(Basis: Recordkeeping)

Permit Conditions for High Strength Waste:

For the purposes of this condition, the following definitions apply:

Digester Gas: Gas stream that is generated from the facility's Anaerobic Digesters (S-). Such gases have not been further conditioned or processed after production during the anaerobic digestion process.

High Strength Waste: Feedstock that is from local food and beverage industries and fed to S- to produce digester gas. Such wastes have wastewater with suspended solids or biological oxygen demand (BOD) above what is allowed to be discharged to the municipal sanitary sewage system.

GENERAL REQUIREMENTS

1. The owner/operator of S- shall only store high strength waste as defined above. [Basis: Cumulative Increase]
2. The owner/operator of S- shall not exceed the following filling limit:
 - a. S- : tank flow rate of gpm
[Basis: Cumulative Increase]
3. The owner/operator shall vent S- at all times to abatement device A- , *Foul Air Scrubber/Activated Carbon Adsorber*. [Basis: 2-1-403]
4. The owner/operator of A- shall ensure that the H₂S, POC, and ammonia adsorption media vessels are not desorbed on site. [Basis: Cumulative Increase]
5. When raw digester gas from S- is flared due to unavailability of *the digester gas combustion sources* or *the digester gas pretreatment system*, or due to an excess of digester gas, the owner/operator shall cease to receive high-strength waste at S- , and shall cease to pump high-strength waste into the digesters until *the digester gas combustion sources* and *the digester gas pre-treatment system* are operational or the demand for digester gas at *the digester gas combustion sources* and *the digester gas pre-treatment system* increases. (Basis: Cumulative Increase)

EMISSION LIMITATIONS

6. The owner/operator of A- shall not exceed the following limitations at the outlet:
 - a. ppmv of POC
 - b. ppmv of H₂S
 - c. ppmv of Ammonia[Basis: Cumulative Increase]

MONITORING REQUIREMENTS

7. The owner/operator shall conduct the monitoring required by Part 6 of this condition in accordance with any of the following methodologies:
 - a. Draeger Tube Test Method: A Draeger Tube test or a meter using a Draeger H₂S sensor, Part No 680910, or equivalent, demonstrating an H₂S level up to (*half the limit*) ppmv shall demonstrate compliance with the above limit. An H₂S measurement by Draeger Tube exceeding (*half the limit*) ppmv shall not be deemed a violation but shall trigger a requirement to demonstrate compliance using either methods of Part 7(b) and 7(c) of this condition.
 - b. Portable Instrument Method: A Draeger PAC-III (or equivalent) portable meter with an H₂S sensor capable of measuring over 800 ppmv H₂S. In the event that H₂S levels exceed 800 ppmv, the owner/operator shall commence to perform a source test using the method of Part 7(c) of this condition.

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- c. Chromatographic Method: The owner/operator may sample and test for sulfides according to BAAQMD Lab Method 44A (Manual of Procedures, Volume III), or by ASTM Method 5504, or by any other equivalent method, approved in advance by the District.

[Basis: Toxics and Regulation 9-2]

8. To demonstrate compliance with the standards in Part 6 of this condition, the owner/operator shall monitor at the outlet of the carbon vessel prior to venting to the atmosphere

[Basis: Cumulative Increase, Regulation 2-5]

RECORDKEEPING REQUIREMENTS

9. The owner/operator of S- and A- shall maintain the following records for a minimum of two (2) years and be made available to the District upon request:

- a. Monthly records of high strength waste processed;
- b. H₂S concentration records required by Part 6 of this condition;
- c. POC concentration records required by Part 6 of this condition; and
- d. Ammonia concentration records required by Part 6 of this condition;

[Basis: Regulation 2-1-403]

Permit Conditions for Carbon Abatement for H₂S Abatement at Wastewater Treatment Facility:

1. The owner/operator shall ensure that the abated hydrogen sulfide (H₂S) emissions from S- do not exceed ppmv, measured at the exhaust of A- .
[Basis: Regulation 2-5, Regulation 9-2]
2. To demonstrate compliance with Part 1 of this condition, the owner/operator shall measure the concentration of H₂S at the outlet stacks of A- using Draeger tubes, a Jerome meter (provided the instrument is maintained and calibrated per manufacturer's specs and a bump test is performed and recorded prior to data collection), or other District approved method on a daily basis at least 5 days per week for the first two months of operation and on a weekly basis thereafter, if all daily concentrations show compliance with the full emission limit of the respective devices. The results from the first two months of testing shall be submitted to the Engineering Division to initially reduce the testing frequency from daily to weekly. The owner/operator can reduce the monitoring frequency from weekly to monthly if all readings are below one half of the emission limits of the respective devices for two months and the results of this testing are submitted to the Engineering Division. If readings rise above the emission limits, monitoring frequency will return to daily until two months of consecutive compliance can be demonstrated, at which point testing shall again be submitted to the Engineering Division to reduce testing frequency from daily to weekly. The reduction in monitoring frequency will be handled administratively.
[Basis: Regulation 2-1-403, Regulation 2-5, Regulation 9-2]
3. The owner/operator shall maintain the following records:
 - a. H₂S volumetric concentration records from Part 2; and,
 - b. NMHC volumetric concentration records from Part 5.

All records shall be retained onsite for two years from the date of entry and made available for inspection by District staff upon request. These recordkeeping requirements do not replace the recordkeeping requirements contained in any applicable District regulation. [Basis: Cumulative Increase, Regulation 9-2]

4. The owner/operator shall ensure that the abated non-methane hydrocarbon (NMHC) emissions from S- , do not exceed ppmv, measured as methane, at the exhaust of A- on an annual average basis.
[Basis: Cumulative Increase, BACT]
5. To demonstrate compliance with the limits in Part 4 of this condition, the owner/operator shall measure NMHC, as methane, with an FID or PID at the outlet of each vessel of A- on a daily basis at least 5 days per week for the first two months of operation of A- and on a weekly basis thereafter, if all daily concentrations show compliance with the full emission limit of the respective devices. The results from the first week of testing shall be submitted to the Engineering Division within 30 days of startup of A- . The results from the first two months of testing shall be submitted to the Engineering Division to initially reduce the testing frequency from daily to weekly. The owner/operator can reduce the monitoring frequency from weekly to monthly if all readings are below one half of the emission limits of the respective devices for two months and the results of this testing are submitted to the Engineering Division. If readings rise above the emission limits, monitoring frequency will return to daily until two months of consecutive compliance can be demonstrated, at which point testing shall again be submitted to the Engineering Division to reduce testing frequency from daily to weekly. The reduction in monitoring frequency will be handled administratively.
[Basis: Cumulative Increase, BACT, Regulation 2-1-403]
6. The owner/operator shall abate the emissions from S- with A- at all times, except that A- can be out of service for up to 16 hours per calendar year for the changing out of media or other maintenance.

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[Basis: Cumulative Increase, BACT Regulation 2-1-320]

7. The owner/operator shall ensure that the gas flow to A- is at least cfm per vessel (of *[number of vessels]*) at all times while A- is in operation[, except during carbon changeout or required maintenance when operation can go down to one vessel - *add this section if abatement has two vessels and can support the full flow with one vessel*].
[Basis: Cumulative Increase, BACT, Regulation 2-1-320]
8. The owner/operator shall ensure that the stacks of A- are at least feet above grade and emit (*stack orientation, e.g., vertically with no rain cap*).
[Basis: Regulation 9-2, Regulation 2-5, Regulation 2-1-320]
9. The owner/operator of A- shall use the monitoring results obtained from part 2 and/or part 5 to estimate the frequency of A- carbon changeout necessary to maintain compliance with part 10.
[Basis: Cumulative Increase, Regulation 9-2]
10. The owner/operator of A- shall immediately schedule change out with unspent carbon for each carbon vessel exhibiting breakthrough, defined as detection at its outlet of whichever occurs first of the following:
 - a. ppmv NMHC (measured as methane, using the measurements from part 5) averaged over 1 week, or
 - b. ppmv H₂S (using the measurements from part 2) averaged over 1 week.[Basis: Cumulative Increase, Regulation 9-2]

Note: This template condition can be used for carbon adsorption abating preliminary treatment, sludge handling, etc.

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Permit Conditions for Throughput Limit at Wastewater Treatment Facilities:

1. The owner/operator shall not exceed a total wastewater flow exceeding million gallons/day dry flow and million gallons/day wet flow. (Basis: Cumulative Increase)
2. To determine compliance with the above condition, the owner/operator shall maintain the following records: (Basis: Cumulative Increase)
 - a. Daily and monthly records of the quantity of wastewater processed at this source.
 - b. Monthly records totaled for each consecutive 12-month period.
 - c. All records shall be retained onsite for 24 months (five years if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit) from the date of entry and made available for inspection by Air District staff upon request.

These recordkeeping requirements shall not replace the recordkeeping requirements contained in any Air District Regulation. (Basis: Cumulative Increase)

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Permit Conditions for End of Remediation Project (for Airstripping or Soil Vapor Extraction):

1. Upon final completion of the remediation project, the owner/operator of Source S- shall notify the Engineering Division by email to permits@baaqmd.gov (Attention: Director of Engineering) within two weeks of decommissioning the operation. [basis: Regulation 2-1-401]

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Permit Conditions for Airstripping/Soil Vapor Extraction (using carbon adsorption):

1. The owner/operator shall abate the precursor organic compound (POC)/non-precursor organic compound (NPOC) emissions from the soil vapor extraction system (S-) with the Activated Carbon Vessel (A-), consisting of a minimum of two (2) 2,000 lb activated carbon vessels in series, during all periods of operation. The influent vapor flow rate shall not exceed scfm. In no event shall the toxic air contaminant (TAC) emissions to the atmosphere from S- exceed the trigger levels listed in Air District Regulation 2-5, Table 2-5-1. [Basis: Regulations 8-47-301 and 8-47-302 and Toxics].

2. Upon initial start-up, the owner/operator shall take air samples from S- for laboratory analysis using EPA Method TO-15. The air samples shall be taken at the following locations:
 - a. At the inlet to the first carbon vessel in series.
 - b. At the outlet of the carbon vessel that is last in series prior to venting to the atmosphere.

The owner/operator shall use the results from the laboratory report to calculate TAC emissions emitted to the atmosphere, using the maximum design flowrate of S-. The owner/operator shall submit the laboratory report and calculated TAC emissions within 21 days of the initial startup, to demonstrate compliance with Parts 1 and 6 of this condition. [Basis: Regulation 2-1-403]

3. During operation of A-, the owner/operator shall monitor with a photo-ionization detector (PID), flame-ionization detector (FID), or other method approved in writing by the Air District's Source Test Manager at the following locations:
 - a. At the inlet to the second to last carbon vessel in series.
 - b. At the inlet to the last carbon vessel in series.
 - c. At the outlet of the last carbon vessel in series, prior to venting to the atmosphere.

When using an FID to monitor breakthrough, readings may be taken with and without a carbon filter tip fitted on the FID probe. Concentrations measured with the carbon filter tip in place shall be considered methane for the purposes of these permit conditions. [Basis: Regulations 1-523 and 2-1-403]

4. The owner/operator shall conduct monitoring on a daily basis in accordance with Part 3 of this condition. The owner/operator shall record these monitor readings in a monitoring log at the time they are taken. The owner/operator shall use the monitoring results to estimate the frequency of carbon change-out necessary to maintain compliance with Parts 1, 5, and 6 of this condition.
 - a. If the owner/operator can demonstrate one (1) month of consecutive daily monitoring readings lower than 1.5 ppmv, measured as isobutylene, the monitoring frequency may be reduced to weekly.
 - b. After the monitoring frequency has been reduced to weekly, if the owner/operator can demonstrate one (1) month of consecutive weekly monitoring readings lower than 1.5 ppmv, measured as isobutylene, the monitoring frequency may be reduced to once every two (2) weeks.
 - c. After the monitoring frequency has been reduced to once every two (2) weeks, if the owner/operator can demonstrate one (1) month of consecutive bi-weekly readings lower than 1.5 ppmv, measured as isobutylene, the monitoring frequency may be reduced to monthly.
 - d. If any subsequent results from monitoring exceed 1.5 ppmv, measured as isobutylene, the owner/operator shall revert to daily monitoring. If monitoring reverts back to daily, the owner/operator may reduce the monitoring frequency in accordance with Parts 4(a) through (c) of this condition.

[Basis: Cumulative Increase, Toxics, and Regulations 1-523 and 2-1-403]

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5. The second to last carbon vessel shall be immediately changed out with unspent carbon upon breakthrough, defined as the detection at its outlet in excess of the higher of the following limits:
 - a. 10 % of the inlet stream concentration to the carbon bed.
 - b. 10 ppmv (measured as Isobutylene).[Basis: Cumulative Increase and Regulations 1-523 and 2-1-403]
6. The last carbon vessel shall be immediately changed out with unspent carbon upon detection at its outlet of 3 ppmv or greater (measured as Isobutylene). [Basis: Cumulative Increase and Regulations 1-523 and 2-1-403]
7. The owner/operator shall maintain the following information for each month of operation:
 - a. Hours and time of operation.
 - b. Each emission test, analysis, or monitoring results logged in for the day of operation they were taken.
 - c. The number of carbon vessels removed from service.
 - d. Total throughput of soil vapor from source S- in standard cubic feet.

Such records shall be retained and made available for inspection by the Air District for two (2) years following the date the data is recorded. [Basis: Recordkeeping]
8. The owner/operator shall report any noncompliance with these conditions to the Compliance and Enforcement Division, by email to compliance@baaqmd.gov (Attention: Director of Compliance and Enforcement), at the time that it is first discovered. The owner/operator shall detail the corrective action taken and include the data showing the exceedance as well as the time of occurrence in the submittal. [Basis: Regulation 2-1-403]
9. The owner/operator shall maintain a file containing all measurements, records and other data that are required to be collected pursuant to the various provisions of this condition. All measurements, records and data required to be maintained by the operator shall be retained for at least two (2) years following the date the data is recorded. [Basis: Regulation 1-523]
10. Upon final completion of the remediation project, the operator shall notify the Engineering Division within two weeks of decommissioning the operation. [Basis: Regulation 2-1-403]

Permit Conditions for Airstripping/Soil Vapor Extraction (using thermal oxidation):

1. The owner/operator shall abate the precursor organic compound (POC)/non-precursor organic compound (NPOC) emissions from the soil vapor extraction system (S-) with the Thermal Oxidizer (A-) during all periods of operation. The influent vapor flow rate shall not exceed scfm. In no event shall the toxic air contaminant (TAC) emissions to the atmosphere from S- exceed the trigger levels listed in Air District Regulation 2-5, Table 2-5-1. [Basis: Regulations 8-47-301 and 8-47-302 and Toxics].
2. Upon initial start-up, the owner/operator shall take air samples from S- for laboratory analysis using EPA Method TO-15. The air samples shall be taken at the following locations:
 - a. At the inlet to the Thermal Oxidizer (A-).
 - b. At the outlet of the Thermal Oxidizer (A-) prior to venting to the atmosphere.

The owner/operator shall use the results from the laboratory report to calculate TAC emissions emitted to the atmosphere, using the maximum design flowrate of S- . The owner/operator shall submit the laboratory report and calculated TAC emissions within 21 days of the initial startup, to demonstrate compliance with Part 1 of this condition. [Basis: Regulation 2-1-403]

3. The owner/operator shall operate A- Thermal Oxidizer such that the POC abatement efficiency shall be maintained at a minimum of 98.5% by weight for inlet POC concentrations greater than or equal to 2000 ppmv (measured as hexane). For inlet concentrations below 2000 ppmv and greater than or equal to 200 ppmv, a minimum abatement efficiency of 97% shall be maintained by the owner/operator. For inlet concentrations below 200 ppmv, a minimum abatement efficiency of 90% shall be maintained by the owner/operator. The minimum abatement efficiency shall be waived if outlet POC concentrations are shown to be less than 10 ppmv (measured as hexane). [basis: Cumulative Increase, Regulation 2-5, TBACT]
4. While operating the Thermal Oxidizer, the owner/operator shall not operate A- below a minimum operating temperature of less than (1400 for thermal and 600 for catalytic) degrees Fahrenheit. [basis: Cumulative Increase, Regulation 2-5, TBACT]
5. To determine compliance with part 4, the owner/operator shall equip the A- Thermal Oxidizer with continuous measuring and temperature recording instrumentation. The owner/operator shall collect and maintain the temperature data from the temperature recorder in a file which shall be available for Air District inspection for a period of at least 2 years following the date on which such data are recorded. [basis: Regulation 1-523]
6. The owner/operator shall maintain the following information for each month of operation:
 - a. Hours and time of operation.
 - b. Each emission test, analysis, or monitoring results logged in for the day of operation they were taken.
 - c. Total throughput of soil vapor from source S- in standard cubic feet.

Such records shall be retained and made available for inspection by the Air District for two (2) years following the date the data is recorded. [Basis: Recordkeeping]

7. The owner/operator shall report any noncompliance with these conditions to the Compliance and Enforcement Division, by email to compliance@baaqmd.gov (Attention: Director of Compliance and Enforcement), at the time that it is first discovered. The owner/operator shall detail the corrective action taken and include the data showing the exceedance as well as the time of occurrence in the submittal. [Basis: Regulation 2-1-403]

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8. The owner/operator shall maintain a file containing all measurements, records and other data that are required to be collected pursuant to the various provisions of this condition. All measurements, records and data required to be maintained by the operator shall be retained for at least two (2) years following the date the data is recorded. [Basis: Regulation 1-523]
9. Upon final completion of the remediation project, the operator shall notify the Engineering Division within two weeks of decommissioning the operation. [Basis: Regulation 2-1-403]

[Add [Source Test Conditions](#) after part 10 and renumber the [Source Test Conditions](#), as needed.]

Permit Conditions for Portable Airstripping/Soil Vapor Extraction (using carbon adsorption)

1. The operator of this source shall notify the Air District at least 3 days prior to start-up of operation at any new location. The notification shall include:
 - a. Application Number and Plant Number .
 - b. Street address, including zip code, for the location where the equipment will be operated.
 - c. The name and telephone number of a contact person where the equipment will be operated.
 - d. The date of initial start-up and estimated duration of operations at that location.
 - e. The distance from the source to the outer boundary of the nearest K-12 school, or indication that the distance is greater than 1000 feet.

In the event that the start-up is delayed less than 5 days, the operator may provide telephone notice of said change to the assigned Plant Engineer in the Engineering Division. If the start-up is delayed more than 5 days, written notification must be resubmitted. [Basis: 2-1-413]

2. The owner/operator of this source shall not operate or retain it at any single location for a period in excess of 12 consecutive months, following the date of initial operation. If this portable source remains at any fixed location for more than 12 months, the multi-location permit will automatically revert to a conventional permanent location permit and will lose its portability.
[Basis: Regulation 2-1-403]
3. The owner/operator shall operate S- portable equipment at all times in conformance with the eligibility requirements set forth in Regulation 2-1-413 for portable equipment. [Basis: Regulation 2-1-413]
4. The owner/operator of S- shall not operate this equipment within 1000 feet of the outer boundary of any other K-12 school, unless the applicable requirements of the California Health and Safety Code Section 42301.6 have been met. This will require a submittal and Air District approval of an application for a revised permit to operate. The owner/operator shall not operate this equipment within an overburdened community, as defined in Regulation 2-1-243, unless the applicable public noticing requirements of Regulation 2-1-412 and the applicable project risk limits of Regulation 2-5-302 have been met. This will require submittal and Air District approval of an application for a revised permit to operate. [Basis: Regulations 2-1-412, 2-1-413.3, and 2-5-302]
5. The owner/operator of S- shall abate the Non-Precursor Organic Compound (NPOC) and Precursor Organic Compound (POC) emissions from Source S- with A- , SVE abatement system, consisting of two lbs minimum capacity Activated Carbon Vessels in series during all periods of operations. Startup and subsequent operation of each abatement device shall take place only after written notification of same has been received by the Air District's Engineering Division. Influent vapor flow rate shall not exceed scfm for S- . In no event shall the Toxic Air Contaminants (TACs) emissions to the atmosphere from S- exceed the respective chronic and acute trigger levels in Air District's Regulation 2-5, Table 2-5-1. [Basis: Regulation 8-47-301.1,2 and 2-5].
6. The owner/operator shall take air samples from S- for laboratory analysis using EPA Method TO-15 upon start-up at any new equipment location. The air samples shall be taken at the following S- locations:
 - a. At the inlet to the first Carbon vessel in series.
 - b. At the outlet of the Carbon vessel that is last in series prior to venting to the atmosphere.

Laboratory results shall be submitted to the Air District Engineering Division within 14 days of start-up. [Basis: Regulation 2-1-403]

7. During operation of A- Activated Carbon Vessels, the owner/operator of these sources shall monitor with a photo-ionization detector (PID), flame-ionization detector (FID), or other method approved in writing by the Air District's Source Test Manager at the following locations:
- At the inlet to the second to last Carbon vessel in series.
 - At the inlet to the last Carbon vessel in series.
 - At the outlet of the Carbon vessel that is last in series prior to venting to the atmosphere.
- When using an FID to monitor breakthrough, readings may be taken with and without a Carbon filter tip fitted on the FID probe. Concentrations measured with the Carbon filter tip in place shall be considered methane for the purposes of these permit conditions. [Basis: Regulations 1-523 and 2-1-403]
8. The owner/operator of S- shall record these monitor readings in a monitoring log at the time they are taken. The owner/operator shall use the monitoring results to estimate the frequency of carbon change-out necessary to maintain compliance with parts number 9 and 10 and shall be conducted on a daily basis for the first week of operation. After demonstrating continuous compliance for the first week, the owner/operator may switch to monitoring to a weekly schedule. The owner/operator of this source may propose for Air District review, based on actual measurements taken at the site during operation of the source, that the monitoring schedule be changed based on the decline in organic emissions and/or the demonstrated breakthrough rates of the carbon vessels. Written approval by the Air District's Engineering Division must be received by the owner/operator prior to a change to the monitoring schedule. [Basis: Cumulative Increase, Regulation 2-5, TBACT]
9. The second to last Carbon vessel shall be immediately changed out with unspent carbon upon breakthrough, defined as the detection at its outlet in excess of the higher of the following limits:
- 10 % of the inlet stream concentration to the carbon bed.
 - 10 ppmv (measured as Isobutylene).
- [Basis: Cumulative Increase and Regulations 1-523 and 2-1-403]
10. The last Carbon vessel shall be immediately changed out with unspent Carbon upon detection at its outlet of 10 ppmv or greater (measured as Isobutylene). [Basis: Cumulative Increase and Regulations 1-523 and 2-1-403]
11. The owner/operator of this source shall maintain the following information for each month of operation of the Activated Carbon Vessels:
- Hours and time of operation.
 - Each emission test, analysis or monitoring results logged in for the day of operation they were taken.
 - Tetrachloroethylene, Trichloroethylene, Benzene, Ethylbenzene emissions in pounds.
 - The number of Carbon vessels removed from service.
- Such records shall be retained and made available for inspection by the Air District for two years following the date the data is recorded. [Basis: Regulation 1-523]
12. Within 30 days after the end of every calendar year, the operator of this source shall provide the assigned Plant Engineer in the Engineering Division a year end summary showing the following information:
- The location(s) at which the equipment was operated including the dates operated at each location.
 - The total throughput of contaminated soil vapor for the previous four quarters (indicated in cubic feet).
 - The total Tetrachloroethylene, Trichloroethylene, Benzene, Ethylbenzene emissions for the previous four quarters (indicated in pounds).
- [Basis: Regulation 1-523]
13. The owner/operator of S- shall report any non-compliance with these conditions to the Compliance and Enforcement Division, by email to compliance@baaqmd.gov (Attention: Director of Compliance and Enforcement), at the time that it is first discovered. The owner/operator of S-

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shall detail the corrective action taken and include the data showing the exceedance as well as the time of occurrence in the submittal. [Basis: Cumulative Increase, Regulation 2-5]

14. The owner/operator of S- shall maintain a file containing all measurements, records and other data that are required to be collected pursuant to the various provisions of this conditional Permit to Operate. All measurements, records and data required to be maintained by the operator shall be retained for at least two years following the date the data is recorded. [Basis: Regulation 1-523]
15. Upon final completion of the remediation project, the operator of S- shall notify the Engineering Division within two weeks of decommissioning the operation. [Basis: Cumulative Increase, Regulation 2-5, TBACT]

Permit Conditions for Sub-Slab Depressurization:

1. The owner/operator shall abate the precursor organic compound (POC)/non-precursor organic compound (NPOC) emissions from the Sub-Slab Depressurization System (S-) with the Activated Carbon Vessel (A-1), consisting of a minimum of two (2) 170-lbs activated carbon vessels in series, during all periods of operation. The influent vapor flow rate shall not exceed 350 scfm. In no event shall the toxic air contaminant (TAC) emissions to the atmosphere from S- exceed the trigger levels listed in Air District Regulation 2-5, Table 2-5-1. [Basis: Regulations 8-47-301 and 8-47-302 and Toxics].
2. Upon initial start-up, the owner/operator shall take air samples from S- for laboratory analysis using EPA Method TO-15. The air samples shall be taken at the following locations:
 - a. At the inlet to the first carbon vessel in series.
 - b. At the outlet of the carbon vessel that is last in series prior to venting to the atmosphere.

The owner/operator shall use the results from the laboratory report to calculate TAC emissions emitted to the atmosphere, using the maximum design flowrate of S- . The owner/operator shall submit the laboratory report and calculated TAC emissions within 21 days of the initial startup, to demonstrate compliance with Parts 1 and 6 of this condition. [Basis: Regulation 2-1-403]

3. During operation of A-1, the owner/operator shall monitor with a photo-ionization detector (PID), flame-ionization detector (FID), or other method approved in writing by the Air District's Source Test Manager at the following locations:
 - a. At the inlet to the second to last carbon vessel in series.
 - b. At the inlet to the last carbon vessel in series.
 - c. At the outlet of the last carbon vessel in series, prior to venting to the atmosphere.

When using an FID to monitor breakthrough, readings may be taken with and without a carbon filter tip fitted on the FID probe. Concentrations measured with the carbon filter tip in place shall be considered methane for the purposes of these permit conditions. [Basis: Regulations 1-523 and 2-1-403]

4. The owner/operator shall conduct monitoring on a daily basis in accordance with Part 3 of this condition. The owner/operator shall record these monitor readings in a monitoring log at the time they are taken. The owner/operator shall use the monitoring results to estimate the frequency of carbon change-out necessary to maintain compliance with Parts 1, 5, and 6 of this condition.
 - a. If the owner/operator can demonstrate one (1) month of consecutive daily monitoring readings lower than 1.5 ppmv, measured as isobutylene, the monitoring frequency may be reduced to weekly.
 - b. After the monitoring frequency has been reduced to weekly, if the owner/operator can demonstrate one (1) month of consecutive weekly monitoring readings lower than 1.5 ppmv, measured as isobutylene, the monitoring frequency may be reduced to once every two (2) weeks.
 - c. After the monitoring frequency has been reduced to once every two (2) weeks, if the owner/operator can demonstrate one (1) month of consecutive bi-weekly readings lower than 1.5 ppmv, measured as isobutylene, the monitoring frequency may be reduced to monthly.
 - d. If any subsequent results from monitoring exceed 1.5 ppmv, measured as isobutylene, the owner/operator shall revert to daily monitoring. If monitoring reverts back to daily, the owner/operator may reduce the monitoring frequency in accordance with Parts 4(a) through (c) of this condition.

[Basis: Cumulative Increase, Toxics, and Regulations 1-523 and 2-1-403]

5. The second to last carbon vessel shall be immediately changed out with unspent carbon upon breakthrough, defined as the detection at its outlet in excess of the higher of the following limits:

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- a. 10 % of the inlet stream concentration to the carbon bed.
 - b. 10 ppmv (measured as Isobutylene).
[Basis: Cumulative Increase and Regulations 1-523 and 2-1-403]
6. The last carbon vessel shall be immediately changed out with unspent carbon upon detection at its outlet of 3 ppmv or greater (measured as Isobutylene). [Basis: Cumulative Increase and Regulations 1-523 and 2-1-403]
7. The owner/operator shall maintain the following information for each month of operation:
 - a. Hours and time of operation.
 - b. Each emission test, analysis, or monitoring results logged in for the day of operation they were taken.
 - c. The number of carbon vessels removed from service.
 - d. Total throughput of soil vapor from source S- in standard cubic feet.

Such records shall be retained and made available for inspection by the Air District for two (2) years following the date the data is recorded. [Basis: Recordkeeping]
8. The owner/operator shall report any noncompliance with these conditions to the Compliance and Enforcement Division, by email to compliance@baaqmd.gov (Attention: Director of Compliance and Enforcement), at the time that it is first discovered. The owner/operator shall detail the corrective action taken and include the data showing the exceedance as well as the time of occurrence in the submittal. [Basis: Regulation 2-1-403]
9. The owner/operator shall maintain a file containing all measurements, records and other data that are required to be collected pursuant to the various provisions of this condition. All measurements, records and data required to be maintained by the operator shall be retained for at least two (2) years following the date the data is recorded. [Basis: Regulation 1-523]
10. Upon final completion of the remediation project, the operator shall notify the Engineering Division within two weeks of decommissioning the operation. [Basis: Regulation 2-1-403]

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Permit Conditions for Hard Chrome Plating:

1. The owner/operator shall not exceed a total (net) throughput at S- of million amp-hrs in any consecutive twelve month period. (basis: Cumulative Increase; Toxics)
2. The owner/operator shall vent S- through A- Scrubber System. The ventilation and abatement system shall be properly maintained and kept in good operation condition. (basis: Cumulative Increase; Toxics)
3. The owner/operator shall not emit hexavalent chromium from S- in excess of milligram per ampere-hour (mg/a-hr) after abatement by A- . (basis: Cumulative Increase; Toxics)
4. Source Test
 - a. To assist in demonstrating ongoing compliance with part 3 above, the owner/operator shall perform a source test at a frequency of not less than once every 24 months after the previous source test. The initial source test to demonstrate compliance with part 3, shall be conducted within 60 days of initial startup of A- .
 - b. The owner/operator shall submit a written source test protocol to the Air District's Source Test Section at least 30 days prior to conducting any source test for compliance. The chrome testing protocol shall include a requirement to operate all chrome plating baths at normal rectifier amperages during the test period. source test protocol shall include testing methods, length of sample period, plating facilities to be operating during the source test, parameters to be monitored, sampling equipment and methods, as well as the planned date for the source test.
 - c. All source tests used to demonstrate compliance shall determine the mass emissions of both total and hexavalent chromium in g/hr, mg/a-hr, and mg/dscm as emitted after abatement.

The owner/operator shall submit a complete report to the Air District's Source Test Section within 60 days of the source test completion and shall demonstrate compliance with part 3, above. (basis: Cumulative Increase; Toxics)
5. Parametric Monitoring
 - a. To demonstrate compliance with part 1 above, the owner/operator shall install, operate and maintain continuous recording, non-resettable ampere-hour meters that operate on the electrical power lines connected to the tank rectifiers. A separate meter shall be hard-wired, maintained and operated for each rectifier if applicable.
 - b. In order to comply with Regulation 11 Rule 8, Section (e)(2) and (e)(3) the owner/operator shall determine and recommend a parameter for regular monitoring to ensure ongoing compliance with part 4 above. The initial source test shall be used to establish the parameter operating range. This parameter type as well as an initial parameter operating range will be added to this part as an administrative amendment, upon demonstration of compliance with part 4.

(basis: Cumulative Increase; Toxics)
6. Inspection/Maintenance
 - a. The owner/operator shall perform visual inspections of the A- at a frequency of at least one time per calendar quarter. This visual inspection is to ensure that there is proper drainage, no unusual chromic acid buildup, and no evidence of chemical attack that would affect the structural integrity of the devices.
 - b. The owner/operator shall visually inspect the back portion of the scrubber closest the stack at a frequency of at least one time per quarter to ensure there is no breakthrough of chromic acid mist.
 - c. The owner/operator shall visually inspect ductwork from tank to the control device at a frequency of at least one time per calendar quarter to ensure there are no leaks. In the event a leak is discovered, it shall be repaired as soon as practicable.

- d. The owner/operator shall perform periodic wash downs of the A- at a frequency as recommended by the manufacturer.
- e. The ampere-hour meter shall be installed and maintained as per manufacturer's recommendations.

(basis: Cumulative Increase; Toxica)

- 7. The owner/operator shall prepare an operation and maintenance (O&M) plan. The plan shall incorporate the requirements noted in part 6 above, and shall include the following elements:
 - a. A standardized checklist to document the operation and maintenance of the source, the add-on air pollution control devices, and the process and control system monitoring the equipment, and
 - b. Procedures to be followed to ensure the equipment is properly maintained.
 - c. The owner/operator shall keep the written O&M plan on record after is developed and have it available for Air District inspection, upon request.
 - d. The owner/operator shall document any changes made to the O & M plan in an addendum to the plan. In addition, the owner/operator shall keep previous versions of the O & M Plan on record to be made available for Air District inspection upon request, for a period of 5 year after each revision to the plan.
 - e. The owner/operator shall revise the O & M plan as necessary to minimize breakdowns.

To satisfy the inspection and maintenance procedures, the owner/operator may use applicable standard operating procedure (SOP) manuals, Occupational Safety and Health Administration (OSHA) plans, or other existing plans, provided the alternative plans meet the requirements of this subsection. (basis: Cumulative Increase; Toxics)

8. Recordkeeping

The owner/operator shall keep and maintain the following records for at least five years total; and at least two years on site.

- a. The owner/operator shall maintain inspection records to document that the Inspection/Maintenance requirements and the O & M Plan as required by Parts 6 and 7, above, respectively have been met. The record can take the form of a checklist and should identify
 - 1. the device inspected,
 - 2. the date and time of the inspection,
 - 3. a brief description of the working condition of the device during inspection,
 - 4. maintenance activities performed on the components of the air pollution control system, and
 - 5. any action taken to correct deficiencies found during inspection.
- b. The owner/operator shall maintain records to demonstrate that the inspection and maintenance requirements of Part 6, above, have been satisfied.
- c. The owner/operator shall maintain test reports documenting the conditions and results of all performance tests.
- d. The owner/operator shall maintain records of monitoring data as required by parts 1 and 5.
- e. The owner/operator shall maintain records of the occurrence, duration, and cause (if known) and action taken on each breakdown.
- f. The owner/operator shall maintain records of exceedances of:
 - 1. the emission limitation identified in part 3;
 - 2. the monitoring parameter values of Part 5;
 - 3. any site-specific operating parameters established for alternative equipment.

The records shall include the date of the occurrence, the duration, cause (if known), and where possible, the magnitude of any excess emissions. (basis: Cumulative Increase; Toxics)

9. Reporting

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- a. The owner/operator shall prepare an annual summary report to the Air District to document the ongoing compliance status. This report shall be kept on site and made available to the Air District upon request.
- b. The owner/operator shall report breakdowns as required by the Air District breakdown procedures identified in Regulation 1.
(basis: Cumulative Increase; Toxics)

Permit Conditions for Trivalent Chrome Plating:

1. The owner/operator shall not operate S- unless at least one of the bath components contains a wetting agent additive. (Regulation 11-8, Section (c)(3))
2. The owner/operator shall maintain the following monthly records:
 - a. Bath components purchased with the wetting agent clearly identified as a bath constituent contained in one of the components.
 - b. Current applied to the source integrated over time, in units of ampere-hours. Ampere-hour records to be monitored using non-resettable amp-hour meter.(Basis: Regulation 11-8, Section (h)(9), Regulation 1-441)
3. Within 30 days of issuance of this permit, the owner/operator shall submit a notification of compliance status that contains:
 - a. A statement that a trivalent chromium process that incorporates a wetting agent will be used to comply with Parts 1 & 2, above.
 - b. The list of bath components that comprise the trivalent chromium bath, with the wetting agent clearly identified.(Basis: Reg 11 Rule 8, Section (i)(5))

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Permit Conditions for Sterilizer w/Catalytic Oxidation (not applicable to small sterilizers that are abated by integral carbon adsorption):

1. The owner/operator shall not use more than pounds of sterilant gas at S- per consecutive twelve-month period. Sterilant gas shall consist of 100% pure ethylene oxide [or describe approved mixture if applicable.] (basis: Cumulative Increase)
2. In order to demonstrate compliance with Part 1, the owner/operator shall maintain a log of sterilant gas purchase and the date and time of each sterilizer operation cycle. Such records shall be retained onsite for two years from the date of entry and made available for inspection by Air District staff upon request. (basis: Cumulative Increase)
3. The owner/operator shall evacuate the sterilizer chamber in a manner that prevents any ethylene oxide emissions to the drain. If the owner/operator uses a water-sealed vacuum pump, it shall be of a recirculating design. (basis: Cumulative Increase)
4. The owner/operator shall not operate the sterilizer chamber unless emissions of ethylene oxide are reduced 99.9% by the catalytic oxidizer, averaged over the entire discharge cycle. The owner/operator shall replace the catalyst bed as needed to comply with this condition. (basis: Cumulative Increase)
5. The owner/operator shall not operate the aerator chamber unless emissions of ethylene oxide are reduced 95% by the catalytic oxidizer, averaged over the entire discharge cycle. The owner/operator shall replace the catalyst bed as needed to comply with this condition. (basis: Cumulative Increase)
6. The owner/operator shall equip the catalytic oxidizer with automatic controls, which:
 - a. Monitor and record the inlet and outlet catalytic oxidizer bed temperatures, and
 - b. Shutoff the flow of ethylene oxide to the catalytic oxidizer if the inlet temperature is less than 280 F or the outlet temperature exceeds 500 F.The owner/operator shall maintain temperature records for a period of at least two years from the date of record and make such records available upon request to the Air District for inspection. (basis: Cumulative Increase)

[Add [Source Test Conditions](#) after part 6 and renumber the [Source Test Conditions](#), as needed.]

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Permit Conditions for Small Sterilizers that are abated by integral carbon adsorption:

1. Permitted approval is for the use of 100% ethylene oxide sterilant gas only. The use of any other sterilant gas is expressly prohibited under the terms of the permit unless prior approval and a Change of Condition is obtained in writing from the Bay Area Air Quality Management District. [Basis: Cumulative Increase]
2. Total cumulative emissions of ethylene oxide sterilant gas from source S- shall not exceed pounds per consecutive twelve-month period. [Basis: Cumulative Increase; Regulation 2, Rule 5]
3. Sterilizer emissions from Source S- shall be controlled by A- , Catalytic Oxidizer. [Basis: Cumulative Increase; Regulation 2, Rule 5]
4. The sterilization cycle shall not be conducted unless ethylene oxide emissions are reduced by at least 99.9% averaged over the entire discharge cycle. At any time when the abatement system is unable to accept emissions from the sterilizers, the flow to the sterilizers shall automatically cease. The catalyst bed shall be replaced as needed to comply with this requirement. [Basis: Cumulative Increase, "Ethylene Oxide ATCM for Sterilizers and Aerators", Section 93109, Title 17, CCR, Subsection (e)]
5. In order to demonstrate compliance with Paragraph 2 above, the permit holder shall maintain a log of sterilant gas purchases and the date and time of each sterilization operation cycle. These records shall be retained on site for two years after the date of purchase or entry and shall be made available for inspection by District staff upon request. [Basis: Cumulative Increase, Regulation 1, Rule 1-543]

[Add [Source Test Conditions](#) after part 6 and renumber the [Source Test Conditions](#), as needed. An example of such conditions follows.]

6. In order to demonstrate compliance with these permit conditions, the permit holder shall perform a District approved compliance source test (ARB Test Method 431) on each sterilizer within 60 days of sterilizer startup. The permit holder should notify the Manager of the District's Source Test Section and the Director of the District's Engineering Division in writing at least seven (7) days prior to the test, to provide District staff with the option of observing testing. Within 30 days of test completion a comprehensive report of the test results shall be submitted to the Manager of the District's Source Test Section for review and disposition. [Basis: "Ethylene Oxide ATCM for Sterilizers and Aerators", Section 93109, Title 17, CCR, Subsections (g) and (h)]
7. In order to demonstrate compliance with these permit conditions, the permit holder also shall perform a District approved compliance source test (ARB Test Method 431) on each sterilizer every two years. The permit holder shall notify the Manager of the District's Source Test Section and the Director of the District's Engineering Division in writing at least Seven (7) days prior to the test, to provide District Staff the option of observing testing. Within 30 days of test completion a comprehensive report of the test results shall be submitted to the Manager of the District's Source Test Section for review and disposition. The first source test shall be due to the District on the second anniversary of the date of the Permit to Operate. [Basis: "Ethylene Oxide ATCM for Sterilizers and Aerators", Section 93109, Title 17, CCR, Subsections (g) and (h)]

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8. The permit holder shall obtain approval from the District's Technical Services Division for the installation of stack sampling ports, and for all source testing procedures. The permit holder shall notify the Permit Services and Technical Divisions at least two weeks prior to any source test.
[Basis: Regulation 1, Rule 1-501]

[Add [Source Test Conditions](#) after part 6 and renumber the [Source Test Conditions](#), as needed.]

PERMIT HANDBOOK

Permit Conditions for Non-Halogenated Solvent Dry Cleaning:

1. The owner/operator shall not use more than gallons of petroleum solvent at S- per consecutive twelve-month period, as defined as solvent purchases minus any amounts remaining in storage. (basis: Cumulative Increase)
2. To demonstrate compliance with the above, the owner/operator shall maintain onsite records of all solvent purchases. Monthly throughput shall be totaled for each consecutive twelve-month period. Such records shall be retained onsite for 24 months from the date of entry and be available for inspection by Air District staff on request. (basis: Cumulative Increase)

PERMIT HANDBOOK

Permit Conditions for Abrasive Blasting (BACT with abatement):

1. The owner/operator of S- Abrasive Blasting Operation shall not exceed a total abrasive throughput of tons of during any consecutive 12-month period. (basis: Cumulative Increase).
2. The owner/operator of S- Abrasive Blasting Operation shall abate the emissions with the properly maintained A- Baghouse at all times that S- is in operation. The owner/operator shall ensure that an Air District approved baghouse failure warning device be in operation at all A- Baghouse is in use. (basis: Cumulative Increase).
3. In order to demonstrate compliance with the above conditions, the owner/operator of S- Abrasive Blasting Operation and A- Baghouse shall maintain the following records in an Air District approved log. These records shall be kept on site and made available for Air District inspection for a period of 24 months from the date that the record was made. (basis: Cumulative Increase).
 - a. Daily throughput of abrasive material, summarized on a monthly basis.
 - b. Daily hours of operation, summarized on a monthly basis.
 - c. Monthly throughput shall be totaled for each consecutive twelve-month period. (basis: Cumulative Increase)
4. The maximum air flow rate from A- Baghouse, shall not exceed dscfm. [Basis: Regulation 6-310].
5. The particulate loading at the exit of A- Baghouse, shall not exceed grain/dscf. [Basis: BACT]

[Add [Source Test Conditions](#) after part 5 and renumber the [Source Test Conditions](#), as needed.]

PERMIT HANDBOOK

Permit Conditions for Abrasive Blasting (non-BACT with abatement):

1. The owner/operator of S- Abrasive Blasting Operation shall not exceed a total abrasive throughput of tons of during any consecutive 12-month period. (basis: Cumulative Increase).
2. The owner/operator of S- Abrasive Blasting Operation shall abate the emissions with the properly maintained A- Baghouse at all times that S- is in operation. The owner/operator shall ensure that an Air District approved baghouse failure warning device be in operation at all A- Baghouse is in use. (basis: Cumulative Increase).
3. In order to demonstrate compliance with the above conditions, the owner/operator of S- Abrasive Blasting Operation and A- Baghouse shall maintain the following records in an Air District approved log. These records shall be kept on site and made available for Air District inspection for a period of 24 months from the date that the record was made. (basis: Cumulative Increase).
 - a. Daily throughput of abrasive material, summarized on a monthly basis.
 - b. Daily hours of operation, summarized on a monthly basis.
 - c. Monthly throughput shall be totaled for each consecutive twelve-month period. (basis: Cumulative Increase)

PERMIT HANDBOOK

Permit Conditions for Abrasive Blasting (non-BACT with no abatement):

1. The owner/operator of S- Abrasive Blasting Operation shall not exceed a total abrasive throughput of tons of during any consecutive 12-month period. (basis: Cumulative Increase).
2. In order to demonstrate compliance with the above conditions, the owner/operator of S- Abrasive Blasting Operation shall maintain the following records in an Air District approved log. These records shall be kept on site and made available for Air District inspection for a period of 24 months from the date that the record was made.
 - a. Daily throughput of abrasive material, summarized on a monthly basis.
 - b. Daily hours of operation, summarized on a monthly basis.
 - c. Monthly throughput shall be totaled for each consecutive twelve-month period. (basis: Cumulative Increase).

PERMIT HANDBOOK

Permit Conditions for Asphalt Drum Mixer:

1. The owner/operator of S- Drum Mixer shall not process more than tons of finished asphaltic concrete during any consecutive 12-month period. [Basis: Cumulative Increase]
2. The owner/operator of S- Drum Mixer shall use only natural gas fuel for this source. [Basis: Cumulative Increase, Toxics, BACT]
3. The owner/operator of S- shall abate the emissions from S- at all times it is in use, with properly maintained A- . [Basis: BACT]
4. The owner/operator of S- shall not exceed the following emission limits (downstream of A-): [Basis: Cumulative Increase, BACT]

NO _x	12 ppmv@ 15% O ₂ dry
CO	133 ppmv@ 15% O ₂ dry
PM ₁₀	0.01 grain/dry standard cubic foot
5. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than 3 minutes in any one hour, which is as dark or darker than Ringlemann 1 or equivalent to 20% opacity. [Basis: Regulation 6-1-301]
6. Operation of S- shall not emit emissions in sufficient quantities as to cause a public nuisance under Regulation 1-301. [Basis: Regulation 1-301]
7. The total throughput of finished asphaltic concrete, by weight, in tons, shall be recorded on a monthly basis in an Air District approved log. Monthly throughput shall be totaled for each consecutive twelve-month period. This record shall be retained for a period of at least two years (five years if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit), from date of entry. The log shall be kept with the equipment and made available to the Air District staff upon request. [Basis: Record keeping]

[Add [Source Test Conditions](#) after part 7 and renumber the [Source Test Conditions](#), as needed.]

PERMIT HANDBOOK

Permit Conditions for Portable Asphalt Rubber Blending Plant:

[Note: If the Asphalt Rubber Blending Plant is not portable, then remove Part 1 and 10 and renumber.]

1. The owner/operator of S- , S- , S- , S- , and S- has been given a permit for a portable source and is subject to Regulation 2-1-413.
 - a. The owner/operator will satisfy Regulation 2-1-413.1 (10 ton/yr limit of air pollutants) and Regulation 2-1-413.2 (Toxic Emissions) and if the throughput does not exceed the limit in Parts 3, 4, 5, and 6.
 - b. Per Regulation 2-413.2, the owner/operator must not operate within 1,000 feet of the outer boundary of any K-12 school site, unless the applicable notice requirements of Health and Safety Code Section 42301.6 have been met. The owner/operator shall not operate this equipment within an overburdened community, as defined in Regulation 2-1-243, unless the applicable public noticing requirements of Regulation 2-1-412 and the applicable project risk limits of Regulation 2-5-302 have been met. This will require submittal and Air District approval of an application for a revised permit to operate.
 - c. To satisfy Regulation 2-1-413.7, the owner/operator must not store or operate the sources in one location for more than 12 months, following the date of initial operation. The owner/operator must not move the equipment and then return it to the same location in an attempt to circumvent the portable equipment time requirement.
 - d. If this portable asphalt rubber blending plant remains at any fixed location in the Bay Area Air Basin for more than 12 months, its permit will automatically revert to a conventional permanent location BAAQMD permit and will lose its portability. This loss of portable status shall be reported to the Director of the Compliance and Enforcement Division no later than 30 calendar days after its occurrence.
(Basis: Regulations 2-1-412, 2-1-413.3, and 2-5-302)
2. The owner/operator of S- and S- shall not emit visible dust and smoke emissions that exceed Ringelmann 1 or result in fallout on adjacent property in such quantities so as to cause a public nuisance as described in Regulation 1-301. The owner/operator will not emit for a period or periods aggregating more than three minutes in any hour, equal to or greater than 20% opacity as perceived by an opacity-sensing device.
(Basis: Regulation 1-301 and Regulation 6-1)
3. The owner/operator of S- shall not exceed the following crumb rubber throughput:
 - a. tons in any consecutive 24-hour period
 - b. tons in any consecutive 12-month period(Basis: Cumulative Increase)
4. The owner/operator of S- shall not exceed the following natural rubber throughput:
 - a. tons in any consecutive 24-hour period
 - b. tons in any consecutive 12-month period(Basis: Cumulative Increase)
5. The owner/operator of S- Extender Oil Tank shall not exceed the following extender oil throughput:
 - a. gallons in any consecutive 24-hour period
 - b. gallons in any consecutive 12-month period(Basis: Cumulative Increase)
6. The owner/operator of S- Asphalt Oil Tank shall not exceed the following asphalt oil throughput:
 - a. gallons in any consecutive 24-hour period
 - b. gallons in any consecutive 12-month period(Basis: Cumulative Increase)

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7. The owner/operator shall ensure that all emissions from S- , S- , S- , and S- are abated by A- , A- , and A- Air-Cooled Condensers at all times of operation. (Basis: Cumulative Increase)
8. The owner/operator of S- shall not use more than 10,000 therms or 1,000 MMBtu of LPG during any consecutive 12-month periods in any locations under the jurisdiction of BAAQMD. [Basis: cumulative increase]
9. To determine compliance with the above conditions, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions, including, but not necessarily limited to, the following information:
 - a. Daily and monthly throughput of material usages for S- , S- , S- , and S- .
 - b. Daily and monthly hours of operation.The owner/operator shall retain all records in an Air District-approved log to be retained on-site for at least two years, from the date of entry, and shall make these records available for inspection by Air District staff upon request. These record-keeping requirements shall not replace the record-keeping requirements contained in any applicable Air District Regulations. (Basis: Cumulative Increase, Recordkeeping)
10. The owner/operator shall notify the Compliance and Enforcement Division by email to compliance@baaqmd.gov (Attention: Director of Compliance and Enforcement) at least 3 days in advance, of the new location in which it intends to operate. The notification shall include:
 - a. Plant number
 - b. Brief description of the nature of the operation
 - c. Estimated duration of the operation at this site.
 - d. Name and telephone number of a contact person at the new location(Basis: Regulation 2-1-220)

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Permit Conditions for Smaller Coffee Roasting Operations:

Applies to:

- Small to Medium (5 to 35 kg/batch) Roasting Operations with Integral or Add-on Afterburner, and
- Large (35 to 70 kg/batch) Roasting Operations with Integral or Add-on Afterburner and an Annual Roasting Throughput not Exceeding 1,000 tons (Large $\leq$ 1,000 tpy)

1. The owner/operator shall not exceed the following limits at the source indicated over any consecutive 12-month period:

S-

Coffee Beans

tons/yr

[basis: Cumulative Increase]

2. The owner/operator shall not use more than _____ terms of natural gas usage at S-_____ during any consecutive twelve-month period. [Basis: Cumulative Increase]

3. The owner/operator shall abate S- Coffee Roaster(s) at all times while operating by A- Afterburner/ built-in afterburner. [basis: Cumulative Increase]

4. The owner/operator shall operate A- with a minimum furnace temperature of 1200° F during all times that the beans are roasting. [basis: Regulation 2-1-403]

5. The owner/operator shall ensure that the exhaust stack is equipped with a temperature-measuring device capable of continuously measuring and recording the temperature in the stack zone when roasting. This device shall be accurate to within 10 degrees Fahrenheit (° F) and shall be maintained in accordance with manufacturer's recommendations. These temperature monitors shall be used to determine compliance with the temperature requirements in Part 4. [basis: Regulation 1-521]

6. The owner/operator shall not emit from any source for a period or periods aggregating more than three minutes in any hour, a visible emission which is as dark or darker than No. 1.0 on the Ringelmann Chart or of such opacity as to obscure an observer's view to an equivalent or greater degree. [basis: Regulation 6-1-301]

7. The owner/operator shall maintain the following records and provide all the data necessary to evaluate compliance with the above conditions, including the following information:

- Monthly records of the quantity of green coffee beans roasted at S- Coffee Roaster.
- Monthly records of natural gas usage at S- Coffee Roaster.
- Monthly usage records shall be totaled for each consecutive 12-month period.
- Records of continuous temperature measurements of A- Afterburner whenever S- Coffee Roaster is roasting coffee beans.

All records shall be retained onsite for two years from the date of entry, and made available for inspection by Air District staff upon request. These record-keeping requirements shall not replace the record keeping requirements contained in any applicable Air District Regulations. [Basis: Regulation 1-523]

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Permit Conditions for Larger Coffee Roasting Operations:

Applies to:

- Large (35 to 70 kg/batch) Roasting Operations with Integral or Add-on Afterburner and an Annual Roasting Throughput Exceeding 1,000 tons (Large > 1,000 tpy), and
- Extra-Large (70 kg/batch & up) with Integral or Add-on Afterburner Coffee Roasting Operations

1. The owner/operator shall not exceed the following limits at the sources indicated over any consecutive 12-month period:
S-
Coffee Beans tons/yr
Natural Gas Usage MM scf/yr
[basis: Cumulative Increase]
2. The owner/operator shall abate S- Coffee Roaster(s) at all times with the properly operating by A- Afterburner(s), and A- Baghouse(s) respectively. [basis: Cumulative Increase, include BACT or TBACT (if applicable)]
3. The owner/operator shall maintain a minimum furnace temperature of A- to be 1200° F and maintain a residence time of at least 0.3 seconds. [basis: Regulation 2-1-403]
4. The owner/operator shall ensure that A- Afterburner are equipped with a temperature-measuring device capable of continuously measuring and recording the temperature in the thermal oxidizers. These devices shall be accurate to within 10 degrees Fahrenheit (° F) and shall be maintained in accordance with manufacturer's recommendations. These temperature monitors shall be used to determine compliance with the temperature requirements in Part 3. [basis: Regulation 1-521]
5. The owner/operator shall not emit from any source for a period or periods aggregating more than three minutes in any hour, a visible emission which is as dark or darker than No. 0.5 on the Ringelmann Chart or of such opacity as to obscure an observer's view to an equivalent or greater degree. [basis: BACT]
6. The owner/operator shall properly maintain all baghouses (A-) and keep them in good operating condition at all times. The owner/operator shall ensure that all baghouses (A-) are equipped with a device for measuring the pressure drop across the baghouse. (basis: Regulation 6-1-301, 6-1-310, 6-1-311, 2-1-403)
7. Within 7 days of startup of any of the following, the owner/operator shall identify the operating pressure drop ranges for each baghouse and ensure that the baghouses (A-) are maintained within those identified pressure drop ranges. (basis: Regulation 6-1-301, 6-1-310, 6-1-311, 2-1-403)
8. To demonstrate compliance with the above conditions, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions, including the following information:
 - a. Monthly records of the quantity of green coffee beans roasted at each coffee roaster.
 - b. Monthly records of natural gas usage at each coffee roaster.
 - c. Monthly usage records shall be totaled for each consecutive 12-month period.
 - d. Records of continuous temperature measurements of A- Afterburner whenever S- Coffee Roasters are in operation.
 - e. Records of daily pressure drop measurements of A- and dates when the filters are replaced and/or the baghouse repaired.
 - f. Source test reports.

All records shall be retained onsite for two years from the date of entry and made available for inspection by Air District staff upon request. These record-keeping requirements shall not replace

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the record keeping requirements contained in any applicable Air District Regulations. [basis: Cumulative Increase]

10. The owner/operator shall not exceed the following limits while operating any roaster or afterburner:
NO_x = lb/MMBTU
CO = lb/MMBTU
POC = lb/ton of beans roasted
 Formaldehyde = lb/ton
 Acetaldehyde = lb/ton
[basis: Cumulative Increase, BACT]
11. The particulate emissions, as measured by EPA Method 5 front and back half, from the exhaust of the following abatement devices shall not exceed the indicated grain loading rates:
Abatement Device # g/dscf
A-
[basis: Cumulative Increase, BACT]
12. Within 60 days of start-up of each of S- , and every five years thereafter, the owner/operator shall conduct an Air District approved source test on the afterburner exhaust stacks to determine the emissions of the following pollutants in the units specified:
Nitrogen Oxides [lb/MMBTU natural gas]
Carbon Monoxide [lb/MMBTU natural gas]
Total Organics [lb/ton coffee roasted]
Formaldehyde [lb/ton coffee roasted] (only test on startup)
Acetaldehyde [lb/ton coffee roasted] (only test on startup)
The owner/operator shall submit the source test results to the Air District staff no later than 60 days after the source test. [basis: Cumulative Increase, BACT]
13. Not later than 60 days from the startup of S- and every three years thereafter, the owner/operator shall conduct Air District approved source tests to determine initial compliance with Part 11. The owner/operator shall submit the source test results to the Air District's Source Test Section no later than 60 days after source test completion. (basis: BACT, Cumulative Increase)
14. The owner/operator shall comply with all applicable testing requirements as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall notify the Air District's Source Test Section, in writing, of the source test protocols and projected test dates at least 30 days prior to testing. (basis: BACT, Cumulative Increase)
15. The owner/operator shall ensure that S- is equipped with source test sampling ports and safe access as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall obtain approval of the sampling ports locations, layout and access from the Air District's Source Test Section prior to installation. (Basis: BACT; Cumulative Increase)

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Permit Conditions for Cooling Towers (Non-BACT):

1. The owner/operator of S- Cooling Tower shall not exceed a total water throughput of gallons during any consecutive 12-month period. (basis: Cumulative Increase)
2. The owner/operator of S- Cooling Tower shall not exceed a total dissolved solids content of water (TDS) of ppmw. (basis: Cumulative Increase)
3. The operator/owner of the S- Cooling Tower shall maintain documentation, written and provided by the vendor/manufacture, of the maximum drift rate of wt% and the premise, basis, and justification for the drift rate. (Basis: Cumulative Increase)
4. The owner/operator of S- Cooling Tower shall not exceed a bromine concentration in the water of ppmw. (basis: Toxics)
5. The owner/operator of the S- Cooling Tower, shall maintain all water usage, monitoring, source test, vendor specifications, and other records as required to demonstrate compliance with the above conditions. Monthly throughput shall be totaled for each consecutive twelve-month period. All records shall be maintained on site for at least two years from the date of data entry (five years if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit) and shall be made available to the Air District staff for inspection upon request. (basis: Cumulative Increase, Toxics)

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Permit Conditions for Refinery Cooling Towers (BACT):

S- Cooling Tower, gallon per minute
 Counterflow, Induced Draft
 Sodium Hypochlorite, Flogard, Gengard, Inhibitor, Spectrus,
 Sulfuric Acid Corrosion Inhibitors
 Cellular Drift Eliminator
 CFM Exhaust

1. The owner/operator of S- shall ensure the monthly average concentration of total dissolved solids (TDS) in the cooling tower recirculating water does not exceed 2,000 ppmw (averaged over any consecutive 30-day period). Compliance with the above TDS concentration limit shall be based on daily conductivity measurements that shall be taken at the cooling water sump basin at least once per operating shift and in concert with a correlation factor of 0.67 mg/L per microohm. (Basis: BACT and Cumulative Increase)
2. The owner/operator of S- shall ensure the drift rate of the drift eliminator does not exceed 0.0005%. (Basis: BACT and Cumulative Increase)
3. The owner/operator of S- shall ensure the monthly average water flow rates measured by a continuous flow monitor does not exceed gallons per minute. (Basis: Cumulative Increase)
4. The owner/operator of S- shall operate, install, and properly maintain a water flow meter and an Air District approved continuous hydrocarbon analyzer(s) at each cooling tower return line(s), and/or at each heat exchanger exit line(s) upstream of S- prior to exposure to air to demonstrate compliance with the leak action level in Subsection 11-10-204.2 (6 ppmv in the stripped air). The owner/operator shall ensure the continuous hydrocarbon analyzer(s) is capable of taking at least 4 measurements every hour (96 measurements per day). (Basis: Regulation 11-10-304.2)
5. The owner/operator of S- shall minimize the leak as soon as practicable or within seven calendar days, whichever is sooner, and conduct a leak repair and/or remove the defective piece of equipment from service within 15 calendar days of first detecting the leak if measurements taken by the Air District approved continuous hydrocarbon analyzer(s) show the sampled cooling tower water analyzed contains total hydrocarbon concentrations greater than 6 ppmw in stripped air. Any delay in completion of the leak repair beyond 15 days must meet the criteria cited in 40 C.F.R. 63.654(f)-(g). The owner/operator shall also speciate and quantify the Toxic Air Contaminants (TACs) associated with the leak within 72 hours of discovering the leak, using water sampling pursuant to the requirements of Sections 11-10-603, 11-10-604 and the BAAQMD Manual of Procedures. The TACs requiring speciation and quantification are defined in Regulation 2, Rule 5, Section 2-5-222 and are summarized in Table 2-5-1 of Regulation 2, Rule 5. (Basis: Toxics and Cumulative Increase)
6. If measurements taken by the Air District approved continuous hydrocarbon analyzer(s) shows the sampled cooling tower water analyzed contains total hydrocarbon concentrations greater than 6 ppmw in stripped air, the owner/operator of S- shall conduct daily cooling water sampling at least once per operating shift per Regulation 11-10-304. The daily water samples shall be collected in a manner that ensures no two samples are collected within 2 hours of each other. The first sample to determine the total hydrocarbon concentration and chlorine concentration in the cooling water shall be taken as soon as feasible but no later than 24 hours from the time and date of leak discovery. Within 72 hours of the time and date of leak discovery, the owner/operator of S- shall notify the APCO of the total hydrocarbon concentration and chlorine concentration in the cooling water and shall estimate the associated emissions from the leak. If the leak has not been repaired within 15 days of the time and date of leak discovery, the owner/operator shall notify the APCO regarding the magnitude of the leak, the specific repairs performed to date, whether the leaking component was re-inspected for leaks following the repair, the cause of the leak, whether further repair or replacement of equipment will be required at the next turnaround, whether the hydrocarbons and toxic air contaminants associated with the leak were speciated and quantified. The owner/operator shall

notify the APCO if the delay in completion of the leak repair beyond 15 days meets the criteria cited in 40 C.F.R. 63.654(f)-(g). (Basis: BACT, Regulation 11-10-401, and Recordkeeping)

7. The owner/operator of S- shall implement the following best modern practices:
- Conduct inspections and repairs of heat exchangers associated in accordance with Title 8 CCR Section 6857(c).
 - Calibrate and maintain the on-line continuous total hydrocarbon analyzer in accordance with Regulation 1-523.

(Basis: Regulation 2-1-403)

8. The owner/operator of S- shall perform the following monitoring techniques until the Air District approved continuous hydrocarbon analyzer passes calibration in accordance with BAAQMD Manual of Procedures. The owner/operator of S- shall also perform the following monitoring during periods of analyzer malfunction, when the analyzer is not operating, and/or when the analyzer is undergoing maintenance/repair. The owner/operator shall initiate the monitoring parameters in part 8a through 8e on the following calendar day from the start of analyzer downtime.

- Conduct visual observations of the cooling water at least once per day to detect any changes in the appearance of the water that would indicate potential hydrocarbon contamination.
- Sample the cooling water for chlorine at least once per day.
- Use Air District approved hand-held or stationary monitors, such as PIDs or FIDs, to detect the presence of hydrocarbons in the air above the sump basin at least once per day.
- Use of Air District approved Oxidation Reduction Potential (ORP) data taken at least once per day to confirm/eliminate the potential presence of hydrocarbons in the cooling water.
- Sample the cooling water in accordance with Regulation 11-10-304.1 within seven calendar days from the beginning of analyzer downtime.
- Sample the cooling water in accordance with Regulation 11-10-304.1 within seven calendar days from when S- is initially placed in service and every subsequent seven calendar days until the continuous hydrocarbon analyzer passes calibration.

(Basis: Regulation 2-1-403)

9. The owner/operator of S- shall maintain the following records:
- Monthly average water flowrate of cooling tower recirculating water.
 - Daily conductivity measurements of cooling tower recirculating water to determine Total Dissolved Solids (TDS) concentration using a correlation factor of 0.67 mg/L per microohm and the associated daily PM10 emissions.
 - Dated logs of all sampled cooling tower water total hydrocarbon concentration data and TACs speciated and quantified as required by Parts 4 and 5 of this permit condition.
 - Dated logs of all daily cooling water samples collected and analyzed, and the associated daily POC and TAC emissions speciated and quantified as required by Part 6 of this permit condition.
 - Dated logs of the root cause analysis and corrective actions taken from all events where the applicable leak action levels in Regulation 11-10-204 were exceeded.
 - Dated logs of all actions taken and implemented to comply with the best modern practices in Part 7 of this permit condition.
 - Dated logs of all monitoring performed to comply with Part 8 of this permit condition.

All records shall be retained for at least five years from the date of entry. The log shall be retained onsite and made available to Air District staff upon request. (Basis: Recordkeeping)

Permit Conditions for Concrete Batch Plants:

1. The owner/operator shall operate A- Baghouse to abate S- during all times of operation of the source. The owner/operator shall ensure that the outlet PM10 grain loading for A- Baghouse shall not exceed 0.01 grains per dry standard cubic foot. [basis: Cumulative Increase]
2. The owner/operator shall properly maintain and keep in good operating condition A- Baghouse at all times. The owner/operator shall equip the A- Baghouse with a device for measuring the pressure drop across the baghouse. (basis: Regulation 6-1-301, 6-1-310, 6-1-3111, 2-1-403)
3. The owner/operator shall produce no more than cubic yards of concrete from this facility in any consecutive 12-month period. (basis: Cumulative Increase)
4. The owner/operator shall not discharge an air contaminant into the atmosphere for a period or periods aggregating more than 3 minutes in any hour, which is as dark or darker than a Ringelmann 1.0. (basis: Regulation 6-1-301)
5. The owner/operator shall abate stockpiles, conveyors and unpaved roads as necessary with A- Water Sprays to maintain compliance with Part 4 of this condition. (basis: Regulation 6-1-301)
6. The owner/operator shall maintain an Air District approved log on a monthly basis for material throughput at each source. Monthly throughput shall be totaled for each consecutive twelve-month period. The owner/operator shall keep this log on site for at least two years from the date of entry and make it available to Air District staff upon request. (basis: Cumulative Increase)

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Permit Conditions for Animal Crematories:

1. The owner/operator shall operate S- Cremator in such a way that the cremator's processing rate shall not exceed pounds per hour, and the maximum firing rate shall not exceed MM BTU per hour. (basis: Cumulative Increase; Toxics)
2. The owner/operator shall not cremate more than pounds of animal remains in any consecutive twelve-month period. (basis: Cumulative Increase; Toxics)
3. The owner/operator shall maintain the set point for the operating temperature in the secondary chamber of the S- Cremator at or above 1650-degree Fahrenheit during the cremation mode. The operating temperature during cremation mode shall be maintained at a minimum of 1600 degree Fahrenheit under all circumstances. The owner/operator shall equip the cremator with an Air District approved continuous temperature monitoring and recording device to ensure compliance with this condition. The location of the thermocouple shall be approved by the Source Test Section of the Air District. Natural gas input to the secondary chamber burner shall be increased, if necessary, to increase temperature sufficiently to control odor and visible plume. (Basis: Regulation 6-1-301, 6-1-310; TBACT)
4. The owner/operator shall not cremate until the temperature in the secondary chamber is at least 1650-degree Fahrenheit. (Basis: Regulation 6-1-301, 6-1-310; TBACT)
5. The owner/operator shall fire the S- Cremator with natural gas only. (basis: Cumulative Increase; TBACT)
6. The owner/operator shall use the S- Cremator to cremate animal remains with or without enclosure in associated containers. No other material contaminated with toxic air contaminants as listed by Air Resources Board, including radioactive and biohazardous waste shall be incinerated in this cremator without prior approval of the Air District. (basis: Cumulative Increase; Toxics)
7. The owner/operator shall have an operator present at all times during cremations. (Basis: Regulation 6-1-301)
8. The owner/operator shall keep the S- Cremator in good working condition. (basis: Regulation 6-1-301, 6-1-310)
9. To determine compliance with the above conditions, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions, including but not limited to daily record of the following information:
 - a. Operating hours
 - b. Weight (in pounds) of animal remains cremated
 - c. Daily cremation rate (in pounds)
 - d. Daily records shall be totaled on a monthly and for each consecutive twelve-month period.
 - e. Any maintenance performed on S- CrematorThe owner/operator shall keep all records on site for at least two years from the date of data entry, and the records shall be made available to the Air District staff for inspection. (basis: Cumulative Increase, TBACT; Regulation 6-1-301, 6-1-310)

[Add [Source Test Conditions](#) after part 9 and renumber the [Source Test Conditions](#), as needed.]

PERMIT HANDBOOK

Permit Conditions for Human Crematories:

1. The owner/operator shall not operate S- Cremator in such a way that the cremator's processing rate shall not exceed cremations per hour, and the maximum firing rate shall not exceed MM BTU per hour. (basis: Cumulative Increase; Toxics)
2. The owner/operator of S- Cremator shall not perform more than a total of cremations in any consecutive twelve-month period. (basis: Cumulative Increase; Toxics)
3. The owner/operator shall maintain the set point for the operating temperature in the secondary chamber of the S- Cremator at or above 1650 degree Fahrenheit during the cremation mode. The operating temperature during cremation mode shall be maintained at a minimum of 1600 degree Fahrenheit during all circumstances. The owner/operator shall equip the cremator with an Air District approved continuous temperature monitoring and recording device to ensure compliance with this condition. The location of the thermocouple shall be approved by the Source Test Section of the Air District. Natural gas input to the secondary chamber burner shall be increased, if necessary, to increase temperature sufficiently to control odor and visible plume. (Basis: Regulation 6-1-301, 6-1-310; TBACT)
4. The owner/operator shall not cremate until the temperature in the secondary chamber of S- Cremator is at least 1650 degree Fahrenheit. (Basis: Regulation 6-1-301, 6-1-310; TBACT)
5. The owner/operator shall fire the S- Cremator with natural gas only. (basis: Cumulative Increase; TBACT)
6. The owner/operator shall use the S- Cremator to cremate only human remains. No other material contaminated with toxic air contaminants as listed by Air Resources Board, including radioactive and biohazardous waste shall be incinerated in this cremator without prior approval of the Air District. (basis: Cumulative Increase; Toxics)
7. The owner/operator shall have an operator present at all times during cremations. (Basis: Regulation 6-1-301)
8. The owner/operator shall keep the S- Cremator in good working condition. (basis: Regulation 6-1-301, 6-1-310)
9. To determine compliance with the above conditions, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions, including but not limited to daily record of the following information:
 - a. Operating hours
 - b. Number of human cremations for each day
 - c. Number of human cremations summed monthly and for each consecutive twelve-month period
 - d. Any maintenance performed on S- CrematorThe owner/operator shall keep all records on site for at least two years from the date of data entry, and the records shall be made available to the Air District staff for inspection. (basis: Cumulative Increase, TBACT; Regulation 6-1-301, 6-1-310)

[Add [Source Test Conditions](#) after part 9 and renumber the [Source Test Conditions](#), as needed.]

Permit Conditions for Crushing and Grinding Operations:

1. The owner/operator shall operate A- Baghouse to abate S- during all times of operation of the source. The owner/operator shall ensure that the outlet PM10, as defined in Regulation 2, Rule 2, grain loading for A- Baghouse shall not exceed 0.01 grains per dry standard cubic foot. [basis: Cumulative Increase]
2. The owner/operator shall properly maintain and keep in good operating condition A- Baghouse at all times. The owner/operator shall equip the A- Baghouse with a device for measuring the pressure drop across the baghouse. (basis: Regulation 6-1-301, 6-1-310, 6-1-3111, 2-1-403)
3. The owner/operator shall inspect Baghouse, A- weekly to ensure proper operation. The following items shall be checked:
 - a. The pressure drop across the baghouse shall be checked weekly. The pressure drop shall be no lower than 2 inches of water and no greater than 12 inches of water.
 - b. The baghouse exhaust shall be checked weekly for evidence of particulate breakthrough. If breakthrough is evident from plume observations, dust buildup near the stack outlet, or abnormal pressure drops, the filter bags shall be checked for any tears, holes, abrasions, and scuffs, and replaced as needed.
 - c. All hoppers shall be discharged in a timely manner to maintain compliance with 3(a) above.
 - d. The pulsejet, shaker cleaning system shall be maintained and operated at sufficient intervals to maintain compliance with 3(a) above.(basis: Regulation 2-1-403)
4. The owner/operator shall not exceed the following throughput limits in any consecutive 12-month period:
S- tons/yr

(basis: Cumulative Increase)
5. The owner/operator shall not discharge an air contaminant into the atmosphere for a period or periods aggregating more than 3 minutes in any hour, which is as dark or darker than a Ringelmann 1.0. (basis: Regulation 6-1-301)
6. The owner/operator shall abate stockpiles, conveyors and unpaved roads as necessary with A- Water Sprays to maintain compliance with Part 4 of this condition.
7. The owner/operator shall maintain an Air District approved log on a monthly basis for material throughput at each source. Monthly throughput shall be totaled for each consecutive twelve-month period. The owner/operator shall keep this log on site for at least two years from the date of entry and make it available to Air District staff upon request. (basis: Cumulative Increase)

PERMIT HANDBOOK

Permit Conditions for Methyl Bromide Fumigation:

1. The owner/operator of S- shall only use methyl bromide at S- . (Basis: Regulation 2-5 Toxics, Title 3 CCR Section 6412)
2. The owner/operator of S- shall not exceed emissions of pounds of methyl bromide in any consecutive twelve-month period. (Basis: Cumulative Increase, Regulation 2-5)
3. The owner/operator of S- shall not exceed emissions of pounds of methyl bromide per hour. (Basis: Cumulative Increase, Regulation 2-5)
4. The owner/operator of S- shall not exceed emissions of pounds of methyl bromide per calendar day. (Basis: Cumulative Increase, BACT, Regulation 2-5)
5. If fumigation operations are vented through a stack, the owner/operator of S- shall maintain a minimum exhaust flow rate of cfm. (Basis: Cumulative Increase, Regulation 2-5)
- 6.
7. The owner/operator of S- shall maintain a valid Restricted Materials Permit at all times while S- is operational. (Basis: Cumulative Increase, Title 3 CCR Section 6412)
8. The owner/operator of S- shall only vent the fumigate during the hours of am to pm. (Basis: Regulation 2-5 Toxics)

The owner/operator of S- shall only vent the fumigate during the hours of am to pm. (Basis: Regulation 2-5 Toxics)
9. To determine compliance with the above Parts, the owner/operator of S- shall maintain the following records and provide all the data necessary to evaluate compliance with the above conditions, including, but not necessarily limited to, the following information:
 - a. Emissions calculations of methyl bromide used at S- on a hourly basis.
 - b. Emissions calculations of methyl bromide used at S- on a daily basis.
 - c. Emissions calculations of methyl bromide used at S- on a monthly basis.
 - d. Emission calculations shall be totaled for each consecutive twelve-month period.All records shall be retained on-site for two-years, from the date of entry, and made available for inspection by Air District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District Regulations. (Basis: Cumulative Increase, Regulation 2-5 Toxics)
10. If the owner/operator of S- uses a material other than those specified in Part 1, the owner/operator of S- shall submit a permit application to the Air District for approval prior to use. (Basis: Regulation 2-5 Toxics, Title 3 CCR Section 6412)

PERMIT HANDBOOK

Permit Conditions for Phosphine Fumigation:

1. The owner/operator of S- shall only use phosphine at S- . (Basis: Regulation 2-5 Toxics, Title 3 CCR Section 6412)
2. The owner/operator of S- shall not exceed emissions of pounds of phosphine in any consecutive twelve-month period. (Basis: Regulation 2-5)
3. The owner/operator of S- shall not exceed emissions of pounds of phosphine in any consecutive twenty-four hour period. (Basis: Regulation 2-5)
4. The owner/operator of S- shall not exceed emissions of pounds of phosphine in any hour. (Basis: Regulation 2-5)
5. The owner/operator shall only use (type of phosphine gas: aluminum phosphide, magnesium phosphide, phosphine gas) for phosphine fumigation. (Basis: Regulation 2-5)
6. The owner/operator of S- shall maintain a valid Restricted Materials Permit for at all times while S- is operational. (Basis: Title 3 CCR Section 6412)
7. The owner/operator of S- shall only vent the fumigate during the hours of am to pm. (Basis: Regulation 2-5 Toxics)
8. To determine compliance with the above Parts, the owner/operator of S-1 shall maintain the following records and provide all the data necessary to evaluate compliance with the above conditions, including, but not necessarily limited to, the following information:
 - a. Emissions calculations of phosphine used at S- on a hourly basis.
 - b. Emissions calculations of phosphine used at S- on a daily basis.
 - c. Emissions calculations of phosphine used at S- on a monthly basis.
 - d. Emission calculations shall be totaled for each consecutive twelve-month period.All records shall be retained on-site for two-years, from the date of entry, and made available for inspection by Air District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District Regulations. (Basis: Toxics)
9. If the owner/operator of S- uses a material other than those specified in Part 1, the owner/operator of S- shall submit a permit application to the Air District for approval prior to use. (Basis: Regulation 2-5 Toxics, Title 3 CCR Section 6412)

Permit Conditions for Miscellaneous Organic Operations:

1. The owner/operator of S- shall not exceed the following usage limits during any consecutive twelve-month period:
 {Material #1} Gallons
 {Material #2} Gallons
 (Basis: Cumulative Increase)

2. The owner/operator may use an alternate material(s) other than the materials specified in Part 1 and/or usages in excess of those specified in Part 1, provided that the owner/operator can demonstrate that all of the following are satisfied:
 - a. Total POC emissions from S- do not exceed pounds in any consecutive twelve month period;
 - b. Total NPOC emissions from S- do not exceed pounds in any consecutive twelve month period; and
 - c. The use of these materials does not increase toxic emissions above any health risk assessment trigger level of Table 2-5-1 in Regulation 2-5.
 (Basis: Cumulative Increase; Toxics)

3. To determine compliance with the above parts, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:
 - a. Quantities of each type of coating and cleanup solvent used at this source on a monthly basis.
 - b. If a material other than those specified in Part 1 is used, POC/NPOC and toxic component contents of each material used; and mass emission calculations to demonstrate compliance with Part 2, on a monthly basis;
 - c. Monthly usage and/or emission calculations shall be totaled for each consecutive twelve-month period.

All records shall be retained on-site for two years, from the date of entry, and made available for inspection by Air District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District Regulations. (Basis: Cumulative Increase; Toxics)

Permit Conditions for Portable Equipment (to be included with source specific conditions):

1. The owner/operator of S-_____ has been given a permit for a portable source and is subject to Regulation 2-1-413.

The owner/operator shall not store or operate the sources in one location for more than 12 months, following the date of initial operation. The owner/operator shall not move the equipment and then return it to the same location in an attempt to circumvent the portable equipment time requirement. (basis: Regulation 2-1-220.1 through 2-1-220.3, and 2-1-220.10)

2. The owner/operator shall not operate within 1000 feet of the outer boundary of any K-12 school site nor within an overburdened community, as defined in Regulation 2-1-243.
 - a. The owner/operator shall comply with all applicable provisions of Regulation 2-5.
 - b. The owner/operator shall emit no more than 10 tons per year of each pollutant, including POC, CO, NO_x, PM₁₀, NPOC or SO₂.
 - c. To be able to operate within an overburdened community, as defined in Regulation 2-1-243, the owner/operator shall comply with the applicable public noticing requirements of Regulation 2-1-412 and the applicable project risk limits of Regulation 2-5-302. This will require submittal and Air District approval of an application for a revised permit to operate. (Basis: Regulations 2-1-412, 2-1-413.3, and 2-5-302)

3. The owner/operator shall notify the Compliance and Enforcement Division by email to compliance@baaqmd.gov (Attention: Director of Compliance and Enforcement), at least 3 days in advance, of the new location in which it intends to operate. The notification shall include:
 - a. Permit number
 - b. Brief description of the nature of the operation
 - c. Estimated duration of the operation at the new location
 - d. Name and telephone number of a contact person at the new location(basis: Regulation 2-1-403)

4. Within 30 days after the end of the calendar year, the owner/operator shall provide the Compliance and Enforcement Division by email to compliance@baaqmd.gov (Attention: Director of Compliance and Enforcement) a year-end summary with the following information:
 - a. The location(s) and dates at which the equipment was operated.
 - b. The total amount of diesel fuel consumed in this operation for the previous 12 months (in gallons).
 - c. The total hours of operation.(basis: Regulation 2-1-403)

Permit Conditions for Polyester Resin Manufacturing:

1. The owner/operator of S- shall not exceed the following throughput limits during any consecutive twelve-month period:

{Resin #1}	Gallons
{Resin #2}	Gallons
{Resin #3}	Gallons
{Resin #4}	Gallons
{Cleanup Solvent #1}	Gallons
{Cleanup Solvent #2}	Gallons

 (Basis: Cumulative Increase)

2. The Owner/Operator of S- may use materials other than the materials specified in Part 1, provided that the Owner/Operator can demonstrate that all of the following are satisfied:
 - a. Total Precursor Organic Compound (POC) emissions do not exceed any of the following: pounds in any day and pounds in any consecutive twelve-month period. (Basis: Cumulative Increase)
 - b. The use of these materials shall not increase toxic air contaminant emissions above any health risk assessment trigger level in Table 2-5-1 of Regulation 2-5. (Basis: Cumulative Increase; Toxics)

3. To determine compliance with the above part, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:
 - a. Quantities of each type of component listed in Part 1 used at this source on a daily and monthly basis.
 - b. If a material other than those specified in Part 1 is used, POC and toxic component contents of each material used; and mass emission calculations to demonstrate compliance with Part 2, on a daily and monthly basis.
 - c. Daily and monthly usage and/or emission calculations shall be totaled for each consecutive 12-month period.
 - d. Demonstration that any toxic air contaminants in new solvents in Part 2, do not exceed the acute and chronic trigger levels in Table 2-5-1 of Regulation 2-5 by calculating toxic air contaminant emissions on a lb/hour and lb/year basis, respectively.

All records shall be retained on-site for 36 month from the date of entry, and made available for inspection by Air District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District Regulations. (Basis: Cumulative Increase; Regulation 8-50-500)

Permit Conditions for Gel Coat and Resin Application:

1. The owner/operator shall not apply more than _____ gallons of gel coat at S-_____ in any consecutive twelve-month period. (basis: Cumulative Increase)
2. The owner/operator shall not apply more than _____ gallons of resin at S-_____ in any consecutive twelve-month period. (basis: Cumulative Increase)
3. The owner/operator shall not use more than _____ gallons of catalyst at S-_____ in any consecutive twelve-month period. (basis: Cumulative Increase)
4. The owner/operator shall not use more than _____ gallons of cleanup solvent at S-_____ in any consecutive twelve-month period. (basis: Cumulative Increase)
5. The Owner/Operator of S-_____ may use materials other than the materials specified in Part 1 through 4, provided that the Owner/Operator can demonstrate that all of the following are satisfied:
 - a. Total Precursor Organic Compound (POC) emissions do not exceed any of the following: pounds in any day and _____ pounds in any consecutive twelve-month period. (Basis: Cumulative Increase)
 - b. The use of these materials shall not increase toxic air contaminant emissions above any health risk assessment trigger level in Table 2-5-1 of Regulation 2-5. (Basis: Cumulative Increase; Toxics)
6. In order to demonstrate compliance with Parts 1 through 4, the owner/operator of S-_____ shall maintain the following records and provide all of the data necessary to evaluate compliance, including the following information:
 - a. Quantities of each type of component listed in Part 1 used at this source on a daily and monthly basis.
 - b. If a material other than those specified in Part 1 is used, POC and toxic component contents of each material used; and mass emission calculations to demonstrate compliance with Part 2, on a daily and monthly basis.
 - c. Daily and monthly usage and/or emission calculations shall be totaled for each consecutive 12-month period. Monthly throughput shall be totaled for each consecutive twelve-month period.
 - d. Demonstration that any toxic air contaminants in new solvents in Part 2, do not exceed the acute and chronic trigger levels in Table 2-5-1 of Regulation 2-5 by calculating toxic air contaminant emissions on a lb/hour and lb/year basis, respectively.All records shall be retained on-site for 36 months from the date of entry and made available for inspection by Air District staff upon request. (basis: Cumulative Increase, Rule 8-50-500)

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Permit Conditions for Tub Grinder (powered by electricity & stationary):

1. The owner/operator shall power S- Tub Grinder exclusively with electricity. (basis: Cumulative increase, BACT, Toxics)
2. The owner/operator of S- Tub Grinder shall not operate for more than hours during any calendar day. The total operation is limited to hours of operation in any consecutive 12-month period. (basis: Cumulative increase, BACT, Toxics)
3. The owner/operator shall not process more than tons of wood in any consecutive 12-month period. (basis: Cumulative increase)
4. The owner/operator of S- Tub Grinder shall use A- Water Spray as necessary to prevent dust emissions from the tub grinder from violating any applicable provisions of Air District Regulation 6-1. (basis: Regulation 6-1)
5. To determine compliance with the above conditions, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions.
 - a. Daily hours of operation.
 - b. Hours of operation and amount of wood processed shall be totaled on a rolling consecutive 12-month quarter basis.
 - c. The owner/operator shall record all records in an Air District-approved log. The owner/operator shall retain the records with the equipment for two years, from the date of entry, and make them available for inspection by Air District staff upon request. These record-keeping requirements shall not replace the record-keeping requirements contained in any applicable Air District Regulations.(basis: Toxics, Cumulative Increase, Regulation 1-441)

PERMIT HANDBOOK

Permit Conditions for Tub Grinder w/Diesel Engine (Stationary):

1. The owner/operator shall fire S- Tub Grinder with Diesel Engine exclusively with diesel fuel with sulfur content no greater than 0.05wt%. (basis: Cumulative increase, BACT, Toxics)
2. The owner/operator of S- Tub Grinder with Diesel Engine shall not operate for more than hours during any calendar day. The total operation is limited to hours of operation in any consecutive 12-month period. (basis: Cumulative increase, BACT, Toxics)
3. The owner/operator shall not process more than tons of wood in any consecutive 12-month period. (basis: Cumulative increase)
4. The owner/operator of S- Tub Grinder with Diesel Engine shall use A- Water Spray as necessary to prevent dust emissions from the tub grinder from violating any applicable provisions of Air District Regulation 6 ("Particulate and Visible Emissions"). (basis: Regulation 6-1)
5. The owner/operator shall equip the diesel engine of S- Tub Grinder with Diesel Engine with either:
 - a. a non-resettable totalizing meter that measures hours of operation for the engine; or
 - b. a non-resettable fuel usage meter, the maximum hourly fuel rate shall be used to convert fuel usage to hours of operation.(basis: Cumulative Increase)
6. To determine compliance with the above conditions, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions.
 - a. Daily hours of operation.
 - b. Daily consumption of diesel fuel (in gallons).
 - c. Hours of operation and amount of diesel fuel in parts a) and b) shall be totaled on a rolling consecutive 12-month quarter basis.The owner/operator shall record all records in an Air District-approved log. The owner/operator shall retain the records with the equipment for two years, from the date of entry, and make them available for inspection by Air District staff upon request. These record-keeping requirements shall not replace the record-keeping requirements contained in any applicable Air District Regulations. (basis: Toxics, Cumulative Increase, Regulation 1-441)

PERMIT HANDBOOK

Permit Conditions for Portable Tub Grinder w/Portable Diesel Engine:

1. The owner/operator of S- Tub Grinder with Diesel Engine abated by A- Water Spray has been given a permit for a portable source and is subject to Regulation 2-1-220. (basis: Cumulative Increase; Regulation 2-1-413)

The owner/operator shall not store or operate the sources in one location for more than 12 months, following the date of initial operation. The owner/operator shall not move the equipment and then return it to the same location in an attempt to circumvent the portable equipment time requirement. (basis: Regulation 2-1-220.1 through 2-1-413)
2. The owner/operator shall not operate within 1000 feet of the outer boundary of any K-12 school site nor within an overburdened community, as defined in Regulation 2-1-243.
 - a. The owner/operator shall comply with the all applicable provisions of Regulation 2, Rule 5. (basis: Regulation 2-1-413.2)
 - b. The owner/operator shall emit no more than 10 tons per year of each pollutant, including POC, CO, NO_x, PM₁₀, NPOC or SO₂.
 - c. To be able to operate within an overburdened community, as defined in Regulation 2-1-243, the owner/operator shall comply with the applicable public noticing requirements of Regulation 2-1-412 and the applicable project risk limits of Regulation 2-5-302. This will require submittal and Air District approval of an application for a revised permit to operate. (Basis: Regulations 2-1-412, 2-1-413.3, and 2-5-302)
3. The owner/operator shall fire S- Tub Grinder with Diesel Engine exclusively with diesel fuel with sulfur content no greater than 0.05wt%.
(basis: Cumulative increase, BACT, Toxics)
4. The owner/operator of S- Tub Grinder with Diesel Engine shall not operate for more than hours during any calendar day. The total operation is limited to hours of operation in any consecutive 12-month period.
(basis: Cumulative increase, BACT, Toxics)
5. The owner/operator shall not process more than tons of wood in any consecutive 12-month period.
(basis: Cumulative increase)
6. The owner/operator of S- Tub Grinder with Diesel Engine shall use A- Water Spray as necessary to prevent dust emissions from the tub grinder from violating any applicable provisions of Air District Regulation 6-1
(basis: Regulation 6-1)
7. The owner/operator shall equip the diesel engine of S- Tub Grinder with Diesel Engine with either:
 - a. a non-resettable totalizing meter that measures hours of operation for the engine; or
 - b. a non-resettable fuel usage meter, the maximum hourly fuel rate shall be used to convert fuel usage to hours of operation.(basis: Cumulative Increase)
8. To determine compliance with the above conditions, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions.
 - a. Daily hours of operation.
 - b. Daily consumption of diesel fuel (in gallons).
 - c. Hours of operation and amount of diesel fuel in parts a) and b) shall be totaled on a rolling consecutive 12-month quarter basis.

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- d. The owner/operator shall record all records in an Air District-approved log. The owner/operator shall retain the records with the equipment for two years, from the date of entry, and make them available for inspection by Air District staff upon request. These record-keeping requirements shall not replace the record-keeping requirements contained in any applicable Air District Regulations.
(basis: Toxics, Cumulative Increase, Regulation 1-441)
- 9. The owner/operator shall notify the Compliance and Enforcement Division by email to compliance@baaqmd.gov (Attention: Director of Compliance and Enforcement) at least 3 days in advance, of the new location in which it intends to operate. The notification shall include:
 - a. Permit number
 - b. Brief description of the nature of the operation
 - c. Estimated duration of the operation at the new location
 - d. Name and telephone number of a contact person at the new location(basis: Regulation 2-1-403)
- 10. Within 30 days after the end of the calendar year, the owner/operator shall provide the Compliance and Enforcement Division by email to compliance@baaqmd.gov (Attention: Director of Compliance and Enforcement) a year-end summary with the following information:
 - a. The location(s) and dates at which the equipment was operated.
 - b. The total amount of diesel fuel consumed in this operation for the previous 12 months (in gallons).
 - c. The total hours of operation.(basis: Regulation 2-1-403)

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Example of Permit Condition for Portable Oil/Water Separator and Sludge Dewatering Operation at Refineries:

- S-1 Portable Tank, up to 21,000 gallon capacity abated by A-1 Thermal Oxidizer, and/or A-2 Carbon Adsorption Cannisters, and/or A-3 Scrubber
- S-2 Portable Tank, up to 21,000 gallon capacity abated by A-1 Thermal Oxidizer, and/or A-2 Carbon Adsorption Cannisters, and/or A-3 Scrubber
- S-3 Sludge-Dewater Centrifuge, Flottweg#8055, 48'X8'6"X14', 200 gpm, abated by A-1 Thermal Oxidizer, and/or A-2 Carbon Adsorption Cannisters, and/or A-3 Scrubber
- A-1 Thermal Oxidizer, Event Model EMTOS 3500, 10 MMBtu/hr
- A-2 Carbon Adsorption Cannisters (minimum 2 in series, minimum 1,000 lbs carbon per cannister)
- A-3 Scrubber, Event Model ESCRUB, 1,000 SCFM

A. General Requirements

A1. The owner/operator shall not emit more than 10 tons per year of any regulated air pollutant, including POC, CO, NO_x, PM_{2.5}, PM₁₀, NPOC or SO₂ for all locations in any consecutive 12-month period. For PM_{2.5} and PM₁₀, fugitive particulate emissions from associated haul road traffic shall not be counted toward the annual limit. (Basis: Regulation 2-1-413.1)

A2. The owner/operator of any source listed above shall ensure that the permitted operation is in compliance with the applicable provisions of Regulation 2, Rule 5. (Basis: Regulation 2-1-413.2)

A3. The owner/operator shall not operate any source listed above within 1000 feet of the outer boundary of any K-12 school site, unless the applicable notice requirements of Health and Safety Code Section 42301.6 have been met. The owner/operator shall not operate this equipment within an overburdened community, as defined in Regulation 2-1-243, unless the applicable public noticing requirements of Regulation 2-1-412 and the applicable project risk limits of Regulation 2-5-302 have been met. This will require submittal and Air District approval of an application for a revised permit to operate. (Basis: Regulations 2-1-412, 2-1-413.3, and 2-5-302)

A4. The owner/operator of any source listed above shall not cause a public nuisance per Regulation 1-301. (Basis: Regulation 2-1-413.4)

A5. The owner/operator of any source listed above shall ensure that the permitted operation is exempt from CEQA or covered by a chapter in the Air District's Permit Handbook. (Basis: Regulation 2-1-413.5)

A6. The owner/operator of the equipment listed above shall ensure that the permitted operation above will not cause a Synthetic Minor Facility to exceed a federally enforceable emission limit. (Basis: Regulation 2-1-413.6)

A7. The owner/operator of any source listed above shall not remain at the same facility for more than 12 consecutive months following initial operation (or, in the case a source that is used in seasonal operations that last less than 12 months, for more than the full length of a normal operating season). If multiple temporary sources are used in succession at the facility to serve the same function at the same facility source, the total time period that all such temporary sources remain at the facility is counted towards the 12-month (or operating season) limit. (Basis: Regulation 2-1-413.7)

A8. If the owner/operator of any source or operation listed above no longer satisfies the requirements of Parts A1 through A7 above, the multiple-facility permit is no longer valid and the source(s) and operation(s) will require permitting subject to the requirements of Regulation 2, Rules 1, 2 and 5 as new source(s). The Multiple Location Permit expires at the time of non-compliance. To continue operation without interruption, the owner/operator shall submit a permit application to secure a Permit to Operate at least 60 days prior to the expiration of the Multiple Location Permit. (Basis: Regulation 2-1-413)

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A9. The owner/operator shall not operate any source or operation listed above in a manner to circumvent any of the requirements of A1 through A8. (Basis: Regulation 2-1-413, Regulation 1-104)

A10. The owner/operator shall not operate any source or operation listed above as a replacement or in combination of a current permitted source or operation unless the applicable requirements of the currently permitted source or operation are satisfied. (Basis: Regulation 1-104)

A11. The owner/operator shall not operate any source or operation listed above in a manner that will alter, modify or debottleneck any currently permitted source or operation unless the impacts of the source or operation has been evaluated pursuant to, and satisfies the requirements of, Regulation 2, Rules 1, 2 and 5. The owner operator cannot allow the sludge to be processed on-site at the facility location unless the processing operation is specifically permitted by the owner/operator of the on-site facility. (Basis: Regulation 1-104, Regulation 2, Rules 1, 2 and 5)

A12. The owner/operator shall not operate any source listed above at a Major Facility subject to the requirements of Regulation 2, Rule 6, unless all of the requirements of Regulation 2, Rules 1, 2 and 6, and the applicable requirements of Regulation 12, Rules 11 and 12, have been met. (Basis: Regulation 1-104, Regulation 2, Rules 1, 2 and 6, Regulation 12, Rules 11 and 12)

A13. The owner/operator shall not operate any source listed above in an operation not listed above without first submitting and completing a permit application and receiving approval for the new operation by the Air District. (Basis: Regulation 2-1-301)

B. Source and Operation Standards – Sludge Treatment

B1. The owner/operator of S- through S- , A- through A- shall not exceed gallons of sludge processing limits during any consecutive twelve-month period. Sludge is limited to wastewater treatment and tank cleaning: (Basis: cumulative increase, Offsets, Reg. 2-5-110)

B2. The owner/operator of S- through S- , A- through A- shall not exceed gallons of sludge processing limits during any clock hour period. Sludge is limited to wastewater treatment and tank cleaning: (Basis: Cumulative increase, Regulation 2-5-110)

B3. The owner/operator of S- through S- , A- , A- and/or A- shall not exceed the following emissions limits.

For Operation abated by A- Thermal Oxidizer

POC (process) = 10 ppmv

Benzene = ppmv

Ethyl benzene = ppmv

Hydrogen Sulfide (H₂S) = ppmv

Ammonia = ppmv

Hydrogen Chloride = ppmv

For Operation abated by A- Carbon Adsorber and/or A- Scrubber

POC (process) = 10 ppmv

Benzene = ppmv

Ethyl benzene = ppmv

Hydrogen Sulfide (H₂S) = ppmv

Ammonia = ppmv

Hydrogen Chloride = ppmv

(Basis: cumulative increase, Regulation 2-5-110)

B4. The owner/operator shall abate sources S- through S- by A- Thermal Oxidizer and/or A- Carbon Cannisters, and/or A- Scrubber whenever these sources are operated. (Basis: cumulative increase, offsets, toxics)

B5. The owner/operator of S- through S- shall place sludge removed from a storage tank subject to Regulation 8, Rule 5 (at any time since it was last put into service) directly into a sludge container that meets the following requirements:

- a. The sludge container shall allow no liquid leakage
- b. The sludge container shall have no measurable gap exceeding 1.3 cm (1/2 in.) except when the container is being loaded or unloaded, and except during sludge sampling or treatment.

(Basis: Regulation 8-5-332)

B6. The owner/operator of S S- through S- , A- through A- processing sludge from wastewater treatment, shall not operate any sludge-dewatering unit, equipment, machinery, apparatus, or device unless it is totally enclosed and vented to a control device which has a minimum combined collection and destruction efficiency of 95 percent by weight; or shall have vapor-tight covers on the unit, conveyer belts, and storage bins or tanks except during inspection, maintenance or when the solids storage bin is in use. (Basis: Regulation 8-8-304)

B7. The owner/operator of S- through S- , A- through A- processing sludge from wastewater treatment, must ensure sludge is maintained in vapor-tight containers during storage. Vapor-tight is determined as any leak of less than 500 ppm (expressed as methane) above background, measured at the interface of the component using a portable gas detector as prescribed in EPA Reference Method 21. (Basis: Regulations 8-8-303, 8-8-204, 8-8-603)

B8. The owner/operator of S- through S- , A- , and/or A- , and/or A- shall ensure each permitted source and operation comply with the applicable provisions of New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants. (Basis: NSPS, NESHAP)

B9. The owner/operator of sources S- through S- , abated by A- shall not exceed scfm. The owner/operator of sources S- through S- abated by A- and/or A- shall not exceed scfm and/or scfm, respectively. (Basis: cumulative increase)

C. Toxic Emissions

C1. The owner/operator of S- through S- , A- through A- shall ensure the toxic emissions emitted do not exceed any toxic trigger specified in Regulation 2, Rule 5. (Basis: Regulation 2-5-110)

C2. The owner/operator of S- through S- and A- , Thermal Oxidizer shall not exceed hours of all operations at all host locations in a consecutive 12-month period. This limit applies to the permitted operation and includes any and all intermittent operation even if different equipment (either source or abatement devices) are commissioned in the operation. (Basis: Regulation 2-5-110)

D. Fugitive Emissions Requirements

D1. The owner/operator shall not operate S-13 through S-19 abated by A4 through A-6 unless the total fugitive emissions component count does not exceed the following:

- Valves
- Pump seals
- Connectors
- Compressors and others 5

(Basis: Regulation 8-18)

D2. The owner/operator shall ensure the fugitive Total Organic Compounds (TOC) emissions at sources S- through S- , A- through A- shall comply with the leak repair requirement of Regulation 8-18 for any leak exceeding 100 ppmv as methane at any valves or connections

within the system, and shall not exceed 500 ppm as methane at any pumps or compressors within the system. (Basis: Cumulative Increase, Regulation 8-18)

E. Monitoring Requirements

E1. In order to demonstrate compliance with Parts D1 and D-2 above, the owner/operator shall measure fugitive emissions using a Portable Hydrocarbon Detector approved by the APCO (Basis: Regulation 8-18-501)

E2. For short term operation lasting less than a month, to determine compliance with the leak standards of Regulation 8, Rule 18, the owner/operator shall initially monitor all fugitive components one time, no longer than 48 hours after startup, and again anytime there are lineup, valve or other fugitive component changes for the operation. For projects lasting longer than a month, owner/operator shall not operate any equipment unless the fugitive components are monitored as the facility LDAR program. (Basis: Regulation 8-18)

E3. In order to demonstrate compliance with Part B3 POC limit above, Parts H6 and H7 below, if the total operation duration at a single project site is longer than 45 days in any 12-month period, owner/operator shall perform an Air District approved source test within 7 days of initial operation of S- through S- , and A at each host location, in accordance with the Air District's Manual of Procedures. The owner/operator shall notify the Manager of the Air District's Source Test Section at least seven (7) days prior to the test, to provide the Air District Staff the option of observing the testing. Within 45 days of test completion, a comprehensive report of the test results shall be submitted to the Manager of the Air District's Source Test Section for review and disposition. If the total operation duration at a single project site is less than 45 days in any 12-month period, then the owner operator may elect the Air District approved monitoring method detailed in Part E4 with a monitoring frequency of hourly throughout the operation. (Basis: Regulation 2-1-403)

E4. The owner/operator shall monitor the vapor stream at the outlet of each abatement device (A- through and A-), as specified below, for volatile organic compounds (POC) and for all toxic air contaminants listed in Part B3, in parts per million by volume (ppmv), measured on a dry basis as methane. Once approved by the Air District, the owner/operator shall use one of the following methods for this monitoring:

- A. Diffusion sensors.
- B. Flame ionization methods calibrated with or correlated to methane or hexane.
- C. Photo ionization systems calibrated with or correlated to methane or hexane.
- D. Instantaneous sampling with colorimetric detector tubes.
- E. Instantaneous sampling with laboratory analyses
- F. Continuous monitoring that satisfies the requirements of Regulation 1-522 or 1-523.
- G. Other approved monitoring system

When the system is operating with forced air flow or truck vented, the monitoring frequency shall be once each hour for the first 6 hours of operation. If the project lasts over 6 hours, daily measurements shall be taken. If the project duration last more than a week, weekly measurement shall be taken. If the equipment is operated with no forced air flow, the monitoring frequency shall be weekly. The project duration is defined as the period of each operational mode with the same equipment processing the same material. (Basis: Cumulative Increase, Regulation 2-1-403)

E5. The owner/operator shall also perform initial laboratory analyses for any duration period to confirm the monitoring method results of Part E4. If the operation duration is for a week or less, an initial confirmation is required. If the operation duration is longer than a week, but less than a month, the laboratory analysis confirmation shall also be required once every two weeks. If the operation duration is longer than a month, the laboratory analysis confirmation shall also be required monthly. The duration is defined as the period of each operational mode with the same equipment processing the same material. Changes to the operational mode (e.g., storing a different material or cleaning or processing sludge from a

different tank) initiates a new operational duration for the purposes of confirming the monitoring with laboratory analyses. (Basis: Regulation 2-5-110)

E6. In order to determine compliance with Part B9, the owner/operator shall install and maintain in accordance with manufacturer's recommendations, a flow meter that continuously measures the vapor flow to A- , and/or A- , and/or A- . (Basis: cumulative increase)

E7. In order to determine compliance with Part H5, the owner/operator shall continuously monitor the operating temperature of A- Thermal Oxidizer. (Basis: Cumulative Increase, Regulation 2-1-403)

E8. The owner/operator of Carbon Canisters A- shall monitor the non-methane hydrocarbon concentration (NMHC) at the following exhaust points at a frequency specified in E3 to verify compliance with Part B3. Monitoring shall be performed with a flame-ionization detector (FID), Photoionization Detector (PID) or other method approved in writing by the Air District:

- a. inlet to the second to last carbon vessel in series
- b. outlet of the second to last carbon vessel in series
- c. outlet of the last carbon vessel in series

When using an FID to monitor A- , readings may be taken with and without a carbon filter tip fitted on the FID probe. Concentrations measured with the carbon filter tip in place shall be considered methane and not counted as a NMHC. (Basis: Cumulative Increase)

E9. The owner/operator of Carbon Canisters A- may propose a change in monitoring schedule based on a demonstration that the rate of required carbon replacement does not warrant daily monitoring. (Basis: Recordkeeping)

F. Recordkeeping Requirements

F1. The owner/operator shall maintain in an Air District-approved log all records necessary to determine compliance with these permit conditions. The records shall include, at a minimum, for each permitted source, the following:

- a. Air District plant number for each location of the equipment
- b. Service or operation of the equipment
- c. The address of each location, a facility map, and the duration of each operation
- d. The name and phone number of a contact person for each location the equipment is operated
- e. Daily throughput of the equipment in units consistent with the limits in Section B
- f. Daily fuel usage for the equipment (if applicable)
- g. Results of any source tests
- h. Daily emission estimates and calculations for the equipment, including toxic emissions
- i. All monitoring data, including the equipment and fugitive components

All measurements, records and data required to be maintained by the operator shall be retained and made available for inspection by the Air District for at least two (five for operation at a major facility or a facility subject to a synthetic minor operating permit) years following the date the data is recorded.

(Basis: Recordkeeping)

F2. The owner/operator of this source shall maintain the following records at each host facility daily (if operate less than a week), weekly (if operate less than a month), monthly of operation of the Thermal Oxidizer A- :

- a. The hours and times of operation and which source S- through S- is/are controlling
- b. Operating Temperature of A-
- c. The type and amount of fuel usage at A-

All measurements, records and data required to be maintained by the operator shall be retained and made available for inspection by the Air District for at least two (five for major facility or a facility subject to a synthetic minor operating permit) years following the date the data is recorded. (Basis: Recordkeeping)

F3. For each Allowable Temperature Excursion of Part H5 that exceeds 20° F and 15 minutes in duration, the owner/operator shall keep sufficient records to demonstrate that they meet the qualifying criteria described above. Records shall be retained for a minimum of two years (five years if operated at a major facility) from the date of entry, and shall be made available to the Air District upon request. Records shall include at least the following information:

- Temperature controller set point
- Starting date and time, and duration of each Allowable Temperature Excursion
- Measured temperature during each Allowable Temperature Excursion
- Number of Allowable Temperature Excursions per month, and for the current calendar year.
- All strip charts or other temperature records.

All measurements, records and data required to be maintained by the operator shall be retained and made available for inspection by the Air District for at least two (five for operation at a major facility or a facility subject to a synthetic minor operating permit) years following the date the data is recorded.

(Basis: Recordkeeping)

F4. The owner/operator shall maintain the following records at each host facility daily (if operate more than a week), weekly (if operate more than a month), monthly of operation of the Carbon Adsorption system A- and/or A- :

- a. The hours and times of operation and which source A- and/or A- is/are controlling
- b. Each monitor reading or analysis result for the day of operation they are taken
- c. The number of carbon beds removed from service.

All measurements, records and data required to be maintained by the operator shall be retained and made available for inspection by the Air District for at least two (five for operation at a major facility) years following the date the data of entry, and be made available to the Air District upon requests.

(Basis: Recordkeeping)

G. Reporting Requirements

G1. The owner/operator shall notify the Air District, in writing, at least 3 days in advance, of the new location in which they intend to operate the portable equipment. The notification shall include:

- a. Air District plant number for the portable equipment
- b. Brief description of the general nature of the operation and identification of the equipment used
- c. The address of the new location and facility map, estimated duration of the operation at this site, and the Air District Plant number for the site
- d. The name and phone number of a contact person where the equipment will be operated.

(Basis: Regulation 2-1-220)

G2. In addition to the monitoring/recordkeeping requirements listed, all instances of non-compliance with the permit shall be reported in writing to the Air District's Compliance and Enforcement Division within 10 calendar days of the discovery of the incident. Within 30 calendar days of the discovery of any incident of non-compliance, the facility shall submit a written report including the probable cause of non-compliance and any corrective or preventative actions. (Basis: MOP Volume II, Part 3, §4.7)

G3. Within 30 days after the end of every calendar year, the owner/operator shall provide to the Air District a year-end summary showing the following information:

- a) The location(s) and duration(s) at which S- through S- abated by A- , and/or A- , and/or A- was operated including the dates operated
- b) If the dates and durations are not the same, the down-time durations and the status and disposition of each source during the down-time
- c) Total material throughputs for each source summarized by location and durations, in units consistent with the limits in Section B
- d) Total fuel usage, if applicable, for each source or abatement device, summarized by location and operating periods

- e) Total emission calculations, summarized by source and location, totaled for the calendar year

This annual report shall be provided to the Air District's Compliance and Enforcement Division within 30 days of the end of the calendar year.

(Basis: Regulation 2-1-403)

G4. If the owner/operator of S- through S- abated by A- , and/or A- , and/or A- operates at any Facility subject to Regulation 12, Rule 15, the annual report required by F1 above shall also be provided to the owner/operator of the Facility and to the Air District's Engineering Division (Basis: Regulation 12, Rule 15 Section).

H. Additional Requirements for Thermal Oxidizer

H1. The owner/operator sources S- through S- shall operate A- to meet 10 ppmv VOC concentration or less; or overall collection and destruction efficiency of 99% of VOC for sludge dewatering operation. (Basis: BACT, Cumulative Increase)

H2. The owner/operator of Thermal Oxidizer A- shall not use natural gas (combined total usage for permitted operation) or propane (combined total usage for permitted operation) that exceed the following limits during any consecutive 12-month periods. (Basis: cumulative increase)

Device	Operation	Fuel	Limit	Units
A-	Sludge Dewatering	Natural Gas		Therms; or
A-	Sludge Dewatering	Propane		Gallons

H3. The owner/operator of Thermal Oxidizer A- shall install a non-resettable totalizing fuel flow meter and recorder to demonstrate compliance with Part H2. (Basis: Regulation 2-1-403)

H4. The owner/operator of Thermal Oxidizer, A- , shall install a temperature measuring device capable of continuously measuring and recording the temperature in A- . The owner/operator shall install, operate and maintain the equipment in accordance with manufacturer's recommendations. The minimum operating temperature of A- shall be at least 1400 degree F. This minimum temperature may be adjusted by the Air District prior to or after issuing Permit to Operate if source test data demonstrate that an alternate temperature is necessary for or capable of maintaining compliance with Part H1. (Basis: Regulation 2-1-403)

H5. The minimum temperature requirement of Part H4 shall not apply during an "Allowable Temperature Excursion" below the minimum temperature, provided that the controller set temperature is at or above the minimum temperature requirement. An Allowable Temperature Excursion is one of the following:

- a. A temperature excursion not exceeding 20° F.
- b. A temperature excursion for a period or periods which when combined are less than or equal to 15 minutes in any hour.
- c. A temperature excursion for a period or periods which when combined are more than 15 minutes in any hour, provided that all three of the following criteria are met.
 - i. the excursion does not exceed 50 degrees F;
 - ii. the duration of the excursion does not exceed 24 hours; and
 - iii. the total number of such excursions does not exceed 12 per calendar year (or any consecutive 12-month period)

Two or more excursions greater than 15 minutes in duration occurring during the same 24-hour period shall be counted as one excursion toward the 12 excursion limit. (Basis: Regulation 2-1-403)

H6. The owner/operator shall not operate sources S- through S- if Nitrogen oxides (NO_x) emissions from the Thermal Oxidizer, A- , exceed 50 ppmvd at 15% O₂ (0.2 lb/MMBtu) fired on only on natural gas or LPG. (Basis: RACT, Cumulative Increase, Source Test Method 13A)

H7. The owner/operator shall not operate sources S- through S- if Carbon monoxide (CO) emissions from the Thermal Oxidizer, A- , exceed 350 ppmvd at 15% O₂ (0.80 lb/MMBtu). (Basis: RACT, Cumulative Increase, Source Test Method 6)

H8. The owner/operator shall maintain and properly operate Thermal Oxidizer A- so that good combustion practice can be achieved as recommended by the manufacturer. (Basis: BACT)

H9. The owner/operator shall operate Thermal Oxidizer A- only when the flow rate is higher than 500 scfm or when the vapor with 10% LEL or higher VOC concentration. (Basis: BACT)

I. Additional Requirements for Carbon Absorption Systems

For Systems with two carbon vessels (2 canisters in series, lb carbon minimum in each canister)

I1. The owner/operator of Carbon Canisters A- shall replace the carbon in the first vessel in series with new or downstream carbon when the non-methane hydrocarbon (NMHC) concentration exceeds 10 ppmv at the outlet of the first vessel (measured on a dry basis as methane). (Basis: Cumulative Increase, BACT, Regulation 2-5-110)

For systems with more than two carbon vessels (2 or more canisters in series, lb carbon minimum in each canister)

I2. The owner/operator shall change out the second to last carbon vessel with unspent carbon upon breakthrough, defined as the detection at the outlet of the second to the last carbon vessel, of the higher of the following:

- a. 10 % of the inlet stream concentration to the Carbon vessel.
- b. 10 ppmv or greater (measured on a dry basis as methane).

The owner/operator shall change out the last carbon vessel with unspent carbon upon detection at the last carbon vessel outlet of 10 ppmv or greater (measured on a dry basis as methane). (Basis: Cumulative Increase, BACT, Regulation 2-5-110)

Permit Conditions for Landfill Gas Flares:

1. All landfill gas collected by the gas collection system for S- shall be abated at all times by the on-site enclosed flares, A- or A- , or shall be vented to for gas processing and control. A sufficient amount of landfill gas shall be collected at all times to prevent violation of the applicable landfill surface leak limits. Under no circumstances shall raw landfill gas be vented to the atmosphere. This limitation does not apply to unavoidable landfill gas emissions that occur during collection system installation, maintenance, or repair performed in compliance with Regulation 8, Rule 34 Sections 113, 116, 117, or 118 or to inadvertent component or surface leaks that do not exceed the limits specified in 8-34-301.2 or 8-34-303. (Basis: Regulations 8-34-301, 8-34-303, 40 CFR 60.752(b)(2)(ii-iii), 60.753(d-f), and 60.755(e))

2. The combustion zone temperature of the A- Flare shall be maintained at a minimum temperature of (1400) degrees F, averaged over any 3-hour period. The combustion zone temperature of the A- Flare shall be maintained at a minimum temperature of 1400 degrees F, averaged over any 3-hour period. If a source test demonstrates compliance with all applicable requirements at a different temperature, the APCO may revise these minimum temperature requirements in accordance with the procedures identified in Regulation 2-6-414 or 2-6-415 and the following criteria. The minimum combustion zone temperature for the flare shall be equal to the average combustion zone temperature determined during the most recent complying source test minus 50 degrees F, provided that the minimum combustion zone temperature is not less than 1400 degrees F. (Basis: Regulations 2-5-301 and 8-34-301, RACT, and 40 CFR 60.758(c)(1)(i))

3. NO_x emissions from the A- Flare(s) shall not exceed (0.06) lb NO_x/MMBTU. (Basis: RACT)

4. CO emissions from the A- Flare(s) shall not exceed (0.2) lb CO/MMBTU. (Basis: RACT)

5. In order to demonstrate compliance with Parts 3 and 4 above, Regulations 8-34-301.3 and 8-34-412, 40 CFR 60.8, and 40 CFR 60.752(b)(2)(iii)(B), the owner/operator shall conduct a source test at each flare once every year. The source tests shall be conducted no sooner than 9 months and no later than 12 months after the previous source test. The first source test for A- shall be conducted no later than 60 days from the startup of A- . The owner/operator shall submit the source test results to the Air District's Source Test Section no later than 60 days after source test completion. Each annual source test shall determine the following:
 - a. landfill gas flow rate to the flare (dry basis);
 - b. concentrations (dry basis) of carbon dioxide (CO₂), nitrogen (N₂), oxygen (O₂), methane (CH₄), and total non-methane organic compounds (NMOC) in the landfill gas;
 - c. stack gas flow rate from the flare (dry basis);
 - d. concentrations (dry basis) of NO_x, CO, NMOC, and O₂ in the flare stack gas;
 - e. NMOC destruction efficiency achieved by the flare;
 - f. NO_x and CO emission rates from the flare in units of pounds per MM BTU,
 - g. average combustion zone temperature in the flare during the test period.
 - h. PM grain loadings (grains/dscf) in the flare stack gas should be tested every 5 years for A- .

(Basis: Regulation 8-34-301.3, RACT, 40 CFR 60.752(b)(2)(iii), Regulation 6-1-504)

6. The owner/operator shall comply with all applicable testing requirements as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall notify the Air District's Source Test Section, in writing, of the source test protocols and projected test dates at least 30 days prior to testing. (basis: BACT, Cumulative Increase)

7. The owner/operator shall ensure that S- is equipped with source test sampling ports and safe access as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall obtain approval of the sampling ports locations, layout and access from the Air District's Source Test Section prior to installation. (Basis: BACT; Cumulative Increase)

8. The heat input to the flares shall not exceed the following limits: (a) million BTU per day and million BTU per year for A- and (b) million BTU per day and million BTU per year for A- . In order to demonstrate compliance with this part, the owner/operator shall calculate and record on a monthly basis the maximum daily and total monthly heat input to each flare based on the landfill gas flow rate recorded, the average methane concentration in the landfill gas based on the most recent source test, and a high heating value for methane of 1013 BTU/scf. The records shall be retained for two years (five years if the facility has been issued a Title V Major Facility Review Permit or a Synthetic Minor Operating Permit) and shall be made available to the Air District staff upon request. (Basis: Offsets, Cumulative Increase, and Regulation 2-1-301)

P E R M I T H A N D B O O K

Permit Conditions for Material Recovery Operations:

1. Throughput Limits: The owner/operator shall not exceed any of the following feedstock (not including biofilter media) throughput limits in wet tons in any calendar day and/or any consecutive 12-month period:

Source No.	Description	Daily Throughput (TPD)	Rolling 12-month Throughput (TPY)
S-			
S-			
S-			

(Basis: Cumulative Increase)

2. Allowable Materials: The owner/operator shall only store the following materials for each source:

Source No.	Materials allowed for storage
S-	
S-	
S-	

The facility shall submit an application for Air District approval prior to accepting any new material for storage. (Basis: Cumulative Increase)

3. Processing Time Limit: The owner/operator of S- shall process the material within the following time frames from when the material is placed into the stockpile. The owner/operator shall be subject to the record keeping requirements in Part 17. (Basis: Cumulative Increase)

Source No.	Description	Processing Time Limit
S-	Green waste Stockpiles	2 days
S-	Ground Material Stockpiles	3 days
S-	Organic Soil Amendment Stockpiles	3 days
S-	Food waste Stockpiles	1 days

4. Emission Limits: The owner/operator shall ensure that:

- a. Precursor organic compounds emissions for S- shall not exceed any of the following limits:
 - i. pounds per wet ton of material processed,
 - ii. pounds per hour, and/or
 - iii. tons per consecutive 12-month period.

- b. The emissions of the following toxic air contaminants for S- shall not exceed any of the following limits:

TAC	Hourly Emissions (lb/hr)	Consecutive 12-month Total (lb/yr)
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Acetaldehyde

Ammonia

IPA

Methanol

Naphthalene

Propylene

- c. Any toxic air contaminants not listed in Part 4b detected during a source test shall not equal or exceed the respective trigger levels contained in Regulation 2-5.

- d. If the owner/operator of S- exceeds any of the limits in Part 4b and/or 4c, the exceedances shall not be considered a violation if the owner/operator can demonstrate compliance with the requirements of Regulation 2-5.
- e. If the emissions limits per Parts 4b and 4c comply with the requirements of Regulation 2-5, the owner/operator may submit a written request to the Air District to revise the TAC emission limits in Part 4b within 60 days of receipt of approved results from the source tests conducted provided that the provisions within 4d are satisfied.

(Basis: Cumulative Increase and Regulation 2-5)

5. The owner/operator of source S- shall ensure all conveyors, screens, and processing equipment are completely covered. (Basis: Cumulative Increase)

6. The owner/operator shall ensure dry, dusty material from the material handling operations such as loading, unloading, stockpiling, conveying, sorting, screening, and other separation processes be abated by A- water spray as necessary to comply with Part 8. (Basis: Regulations 6-1-301 and 6-1-305)

7. The owner/operator of S- shall operate and maintain in good condition water trucks and/or sweeping trucks with built-in water spray inside and outside of all buildings, indoor tipping floor and tipping floor truck entrance driveways, turnaround yard, and roadways to remove debris and organic residues at least 2 times per day (especially when trucks exit the facility). (Basis: Cumulative Increase)

8. The owner/operator of S- shall ensure visible dust emissions from any operation occurring outside the building housing these sources (S-) shall not exceed a Ringelmann 0.5 or result in fallout on adjacent property in such quantities as to cause a public nuisance per Regulation 1-301. To ensure compliance with this Part, the owner/operator shall visually observe all MRF-related material handling operations around the MRF building daily by following applicable procedures in Regulation 6-1-601 and shall immediately initiate corrective actions, if any visible dust emissions are detected that persist for longer than 3 minutes in an hour. (Basis: Regulations 1-301, 6-1-601, 6-1-301, 6-1-305, and cumulative increase)

9. The owner/operator of S- shall employ best management practices for good housekeeping and maintenance at the standards identified in the Organic emissions and Odor Management Plan (OMP) to reduce the quantity of organic and odorous materials. Good housekeeping shall include maintaining all outside work areas and outdoor pavement associated with this facility, by removing material including, but not limited to, debris or sludge at the end of each working day. Leachate shall be collected, handled, and disposed of in accordance with best management practices. The Air District may administratively revise these permit conditions to incorporate any requirement contained within the approved OMP that the Air Districts deems necessary for compliance. (Basis: Regulation 1-301)

10. The owner/operator of S- shall install high speed rollup doors at all bays and doorways. The owner/operator shall maintain all high speed rollup doors in good working order. All rollup doors shall be closed at all times except when material is being transferred in and out. (Basis: Cumulative Increase, Regulation 1-301)

11. The owner/operator of S- shall maintain all paved and unpaved roadways associated with this facility in a clean or wetted condition, by using water spray to suppress dust. Vehicle speed inside the facility shall not exceed 15 MPH. When on-site, all vehicles hauling material shall be enclosed/tarped and the material shall remain covered at all times while in the vehicle. All refuse trucks shall be maintained in condition to prevent leakage of solid or liquid material. Trucks shall be cleared of any debris to minimize nuisance emissions at the end of each working day. The owner/operator shall ensure that the number of trucks that travel on-site shall not exceed trucks per day. (Basis: Regulation 1-301 and Regulation 6-1-305)

12. The owner/operator of S- shall process all material (other than food waste and any other material that has the potential to cause putrescible organic emissions and odors) received at S- within 24 hours of receipt. Material shall not be stockpiled outside of the MRF building. The owner/operator shall perform

daily organic emissions and odor monitoring of the stockpiled material at S- as applicable and maintain records of the corrective measures undertaken if adverse organic emissions and odors are found. Any material that is deemed to be odorous by an Air District inspector shall be removed immediately or no later than 4 hours upon discovery. Records of the time of discovery, time of removal, quantity and method of disposal shall be maintained. (Basis: Cumulative Increase, and Regulation 1-301)

13. Within 90 days of issuance of the Authority to Construct permit, the owner/operator of S- shall develop and maintain an Air District approved organic emissions and odor management plan (OMP) detailing all processes and procedures, equipment, management practices, abatement and control measures that are employed or are scheduled to be implemented to minimize fugitive emissions of POC and odors. The owner/operator shall correct any identified deficiencies and resubmit the proposed OMP within 45 days of Air District comments. The owner/operator shall revise and continue to re-submit the OMP for APCO review until it is approved. The owner/operator shall update the OMP as needed to address any confirmed odor complaints and shall submit an updated OMP to the APCO within 45 days of notification by the APCO. The updated OMP shall be made available for Air District inspection upon request. The updated OMP shall be certified and signed by a Responsible Manager and shall include, but not be limited to:

- a. Table of contents
- b. Company Description
- c. Company organizational chart and schedule of management operators
- d. Description of facility operations
- e. Management practices to reduce organic emissions and odors. A description and evaluation of odor prevention measures.
- f. Description of abatement and control equipment
- g. Technical data that includes a process flow diagram and facility layout/floor plan that provides a complete description of facility operations, including locations of all processing equipment (exempt and permitted equipment) and associated monitoring and control equipment.
- h. Description of all employee training to minimize organic emissions and odors and frequency of any ongoing training.
- i. A description of the equipment, processes and procedures installed or implemented within the last 5 years to reduce emissions, including the year of installation for each device.
- j. A description and schedule of future plans to implement additional organic emissions and odor reduction measures.
- k. Information pertinent to the process operating parameters requested by the APCO as necessary to enable determination of compliance with applicable provisions of this permit. The Air District may administratively amend these permit conditions in order to incorporate any requirement contained within the approved BMP that are deemed necessary for compliance by the Air District.
- l. Correction actions taken to prevent future repetition.

Failure to implement and maintain equipment, processes, procedures or organic emissions and odor prevention measures in accordance with the APCO approved OMP is a violation of this permit. (Basis: Regulation 1-301)

14. The owner/operator of S- shall update the OMP and submit an updated plan to the APCO within 12 months following the approval of the initial plan and annually thereafter. The owner or operator shall review the OMP and update the plan to incorporate any new prevention measures to further reduce organic emissions and odors. The updates shall be approved and signed by a Responsible Manager. The APCO shall approve the updated OMP if it is determined that the OMP meets the requirements of this permit, and shall provide written notification to the owner or operator. The facility is responsible to provide an updated OMP that meets the requirements of Part 13. The Air District may administratively revise these permit conditions to incorporate any requirement contained within the approved BMP that are deemed necessary for compliance by the Air District. (Basis: Regulation 1-301, 2-1-403)

15. If the owner/operator of S- receives more than 2 Notices of Violation (NOVs) for "public nuisance" from the Air District in any consecutive 12-month period and the MRF is confirmed to be the source of the organic emissions and nuisance odors, the owner/operator shall propose additional control measures to the Air District in an updated OMP within 60 days of the second NOV, including

implementation timelines for the additional control measures. Organic emissions and odor control measures may include one or more of the measures suggested in the OMP or other measures agreed upon by the owner/operator and the Air District. If notified by the Air District, the owner/operator shall submit a permit application to the Air District to modify the Permit to Operate and/or this permit condition within 30 days of Air District notification. (Basis: Regulations 1-301 and 2-1-403)

16. The owner/operator shall maintain the following records:

- a. Document the active exit locations monitored each workday;
- b. Document each occasion when the trackout exceeds cumulative 25 linear feet and all trackout control and cleanup actions initiated as a result of monitoring Part a of this condition; and
- c. Maintain the records required by Part b and Part c of this condition for two years, in electronic, paper hard copy or logbook format, and make them available to the APCO upon request.
(Basis: Regulation 6-6-501)

17. The owner/operator of S- shall maintain the following records:

- a. On a daily basis: Documentation of the amount of material received at and removed from each source and processing times for putrescible materials and operating hours as needed to demonstrate compliance with the throughput, processing time, and emissions limits listed in Parts 1-4.
- b. On a monthly basis: Summarize process throughput rates for each month and for each consecutive rolling twelve-month period to demonstrate compliance with the throughput, processing time, and emissions limits listed in Parts 1-4.
- c. Maintain records of vehicle trip data (in vehicle miles traveled per day, VMT/day) for vehicles used for green waste, food waste, transfer, processing, and pickup; paved and unpaved road distances; vehicle fleet weights; and associated emissions calculations.
- d. Maintain daily records of the number of trucks that travel on-site.

The owner/operator shall maintain all records in an Air District-approved log. The owner/operator shall retain the records for at least five years from the date of entry and make them available for inspection by Air District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District Regulations. (Basis: Cumulative Increase)

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Permit Conditions for Composting Operations:

1. Throughput Limits: The owner/operator shall not exceed any of the following feedstock (not including biofilter media) throughput limits in wet tons in any calendar day and/or any consecutive 12-month period:

Source No.	Description	Daily Throughput (TPD)	Rolling 12-month Throughput (TPY)
S-			
S-			
S-			

[Basis: Cumulative Increase]

2. Allowable Feedstocks: The owner/operator shall only store the following materials for each source:

Source No.	Materials allowed for storage
S-	
S-	
S-	

The facility shall submit an application for Air District approval prior to accepting any new material for storage or composting.

[Basis: Cumulative Increase]

3. Processing Time Limit: The owner/operator of S- , S- , and S- shall process and transfer the material to S- and S- within hours from when the material is received at the facility. The owner/operator shall be subject to the record keeping requirements in Parts 18b and 18d.

[Basis: Cumulative Increase]

4. Emission Limits: The owner/operator shall ensure that:
 - a. Precursor organic compounds (POC) emissions from S- shall not exceed either
 - i. pounds per hour, and/or
 - ii. tons per consecutive 12-month period.
 - b. Precursor organic compounds emissions from S-11 shall not exceed either
 - i. pounds per hour, and/or
 - ii. tons per consecutive 12-month period.
 - c. Precursor organic compounds emissions for S- shall not exceed any of the following limits:
 - i. pounds per wet ton of material composted,
 - ii. pounds per hour, and/or
 - iii. tons per consecutive 12-month period.
 - d. The emissions of the following toxic air contaminants for S- shall not exceed any of the following limits:

TAC	Hourly Emissions	Consecutive 12-month Total
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(lb/hr)

(lb/yr)

Acetaldehyde

Ammonia

IPA

Methanol

Naphthalene

Propylene

- e. Any toxic air contaminants not listed in Part 4d detected during a source test shall not equal or exceed the respective trigger levels contained in Regulation 2-5.
- f. If the owner/operator of S- exceeds any of the limits in Part 4d and/or 4e, the exceedances shall not be considered a violation if the owner/operator can demonstrate compliance with the requirements of Regulation 2-5.
- g. If the emissions limits per Parts 4d and 4e comply with the requirements of Regulation 2-5, the owner/operator may submit a written request to the Air District to revise the TAC emission limits in Part 4d within 60 days of receipt of approved results from the first two initial source tests conducted provided that the provisions within 4f are satisfied.

[Basis: Cumulative Increase and Regulation 2-5]

5. Active Pile Construction and Operation: For the S- active phase, the owner/operator shall ensure the construction and operation meets the following specifications:
 - a. A minimum of at least 6-inches of either wood chips or wood screened overs will be placed over the top of the perforated pipe.
 - b. The length of each active pile shall not exceed feet in distance along the aeration pipe from the blower.
 - c. The maximum height of the active piles shall not exceed feet.
 - d. The owner/operator of S- shall cover the finished sections of the active pile during the construction of each active pile with a biofilter. The surface of each active pile shall be covered by a cured compost biofilter with a minimum thickness of 6 inches. Any partially constructed active piles shall be covered with a biofilter by the end of each business day.
 - e. Feedstock for each active phase pile shall maintain a moisture content of at least 50% and not to exceed 65%. The moisture content shall be tested weekly at a minimum of 10 locations equally spaced for each pile using the oven/dry method or using the squeeze test method, as described below:

Squeeze Test Observation	% Moisture Content Description
Water flows freely out of hand	65% or more
A few drops of water are visible between fingers	60-65%
No water visible between the fingers, but when the hand is opened a sheen of moisture is clearly visible	55-60%
No sheen is visible, and a ball of material remains in the hand. If the ball is tapped gently, the ball stays intact	50-55%
A ball of material forms but breaks apart during tapping	45-50%

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After squeezing, the material does not remain in a ball when opening the hand	40-45%
No ball forms and a dry talcum-like feeling remains on the hand after discarding the material	Below 40%

- f. The maximum temperature of the active phase pile shall not exceed 170 degrees Fahrenheit.
- g. The oxygen content of the active phase pile shall be a minimum of 10%. The owner/operator shall monitor each active phase pile weekly at a minimum of 10 locations equally spaced for each pile. If a field instrument is used to determine the oxygen content, the owner/operator shall maintain records that demonstrates the field instrument is properly maintained and properly calibrated daily per manufacturer's specifications prior to use.
- h. To ensure that S- meets the emissions limits in Part 4 of this Permit Condition, the owner/operator shall properly install, properly operate, and properly maintain an aeration system in such a manner to meet following minimum requirements:
 - i. Operate one blower, with a minimum rated capacity of 1,000 cfm for each zone with 3 cells in each zone at all times.
 - ii. Ensure that the blowers are operating and there is air flow out of all orifices in the aeration piping prior to placing waste feedstock on the aeration pipe.
- i. To ensure that S- meets the emissions limits in Part 4 of this Permit Condition, the owner/operator shall install, operate, and maintain a cured compost biofilter in such a manner to meet following minimum requirements:
 - i. The owner/operator shall provide an irrigation spray system with sufficient capacity and coverage to maintain moisture content required per 5e of the cured compost and cover the entire surface of each activated pile or zone.
 - ii. Moisture content of the biofilter media measured at 2 inches below the biofilter cover's top surface, and lower, shall be maintained at a minimum of 50% at all locations across each covered positively aerated static pile throughout the duration of the active phase.
 - iii. The owner/operator of A- biofilter shall measure and ensure the pH of A- is between 5.5 and 8.5 prior to placement on the active composting pile.

[Basis: Regulations 1-301, 2-1-403, 2-2-301, 2-2-302, 2-5, and 6-1; Cumulative Increase]

- 6. Active Pile Temperature Monitoring: The owner/operator of S- shall equip the S- active piles with a temperature monitoring system with an alarm that shall be set to trigger when the temperature at any probe exceeds 170 degrees Fahrenheit. If the temperature exceeds 170 degrees Fahrenheit at any location, the owner/operator of S- shall immediately initiate corrective action, such as watering the pile, breaking the pile and spreading or turning the material, or other appropriate corrective actions to reduce the temperature. The owner/operator of S- shall maintain in an Air District-approved log records of any corrective actions taken, time the corrective actions were initiated, and the duration for which temperature exceeded 170 degrees Fahrenheit. If an active compost pile continues to exhibit temperature above 170 degrees Fahrenheit and does not exhibit a decreasing trend in temperature within 72 hours after the corrective actions are taken to reduce the temperature, then the owner/operator of S- shall reduce the height of that active pile to not exceed 6 feet.

[Basis: Regulations 1-301, 2-1-403, 2-2-301, 2-2-302, 2-5, and 6-1; Cumulative Increase]

- 7. Shutdown of the Aeration System: The owner/operator of S- may shut down the compost pile aeration system only under the following circumstances:

- a. For unplanned shutdown of primary blower(s) or other parts of aeration system, the owner/operator of S- shall maintain a backup blower and/or sufficient spare parts on the site at all times to replace or repair the primary blower(s) or other malfunctioning part(s) of the aeration system. The owner/operator of S- shall restore forced aeration within 24 hours from the time the primary blower(s) or other part(s) of the aeration system is(are) inoperative. The owner/operator shall notify the Air District's Compliance and Enforcement Division of any unplanned aeration system shutdown within 2 hours from the beginning of the shutdown or by 8am the next business day if the shutdown occurs outside of normal business hours. The owner/operator shall record forced aeration system downtime or the duration for which forced aeration was not provided to any piles or zones, the cause of shutdown, and the corrective actions taken to restore forced aeration.
- b. For planned shutdown of primary blower(s) or other parts of aeration system for S- , the owner/operator shall not place nor have in place any waste feedstock for active composting in the zones served by the shutdown aeration system or shall provide forced aeration by using a backup aeration system. The owner/operator shall record aeration system downtime and purpose of the planned shutdown.
- c. The owner/operator of S- may discontinue forced aeration prior to the completion of active phase only for the purpose of preventing or abating fires, odors, or other improper composting or biofilter cover conditions. The owner/operator of S- shall restore forced aeration immediately, but not exceeding 24 hours from the time it is discontinued, after taking corrective actions to prevent or abate fires, odors, or other improper composting or biofilter cover conditions. To demonstrate compliance with this requirement, the owner/operator of S- shall record the date and time of discontinuation of forced aeration in an Air District- approved log and shall identify the reason for any premature discontinuation of forced aeration and when it returns to normal operation.
- d. The owner/operator shall increase the surface irrigation frequency, as applicable, to mitigate excess emissions whenever the aeration system is shutdown for a period not to exceed 24 hours.

[Basis: Regulations 1-301, 2-1-403, 2-2-301, 2-2-302, and 2-5; Cumulative Increase]

8. Completion of Active Phase Composting: Prior to moving the composting material from the active phase to the curing phase, the owner/operator of S- shall ensure at least two (2) of the following parameters are met:
 - a. The active pile shall be maintained in the active phase for a minimum of 22 consecutive days from when the construction of the active pile is completed; or
 - b. The organic material respiration rate is no more than 20 milligrams of oxygen consumed per gram of volatile solids per day as measured by direct respirometry using the TMECC Method 05-08-A – Specific Oxygen Uptake Rate (April 7, 2002); or
 - c. The organic material emits no more than seven (7) mg carbon dioxide per gram of organic material (CO₂-C) per day, as measured using the TMECC Method 05-08-B – Carbon Dioxide Evolution Rate (April 7, 2002); or
 - d. The organic material has a Solvita® Maturity Index of five (5) or greater as measured using the TMECC Method 05-08-E – Solvita® Maturity Test (April 7, 2002); or
 - e. The temperature of the active phase pile is below 122 degrees Fahrenheit for a minimum of 3 consecutive days.

[Basis: Regulations 1-301, 2-1-403, 2-2-301, 2-2-302, 2-5, and 6-1; Cumulative Increase]

9. Curing Piles Construction and Operation: The owner/operator of S- shall ensure that the curing piles meet the following requirements:

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- a. The width of each curing pile shall not exceed feet at the base.
- b. The height of each curing pile shall not exceed feet at any location in the curing pile. S- shall be considered to be in violation of this permit condition if the height of any curing pile exceeds feet at any location in any curing pile.
- c. The owner/operator of S- shall provide access to the Air District staff to the top of the curing piles, upon request.
- d. The owner/operator shall provide an irrigation/water spray system that must be capable of covering the exposed surface of each curing pile.
- e. The owner/operator of S- shall maintain a minimum moisture content of at least 50% at a depth of 2 inches to 6 inches at all locations in each curing pile throughout the duration of the curing phase.
- f. The owner/operator of S- shall measure and record in an Air District-approved log the moisture content at a minimum of 10 locations at a depth of at least 2 inches and not to exceed 6 inches from the top surface of each curing pile on a weekly basis in the months of July through October and on a monthly basis in other months. The owner/operator of S- shall measure the moisture content by the squeeze method or other Air District-approved method.

[Basis: Regulations 1-301, 2-1-403, 2-2-301, and 2-5; Cumulative Increase]

10. Curing Piles Temperature Monitoring: The owner/operator of S- curing piles shall manually measure the temperature at each pile at a minimum depth of 48 inches from the top surface of each curing pile, at a minimum of every 25 feet length of each curing pile after weeks 1, 2, and 5 of retention period. In addition, the owner/operator of S- shall inspect the entire length of each curing pile prior to 10 AM once per week for hot spots or water vapor and measure the temperature at the hot spots. If weekly manual monitoring indicates hot spots with temperatures above 122 degrees Fahrenheit, the owner/operator of the curing pile shall increase the manual temperature monitoring at hot spots to at least once every 24 hours or until the temperature drops below 122 degrees Fahrenheit for at least a 24-hour period. If the temperature at the hot spot remains above 122 degrees Fahrenheit for a 72 hour period or exceeds 170 degrees Fahrenheit at any location, the owner/operator of the curing pile shall immediately initiate corrective action(s), such as watering the pile, breaking the pile and spreading or turning the material, or other appropriate corrective actions to reduce the temperature. After taking the corrective action, the owner/operator of S- shall continue to monitor the temperature of the hot spots at least once every 24 hours until the temperature reduces below 122 degrees Fahrenheit for a 72 hour period. If the temperature at the curing pile continues to have hot spot locations with temperatures above 122 degrees Fahrenheit for a 72 hour period or exhibit temperatures above 170 degrees Fahrenheit at any location 24 hours after the corrective actions are taken to reduce the temperature, then the owner/operator of S- shall either permanently reduce the dimensions of the curing pile to a maximum of 6 feet in height and 15 feet wide at the base or place the material back in to the S- active composting pile with a A-10 biofilter cover. Following the implementations of the corrective actions to reduce the temperature below 122 degrees Fahrenheit or the temperature remains below 122 degrees Fahrenheit for at least a 24 hour period, the owner/operator of S- curing piles shall resume weekly manual monitoring and hot spot monitoring for the curing pile. The owner/operator of S- shall maintain records in an Air District-approved log of any corrective actions taken, the time taken, the temperature readings resulting in any corrective actions, the temperature readings following the corrective actions to demonstrate compliance with this part.

If after the first quarter the data indicates that monitoring frequency warrants adjustments, the owner/operator may request an alternate monitoring frequency. Conversely, if the data shows more frequent monitoring is warranted, the Air District may administratively increase the monitoring frequency.

[Basis: Regulations 1-301, 2-1-403, 2-2-301, 2-2-302, 2-5, and 6-1; Cumulative Increase]

11. Curing Pile Storage Requirements. The owner/operator of S- curing piles shall store the material for a period up to 60 days. If the curing pile requires additional retention time that exceeds 60 days, the owner/operator shall measure the curing pile using the TMECC Method 05-08-E – Solvita® Maturity Test (April 7, 2002). If the curing pile has a Solvita® Maturity Index less than seven (7), the owner/operator may store the material for an additional 30 days. The cumulative retention time for each curing piling shall not exceed 90 days. If the curing pile does not satisfy the requirements for the Solvita® Maturity Test as specified in this part, the owner/operator of the S- curing pile shall remove the material from the site within 72 hours of the test results.

[Basis: Regulations 2-1-320, 2-1-403, and 6-1; Cumulative Increase]

12. General Operating Requirements: The owner/operator shall install, operate, and maintain the active composting and curing phases of S- in accordance with the following minimum requirements:
 - a. Prior to creating or initiating any new active composting pile, the owner/operator of S- shall inspect the air orifices in the forced aeration pad for clogging and take necessary corrective actions to unclog the orifices. The owner/operator of S- shall not place waste feedstock in any active zone, where the forced aeration system or its parts are not functioning properly.
 - b. The owner/operator shall visually inspect the water sprayers, water pumps, air ducts/spargers, dampers, blowers and other process control and monitoring devices monthly and take necessary corrective actions within 24-hours of detection of any problems with the above equipment in order to ensure that the equipment is operating properly in accordance with the system design and manufacturer specifications. The owner/operator of S- shall maintain records of the date and time of inspection, results of inspection, the date and time of any corrective action and record any corrective action(s) taken.
 - c. The owner/operator of S- shall ensure that sufficient spacing or gap is provided between an active pile that is being broken down or harvested and adjacent active piles in each extended bed, so that the material in adjacent active piles is not prematurely removed prior to stabilization of the material and completion of the active phase.
 - d. If the feedstock has not reached and maintained temperatures above 122 degrees Fahrenheit to demonstrate active composting has occurred, and if the owner/operator of S- has determined the feedstock will not achieve this temperature, the owner/operator of S- may remove the entire material from S-. The owner/operator of S- shall maintain records of the quantity removed, date removed, and final disposition of the material.

[Basis: Regulations 1-301, 2-1-403, 2-2- 301, 2-2- 302, 2-5, and 6-1; Cumulative Increase]

13. Visible Emissions: The owner/operator of S-, S-, and S- shall abate particulate emissions from all material handling and composting operations, such as turning composting piles and transferring feedstock, biofilter material, and compost product at sources S-, S-, and S- using A- water spray. Prior to placing the material in S-, the owner/operator shall wet the waste material feedstock, as necessary, to prevent visible emissions and moisture condition the feedstock. The owner/operator shall ensure that visible dust emissions from S-, S-, and S- do not exceed 10% opacity and/or do not exceed a Ringelmann 0.5 for longer than three (3) minutes in an hour or result in fallout on adjacent property in such quantities as to cause a public nuisance per Regulation 1-301.

[Basis: Regulations 1-301, 2-1-403, 2-2-301, and 6-1; Cumulative Increase]

14. POC Emissions Monitoring: To demonstrate compliance with Regulation 8, Rule 2, Section 301, the owner/operator of S- shall ensure that the average surface concentration above any active phase pile and any curing phase pile does not exceed 300 ppmv of total carbon, on a dry basis and 15 pounds per day. The owner/operator shall measure the total carbon concentration at the interface

(not to exceed 0.5 inch) from the surface of each pile on a quarterly basis at a minimum 10 equally-spaced locations along at the top surface of each compost pile and 15 equally-spaced locations along at the top surface of each curing pile and record the measured concentrations in an Air District-approved log.

[Basis: Regulation 8, Rule 2]

15. Source Testing: To demonstrate compliance with Part 4, the owner/operator shall perform two initial source tests within 365 days from the issuance date of Application # _____ for S-_____, S-_____, and S-_____. At least one of the source tests shall be conducted during the harvest season and shall include emissions from grape pomace and winery sludge. The two source tests shall be conducted at least 4 months apart. In the source test, the owner/operator of S-_____, S-_____, and S-_____ shall test for total carbon as defined in Regulation 8-2, POC, non-precursor organic compounds (NPOC), ammonia, acetaldehyde, isopropyl alcohol, methanol, naphthalene, propylene, and all other compounds listed in EPA Method TO-15. During each source test, the owner/operator shall also measure and record operating parameters, including but not limited to, pile temperature, oxygen content, moisture content of feedstock and biofilter, and carbon to nitrogen ratio, the biofilter thickness bulk density, and pH of initial feedstock mix. The owner/operator shall calculate POC, NPOC, and TAC emission factors (in pounds per ton) based on the results of Air District-approved source tests and Air District-approved methodology. The owner/operator shall use these emission factors (in pounds per ton) to calculate the maximum hourly, daily, and annual emissions based on the maximum hourly, daily, and annual throughputs (in tons per hour, day, and year) for each source to demonstrate compliance with the emissions limits in Part 4. In the event the operating parameters applied during the two initial source tests are necessary to demonstrate compliance with Part 4, the Air District may administratively revise the parameters required in Parts 5 and 9.

[Basis: Regulations 2-1-403, 2-2-301, and 2-5; Cumulative Increase]

16. Source Test Protocol: For the source test required in Part 15 of this Permit Condition, the owner/operator of S-_____, S-_____, and S-_____ shall submit a source test protocol to the Air District's Engineering Division and to the Source Test Section, at least 45 days prior to conducting the source test. The protocol shall describe how, where, and when the testing will be conducted and shall identify all the sampling and analysis methods that will be used for the source tests. The owner/operator of S-_____, S-_____, and S-_____ shall provide the Air District with the source test protocol and all analysis and reporting procedures prior to initiating any test. The owner/operator of S-_____, S-_____, and S-_____ shall notify the Air District's Source Test Section and the assigned permit engineer in the Engineering Division at least 30 days prior to the test. Within 60 days of test completion, a report of the test results shall be submitted to the Air District's Source Test Section for review and disposition.

[Basis: Regulations 2-1-403, 2-2-301, 2-5, and 8-2-301; Cumulative Increase]

17. General Monitoring Requirement: The owner/ operator of S-_____, S-_____, and S-_____ shall conduct all monitoring and testing required by this Permit Condition, at the required frequencies using only Air District-approved methods and properly calibrated instruments. The owner/operator of S-_____, S-_____, and S-_____ shall calibrate all devices or instruments used for monitoring annually or at manufacturer-recommended frequency, whichever is more frequent.

[Basis: Regulations 1-301, 2-1-403, 2-2-301, 2-2-302, 2-5, and 6-1; Cumulative Increase]

18. Monitoring and Recordkeeping: To demonstrate compliance with this Permit Condition, the owner/operator of S-_____ shall maintain dated records in an Air District-approved log of the following on a daily basis or at the monitoring frequency specified in other parts of this permit condition for the specific parameter:
 - a. The owner/operator of S-_____ and S-_____ shall track and record the weight of each and type of material feedstock delivered as permitted in Part 2 to S-_____ and S-_____ for composting on a tons per day basis.

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- b. Date and time for material received for S- and S- .
- c. Date and time blowers and orifices in the aeration piping are verified to be operating properly prior to placing the feedstock.
- d. Date and time the piles are created.
- e. Date, time and pH measurement of the biofilter for each active pile.
- f. Measure the moisture content and pH of the biofilter cover at a minimum of 10 locations on each active pile prior to placement. The owner/operator of S- shall measure the moisture content by squeeze method or other Air District-approved method on a weekly basis. Record locations and the moisture content of biofilter material at those locations in each active pile. Record each instance of deviation of operating parameters, corrective actions taken, time corrective action was taken, and the duration for which the operation deviated from any part listed above.
- g. The owner/operator of S- shall monitor and record the air flow provided to each active pile on a quarterly basis. Parameters to be monitored shall include visual and auditory inspection of all ducts to ensure that flex duct connections are made and no leaks have developed.
- h. Locations and readings of temperature and oxygen measurements at those locations in each active pile, the date and time of any corrective actions in active pile, the corrective action taken, and the duration for which temperature exceeded 170 degrees Fahrenheit.
- i. Date, time, and results of inspection of aeration system and irrigation system, and any corrective actions taken.
- j. The owner/operator of S- shall monitor and record forced aeration system downtime or the duration for which forced aeration was not provided to any piles or zones, the cause of shutdown, and the corrective actions taken to restore forced aeration and the time corresponding to restored forced aeration.
- k. Forced aeration discontinuation, record the date and time for any premature discontinuation of forced aeration and reason for any premature discontinuation of forced aeration for each active compost pile.
- l. Results of tests and/or monitored parameters indicating active compost material's stability at the time of harvesting.
- m. Quantity, age, active compost stability, and final disposition of the material prematurely removed/harvested from active phase.
- n. Quantity and final disposition of the feedstock that has not undergone active composting.
- o. Pile initiation/creation date and harvest date for each active pile and each curing pile.
- p. Curing pile identification, measurement locations, and the moisture at those locations in curing piles.
- q. Initial moisture content and pH of material placed in the curing pile.
- r. Locations and readings of manual temperature measurements at those locations in each curing pile. Any corrective actions to demonstrate compliance with Part 10 in curing pile, the occurrence when the temperature exceeded 170 degrees Fahrenheit or the duration when the temperature exceeded 122 degrees Fahrenheit, and the temperature readings following the corrective action and the dates of these readings.
- s. Surface concentration of total carbon to demonstrate compliance with Regulation 8-2-301.
- t. Source test reports and emission calculations.

- u. Records of maintenance and/or calibration logs for each field instrument including, but not limited to, oxygen content, pH, temperature, and POC emissions monitoring used to demonstrate compliance with any of the above conditions.
- v. Instances of excursions from the requirements in any part of this Permit Condition, applicable Air District regulation, duration of excursion, and corrective actions taken to address the problem or excursion and the time the corrective action was taken and time returned to compliance with the applicable part.

The owner/operator of S- shall maintain these records and any related correspondence with any division of the Air District in an Air District-approved log and shall retain the records onsite for at least two years from the date of entry and shall make the records available to Air District staff for review upon request.

[Basis: Regulations 1-301, 2-1-403, 2-2-301, 2-2-302, 2-5, 6-1, and 8-2-301; Cumulative Increase]

19. Deviations, excursions, and/or Non-Compliance: The owner/operator of S- shall operate as specified in the above parts of this permit condition. Upon discovery of deviation, excursion, and/or non-compliance from any requirement in this permit condition or in an applicable Air District regulation, the owner/operator of S- shall immediately take all necessary corrective actions to restore compliance with that requirement and maintain records of the instance of the deviation, excursion, and/or non-compliance, corrective actions taken, timing of corrective action and the duration of the deviation, excursion, and/or non-compliance. If the source continues to deviate from or not comply with any requirement in this permit condition or in any applicable Air District regulation for more than 24 hours from discovery of deviation, excursion, and/or non-compliance, or longer, as allowed by a specific part of this Permit Condition, the owner/operator of S- shall immediately notify the Air District's Compliance and Enforcement Division. If corrective actions taken by the owner/operator of S- do not restore compliance with the requirements within 24 hours of discovery of deviation, excursion, and/or non-compliance then the deviation, excursion, and/or non-compliance shall be considered a violation of this permit condition and/or applicable Air District regulation.

The owner/operator of S- shall immediately suspend any new composting activities, such as creating new active composting or curing piles in the event one or more of the following occurs:

- a. Biofilter is out of compliance with the requirements in this permit condition.
- b. Aeration system is out of compliance with the requirements in this permit condition.
- c. Fire in S- active or curing piles.

[Basis: Regulations 1-301, 2-1-403, 2-2-301, 2-2-302, 2-5, and 6-1; Cumulative Increase]

20. In the event of any of the following at S- :
- (i) owner/operator of S- receives one or more Violation Notices for Regulation 1-301: Public Nuisance,
 - (ii) two or more confirmed odor complaints within a 24-hour period,
 - (iii) one or more incidences of fire, or
 - (iv) owner/operator of S- receives one or more Violation Notices for non-compliance with any part of Condition #27297 or any applicable BAAQMD regulation.

The owner/operator of S- shall implement one or more of the following control measures (as applicable), and shall implement any additional measures that the Air District deems necessary and appropriate within a period specified by the Air District:

- a. Air District-approved measure proposed by the owner/operator to address the violation.
- b. Reduce the permitted waste material throughput allowed in Part 1.
- c. Reduce the size of active composting or curing piles as allowed in Parts 5 and 9.
- d. Increase the thickness of the biofilter.
- e. Increase air flow through each pile.

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If the owner/operator of S- receives a repeat Violation Notice or another incidence of fire occurs at S- within 24-months of receiving the first violation notice or first incidence of fire, then the owner/operator shall submit a request for administrative changes of these permit conditions or, if required by the Air District, shall submit a permit application for alteration or modification of S- to amend the Authority to Construct or the Permit to Operate and this permit condition within 30-days of receiving the repeat Violation Notice or second incidence of fire.

The Air District may also administratively change any of the above parts in order to address corrective actions taken per this part.

[Basis: Regulations 1-301, 2-1-233, 2-1-403, 2-2-301, 2-2-302, 2-5, and 6-1; Cumulative Increase]

PERMIT HANDBOOK

Permit Conditions for Banking Certificates limited by Regulation 2-4-302.1:

1. The emission reduction credits (ERCs) can only be used to offset emission increases from other (same or closely related industries; i.e., power generating) sources. (Basis: Regulation 2-4-302.1)

PERMIT HANDBOOK

Permit Conditions for Baghouse:

1. The owner/operator shall route all particulate matter emissions from Source S- to Baghouse, A- . (basis: Regulation 6-1-301, 6-1-310, 6-1-311)
 2. The owner/operator shall equip Baghouse, A- with a device for measuring the pressure drop across the baghouse. Each device shall be checked for plugging at least every week. (basis: Regulation 6-1-301, 6-1-310, 6-1-311, 2-1-403)
 3. The owner/operator shall inspect Baghouse, A- weekly to ensure proper operation. The following items shall be checked:
 - a. The pressure drop across the baghouse shall be checked weekly. The pressure drop shall be no lower than 2 inches of water and no greater than 12 inches of water.
 - b. The baghouse exhaust shall be checked weekly for evidence of particulate breakthrough. If breakthrough is evident from plume observations, dust buildup near the stack outlet, or abnormal pressure drops, the filter bags shall be checked for any tears, holes, abrasions, and scuffs, and replaced as needed.
 - c. All hoppers shall be discharged in a timely manner to maintain compliance with 3(a) above.
 - d. The pulsejet, shaker cleaning system shall be maintained and operated at sufficient intervals to maintain compliance with 3(a) above.(basis: Regulation 2-1-403)
 4. In order to demonstrate compliance with the above permit conditions, the following records shall be maintained in an Air District approved log. These records shall be kept on site and made available for Air District inspection for a period of at least five years from the date on which a record is made.
 - a. Records of all inspections and all maintenance work including bag replacement for the baghouse. Records of each inspection shall consist of a log containing the date of inspection and the initials of the personnel that inspects the baghouses.(basis: Regulation 1-441)
 3. The owner/operator shall operate such that the outlet PM₁₀, as defined in Regulation 2, Rule 1, grain loading for Baghouse A- not exceed 0.01 grains per dry standard cubic foot. (basis: Regulation 6-1-310, Best Available Control Technology or Cumulative Increase)
- [Note: Limit usually 0.01 grains/dscf for new equipment, unless Best Available Control Technology requires a lower grain loading limit.]
4. The owner/operator shall not operate this Source S- more than hours in any rolling 12 consecutive month period. (Basis: Cumulative Increase)
 5. To determine compliance with the above parts, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:
 - a. Total monthly hours of operation.
 - b. The monthly hours of operation shall be totaled on a consecutive 12-month period.All records shall be retained on-site for two years, from the date of entry, and made available for inspection by Air District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable Air District Regulations. (Basis: Cumulative Increase)

Permit Conditions for Carbon Abatement:

1. The owner/operator shall vent Source S- at all times to Abatement Device A- , two (200 lb minimum capacity) activated carbon vessels arranged in series. Influent vapor flow shall not exceed scfm. (basis: Regulation 8-40-302, Cumulative Increase, BACT/TBACT)
2. The owner/operator of this source shall monitor with a photo-ionization detector (PID), flame-ionization detector (FID), or other method approved in writing by the Air Pollution Control Officer at the following locations:
 - a. At the inlet to the second to last carbon vessel in series.
 - b. At the inlet to the last carbon vessel in series.
 - c. At the outlet of the carbon vessel that is last in series prior to venting to the atmosphere.When using an FID to monitor breakthrough, readings may be taken with and without a carbon filter tip fitted on the FID probe. Concentrations measured with the carbon filter tip in place shall be considered methane for the purposes of these permit conditions. (basis: Cumulative Increase, BACT/TBACT)
3. The owner/operator shall record these monitor readings in a monitoring log at the time they are taken. The monitoring results shall be used to estimate the frequency of carbon change-out necessary to maintain compliance with conditions number 4 and 5, and shall be conducted on a daily basis. The owner/operator of this source may propose for Air District review, based on actual measurements taken at the site during operation of the source, that the monitoring schedule be changed based on the decline in organic emissions and/or the demonstrated breakthrough rates of the carbon vessels. Written approval by the Air District's Permit Services Division must be received by the owner/operator prior to a change to the monitoring schedule. (basis: Cumulative Increase, BACT/TBACT)
4. The owner/operator shall change out the second to last carbon vessel with unspent carbon upon breakthrough, defined as the detection at its outlet of the higher of the following:
 - a. 10 % of the inlet stream concentration to the Carbon vessel.
 - b. 10 ppmv or greater (measured as C1).(basis: Cumulative Increase, BACT/TBACT)
5. The owner/operator shall change out the last carbon vessel with unspent carbon upon detection at its outlet of 10 ppmv or greater (measured as C1). (basis: Cumulative Increase, BACT/TBACT)
6. The owner/operator of this source shall maintain the following records for each month of operation of the source:
 - a. The hours and times of operation.
 - b. Each monitor reading or analysis result for the day of operation they are taken.
 - c. The number of carbon beds removed from service.

All measurements, records and data required to be maintained by the owner/operator shall be retained and made available for inspection by the Air District for at least two years [Note: This is five years for Title V facilities] following the date the data is recorded. (basis: Cumulative Increase, BACT/TBACT)
7. The owner/operator shall report any non-compliance with parts 4 and/or 5 to the Director of the Compliance & Enforcement Division at the time that it is discovered. The submittal shall detail the corrective action taken and shall include the data showing the exceedance as well at the time of occurrence. (basis: Cumulative Increase, BACT/TBACT)

PERMIT HANDBOOK

Permit Conditions for Source Testing:

1. Not later than 60 days from the startup of S- , the owner/operator shall conduct Air District approved source tests to determine initial compliance with (the limits) in Part for . The owner/operator shall submit the source test results to the Air District's Source Test Section no later than 60 days after source test completion. (basis: BACT, Cumulative Increase)
2. The owner/operator shall comply with all applicable testing requirements as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall notify the Air District's Source Test Section, in writing, of the source test protocols and projected test dates at least 30 days prior to testing. (basis: BACT, Cumulative Increase)
3. The owner/operator shall ensure that S- is equipped with source test sampling ports and safe access as specified in Volume IV of the Air District's Manual of Procedures. The owner/operator shall obtain approval of the sampling ports locations, layout and access from the Air District's Source Test Section prior to installation. (Basis: BACT; Cumulative Increase)

Permit Conditions for “Allowable Temperature Excursions” of Thermal Oxidizers:

[Note: This template is not intended for Catalytic units or cyclic or batch operations, where the duration of the source operation may not exceed 15 minutes (i.e. storage tank loading, drum filling, at a bulk material handling facility).]

1. The temperature limit in Part shall not apply during an “Allowable Temperature Excursion”, provided that the temperature controller setpoint complies with the temperature limit. An Allowable Temperature Excursion is one of the following:
 - a. A temperature excursion not exceeding 20 degrees F; or
 - b. A temperature excursion for a period or periods which when combined are less than or equal to 15 minutes in any hour; or
 - c. A temperature excursion for a period or periods which when combined are more than 15 minutes in any hour, provided that all three of the following criteria are met.
 - i. the excursion does not exceed 50 degrees F;
 - ii. the duration of the excursion does not exceed 24 hours; and
 - iii. the total number of such excursions does not exceed 12 per calendar year (or any consecutive 12-month period).

Two or more excursions greater than 15 minutes in duration occurring during the same 24-hour period shall be counted as one excursion toward the 12-excursion limit. (basis: Regulation 2-1-403)

2. For each Allowable Temperature Excursion that exceeds 20 degrees F and 15 minutes in duration, the Permit Holder shall keep sufficient records to demonstrate that they meet the qualifying criteria described above. Records shall be retained for a minimum of five (or two years) years from the date of entry and shall be made available to the Air District upon request. Records shall include at least the following information:
 - a. Temperature controller setpoint;
 - b. Starting date and time, and duration of each Allowable Temperature Excursion;
 - c. Measured temperature during each Allowable Temperature Excursion;
 - d. Number of Allowable Temperature Excursions per month, and total number for the current calendar year; and
 - e. All strip charts or other temperature records.(basis: Regulation 2-1-403)

Permit Conditions for Thermal Oxidizers:

1. The owner/operator shall abate emissions from Source S- , with Abatement device A- , Thermal Oxidizer during all periods of operation. Vapor flow rate shall not exceed scfm. (basis: Cumulative Increase, BACT/TBACT)

2. The owner/operator shall operate A- to meet the following VOC destruction efficiency requirements:
 - a. A- outlet VOC concentration of 10 ppmv or less; or
 - b. All of the following standards depending on the applicable A- inlet VOC concentration:
 - c. VOC destruction efficiency $\geq 98.5\%$ if A- inlet VOC concentration $> 2,000$ ppmv;
 - d. VOC destruction efficiency $> 97\%$ if A- inlet VOC concentration > 200 to $< 2,000$ ppmv;
 - e. VOC destruction efficiency $> 90\%$ if A- inlet VOC concentration < 200 ppmv.
 (basis: Cumulative Increase; BACT/TBACT)

3. The owner/operator shall operate A- to be at least (typically 600 for catalytic and 1400 for other thermal oxidizers) degrees F. The Air District may adjust this minimum temperature, if source test data demonstrates that an alternate temperature is necessary for or capable of maintaining compliance with Part 2 above. (basis: Cumulative Increase; BACT/TBACT)

4. To determine compliance with the temperature requirement in these permit conditions, the owner/operator shall equip A- with a temperature measuring device capable of continuously measuring and recording the temperature in A- . The owner/operator shall install, and maintain in accordance with manufacturer's recommendations, a temperature measuring device that meets the following criteria: the minimum and maximum measurable temperatures with the device are degrees F and degrees F, respectively, and the minimum accuracy of the device over this temperature range shall be 1.0 percent of full-scale. (basis: Cumulative Increase; BACT/TBACT)

5. The owner/operator shall report any non-compliance with Part 3 of this condition to the Compliance & Enforcement Division by email to compliance@baaqmd.gov (Attention: Director of Compliance and Enforcement) at the time that it is discovered. The submittal shall detail the corrective action taken and shall include the data showing the exceedance as well at the time of occurrence. (basis: Cumulative Increase, Toxics)

PERMIT HANDBOOK

Example Permit Condition for RACT for Thermal Oxidizers, limits are based on your own RACT analysis

1. The owner/operator shall not emit more than 50 ppmvd NO_x @ 15% O₂ (0.20 lb/MMBTU) from
A- Thermal Oxidizer. [basis: RACT, Source Test Method 13A]
2. The owner/operator shall not emit more than 350 ppmvd CO @ 15% O₂ (0.80 lb/MMBTU) from
A- Thermal Oxidizer. [basis: RACT, Source Test Method 6]

[Add [Source Test Conditions](#) after part 2 and renumber the [Source Test Conditions](#), as needed.]

Permit Conditions for Water Spray System with throughput limit:

1. The owner/operator at this plant shall not exceed tons of total annual throughput of material processed in any consecutive 12-month period. (Basis: Cumulative Increase)
2. The owner/operator shall abate the particulate matter (PM-10) emissions from this Source S- using Water Spray System A- . (Basis: Regulation 6-1-301, Cumulative Increase and/or BACT)
3. The owner/operator shall maintain Source S- in a completely "surface wet" condition or shall not result in visible particulate matter emissions which exceed Ringelmann 0.5. (Basis: Regulation 6-1-301, Cumulative Increase and/or BACT)
4. To determine compliance with the above parts, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:
 - a. Total daily throughput of material.
 - b. The daily throughput of material shall be totaled on a monthly basis.
 - c. Monthly throughput shall be totaled for each consecutive twelve-month period.The owner/operator shall record all records in an Air District-approved log. The owner/operator shall retain the records with the equipment for two years, from the date of entry, and make them available for inspection by Air District staff upon request. These record-keeping requirements shall not replace the record-keeping requirements contained in any applicable Air District Regulations.
(Basis: Cumulative Increase)

SOURCE-SPECIFIC GUIDANCE

1. [General Instructions to Using These Guidelines](#)
2. Combustion Equipment
 1. [Boilers, Steam Generators & Process Heaters](#)
 2. (deleted)
 3. Internal Combustion Engines
 1. [Stationary Diesel Engines](#)
 2. [Stationary Natural Gas Engines](#)
 3. [Portable Diesel Engines](#)
 4. [Biogas Engines](#)
 5. Turbines
 1. [MicroTurbines \(25 – 500 KW\)](#)
3. Petroleum Industry
 1. [Bulk Loading Facilities](#)
 2. [Gasoline Dispensing Facilities](#)
 3. [Oil-water Separators](#)
 4. [Petroleum Refinery Fugitive Emissions](#)
 5. [Natural Gas Facilities and Crude Oil Facilities](#)
4. [Organic Liquid Storage Tanks](#)
5. Coating Operations
 1. [Spray Booths & Spray Guns](#)
 2. [Coatings and Ink Manufacturing](#)
 3. [Graphics Art Printing and Coating Operations](#)
6. Solvent Cleaning
 1. [Cold Solvent Cleaning](#)
 2. [Vapor and Conveyorized Solvent Cleaning](#)
 3. [Wipe Cleaning Operations](#)
7. Electronic & Semiconductor Industry
 1. (deleted)
 2. [Electronic Assembly & Wave Soldering Operations](#)
 3. [Flexible and Rigid Disc Manufacturing](#)
 4. [Semiconductor Manufacturing Operations](#)
8. Waste Processing Industry
 1. (deleted)
 2. [Sewage Treatment Facilities \(POTWs\)](#)
9. Soil/Water Remediation
 1. [Air Stripping](#)
 2. [Soil Vapor Extraction](#)
 3. [Sub-Slab Depressurization](#)
10. Toxic Emitting Operations
 1. [Chrome Plating](#)
 2. [Ethylene Oxide Sterilizers](#)
 3. (deleted)
 4. [Non-Halogenated Solvent Dry Cleaning](#)
 5. [Synthetic Solvent Dry Cleaning](#)
11. Miscellaneous Operations
 1. [Abrasive Blasting Operations](#)
 2. [Asphalt \(Hot Mix\) Facilities](#)
 3. [Coffee Roasters](#)
 4. [Cooling Towers](#)
 5. [Concrete Batch Plants](#)
 6. [Crematories](#)
 7. [Crushing and Grinding](#)
 8. [.1 Methyl Bromide Fumigation](#)
[.2 Phosphine Fumigation](#)

PERMIT HANDBOOK

9. [Misc. Organic Operations](#)
10. [Portable Equipment](#)
11. [Polyester Resin Manufacturing](#)
12. [Polyester Resin Operations](#)
13. [Tub Grinder](#)
14. [Landfill Gas Flares](#)
15. [Material Recovery Operations](#)
16. [Composting Operations](#)
12. [Procedures](#)
 1. [Banking](#)

1. GENERAL INSTRUCTIONS TO USING THESE GUIDELINES

July 6, 2022

Each of the chapters has been written for ease of viewing and use. Most of the section headers are hyperlinked with reference documents.

The Completeness Determination section header has been hyperlinked with the Completeness Determination Checklist. Each of the form references has been hyperlinked with its word document-formatted form. The Emission Calculations section header has been hyperlinked with a spreadsheet or calculation procedure that is to be used for calculating emissions for the selected source type.

The Applicable Requirements section header and sub-headers has been hyperlinked with the Applicable Requirements section and sub-sections of the General Evaluation Guidance so that general guidance and source specific guidance is available at a glance (with a click of the mouse). Finally, the Permit Condition section header has been hyperlinked with the permit conditions that are to be used for the selected source type.

It should be noted that unless a particular requirement is mentioned then that requirement is not applicable. For example, if the Applicable Requirements section of a chapter for a source type does not mention an applicable ATCM, NSPS, or NESHAP, then for that source type, such requirements have been determined not to apply.

The evaluation templates can be obtained by clicking on the hyperlink of each source category heading.

2.1 BOILERS, STEAM GENERATORS & PROCESS HEATERS

December 31, 2023

Process Description

This chapter is limited to external combustion equipment; such as boilers, steam generators, and process heaters; firing the commonly used conventional fuels such as natural gas, refinery gas, liquefied petroleum gas, landfill gas, distillate oil, residual oil, etc. Waste fuel combustion sources burning such fuels as municipal waste or refuse-derived fuel will require more detailed analysis and are not covered by this chapter. Boilers covered range from commercial (< 10 MMBTU/hr), small industrial (10 – 100 MMBTU/hr), to large industrial (100 – 250 MMBTU/hr), and utility boilers, generally rated above 250 MMBTU/hr. External combustion is when the combustion process heats a separate fluid, such as water or steam, which in turn is used.

Thorough explanations of the combustion of conventional fuels are available from [AP-42 \(Fifth Edition, Volume I\)](#):

Fuel Oil	Chapter 1.3, Fuel Oil Combustion
Natural Gas	Chapter 1.4, Natural Gas Combustion
LPG	Chapter 1.5, Liquefied Petroleum Gas Combustion
Wood	Chapter 1.6, Wood Residue Combustion in Boilers

Effective January 1, 2011, [Regulation 9-7-404](#) requires boilers, steam generators, and process heaters meeting the following criteria to be registered with the Air District and comply with the emission limits set forth in the rule:

- the rated heat input is greater than 2 MM Btu/hr and less than 10 MM Btu/hr
- the boiler is fired using only natural gas or LPG
- the boiler is not located at a petroleum refinery
- the boiler is not used to generate electricity

A [Regulation 9-7 Compliance Advisory](#) is available for more information.

Any boiler, steam generators, and process heaters or similar combustion equipment; which burns exclusively natural gas, LPG, or combination and has a maximum firing rate of 10 million BTU per hour or greater, or which burns other fuels and has a maximum firing rate of 1 million BTU per hour or greater; is subject to permitting requirements per [Regulation 2-1-114.1](#).

In general, natural gas is the most common fuel used. Fuel oil (such as diesel fuel) may be used as a backup fuel in the event of natural gas curtailment. Because the [BACT](#) requirements for wood combustion typically require add-on abatement equipment, wood combustion in new/modified combustion equipment is uncommon.

Completeness Determination

The following Air District forms should be completed and fees provided for the boilers. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form 101-B (one for facility).
2. Form C (one per source). Make sure to include in source description if boiler is [firetube or watertube boiler](#).
3. If combustion products exhaust into add-on abatement device, Form A (one per device).
4. If Health Risk Assessment is triggered, Form HRA (one per source).
5. Fees, calculated per Regulation 3 (Schedule B).

Emission Calculations

The ideal hydrocarbon products of combustion in which a fossil fuel is burned are water vapor and carbon dioxide. All other products are considered pollutants, consisting mainly of NO_x (Nitrogen Oxides), CO (Carbon Monoxide), POC (Precursor Organic Compounds in the form of unburned hydrocarbons), SO_x (Sulfur Dioxide), and PM₁₀ (Particulate Matter).

Emission factors of criteria pollutants from external combustion of common fuels can be found in [AP-42 \(Fifth Edition, Volume I\)](#):

Fuel Oil	Chapter 1.3, Fuel Oil Combustion
Natural Gas	Chapter 1.4, Natural Gas Combustion
LPG	Chapter 1.5, Liquefied Petroleum Gas Combustion

Per [Policy: Emission Factors for Toxic Air Contaminants from Miscellaneous Natural Gas Combustion Sources](#), when site specific or source category specific emission factors are not available, the following emission factors shall be used to calculate TAC emissions from miscellaneous natural gas combustion sources:

TAC Emission Factors for Miscellaneous Natural Gas Combustion		
TAC	Emission Factor (lb/MSCF)*	Emission Factor (lbs/therms)*
Benzene	2.1E-6	2.06E-7
Formaldehyde	7.5E-5	7.35E-6
Toluene	3.4E-6	3.33E-7

* based on 1020 BTU/SCF

Other fuels may use source test data from comparable equipment of similar design and configuration to estimate emissions. However, the permit conditions for these alternative fuel combustion sources should include start-up source testing requirements to validate the emission factors used.

In general, a new combustion source with a firing rate of 10 million BTU/hr or more will trigger BACT requirements. As a result, the BACT emission limits or the manufacturer's guaranteed NO_x and CO emission rates, if they are lower than the BACT emission limits, should be used to calculate emissions. The permit conditions for these sources should include start-up source testing requirements to validate the emission factors used. The BACT emission limits for CO, NO_x, and POC in flue gases are usually specified in parts per million (ppm) by volume corrected to 3% oxygen. Since the measurements are not always made under the same operating conditions, the measurements are often corrected to a standard operating point of 3% excess oxygen for comparison to the BACT and regulatory limits. The equation for making this correction is:

$$\text{ppm (3\%)} = \text{ppm}_{\text{measured}} * [(21-3)/(21-\%O_2 \text{ measured})]$$

To convert "ppm" to "lb/MMBTU":

$$\text{lb/MMBTU} = \text{ppm}_{\text{measured}} * [(21-0)/(21-\%O_2 \text{ measured})] * (\text{MW}) * F_d / V_M$$

where:

V_M = molar volume = 359 dscf/mole = 385.3 scf/mole (corrected to 68°F from 32°F)

MW = molecular weight of pollutant (i.e., 46.01 lb NO₂/mole or 28.0 lb CO/mole)

F_d = 8,710 dscf/MMBTU

This conversion may be done using the EPA "F_d" factor from 40 CFR Part 60 test methods, for example [Method 19](#), Table 19-1-F. "F_d" is the ratio of the volume of dry flue gas to the heat value of the fuel used to produce the flue gas. F_d for natural gas is 8,710 dscf/MM BTU (from Method 19). The conversion assumes that the flue gas is ideal (since flue gas molar volume is assumed to be 359 cf/lbmole), which is a valid assumption because of the relatively high temperature and low pressure of the flue gas. The conversion

includes a correction of the pollutant concentrations from the percent of oxygen (O₂) measured to 0% O₂ (in accordance with Air District procedure ST-13A) since the flue gas volume assumes stoichiometric combustion (zero excess air and O₂). Additional F_d factors can be obtained from Table 19-2 of [Method 19](#).

Applicable Requirements

Air District Rules and Regulations

Boilers, steam generators, and process heaters with a rated heat input of 2 million BTU/hr or greater, if fired exclusively with natural gas or liquified petroleum gas, or 1 million BTU/hr or greater, if fired with any other fuel, are subject to the requirements of [Regulation 9-7](#), unless they are used in a petroleum refinery (then subject to [Regulation 9-10](#)) or public electric utilities. If a boiler, steam generator, or process heater has a maximum firing rate 250 MMBTU/hr and above, then it may also be subject to [Regulation 9-3](#) and/or [Regulation 9-11](#). The permit evaluator should review the proposed boiler application to determine which Air District rule(s) applies and that the proposed boiler complies with the applicable rule.

New Source Performance Standards (NSPS)

The [NSPS](#) for industrial-commercial-institutional steam generating units are outlined in the Code of Federal Regulations (CFR) under 40 CFR Part 60 Subparts [Db](#) and [Dc](#). [Subpart Db](#) covers industrial-commercial-institutional steam generating units with heat inputs greater than 100 MMBtu/h of that commenced constructed after September 18, 1978. [Subpart Dc](#) covers smaller industrial-commercial-institutional steam generating units that commenced constructed after June 9, 1989. The key pollutants the EPA regulates from these sources includes particulate matter (PM), nitrogen oxides (NO_x), and sulfur dioxide (SO₂). The permit evaluator should review the proposed boiler application to ensure that the proposed boiler is either exempt from the NSPS or complies with the NSPS.

Best Available Control Technology (BACT)

BACT for Boilers, Steam Generators, and Process Heaters firing commonly used fuels is specified in Section 2: Combustion Sources of the [BACT/TBACT Workbook](#). The [BACT/TBACT Workbook](#) references specific requirements for firetube and watertube boilers. A fire-tube boiler is a type of boiler in which hot gases pass from a fire through one or more tubes running through a sealed container of water to produce steam, while a water-tube boiler instead sends water through a series of tubes surrounded by combustion gases to produce steam. Firetube boilers are easy to clean and repair because maintenance can be performed from outside of the unit rather than inside. The main drawback of firetube boilers are that they tend to have smaller capacities. Water-tube boilers are generally a more complex design and require higher maintenance costs. Water-tube boilers are used in large power plants. Boilers, Commercial, Industrial, Institutional

- [Boiler, Rental: On-site < 6 consecutive months](#)
- [Boiler: 5 to <33.5 MMBtu/hr](#)
- [Boiler: ≥33.5 to <50 MMBtu/hr](#)
- [Boiler: ≥50 MMBtu/hr](#)
- [Boiler, CO - Refinery](#)
- [Boiler or Water Heater - Landfill or Digester Gas Fired](#)
- [Boiler - Municipal Refuse Fired](#)
- [Boiler - Wood Fired](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for boilers are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

2.3.1 STATIONARY DIESEL ENGINES

December 15, 2023

Process Description

Stationary diesel engines are internal combustion (IC) engines used in generators, pumps, and material handling equipment (such as tub grinders). Additional background information is available from Chapters [3.3 Gasoline and Diesel Industrial Engines](#) and [3.4 Large Stationary Diesel and All Stationary Dual-fuel Engines](#) of [AP-42 \(Fifth Edition, Volume I\)](#). This chapter shall cover exempt, loss of exemption, emergency, and prime stationary diesel engines. Portable diesel engines are covered in Permit Handbook [Chapter 2.3.3](#).

Exempt Engines – The following engines are exempt from Air District permitting requirements ([Regulation 2-1-301 and 2-1-302](#)):

1. IC engines which are less than or equal to 50 HP (exempt per Regulation 2-1-114.2.1); and
2. IC engines used for instructional purposes at research, teaching, or educational facilities (exempt per Regulation 2-1-114.2.3).

Loss of Exemption (LOE) Engines – On May 17, 2000, the general IC engine permit exemption was lowered from 250 to 50 HP. In addition, the exemption for portable and standby IC engines, and standby gas turbines was amended to allow equipment to operate for no more than 200 hours in any calendar year (plus 100 hours per calendar year for maintenance and testing) without triggering permit requirements. Subsequently, that permit exemption for portable and standby IC engines, and standby gas turbines was deleted on September 1, 2001. As a result, the following engines are considered LOE engines:

1. IC engine less than 250 HP installed prior to May 17, 2000 (LOE – Regulation 2-1-113.2.8);
2. Portable or standby IC engine installed prior to May 17, 2000, which was used on a temporary basis of no more than 30 days per calendar year at any one facility or used for the emergency pumping of water (LOE – Regulation 2-1-113.10); and
3. Portable or standby IC engine installed prior to September 1, 2001, which was used for no more than 200 hours in any calendar year (plus 100 hours per calendar year for maintenance and testing) and not subject to permits per Regulation 2-1-319 (LOE – Regulation 2-1-114.2.3)

Engines installed between May 17, 2000 and September 1, 2001 were subject to the existing Regulation 2-1-316 - New or Modified Sources of Toxic Air Contaminants or Hazardous Air Pollutants which required that - notwithstanding any exemption contained in Section 2-1-103 or Section 114 through 128, any new or modified source required permits if it emitted one or more toxic air contaminants in quantities that exceed the limits listed in Table 2-1-316, unless the owner or operator of the source could demonstrate that the source would pass a health risk assessment analysis, as defined in Section 2-1-225, performed according to the current Health Risk Assessment Procedure. Therefore, in order to obtain an exemption (and thus qualify as a LOE) during this period, sources were required to pass a Health Risk Assessment. Subsequently, the Table 2-1-316 was moved to [Regulation 2-5](#) and became Table 2-5-1

Completeness Determination

The following Air District forms should be completed and fees provided for stationary diesel engines. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

- | | |
|--|---|
| 1. Form 101-B (one for facility). | exists, then load adjusted data from D2 testing. |
| 2. Form ICE (1 per engine). | |
| 3. Manufacturer specification data including: fuel consumption, rated horsepower output, emission rates for NOx, CO, hydrocarbons (VOC) and particulate. | 5. For engines installed after May 17, 2000, Form HRA (one per source). |
| 4. CARB-certified emission data or if no CARB-certified data, then EPA-certified emission data . If no such certified data | 6. Fees, calculated per Regulation 3 (Schedule B). If engine is a LOE engine, then the fees shall be calculated according to the Procedure: Permitting Loss of Exemption Engines for LOE engines. |

Emission Calculations

The primary pollutants from IC engines are oxides of nitrogen (NO_x), hydrocarbon and other organic compounds (POC), carbon monoxide (CO), sulfur dioxide (SO₂), and particulate (PM₁₀). In calculating these emissions, emission factor data from CARB, EPA, and/or the manufacturer are used to estimate emissions for NO_x, CO, POC, and PM₁₀/PM_{2.5}. If NO_x and POC (hydrocarbon) have a combined emission factor, Air District [Policy: CARB Emission Factors for Diesel Engines – Percent HC in Relation to NMHC + NO_x](#) is to estimate that 5% of the NMHC+NO_x emission factor as the POC emission factor when the CARB HC emission factor isn't available independently. The SO₂ emission factor is 0.001515 lb/MMBTU from [EPA AP-42, Table 3.4-1](#), which is based on full conversion of fuel sulfur to SO₂ and which will therefore be considered applicable to any diesel engine (sulfur content will be assumed to be the California limit of 0.0015 wt% sulfur). Although there is a different SO₂ emission factor indicated for engines under 600 HP from [EPA AP-42, Table 3.3-1](#), it's been determined that this emission factor is not representative because it does not take sulfur content into consideration. PM₁₀/PM_{2.5} certified level no greater than 0.1 g/bhp-hr means an emission level of 0.15 g/bhp-hr or less as determined during a steady-state engine certification test (ISO 8178).

Fire Pumps & Other Engines with No Emission Factor Data – Because of the special requirements of fire pumps, the engines on fire pumps are rarely CARB- or EPA- certified. In addition, the manufacturer rarely has emission factor data on these fire-pump modified engines. As a result, if no data exist, then emission factor data from [EPA AP-42, Table 3.4-1](#), should be used.

The emission factors, which are typically in grams per brake-horsepower-hour (g/bhp-hr), are multiplied by the maximum annual hours of operations and the brake horsepower of the engine to determine the annual rates of emissions of the various criteria pollutants. Note that unless CARB or EPA certified emission factor data is used, the permit evaluator shall require source testing for any engine over 250 HP to verify the manufacturer's emission factors, per Air District [Policy: When to Require Source Testing For Stationary Diesel Engines to Demonstrate Compliance With The Stationary CI Engine ATCM](#).

LOE Engines – In general, emission data on [LOE engines](#) often does not exist, because the engines predated existing emission standards. Because there is no cumulative increase associated with a LOE sources, per [Regulation 2-2-208](#), emission calculations are not required for a LOE diesel engine.

Applicable Requirements

Air District Rules and Regulations

All stationary diesel engines are subject to the Ringelmann No. 2 limitations of [Regulation 6-1-303 \(emissions opacity limitations\)](#). Properly operated and maintained engines are expected to meet this requirement. All stationary diesel engines are also subject to the SO₂ limitations of [Regulation 9-1-301 \(ground level concentration\)](#) and [9-1-304 \(0.5% by weight in fuel\)](#). Compliance with both [Regulations 9-1-301 and 9-1-304](#) is likely since California law mandates using diesel fuel with a 0.05% by weight sulfur. Any stationary diesel engine which operates exclusively using diesel fuel is not be subject to the requirements of [Regulations 9-8-301, 9-8-302, and 9-8-502 per Regulation 9, Rule 8, Section 110.2](#). However, emergency standby engines are subject to the requirements of Regulation 9-8-330, while those emergency engines for essential public use, as defined in [Regulation 9-8-233](#), are subject to [Regulation 9-8-331](#). Regardless of the operating hours allowed in [Regulation 9-8-330 or 9-8-331](#), the permit evaluator cannot approve engine-operating hours in excess of what would fail a Health Risk Assessment or any operating limitation specified in the [Airborne Toxic Control Measure for Stationary Compression Ignition Engines \(ATCM\)](#).

ATCM

In implementing the [ATCM](#), the Air District developed permit conditions (see [Permit Condition Guidance](#)) that applies to new engines effective January 1, 2005. New engines are those engines installed at a facility after January 1, 2005; section (d)(44) of the [ATCM](#) (page 10) provides the full definition. The permit evaluator cannot approve engine-operating hours in excess of what would fail a Health Risk Assessment or any operating limitation specified in the [ATCM](#).

New Emergency Use Engines: Per Table 1 of the [ATCM](#) (page 17), if the PM emission rate is CARB-certified to be less than 0.15 g/bhp-hr, then a maximum of 50 hours is allowed for new engine reliability

related activities. If the PM emission rate is CARB-certified to be less than 0.01 g/bhp-hr, then a maximum of 100 hours is allowed for new engine reliability-related activities. Source testing may be required to demonstrate compliance with the [ATCM](#), per Air District [Policy: When to Require Source Testing For Stationary Diesel Engines to Demonstrate Compliance With The Stationary CI Engine ATCM](#); the policy clarifies how to demonstrate the 0.01 g/bhp-hr standard.

In addition, if the engine is located within 500 feet of any school, there are further restrictions on use at and nearby school by Subsection (e)(2)(A)1. To incorporate these requirements of the [ATCM](#), permit conditions have been developed for new stationary engines (see Permit Condition section). Permits for new stationary emergency standby diesel engines should include these permit conditions, unless they are exempt per Section (c) of the [ATCM](#).

“In-Use” Emergency Engines: This category includes [LOE engines](#). Per Table 2 of the [ATCM](#) (page 21), if the PM emission rate is CARB-certified to be less than 0.01 g/bhp-hr, then a maximum of 100 hours is allowed for “in-use” engine reliability related activities. Source testing may be required to demonstrate compliance with the [ATCM](#), per Air District [Policy: When to Require Source Testing For Stationary Diesel Engines to Demonstrate Compliance With The Stationary CI Engine ATCM](#); the policy clarifies how to demonstrate the 0.01 g/bhp-hr standard. However, if the PM emission rate is unknown, then only 20 hours is allowed for “in-use” engine reliability related activities. If the PM10 emission rate is CARB-certified to be between 0.01 and 0.4 g/bhp-hr, then the hours allowed are specified by the schedule in Table 2 of the [ATCM](#) (page 21). In addition, if the engine is located within 500 feet of any school, there are further restrictions on use at and nearby school by Subsection (e)(3)(B)2 of the [ATCM](#).

New Prime Use Engines: The permit evaluator shall review the necessary emission test results and other documentation to determine compliance with the 0.01 g/bhp-hr PM emission limit of the [ATCM](#) prior to permit issuance. Source testing may be required to demonstrate compliance with the [ATCM](#), per Air District [Policy: When to Require Source Testing For Stationary Diesel Engines to Demonstrate Compliance With The Stationary CI Engine ATCM](#); the policy clarifies how to demonstrate the 0.01 g/bhp-hr standard. The [ATCM](#) PM emission limit, and the records to document compliance with this limit, are not needed as permit conditions. Note that the hours of operation may need to be limited to pass the Health Risk Assessment.

“In-Use” Prime Use Engines: According to the [ATCM](#) requirements for prime use engines (pages 25 and 26), must meet the emission standards indicated in Table 4 of the [ATCM](#) (page 25). The permit evaluator shall review the application information for compliance with the emission standards. Source testing may be required to demonstrate compliance with the [ATCM](#), per Air District [Policy: When to Require Source Testing For Stationary Diesel Engines to Demonstrate Compliance With The Stationary CI Engine ATCM](#).

BACT

Unless they are [LOE engines](#), BACT for stationary diesel engines is specified in the [BACT/TBACT Workbook](#). The following are the applicable BACT requirements for diesel engines:

Internal Combustion Engines

- [I. C. Engine - Compression Ignition, Prime > 50 hp](#)
- [I. C. Engine - Compression Ignition, Emergency > 50 hp and <1000 hp](#)
- [I. C. Engine – Compression Ignition, Emergency >= 1000 hp](#)

Unless they are [LOE engines](#), for non-emergency diesel engines (i.e., prime use engine), a diesel engine will be permitted only if a gas-fueled engine, or electric motor, is not practical (e.g., a remote location without natural gas availability or electric power, or only a diesel engine will meet the portability and/or power/torque/rpm requirements of the application under review, or the engine is used exclusively for emergency use during involuntary loss of power). The permit evaluator must ensure that the applicant explains why gas fueled engines are not practical for any non-emergency diesel engine under evaluation.

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

[LOE Engines](#) – BACT review requirements are not triggered for [LOE engines](#), because they are not considered new or modified sources.

CEQA

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

Health Risk Analysis

Unless they are [LOE engines](#), typically any stationary diesel engine over 50 hp will require a health risk assessment because the toxics trigger level for diesel particulate is low (0.26 lbs/yr). [Regulation 2-5-301](#) (New Source Review of Toxic Air Contaminants) TBACT standards generally applies. A permit applicant may apply alternative and/or additional emissions control (e.g., catalyst-based diesel particulate filters (DPFs), diesel oxidation catalysts, ultra-low sulfur diesel fuel) or other risk reduction measures (e.g., increasing stack height within what is considered Good Engineering Practice, maximizing source/receptor separation distances, modifying operating hours to minimize public exposure) as necessary to reduce risks to acceptable levels specified in the [Regulation 2-5-302](#). All engines not equipped with a DPF must be "plumbed" to facilitate the installation of a DPF at a future date.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

[LOE Engines](#) – Offsets, PSD, and school notification requirements are not triggered for LOE engines, because they are not considered new or modified sources.

Permit Conditions

Standardized conditions for stationary diesel engines are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

2.3.2 STATIONARY NATURAL GAS ENGINES

December 15, 2023

Process Description

Stationary natural gas engines are generally reciprocating engines used in the natural gas industry at pipeline compressor and storage stations and at gas processing plants. However, recently, they have also been used as prime or emergency standby sources of power. Additional background information is available from Chapters [3.2 Natural Gas-fired Reciprocating Engines](#) of [AP-42 \(Fifth Edition, Volume I\)](#).

Exempt Engines – The following engines are exempt from Air District permitting requirements ([Regulation 2-1-301 and 2-1-302](#)):

3. IC engines which are less than or equal to 50 HP (exempt per Regulation 2-1-114.2.1);
4. IC engines used for instructional purposes at research, teaching, or educational facilities (exempt per Regulation 2-1-114.2.2);
5. portable IC engines which are at a location for less than 72 consecutive hours (exempt per Regulation 2-1-114.2.3);
6. any engine mounted on, within, or incorporated into any vehicle, train, ship, boat, or barge used to provide propulsion for the vehicle, train, ship or barge (exempt per Regulation 2-1-114.2.4); and
7. any engine mounted on, within, or incorporated into any vehicle, train, ship, boat, or barrage, used to provide propulsion for any vehicle, train, ship or barge, and which is also used to supply mechanical or electrical power to ancillary equipment, which is affixed to or is a part of the vehicle, train, ship, boat, or barge (exempt per Regulation 2-1-114.2.5)

Completeness Determination

The following Air District forms should be completed and fees provided for stationary natural gas engines. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

- | | |
|--|--|
| 1. Form 101-B (one for facility). | of abatement device abatement efficiency |
| 2. Form ICE (1 per engine). | for pollutants abated. |
| 3. Manufacturer specification data including:
fuel consumption, rated horsepower output,
emission rates for NO _x , CO, hydrocarbons
(VOC) and particulate. | 5. If Health Risk Assessment is triggered,
Form HRA (one per source). |
| 4. If abated, manufacturer's specification data | 6. Fees, calculated per Regulation 3 (Schedule
B) |

Emission Calculations

The primary pollutants from natural gas engines are the products of combustion, including oxides of nitrogen (NO_x), hydrocarbon and other organic compounds (POC), carbon monoxide (CO), sulfur dioxide (SO₂), and particulate (PM₁₀). In calculating these emissions, emission factor data from the manufacturer may be used to estimate emissions for NO_x, CO and POC. Particulate matter (PM₁₀/PM_{2.5}) and sulfur dioxide (SO₂) emission factors are based on AP 42, Fifth Edition, Volume I, [Chapter 3: Stationary Internal Combustion Sources, Section 3.2.4.1 Control Techniques for 4-Cycle Rich-Burn Engines and Table 3.2-3 Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines](#).¹ The PM₁₀/PM_{2.5} emission factor is the total of filterable and condensable particulates. Abatement efficiencies for NO_x and CO were obtained from the abatement device manufacturer. It is assumed that the abatement efficiency for POC is 50% by weight.

If the engine operates for essential public service, it will be limited to a maximum of 100 hours per year for maintenance and testing. If the engine will operate for prime service, then the engine operation should

¹ SO₂ Emission Factor = 5.88 E-04 lb/MMBtu; calculations assume 100% of fuel sulfur conversion with the content in natural gas = 2000 gr/10⁶scf. PM₁₀/PM_{2.5} fuel input emission factor = 9.50E-03 lb/MMBtu (filterable) + 9.91E-03 lb/MMBtu (condensable) = 1.94E-02 lb/MMBtu; aerodynamic particle diameter ≤ 1 μm, for the purposes of filterable emissions PM₁₀=PM_{2.5}. These emissions are expected to be negligible but included for completeness.

conservatively be estimated with the maximum number of hours per year (24 hour per day, 365 days per year).

The following are an example emissions calculation for an essential emergency 103 BHP engine with a POC emission factor of 0.26 g/bhp-hr which is abated with Non-Selective Catalytic Reduction:

$$0.26 \frac{g}{bhp-hr} \times 103 bhp \times 100 \frac{hrs}{year} \times \frac{1}{454} \frac{lb}{g} = 5.9 \frac{lb}{year} \text{ (unabated)}$$

$$5.9 \frac{lb}{year} \times (1 - 50\%) = 2.95 \frac{lb}{year} \text{ (abated)}$$

In addition, emission factors for criteria and toxic pollutants can be found in [EPA AP-42, Chapter 3.2 Natural Gas-fired Reciprocating Engines](#) and the [California Air Toxics Emission Factors \(CATEF\) database](#) (Internal Combustion Engines; Natural Gas). The permit evaluator may choose the most representative emission factors to calculate emissions. For toxic emissions, emissions factors from CATEF are generally preferred over those found in AP-42. If the AP-42 emission factor is based on the detection limit, the emission factor will equal 1/2 of the AP-42 emission factor. The emission factors should reflect any add-on abatement by reducing the emission factor by the abatement efficiency of the add-on device.

The following is a summary of the toxic emission factors from the California Air Toxics Emission Factors (CATEF) and the Compilation of Air Pollutant Emissions Factor: AP-42:

Toxic Air Contaminant for Engine

Compound	Emission Factor (lb/MMBtu)	Basis
1,1,2,2-Tetrachloroethane	2.53E-05	AP-42
1,1,2-Trichloroethane	7.65E-06	AP-42
1,1-Dichloroethane	5.65E-06	AP-42
1,3-Butadiene	1.02E-04	CATEF
Acetaldehyde	8.66E-04	CATEF
Acrolein	5.36E-04	CATEF
Benzene (no control)	1.87E-03	CATEF
Carbon Tetrachloride	8.85E-06	AP-42
Chlorobenzene	6.45E-06	AP-42
Chloroform	6.85E-06	AP-42
Ethylbenzene	1.14E-05	CATEF
Ethylene Dibromide	1.07E-05	AP-42
Formaldehyde (no control)	2.30E-03	CATEF
Methanol	3.06E-03	AP-42
Methylene Chloride	4.12E-05	AP-42
Naphthalene	7.50E-05	CATEF
PAH	2.12E-07	CATEF
Propylene	1.57E-02	CATEF
Styrene	5.95E-06	AP-42
Toluene	1.05E-03	CATEF
Vinyl Chloride	3.59E-06	AP-42

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Compound	Emission Factor (lb/MMBtu)	Basis
Xylene (total)	6.45E-04	CATEF

The following are an example emissions calculation for benzene for the essential emergency 103 BHP engine (975 scf/hr fuel consumption rate) with Non-Selective Catalytic Reduction:

$$975 \frac{\text{scf}}{\text{hr}} \times 1020 \frac{\text{BTU}}{\text{scf}} \times \frac{1}{1E6} \frac{\text{MMBTU}}{\text{BTU}} \times 1.87E-03 \frac{\text{lb}}{\text{MMBTU}} = 1.86E-03 \frac{\text{lb}}{\text{hour}} \text{ (unabated)}$$

$$1.86E-03 \frac{\text{lb}}{\text{hour}} \times 100 \frac{\text{hrs}}{\text{year}} = 0.186 \frac{\text{lb}}{\text{year}} \text{ (unabated)}$$

Applicable Requirements

Air District Rules and Regulations

Stationary natural gas engines are subject to the Ringelmann No. 1 limitations of [Regulation 6-1-301](#) (emissions opacity limitations) and [Regulation 9-1-301](#) (Inorganic Gaseous Pollutants: Sulfur Dioxide for Limitations on Ground Level Concentrations). From Regulation 9-1-301, the ground level concentrations of SO₂ will not exceed 0.5 ppm continuously for 3 consecutive minutes or 0.25 ppm averaged over 60 consecutive minutes, or 0.05 ppm averaged over 24 hours. Properly operated and maintained engines are expected to meet this requirement. In addition, natural gas engines are subject to the emission requirements of [Regulations 9-8-301](#).

New Source Performance Standards NSPS)

The New Source Performance Standard (NSPS) in [40 CFR 60, Subpart JJJJ](#) apply if the engine will be installed after January 1, 2011. The permit evaluator should verify that the engine will comply with the following limits in Table 1 for emergency spark-ignited engines less than 130 hp:

Pollutant	Emission Factor	NSPS Standard
NO _x	0.15 g/bhp-hr	10.0 g/bhp-hr
CO	0.90 g/bhp-hr	387.0 g/bhp-hr

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The engine will be subject to the Reciprocating Internal Combustion Engine (RICE) National Emission Standards for Hazardous Air Pollutants (NESHAP) ([40 CFR Part 63, Subpart ZZZZ](#)) if it is a new source and installed after 2007. A new RICE at an area source that is subject to [40 CFR Part 60, Subpart JJJJ](#), has no further requirements under [40 CFR Part 63, Subpart ZZZZ pursuant to 40 CFR Part 63.6590\(c\)](#). Therefore, the engine should comply with the NESHAP by meeting the requirements [under 40 CFR Part 60, Subpart JJJJ](#).

BACT

BACT for stationary natural gas engines is specified in the [BACT/TBACT Workbook](#). The following are the applicable BACT requirements for natural gas engines:

- [I. C. Engine - Spark Ignition, Natural Gas Fired Rich Burn Engine](#)
- [I. C. Engine - Spark Ignition, Natural Gas Fired Lean Burn Engine](#)
- [I. C. Engine - Spark Ignition, Natural Gas Fired Emergency Engine](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

CEQA

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

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In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- ☐ [Offsets](#)
- ☐ [Prevention of Significant Deterioration](#)
- ☐ [School Notification](#)
- ☐ [Health Risk Assessment](#)
- ☐ [Overburdened Communities](#)

Permit Conditions

Standardized conditions for stationary natural gas engines are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

2.3.3 PORTABLE DIESEL ENGINES

December 15, 2023

Process Description

Portable diesel engines are internal combustion (IC) engines used in generators, pumps, and material handling equipment (such as tub grinders) that will meet the criteria of portable as defined in Regulation 2-1-413; such as to remain at any single location (facility boundaries) for less than twelve consecutive months, not be within 1000 feet of a school, will comply with [Regulation 2-5](#), and will not cause a public nuisance. This chapter shall cover exempt, loss of exemption, emergency, and prime portable diesel engines. Stationary diesel engines are covered in Permit Handbook [Chapter 2.3.1](#).

These engines are considered to be non-road engines defined by 40 CFR 89.2 as follows:

Nonroad engine means:

- (1) Except as discussed in paragraph (2) of this definition, a nonroad engine is any internal combustion engine:
 - (i) In or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers); or
 - (ii) In or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers); or
 - (iii) That, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform.
- (2) An internal combustion engine is not a nonroad engine if:
 - (i) the engine is used to propel a motor vehicle or a vehicle used solely for competition, or is subject to standards promulgated under section 202 of the Act; or
 - (ii) the engine is regulated by a federal New Source Performance Standard promulgated under section 111 of the Act; or
 - (iii) the engine otherwise included in paragraph (1)(iii) of this definition remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. Any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e., at least two years) and that operates at that single location approximately three months (or more) each year. This paragraph does not apply to an engine after the engine is removed from the location

Non-road engines are not subject to Air District regulations that contain emission limits per Federal Clean Air Act Section 209(e). The exception is standards and other requirements imposed by the State of California necessary to achieve attainment of air pollution standards. The portable engine ATCM and PERP regulations are examples of these standards. Therefore, BACT, TBACT, and Regulations 6 and 9 cannot be imposed.

However, 40 CFR 89, Appendix A to Subpart A, does acknowledge that states can regulate the use and operation of non-road engines, and limit hours of operation and mass emissions. Therefore, limitations on hours of operation and location based on risk can be imposed.

The limitations in [Regulation 2-1-413](#), Permits for Operation of Equipment at Multiple Locations Within the Air District, can also be imposed if the source does not remain at one facility, and the owner/operator wishes to obtain a portable (multi-location) permit.

The following Air District policy should be reviewed as part of the evaluation for the portable engine: Applicable Requirements for Portable Engines, dated 5/8/20.

Each evaluation for a non-road engine should have the following boilerplate language in the background of the evaluation:

Portable engines are non-road engines as defined by 40 CFR 89.2. Section 209(e) of the Federal Clean Air Act and Appendix A to Subpart A of 40 CFR 89 do not allow states “or political subdivisions” to impose emission control on non-road engines. The exception is standards and other requirements imposed by the State of California necessary to achieve attainment of air pollution standards. The regulatory analysis for this application will take this into account.

Exempt Engines – The following engines are exempt from Air District permitting requirements ([Regulation 2-1-301 and 2-1-302](#)):

8. IC engines which are less than or equal to 50 HP (exempt per Regulation 2-1-114.2.1);
9. IC engines used for instructional purposes at research, teaching, or educational facilities (exempt per Regulation 2-1-114.2.2);
10. portable IC engines which are at a location for less than 72 consecutive hours (exempt per Regulation 2-1-114.2.3);
11. any engine mounted on, within, or incorporated into any vehicle, train, ship, boat, or barge used to provide propulsion for the vehicle, train, ship or barge (exempt per Regulation 2-1-114.2.4); and
12. any engine mounted on, within, or incorporated into any vehicle, train, ship, boat, or barge, used to provide propulsion for any vehicle, train, ship or barge, and which is also used to supply mechanical or electrical power to ancillary equipment, which is affixed to or is a part of the vehicle, train, ship, boat, or barge (exempt per Regulation 2-1-114.2.5)

Loss of Exemption (LOE) Engines – On May 17, 2000, the general IC engine permit exemption was lowered from 250 to 50 HP. In addition, the exemption for portable and standby IC engines, and standby gas turbines was amended to allow equipment to operate for no more than 200 hours in any calendar year (plus 100 hours per calendar year for maintenance and testing) without triggering permit requirements. Subsequently, that permit exemption for portable and standby IC engines, and standby gas turbines was deleted on September 1, 2001. As a result, the following engines are considered LOE engines:

4. IC engine less than 250 HP installed prior to May 17, 2000 (LOE – Regulation 2-1-113.2.8);
5. Portable or standby IC engine installed prior to May 17, 2000 which was used on a temporary basis of no more than 30 days per calendar year at any one facility or used for the emergency pumping of water (LOE – Regulation 2-1-113.10); and
6. Portable or standby IC engine installed prior to September 1, 2001 which was used for no more than 200 hours in any calendar year (plus 100 hours per calendar year for maintenance and testing) and not subject to permits per Regulation 2-1-319 (LOE – Regulation 2-1-114.2.3)

Completeness Determination

The following Air District forms should be completed and fees provided for portable diesel engines. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form 101-B (one for owner/operator). For facility address, indicate the physical address where the equipment will be operated initially, or the mailing address, if it is within the Bay Area counties that the Air District covers.
2. Form ICE (1 per engine).
3. Manufacturer specification data including: fuel consumption, rated horsepower output, emission rates for NOx, CO, hydrocarbons (VOC) and particulate.
4. [CARB-certified emission data](#) or if no CARB-certified data, then [EPA-certified emission data](#). If no such certified data exists, then load adjusted data from D2 testing.
5. For engines installed after May 17, 2000, Form HRA (one per source).
6. Fees, calculated per Regulation 3 (Schedule B). If engine is a LOE engine, then the fees shall be calculated according to the [Procedure: Permitting Loss of Exemption Engines](#) for LOE engines.

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Emission Calculations

The primary pollutants from IC engines are oxides of nitrogen (NO_x), hydrocarbon and other organic compounds (POC), carbon monoxide (CO), sulfur dioxide (SO₂), and particulate (PM₁₀). In calculating these emissions, emission factor data from CARB, EPA, and/or the manufacturer are used to estimate emissions for NO_x, CO, POC, and PM₁₀. If NO_x and POC (hydrocarbon) have a combined emission factor, Air District [Policy: CARB Emission Factors for Diesel Engines - Percent HC in Relation to NMHC + NO_x](#) is to estimate that 5% of the NMHC+NO_x emission factor as the POC emission factor when the CARB HC emission factor isn't available independently. The SO₂ emission factor (0.05 lb/MMBTU) is from [EPA AP-42, Table 3.4-1](#), which is based on full conversion of fuel sulfur to SO₂ and which will therefore be considered applicable to any diesel engine (sulfur content will be assumed to be the California limit of 0.05 wt% sulfur). PM₁₀ certified level no greater than 0.1 g/bhp-hr means an emission level of 0.15 g/bhp-hr or less as determined during a steady-state engine certification test (ISO 8178).

Fire Pumps & Other Engines with No Emission Factor Data– Because of the special requirements of fire pumps, the engines on fire pumps are rarely CARB- or EPA- certified. In addition, the manufacturer rarely has emission factor data on these fire-pump modified engines. As a result, if no data exist, then emission factor data from [EPA AP-42, Table 3.4-1](#), should be used.

The emission factors, which are typically in grams per brake-horsepower-hour (g/bhp-hr), are multiplied by the maximum annual hours of operations and the brake horsepower of the engine to determine the annual rates of emissions of the various criteria pollutants. Note that unless CARB or EPA certified emission factor data is used, the permit evaluator shall require source testing for any engine over 250 HP to verify the manufacturer's emission factors.

LOE Engines – In general, emission data on [LOE engines](#) often does not exist, because the engines predated existing emission standards. Because there is no cumulative increase associated with a LOE sources, per Regulation 2-2-208, emission calculations are not required for a LOE diesel engine.

Applicable Requirements

Air District Rules and Regulations

Portable diesel engines are not subject to:

- BACT
- TBACT
- Regulation 6, Rule 1
- Regulation 9, Rule 1
- Regulation 9, Rule 8

Non-road engines are subject to Regulation 2-2-302 and 2-2-303, and therefore are subject to offsets if the facility is at an offset threshold.

Non-road engines can be subjected to hours of operation limits based on risk in accordance with [Regulation 2, Rule 5](#), but are not subject to TBACT.

Non-road engines are not subject to Major Facility Review per Section 2-6-114 and are not included in Title V permits.

ATCM

Portable diesel engines are not subject to the new California Airborne Toxic Control Measure for Stationary Compression Ignition Engines (ATCM) that went into effect on January 1, 2005, as long as they meets the definition of a “portable CI Engine” of ATCM section 93115, title 17, CA Code of Regulations, subsection (d)(50) [i.e., capable of being carried or moved from one location to another and not at the same location for more than 12 consecutive months]. Portable diesel engines are exempt from the stationary ATCM per subsection (c)(1). However, portable diesel engines are subject to their own portable [ATCM](#). The portable [ATCM](#) has different standards for “in-use” engines and “low-use” engines.

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“In-Use”

“In-Use” engines are those engines operated under valid permits or registrations as of December 31, 2005. The standard for “in-use” engines becomes effective on January 1, 2010. The Air District is working on developing policy for implementing this newest ATCM standard by 2010.

“Low-Use”

A “low-use” engine is defined as an engine, which is operated for 80 hours or less in a calendar year. “Low-use” engines are subject to Section 93116.1(b)(2)(B), which specifies that engines used exclusively in emergency applications or qualifying as low-use engines are subject to satisfying Section 93116.1(b)(3) of the portable [ATCM](#) by January 1, 2020. The Air District is working on developing policy for implementing this newest ATCM standard by 2020.

“New” (i.e., non-“In-use” and non-“Low-use”)

Those engines that have not been permitted or registered prior to January 1, 2006 and do not qualify as “low-use” are subject to Section 93116.1(b)(2)(A) of the portable [ATCM](#), which requires that they meet the most stringent of the federal or California emission standard for nonroad engines. The EPA has provided a [summary of emission standards](#) that specifies the emission standards for nonroad engines (i.e., Tier level) based on permitting year.

The permitting engineer should identify the applicable [ATCM](#) standards affecting the proposed engine and ensure that the proposed engine will comply with the applicable requirements of the portable [ATCM](#). Template permit conditions are available for each category of portable engine to ensure portable [ATCM](#) compliance.

BACT

Non-road engines are not subject to BACT.

CEQA

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

Health Risk Assessment

Unless they are [LOE engines](#), typically any portable diesel engine over 50 hp will require a health risk assessment because the toxics trigger level for diesel particulate is low (0.26 lbs/yr). For portable diesel engines, a worst-case scenario health risk assessment shall be performed, because it can potentially be moved to any location that is not within 1000 feet of a school. A Facility may get a permit that acknowledges that the engine is portable but does not leave the site. In this case, the worst-case analysis will be made with the assumption that the engine does not leave the site.

A permit applicant may apply alternative and/or additional emissions control (e.g., catalyst-based diesel particulate filters (DPFs), diesel oxidation catalysts, ultra-low sulfur diesel fuel) or other risk reduction measures (e.g., increasing stack height within what is considered Good Engineering Practice, maximizing source/receptor separation distances, modifying operating hours to minimize public exposure) as necessary to reduce risks to acceptable levels. All engines not equipped with a DPF must be “plumbed” to facilitate the installation of a DPF at a future date.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ School Notifications – this requirement is triggered if and when they locate portable equipment within 1000 feet of any school. | ☐ Overburdened Communities |

[LOE Engines](#) – Offsets and school notification requirements are not triggered for [LOE engines](#), because they are not considered new or modified sources.

Permit Conditions

PERMIT HANDBOOK

Standardized conditions for portable diesel engines are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

2.3.4 BIOGAS ENGINES

December 15, 2023

Process Description

Biogas internal combustion engines are generally used in the organic waste recovery industry (i.e. landfills and wastewater treatment) to provide on-site power and/or heat. During the wastewater treatment process, the digesters break down sludge using microorganisms which produce digester gas. Similarly, landfills produce landfill gas when materials stored in the landfill breaks down. The biogas engines may be cogeneration engines used to provide heat to digesters or some other process. The engines use available biogas (i.e., digester or landfill gas), sometimes blended with natural gas (biogas has about half the heat content of natural gas) to generate and meet on-site power requirements. The engines will generally include a gas treatment system to remove hydrogen sulfide (H₂S) and siloxanes from the biogas before combustion in the engines to prevent damage to the engines and the catalyst in the exhaust emissions abatement system and to reduce sulfur dioxide emissions generated by combustion in the engines. If the engines are subject to BACT for NO_x, the engines will be controlled with selective catalytic reduction (SCR). If the engines are subject to BACT for CO or POC, the engines will be controlled with an oxidation catalyst.

Completeness Determination

The following District forms should be completed and fees provided per Schedule B of Regulation 3. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

- | | |
|--|--|
| 1. Form 101-B (one for facility). | devices: SCR, oxidation catalyst, gas conditioning. |
| 2. Form ICE (1 per engine). | |
| 3. Form A (1 per abatement device) | 6. Biogas constituent profile. |
| 4. Manufacturer specification data including fuel consumption, rated horsepower output, emission rates for NO _x , CO, hydrocarbons (VOC) and particulate. | 7. Form HRA (one per source), useful for 9-2 analysis even if source not subject to Regulation 2-5 . |
| 5. Manufacturer specification data for abatement | 8. Fees, calculated per Regulation 3 (Schedule B) |

Emission Calculations

The primary pollutants from natural gas engines are the products of combustion, including oxides of nitrogen (NO_x), hydrocarbon and other organic compounds (POC), carbon monoxide (CO), sulfur dioxide (SO₂), and particulate (PM₁₀). The biogas engines will generally include a gas treatment system to remove hydrogen sulfide (H₂S) and siloxanes from the biogas before combustion in the engines to prevent damage to the engines and the catalyst in the exhaust emissions abatement system and to reduce sulfur dioxide emissions generated by combustion in the engines. In calculating emissions, emission factor data from the manufacturer should be used to estimate emissions for NO_x, CO, POC, SO₂, and PM₁₀. In addition, manufacturer or actual source test data, if available, may be used to estimate emissions of toxic air contaminants.

Emission factors for criteria and toxic pollutants can also be found in [EPA AP-42, Chapter 3.2 Natural Gas-fired Reciprocating Engines](#) and the [California Air Toxics Emission Factors \(CATEF\) database](#) (Internal Combustion Engines; Natural Gas). The permit evaluator may choose the most representative emission factors to calculate emissions. For toxic emissions, emissions factors from CATEF are generally preferred over those found in AP-42. The emission factors should reflect any add-on abatement by reducing the emission factor by the abatement efficiency of the add-on device. The template permit conditions will require source testing of the engine(s) after abatement to verify the emission factors are used.

The toxics in landfill gas are usually well-characterized. Use the analyses submitted by each landfill. An average destruction efficiency for engines for organic TACs in landfill gas is 85%.

The organics in digester gas are about 200 ppm and may not be TACs.

An average destruction efficiency for engines for H₂S in landfill gas and digester gas is 95%.

Formaldehyde is formed in the engines and is the most significant TAC for landfill gas and digester gas engines. The applicant should provide a guarantee on the formaldehyde mass emission rate for HRA review.

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Greenhouse Gas Emissions

GHG emissions are not a regulated New Source Review (NSR) pollutant under [40 CFR 52.21\(b\)\(50\)](#), unless they are emitted from a facility that exceeds the 250 ton per year major PSD threshold for another pollutant besides GHGs. Landfills and waste water treatment facilities are not in one of the 28 PSD source categories.

However, if a landfill is subject to CARB's Landfill Gas Methane rule, the landfill gas engines are also subject. Greenhouse gas emissions should be calculated and recorded in the application.

Applicable Requirements

District Rules and Regulations

Stationary biogas engines are subject to the Ringelmann No. 1 limitations of [Regulation 6-1-301](#), unless the displacement is less than 1500 cubic inches. In this case, the engine is subject to the Ringelmann No. 2 limitation in 6-1-303. Properly operated and maintained engines are expected to meet these requirements. Each stack is also subject to the [Regulation 6-1-310, Section 6-1-310.1](#), particulate weight limitation of 0.15 grains/dscf. Note that the permit evaluator should also review [Regulation 6-1-310.3](#) to determine whether the engine has a Potential to Emit TSP (as defined in [Regulation 2-1-217](#)) greater than 1,000 kg per year. If it does, it must meet the limits specified in [Table 6-1-310.3 \(Exhaust Gas Rate vs. Allowable TSP Concentrations\)](#). The process weight requirements in Section 6-1-311 do not apply, because the definition of process weight in Section 6-1-207 excludes gases and liquids used as fuels. The template permit conditions may require initial source testing at each engine and subsequent periodic testing of the engines. Any testing for Regulation 6, Rule 1, is done by Method 5 and measures total suspended particulate only.

In accordance to [Regulation 9-1-301](#), a person shall not emit from sources, other than ships, SO₂ in quantities which result in ground level concentrations in excess of 0.5 ppm continuously for 3 consecutive minutes or 0.25 ppm averaged over 60 consecutive minutes, or 0.05 ppm averaged over 24 hours. In accordance with [Regulation 9-1-302](#), a person shall not emit from any source, a gas stream containing SO₂ in excess of 300 ppm (dry). The template permit conditions will require annual source testing and quarterly analyses of the fuel sulfur content to ensure compliance with the limits.

[Regulation 9, Rule 2](#) limits ground level concentrations of hydrogen sulfide to 0.06 ppm averaged over three consecutive minutes or 0.03 ppm averaged over any 60 consecutive minutes at the fenceline or beyond. With the biogas gas treatment system prior to combustion in the engines, ambient concentrations of H₂S are expected to be small. Nonetheless, the H₂S emissions from the engine should be estimated and modeled to determine compliance at the fenceline and beyond. Once the maximum concentration has been established, the H₂S emissions should be tested and monitored to assure compliance with Regulation 9-2 as well as [Regulation 2-5](#). This is particularly important for H₂S sources that operate continuously.

Biogas engines are subject to the emission requirements of [Regulations 9-8-302](#). Biogas and blended biogas/natural gas qualifies as a waste-derived fuel per [Regulation 9-8-302](#). In accordance with [Regulation 9-8-302](#), a person shall not operate a spark-ignited stationary internal combustion engine fired on waste derived fuels or any combination of waste and fossil-derived gaseous fuels and liquid fuels unless the following emission limits are met:

- NO_x emissions shall not exceed 70 ppmv as corrected to 15% O₂, dry basis.
- CO emissions shall not exceed 2,000 ppmv as corrected to 15% O₂, dry basis.

Since the biogas engines are prime engines, they are subject to the periodic monitoring in Regulation 9-8-503, which requires the NO_x and CO concentrations to be measured with a portable analyzer on a quarterly basis.

The initial source test and quarterly monitoring required by the template permit conditions will satisfy the requirements of [Regulation 9-8-501 and 9-8-503](#), respectively.

Regulation 8, Rule 34, Solid Waste Disposal Sites

Landfill gas engines are subject to the above rule. The engine requirements are in Sections 8-34-301.4. Engines must reduce the amount of NMOC in the collected gases by at least 98 percent by weight or emit less than 120 ppm by volume of NMOC at the outlet, dry basis, expressed as methane, corrected to 3% oxygen. Section 8-34-412

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requires an annual source test. Sections 8-34-501 requires records. Section 8-34-508 requires gas flow meters for the landfill gas. 8-34-509 requires the monitoring of key system operating parameters.

Acid Rain Regulations, 40 CFR 72 through 78

The potential applicability of the Federal Acid Rain Regulations contained in [40 CFR 72 through 78](#) should be checked for engines that burn natural gas or liquid fossil fuel along with the biogas and that also produce electricity for sale.

If the engine is a cogeneration engine that generates steam and electricity and supplies less than 25 MW output, it is not subject per the definition of utility unit in 40 CFR 72.2. However, if the cogeneration unit produces usable heat, but not steam, it is still a utility unit. However, Section 40 CFR 72.6(b)(4)(ii) exempts cogeneration units, as defined in 40 CFR 72.2, under 219,000 MWe-hrs/yr.

If the unit is not a cogeneration unit, it may have a partial exemption under the procedures in 40 CFR 72.7, New Units Exemption, if the sulfur content of the gaseous fuel is less than 0.05% by weight. Check the applicability in Sections [40 CFR 72.6](#) and [72.7](#).

If the unit is not a cogeneration unit, it may have a partial exemption under the procedures in 40 CFR 72.7, New Units Exemption, if the sulfur content of the gaseous fuel is less than 0.05% by weight. Check the applicability in Sections [40 CFR 72.6](#) and [72.7](#).

New Source Performance Standards (NSPS)

The [40 CFR, Part 60, Subpart JJJJ NSPS](#) for spark-ignition (SI) internal combustion engines (ICE) applies to both engine manufacturers and engine owners. This discussion covers the requirements for owners and operators. Section 60.4230(a)(4) indicates that Subpart JJJJ applies to owners/operators of engines that commence construction after June 12, 2006, on the following schedule:

- July 1, 2007, where the engine power rating is greater than 500 hp except for lean-burn engines between 500 hp and 1,350 hp
- January 1, 2008, for lean-burn engines between 500 hp and 1,350 hp
- July 1, 2008, for engines under 500 hp

In accordance with 40 CFR Part 60.4233(e), SI ICE meeting the above criteria must comply with the emission limits in Table 1 of Subpart JJJJ. For landfill/digester gas fired engines ≥ 500 bhp, the Subpart JJJJ, Table 1 standards below are effective as of 7/1/2010. For landfill/digester gas fired engines > 500 bhp, the Subpart JJJJ, Table 1 standards below are effective as of 1/1/2011.:

Pollutant	NSPS Limits:	
	40 CFR Part 60, Subpart JJJJ, Table 1	
	g/bhp-hr	ppmv at 15% O ₂
NO _x	2.0	150
CO	5.0	610
VOC	1.0	80

For the proposed engines, the owner/operator is subject to Section 60.4243(b) and must demonstrate compliance with the Subpart JJJJ, Table 1 limits by complying with 60.4243(b)(2) and using the test procedures in 60.4244. Pursuant to 60.4243(b)(2)(ii), the operator must keep a maintenance plan and records of maintenance conducted. The operator must also conduct initial and subsequent performance tests (every 8,760 hours of operation or every 3 years, whichever comes first). The testing requirements in template permit conditions will satisfy these requirements.

In accordance with 40 CFR 60.4245(a), the operator must maintain records of: all notifications, all maintenance conducted on the engines, and all performances tests. Initial notification is required pursuant to 40 CFR 60.4245(c) and 60.7(a)(1). The record keeping and notification requirements in template permit conditions will satisfy these provisions.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

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The biogas engines are subject to [NESHAP Subpart ZZZZ. The engines that are subject to 40 CFR 60, Subpart JJJJ](#) comply with Subpart ZZZZ by meeting the requirements of the subpart..

Older engines must comply with the requirements of NESHAP Subpart ZZZZ. Since most of these engines are at area sources of hazardous air pollutants, these engines are generally subject to the limitations in Table 2d to Subpart ZZZZ of Part 63. For most biogas engines, the requirements are periodic oil and filter changes, inspections of air cleaners, and inspections of belts and hoses. These requirements are in line 13 of the table.

Federal Plan for Landfills

Some landfills are subject to the Federal Plan for Landfills. If the landfill is subject, the engine will also be subject. For an overview of the requirements, see the Title V permit for Plant 1840, West Contra Costa Sanitary District pursuant to Application 27287.

NESHAPS, National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills

Some landfills are subject to the above NESHAPS. If the landfill is subject, the engine will also be subject. For an overview of the requirements, see the Title V permit for Plant 1840, West Contra Costa Sanitary District pursuant to Application 27287.

CARB Landfill Methane Rule (LMR), Methane Emissions from Municipal Solid Waste Landfills

If a landfill is subject to this rule, the engine will be subject to the following requirements:

- Section 95464(b)(3)(A)(1): Methane destruction of 99% by weight, or, if the engine is lean burn, an outlet methane concentration to less than 3,000 ppmv, dry basis, corrected to 15 percent oxygen.
- Section 95464(b)(4): Annual source test or source test every three years if engine has been in compliance for three years (See regulation for details.)
- Section 95469(b)(2): Monitoring of parameters
- Section 95470(a)(1)(B): Records of downtime (See regulation for details.)
- Section 95470(a)(1)(H): Records of source tests
- Section 95470(a)(1)(K): Records of parameters
- Section 95470(a)(2)(A): Engine vendor specifications
- Section 95470(a)(2)(C): Percent methane reduction
- Section 95470(a)(e): Record storage
- Section 95470(b)(3): Annual report
- Section 95471(f)(1): Control Device Destruction Efficiency Determination

BACT

BACT for stationary biogas engines is specified in the [BACT/TBACT Workbook](#). The following are the applicable BACT requirements for biogas fired engines:

- [I.C. Engine – Biogas Fired >= 50 hp](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

CEQA

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Per Section 42314 of the California Health and Safety Code, the District may not require facilities to provide offsets for projects that burn biogas and generate electricity if they meet certain requirements. In this case, the

offsets are provided by the Small Facilities Bank, if the offsets are available. If these credits are provided, the facility does not have the option to burn natural gas instead of biogas, to the extent of the offsets provided.

Permit Conditions

Standardized conditions for biogas engines are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

2.4.1 MICRO TURBINES (25-1000 KW)

December 15, 2023

Process Description

This chapter is limited to microturbines firing natural gas. Microturbines are small combustion turbines that produce between 25 kW and 1000 kW of power.

A thorough explanation of general turbine technology is available from [Chapter 3.1 \(Stationary Gas Turbines\)](#) of [AP-42 \(Fifth Edition, Volume I\)](#). An explanation of microturbine technology is available from the [EPA](#).

Any turbine with a maximum output rating greater than 50 hp is subject to permitting requirements per [Regulation 2-1-114.2.1](#). However, if the turbine is used solely for instructional purposes at research, teaching, or educational facilities, they may be exempt from permitting requirements per [Regulation 2-1-114.2.2](#).

Completeness Determination

The following Air District forms should be completed and fees provided for the microturbines. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Form 101-B (one for facility) 2. Form C (one per source) 3. If combustion products exhaust into add-on abatement device, Form A (one per device) 4. Form P (one per exhaust) | <ol style="list-style-type: none"> 5. If a Health Risk Assessment is triggered, Form HRA (one per source) 6. Fees, calculated per Regulation 3 (Schedule B) |
|--|---|

Emission Calculations

The ideal hydrocarbon products of combustion in which a fossil fuel is burned are water vapor and carbon dioxide. All other products are considered pollutants, consisting mainly of NO_x (Nitrogen Oxides), CO (Carbon Monoxide), POC (Precursor Organic Compounds in the form of unburned hydrocarbons), SO_x (Sulfur Dioxide), and PM₁₀ (Particulate Matter).

Emission factors of criteria pollutants from turbines are usually based on California Air Resources Board (CARB) certified data for Distributed Generation for nitrogen oxides (NO_x), carbon monoxide (CO), and precursor organic carbons (POC). Based on maximum Pacific Gas & Electric Natural Gas Specification for Sulfur of 1 grain per 100 standard cubic feet, PM₁₀ (as (NH₄)₂SO₄) and SO₂ emission factors are calculated.

Compound	Emission Factor	Unit	Reference
NO _x	***	lb/MW-hr	Distributed Generation Certification (ARB Executive Order DG-###)
CO	***	lb/MW-hr	Distributed Generation Certification (ARB Executive Order DG-###)
POC	***	lb/MW-hr	Distributed Generation Certification (ARB Executive Order DG-###)
PM ₁₀	5.78E-03	lb/MMBtu	Based on Max PG&E Natural Gas Specification for Sulfur of 1 gr/100 scf
SO ₂	2.80E-03	lb/MMBtu	Based on Max PG&E Natural Gas Specification for Sulfur of 1 gr/100 scf

Note:

*** = Based on Distributed Generation Certification data

PM₁₀ = (1 gr/100 scf)(lb/7000 gr)(1/1020 BTU/scf)(1x10E6BTU/MMBTU)(132 lb (NH₄)₂SO₄/32 lb S)
 PM₁₀ = 0.00578 lb/MMBTU

SO₂ = (1 gr/100 scf)(lb/7000 gr)(1/1020 BTU/scf)(1x10E6BTU/MMBTU)(64 lb (NH₄)₂SO₄/32 lb S)

SO₂ = 0.00280

Toxic Air Contaminant emissions from microturbines may be calculated using AP-42 Emission Factors from [Table 3.1-3 “Emission Factors for Hazardous Air Pollutants From Natural Gas-Fire Stationary Gas Turbines”](#), unless there is actual source test data available.

Compound	Emission Factor	Unit	Acute Trigger Level (lb/hr)	Chronic Trigger Level (lb/yr)
1,3-Butadiene	4.30E-07	Lb/MMBtu	None	1.10E+00
Acetaldehyde	4.00E-05	Lb/MMBtu	None	6.40E+01
Acrolein	6.40E-06	Lb/MMBtu	4.2E-04	2.30E+00
Benzene	1.20E-05	Lb/MMBtu	2.9E+00	6.40E+00
Ethylbenzene	3.20E-05	Lb/MMBtu	None	7.70E+04
Formaldehyde	7.1E-04	Lb/MMBtu	2.1E-01	3.00E+01
Naphthalene	1.30E-06	Lb/MMBtu	None	None
PAH	2.20E-06	Lb/MMBtu	None	1.10E-02
Propylene Oxide	2.90E-05	Lb/MMBtu	6.8E+00	4.90E+01
Toluene	1.30E-04	Lb/MMBtu	8.2E+01	1.20E+04
Xylenes	6.40E-05	Lb/MMBtu	4.9E+01	2.70E+04

Applicable Requirements

Air District Rules and Regulations

A microturbine is not subject to the requirements of [Regulation 9-9](#), per Regulation 9-9-110, because it will typically have a heat input rating of less than 5 MM Btu/hr. The microturbine may be subject to a limited exemption from Regulation 9, Rule 9 due to low fuel usage per 9-9-112.

A microturbine will be subject to and is expected to comply with the SO₂ ground level concentration and general emission limitations of [Regulation 9, Rule 1](#), because it will be fired on natural gas with a maximum sulfur content of 1 grain per 100 scf, which is the maximum PG&E natural gas specification for sulfur.

New Source Performance Standards (NSPS)

All stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules (10 million Btu) per hour, based on the lower heating value of the fuel fired is subject to the [Subpart GG of Part 60](#). However, a microturbine will typically have heat input rating much less than 10 million BTU per hour and therefore will not be subject to Subpart GG. The permit evaluator should review the microturbine application to confirm that the proposed microturbine is exempt from the NSPS.

Best Available Control Technology (BACT)

In general, a microturbine which has a CARB Distributed Generation certification (i.e., Executive Order DG-###) will not trigger a BACT review because criteria pollutant emissions will be less than 10 pounds per operating day. The permit evaluator should review the microturbine application to ensure that the proposed microturbine does not trigger BACT review. If BACT is triggered, the permit evaluator should conduct a BACT determination to ensure that the source meets BACT requirements.

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

☐ [Offsets](#)

☐ [Prevention of Significant Deterioration](#)

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- ☐ [School Notification](#)
- ☐ [Health Risk Assessment](#)
- ☐ [Overburdened Communities](#)

Permit Conditions

As long as the microturbine has a CARB Distributed Generation certification (i.e., Executive Order DG-###), there are no permit conditions required. Because emission calculations for each microturbine are based upon 24 hour per day, 365 day per year operation, the permit will not require permit conditions to limit fuel use or specify recordkeeping.

3.1 BULK LOADING FACILITIES

December 15, 2023

Process Description

[EPA's Chapter 5.2 \(Transportation and Marketing of Petroleum Liquids\)](#) of [AP-42](#) provides information regarding the transportation and marketing of petroleum liquids. In addition, fugitive emissions from leaking process equipment and control systems include pumps, valves, compressors, and flanges. The emissions from these components should be identified and accounted for with the application bulk loading facility. The handling of fugitive emissions is covered in the chapter for [Petroleum Refinery Fugitive Emissions](#). This chapter covers bulk loading terminals and plants and marine loading operations. A gasoline bulk terminal is a distributing facility which receives gasoline by other than tank truck or rail car, stores it in stationary tanks, and loads it into tank trucks for delivery to gasoline bulk plants, service stations or other distributing points. A gasoline bulk terminal is a distributing facility, which receives gasoline by tank truck, stores it in stationary tanks, and loads it into tank trucks for delivery to service stations or other distribution points.

Modifications, replacement, or addition of fugitive components (e.g., valves, flanges, pumps, compressors, relief valves, process drains) at existing permitted process units at petroleum refineries, chemical plants, bulk terminals or bulk plants are exempt from permitting requirements per Regulation 2-1-128.21, provided that the cumulative emissions from all additional components installed a given process unit during any consecutive twelve month period do not exceed 10 pounds per day, and that the components meet applicable requirements in [Regulation 8-18](#). However, even if the proposed change in fugitive components is exempt per Regulation 2-1-128.21, an application for an "alteration" of the process unit is required, per Regulation 2-1-233 and 3-304.

Storage vessels, which contain hydrocarbon condensate, require a permit if the vessel is greater than 260 gallons in capacity, per Regulation 2-1-123.1 and contain an organic layer which is greater than 1 weight percent VOC per Regulation 2-1-123.6. The permitting of these storage tanks is covered in the permit handbook for [Organic Liquid Storage Tanks](#).

Completeness Determination

The following Air District forms should be completed and fees provided for the bulk loading facilities. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form 101-B (one for facility).
2. Form T (one per loading rack).
3. Identification of the total number of components (pumps, valves, compressors, and flanges of bulk loading facility).
4. If the bulk loading rack exhausts into an add-on abatement device, Form A (one per device).
5. If Health Risk Assessment is triggered, Form HRA (one per source).
6. Fees, calculated per Regulation 3 (Schedule B) for compressor engines, (Schedule C) for condensate tanks; and (Schedule F) for dehydrators.

Emission Calculations

According to [Chapter 5.2 of EPA's AP-42](#), loading losses are the primary source of evaporative emissions from rail tank, tank truck, and marine vessel operations.

Reasonable Achievable Control Technology (RACT) or Best Available Control Technology (BACT), if applicable, emission levels should be used to estimate bulk-loading losses with the proposed, maximum annual throughput. If a lower limit is demonstrated, a lower emission limit may be used to estimate bulk-loading losses:

$$POC = \text{Maximum Projected Throughput (gal/yr)}(\text{Emission Factor lb/1000 gal})$$

PERMIT HANDBOOK

Operation	Emission Factor (lb/1000 gal)
Gasoline Bulk Terminal	0.08 (RACT) *
	0.028 (BACT)
Gasoline Bulk Plant	0.50 (RACT) *
Gasoline Marine Loading	0.05 (RACT) *
Non-Gasoline Bulk Loading	0.17 (RACT) *

*

[Regulation 8-6-301](#) limits non-gasoline bulk terminals losses to 0.17 lb per 1000 gallons; [Regulation 8-33-301](#) limits bulk terminal losses to 0.08 pound per 1000 gallon; [Regulation 8-39-302](#) limits bulk plant losses to 0.50 pounds per 1000 gallons, and [Regulation 8-44-304](#) limits marine loading losses to 2 pounds per 1000 barrels (0.05 lb/1000 gal).

If other fuels (such as diesel or jet) are being distributed, the emission factors for these fuels can be obtained from [Chapter 5.2 of EPA's AP-42](#). Fugitive emissions should also be estimated. The handling of fugitive emissions is covered in the chapter for [Petroleum Refinery Fugitive Emissions](#).

The permit evaluator should request that the applicant provide a detailed breakdown of the components, which make up the gasoline. Generally, gasoline consists of the following compounds:

Toxic Pollutant	% by volume in gasoline	Health Risk Assessment (lb/yr)
Benzene	up to 5%	6.7
Toluene	up to 35%	39000
Xylenes	up to 25%	58000
n-Hexane	up to 8%	83000
Naphthalene	up to 1.1%	270
Styrene	up to 4%	140000

Then, based on the total organic emissions estimated and the toxics components breakdown, the permit evaluator should ensure that the emission calculations include the hourly and annual emission estimates for these TACs to determine whether an acute or chronic health risk assessment trigger level listed in Table 2-5-1 of [Regulation 2-5](#) is exceeded.

Applicable Requirements

Air District Rules and Regulations

Non-gasoline bulk terminals and bulk plants are subject to [Regulation 8-6 \(Organic Liquid Bulk Terminals and Bulk Plants\)](#), while gasoline bulk terminals are subject to [Regulation 8-33 \(Gasoline Bulk Terminals and Gasoline Delivery Vehicles\)](#) and gasoline bulk plants are subject to [Regulation 8-39 \(Gasoline Bulk Plants and Gasoline Delivery Vehicles\)](#). [Regulation 8-44 \(Marine Tank Vessel Operation\)](#) regulates marine loading operations. Each applicable regulation specifies an emission limit. The permit evaluator should review the application and ensure that the applicant has or will demonstrate compliance with the applicable emission standards and operating requirements.

Best Available Control Technology (BACT)

The following are applicable BACT requirements for:

Bulk Loading Facilities

- Marine, Loading
- [Tank Truck & Rail Car Bulk Loading \(except Gasoline Bulk Terminals\)](#)
- [Tank Truck & Rail Car Bulk Loading - Gasoline Bulk Terminals](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

[NSPS](#)

Gasoline bulk terminals and bulk plants are subject to [NSPS Subpart XX—Standards of Performance for Bulk Gasoline Terminals](#). In general, Air District Regulation 8-39 is more stringent than Subpart XX, and so compliance with [Regulation 8-39](#) is also compliance with [Subpart XX](#).

[California Environmental Quality Act \(CEQA\)](#)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for bulk loading operations are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

3.2 GASOLINE DISPENSING FACILITIES

July 3, 2023

Process Description

This chapter covers the permitting of Gasoline Dispensing Facilities (GDFs). GDFs with a non-exempt storage capacity of 260 gallons or more must have a Permit to Operate, including those exempt from the vapor recovery standards in [Regulation 8, Rule 7](#). Projects increasing non-exempt throughput involving the vapor recovery system at GDFs must be authorized prior to construction. This includes the replacement or installation of tanks and/or vapor recovery lines, dispenser modifications and the addition of nozzles to a facility. Replacement of individual dispensers due to end-user damage does not require authorization. Piping plans illustrating a California Air Resources Board (CARB) certified system are required.

CARB, under Health & Safety Code Section 41954, has sole authority for certifying vapor recovery systems and their components for use in California. Equipment vendors submit their systems to CARB for testing and evaluation. Approved systems are issued an Executive Order, which sets specifications for the installation and operation of the system and lists allowable components and configurations. There are currently more than 80 Executive Orders in force for Phase I (vapor recovery during transfer of gasoline between any cargo tank and any stationary tank at GDF), Phase II (vapor recovery during motor vehicle refueling operations from any stationary tank at GDF) systems and Standing Loss Control (SLC) (passive emissions from aboveground tanks). Stations with Phase II controls are required to have Phase I controls, while almost all stations with Phase I are also required to have Phase II recovery. Most aboveground tanks are required to have SLC. [Regulation 8-7](#) includes several exemptions for Phase I and Phase II requirements based on size limitations and technical considerations. Most GDFs exempt from vapor recovery requirements are small, non-retail facilities with low throughputs that service a limited fleet of vehicles. Many refuel vehicles such as boats or aircraft for which Phase II vapor recovery is not effective.

Completeness Determination

The following Air District forms should be completed and fees provided for the gasoline dispensing facilities. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form 101-G (one for facility).
2. If Health Risk Assessment is triggered, Form HRA (one per facility).
3. Fees, calculated per Regulation 3 (Schedule D).

Emission Calculations

Emissions from GDFs are a function tank type (underground vs. aboveground) vapor recovery equipment installed (SLC, Phase I, Phase II) and characteristics of the fleet being refueled (ORVR penetration, Phase II compatibility). Emissions from individual compounds are a function of type of emissions (liquid phase emissions vs. vapor phase emissions) and speciation of liquid and vapor phases.

A spreadsheet containing emission factors for all commonly encountered permutations of the above variables is maintained. Overall VOC emission factors are based on CARB emission factors and allowable emission limits. Emission factors for individual components are based on speciation data of liquid and vapor phases. Emission factors are periodically updated to incorporate improved emissions data, new emissions standards, and changes in fuel composition. Emissions of VOCs and individual compounds are calculated by multiplying the GDF throughput by the appropriate emission factor. The spreadsheet can be found [here](#).

Based on the total organic emissions estimated and the toxics components breakdown, the permit evaluator should ensure that the emission calculations include the hourly and annual emission estimates for these TACs to determine whether an acute or chronic risk screening trigger level listed in [Table 2-5-1 of Regulation 2-5](#) is exceeded.

Applicable Requirements

Air District Rules and Regulations

Gasoline dispensing facilities are subject to [Regulation 8-7 \(Gasoline Dispensing Facilities\)](#). The permit evaluator should review the application and ensure that the applicant has or will demonstrate compliance with the applicable emission standards and operating requirements.

Best Available Control Technology (BACT)

BACT for gasoline dispensing facilities is specified in the BACT/TBACT Workbook. The following are applicable BACT requirements for:

- Gasoline Dispensing Facilities
- [Gasoline Dispensing Facility](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

NESHAPS

If the facility is a major source of HAPs, the gasoline dispensing facility may be subject to [NESHAPS 40 CFR 63 \(Subpart R\): Gasoline Distribution MACT](#). The NESHAP standards require submerged fill for the cargo and stationary tanks at the GDF. [Regulation 8-7](#) is already more stringent than the NESHAP and compliance with [Regulation 8-7](#) would ensure compliance with the NESHAP.

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for gasoline dispensing operations are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

3.3 OIL-WATER SEPARATORS

December 15, 2023

Process Description

An oil-water separator is defined in [Regulation 8-8](#) as any device used to separate liquid organic compounds from oil-water streams (excluding wastewater separator forebays, air floatation units, sludge-dewater units, oil-water separator and/or AF Unit slop oil vessels, and junction boxes). Regulation 8-8 also contains the definitions of these excluded components.

Any wastewater (oil-water) separator as defined in [Regulation 8-8](#), which processes less than 200 gallons per day of wastewater containing organic liquids is exempt from permitting requirements per Regulation [2-1-128.14](#).

Completeness Determination

The following Air District forms should be completed and fees provided for the oil-water separators. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

- | | |
|--|--|
| 1. Form 101-B (one for facility). | 4. If Health Risk Assessment is triggered, |
| 2. Form G (one per oil-water separator) | Form HRA (one per source). |
| 3. If oil-water separator is abated, then Form A (one per device). | 5. Fees, calculated per Regulation 3 (Schedule F). |

Emission Calculations

The primary pollutants from oil-water separators is organic compounds (POC). [AP-42, Table 5.1-2](#) (Fugitive Emission Factors for Petroleum Refineries) includes an emission factor for oil-water separators:

Oil-Water Separator	Uncontrolled (lb/1000 gal)	Controlled (lb/1000 gal)
POC	5	0.2

Using the AP-42 factor (see table) with the maximum, annual projected throughput (gallons/year) of wastewater will estimate the annual estimated emissions of POCs from the proposed oil-water separator:

$$\text{POC} = \text{Maximum Projected Throughput (gal/yr)}(\text{Emission Factor lb/1000 gal})$$

Applicable Requirements

Air District Rules and Regulations

Oil-water separators are subject to the standards of [Regulation 8-8](#). The permit evaluator should review [Regulation 8-8](#) and determine whether the proposed oil-water separator is indeed subject to its standards, because there are several rule exemptions that may exempt non-petroleum refinery-rated oil-water separators from the standards of the rule. If [Regulation 8-8](#) is applicable, the permit evaluator should determine whether the proposed oil-water separator will comply.

Best Available Control Technology (BACT)

BACT for oil-water separators is specified in the BACT/TBACT Workbook. The following are applicable BACT requirements for:

- Water Treating - Oil/Water Separator
 - [< 250 Gallons/min](#)
 - [≥ 250 Gallons/min](#)
 - [Water Treating - Sour Water Stripping](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

NSPS

The oil-water separators at a petroleum refinery may be subject to the [NSPS, Subpart QQQ: Standards of Performance for VOC Emissions From Petroleum Refinery Wastewater Systems](#). The permit evaluator should review the proposed application to ensure that any proposed oil-water separator is either exempt from the NSPS or complies with the NSPS.

NESHAPS

If the facility is a major source of HAPs, the oil-water separators may be subject to [NESHAPS 40 CFR 63 Subpart VV: National Emission Standards for Hazardous Air Pollutants for Oil-Water Separators and Organic-Water Separators](#). The permit evaluator should review the proposed application to ensure that any proposed dehydrator and/or storage vessels are either exempt from the NESHAPS or complies with the NESHAPS, if the facility is a major source of HAPs.

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for oil-water separators are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

3.4 PETROLEUM REFINERY FUGITIVE EMISSIONS

December 15, 2023

Process Description

[EPA's Chapter 5.1 \(Petroleum Refining\)](#) of [AP-42](#) provides information regarding the petroleum refining industry.

Fugitive emissions from leaking process equipment and control systems include pumps, valves, compressors, and flanges. The emissions from these components should be identified and accounted for in the application for the proposed change or addition of new process equipment at the petroleum refinery.

Modifications, replacement, or addition of fugitive components (e.g., valves, flanges, pumps, compressors, relief valves, process drains) at existing permitted process units at petroleum refineries, chemical plants, bulk terminals or bulk plants are exempt from permitting requirements per Regulation 2-1-128.21, provided that the cumulative emissions from all additional components installed a given process unit during any consecutive twelve month period do not exceed 10 pounds per day, and that the components meet applicable requirements in Regulation 8-18. However, even if the proposed change in fugitive components is exempt per Regulation 2-1-128.21, an application for an "alteration" of the process unit is required, per Regulation 2-1-233 and 3-304.

Storage vessels, which contain hydrocarbon condensate, require a permit if the vessel is greater than 260 gallons in capacity, per Regulation 2-1-123.1 and contain an organic layer which is greater than 1 weight percent VOC per Regulation 2-1-123.6. The permitting of these storage tanks is covered in the permit handbook for [Organic Liquid Storage Tanks](#). However, the fugitive components that are added to route product from the refinery to and from the tank should be accounted for as described in the Emission Calculations section of this permit handbook.

Completeness Determination

The following Air District forms should be completed and fees provided for the petroleum refinery fugitive components. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

- | | |
|--|---|
| 1. Form 101-B (one for facility). | catalytic reforming, chemical treating |
| 2. Form G (one per process vessel) | units, converting units, distillation units |
| 3. Identification of the total number of components (pumps, valves, compressors, and flanges added to petroleum refinery). | (1000 barrels/hour or less), hydrogen manufacturing, hydrotreating or hydrofining, isomerization, MTBE process units, sludge converters, solvent extraction, sour water stripping, and miscellaneous process units; Schedule G2 for stockpiles and wastewater treatment at petroleum refineries; and Schedule G3 for waste gas flares, cracking units, and distillation units greater than 1000 barrel/hour |
| 4. If process vessel or fugitive components are abated, Form A (one per device). | |
| 5. If Health Risk Assessment is triggered, Form HRA (one per source). | |
| 6. Fees, calculated per Regulation 3 Schedule G1 for alkylation units, asphalt oxidizers, benzene saturation, | |

Emission Calculations

FUGITIVE EMISSIONS

Sources of emissions are from the fugitive emissions from fugitive components, such as valves, flanges, connectors, flanges, and pumps. The emission factors proposed for this installation are the "uncontrolled" emission factors from the "[California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities](#)" prepared by the California Air Pollution Control Officers Association Engineering Managers Committee (CAPCOA) and the California Air Resources Board (ARB). The Average Emission Factor Method (Method 1) of the Guidelines may be used as the emission factors for the fugitive components (see Table IV-1b).

PERMIT HANDBOOK

TABLE IV-1b: 1995 EPA PROTOCOL MARKETING TERMINAL
AVERAGE EMISSION FACTORS^a

Component Type	Service Type	THC Emission Factor (kg/hr/source) ^b
Valves	Gas	1.3E-05
	Light liquid	4.3E-05
Pump seals	Gas	6.5E-05
	Light liquid	5.4E-04
Others (compressors and others) ^c	Gas	1.2E-04
	Light liquid	1.3E-04
Fittings (connectors and flanges) ^d	Gas	4.2E-05
	Light liquid	8.0E-06

Each of the five major refineries (Chevron, ConocoPhillips, Shell, Tesero, and Valero) in the Bay Area already have Air District-approved fugitive emission factors derived from the Correlation Equation Method (Method 3) of the Guidelines, based on a comprehensive inspection program of the fugitive components at each of the refineries. When reviewing permits for these five refineries, the permit evaluator should use the refinery's Air District-approved refinery-specific fugitive emission factors.

The permit evaluator should ensure that the permit application includes all new or changing fugitive components counts so that they can estimate emissions of the proposed change or new installation.

$$\begin{aligned} \text{Emissions (lb/hr)} &= \# \text{ of Components} \times \text{Emission Factor (kg/hr/source)} \times 2.2 \text{ lb/kg} \\ \text{Emissions (lb/day)} &= \text{Emissions lb/hr} \times 24 \text{ hr/day} \\ \text{Emissions (lb/yr)} &= \text{Emissions lb/day} \times 365 \text{ day/yr} \\ \text{Emissions (TPY)} &= \text{Emissions lb/yr} / 2000 \text{ lb/ton} \end{aligned}$$

The permit conditions will reiterate the number of fugitive components and require that upon startup a final count of the fugitive components be provided to the Air District. If there is an increase in the total fugitive component emissions, the plant's cumulative emissions for the project shall be adjusted to reflect the difference between emissions based on predicted versus actual component counts (and additional offsets provided, if necessarily).

The permit evaluator should request that the applicant provide a detailed breakdown of the components which make up the gasoline. Generally, gasoline consists of the following compounds:

Toxic Pollutant	% by volume in gasoline	Health Risk Assessment (lb/yr)
Benzene	up to 5%	6.7
Toluene	up to 35%	39000
Xylenes	up to 25%	58000
n-Hexane	up to 8%	83000
Naphthalene	up to 1.1%	270
Styrene	up to 4%	140000

Then, based on the total organic emissions estimated and the toxics components breakdown, the permit evaluator should ensure that the emission calculations include the hourly and annual emission estimates for these TACs to determine whether an acute or chronic health risk assessment trigger level listed in Table 2-5-1 of [Regulation 2-5](#) is exceeded.

Applicable Requirements

Air District Rules and Regulations

Fugitive components at petroleum refineries are subject to [Regulation 8-18 \(Equipment Leaks\)](#). The permit evaluator should review the application and ensure that the applicant has or will demonstrate compliance with the applicable emission standards and operating requirements.

Best Available Control Technology (BACT)

BACT for petroleum refinery fugitive emissions is specified in the BACT/TBACT Workbook. The following are applicable BACT requirements for:

Petroleum Refinery Fugitive Emissions

- [Flare - Refinery](#)
- [Flanges](#)
- [Pressure Relief Valves, Emergency - Process Units](#)
- [Process Valves](#)
- [Pumps](#)
- [Compressors](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

NSPS

Fugitive components at petroleum refineries are subject to [NSPS Subpart GGG - Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries](#), which requires compliance with the equipment leak standards of [NSPS Subpart VV - Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry](#). In general, Air District Regulation 8-18 is more stringent than Subpart VV and GGG, and so compliance with [Regulation 8-18](#) is also compliance with Subparts [VV](#) and [GGG](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for petroleum refinery fugitive components are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

3.5 NATURAL GAS FACILITIES AND CRUDE OIL FACILITIES

July 5, 2023

Process Description

Natural gas production facilities engage in the production of natural gas, which is obtained from natural gas wells. Natural gas pumped from a well is first fed to an inlet separator that removes liquid water, heavy hydrocarbons, brine, and particulate matter from the incoming natural gas. The liquid and contaminants are stored in condensate storage tank(s). Organic emissions from the hydrocarbons are associated with the condensate tanks. Condensate is later removed via tank truck. The natural gas may then be sent to a compressor system to compress the gas to the required pressure to be sent to the natural gas pipeline.

Crude oil production facilities engage in the production of crude oil, which is obtained from crude oil wells. Crude oil pumped from a well is first fed to an inlet separator that removes contaminated water (containing hydrocarbons) and natural gas from the incoming crude oil. The contaminated water is stored in storage tank(s) and/or is pumped for disposal into a water injection well. The natural gas is sent to a compressor system for disposal into a gas injection well, or the gas may also be used as fuel in engines to provide power at the facility. The crude oil may then be pumped to the crude oil pipeline and/or stored in a sales tank. Materials stored in tanks may be loaded into tank trucks for delivery off-site for further processing.

The potential sources of air pollution at these facilities include production and injection wells, compressor engines, fugitive emissions from leaking process equipment, storage and separator vessels for hydrocarbon condensate and/or crude oil, truck loading operations, and if present, glycol dehydrators. Glycol dehydrators are used at natural gas facilities to further remove water from natural gas streams to prevent the formation of hydrates and corrosion in the pipelines. Triethylene glycol (TEG) is used in 95% of natural gas dehydrators, while the remaining 5% use ethylene glycol (EG) or diethylene glycol (DEG).

In the dehydrator, the “lean” (low water content) glycol contacts the “wet” (high water content) natural gas stream and absorbs water from the gas. The glycol exiting the bottom of the absorber is now “rich” and has higher water content. The gas exiting the top of the absorber has lower water content and is referred to as dry gas. The rich glycol is sent to the regenerator (reboiler and stripping column) where it is heated to drive off the absorbed water and is recycled to the absorber. The reboiler supplies heat to regenerate the rich glycol in the still by simple distillation. The separation is relatively easy because of the wide difference in boiling points of water and glycol. A still or stripping column is used in conjunction with the reboiler to regenerate the glycol. On many dehydrators, the still is placed vertically on top of the reboiler so that vapors from the reboiler directly enter the bottom of the distillation column. To prevent excessive glycol losses due to vaporization at the top of the column, a condenser usually controls reflux. A phase separator (flash tank) between the absorber and the still may exist to remove the lighter dissolved gases from the warm rich glycol, which thereby reduces VOC emissions from the still. The glycol-circulating pump moves the glycol through the system. Hydrocarbons in the natural gas are removed with the water and the rich glycol stream can contain as much as 1%-dissolved hydrocarbons. These hydrocarbons are driven off in the regenerator and are emitted into the atmosphere along with the water, unless the exhaust from the regenerator is abated using a reboiler and/or condenser. The VOCs from the regenerator vent contain benzene, toluene, ethylbenzene, and xylene isomers (collectively known as BTEX).

Production and injection wells require a permit per [Regulation 2-1-128.15](#). Production wells may be grouped as a single source if the wells are located in the same general area. Injection wells may be grouped as a single source if the wells are located in the same general area. The source description for each group of wells should include the total number of wells and identification numbers.

Any internal combustion engine over 50 HP requires a permit per [Regulation 2-1-114.2.1](#). Most natural gas and crude oil production facilities use natural gas engines to run their compressors; and such engines are generally greater than 50 HP. Hence, most compressor engines require air permits.

The natural gas heaters used in mechanical separators typically have firing rates less than 1 MMBTU/hr. Hence, such heaters are exempt from permitting requirements per [Regulation 2-1-114.1.2](#) provided that the

emissions are only from combustion and the backstop provisions contained in [Regulation 2-1-319](#) are not exceeded.

Fugitive emissions from leaking process equipment and control systems include pumps, valves, compressors, and flanges. The emissions from these components should be identified and accounted for with the application for the natural gas or crude oil production facility.

Storage vessels and separator vessels, which contain hydrocarbon condensate, require a permit if the vessel is greater than 260 gallons in capacity, per [Regulation 2-1-123.1](#) and contain an organic layer which is greater than 1 weight percent VOC per [Regulation 2-1-123.6](#). The permitting of oil/water separators is covered in the permit handbook chapter for [Oil/Water Separators](#). The permitting of these storage tanks is covered in the permit handbook chapter for [Organic Liquid Storage Tanks](#). In addition to emissions from tank breathing and working losses (as described in the permit handbook chapter for Organic Liquid Storage Tanks), tanks containing produced liquid (crude oil or condensate) are also expected to also release emissions from flash losses. Further information is provided in the section below entitled “Storage and Separator Tanks”),

The loading of crude oil, produced water, and/or hydrocarbon condensate into tank trucks requires a permit unless an exemption in [Regulation 2-1-123.3](#) is applicable. Truck loading operations are covered in the chapter for [Bulk Loading Facilities](#).

Completeness Determination

The following Air District forms should be completed and fees provided for the natural gas facilities. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Form 101-B (one for facility). 2. Form C (one per compressor engine and per heater) 3. Form G (one per dehydrator, one per group of production wells, and one per group of injection wells). 4. Form T (one per tank and per truck loading operation). 5. Natural Gas Analysis of “wet” gas. 6. Dehydrator Specifications, if present. 7. Identification of the total number of components (pumps, valves, compressors, and flanges of natural gas or crude oil production facility). | <ol style="list-style-type: none"> 8. Identification of the total number of high-bleed and low-bleed pneumatic devices. 9. Water analysis of the condensate. 10. If compressor engine, dehydrator, or condensate tank exhausts into add-on abatement device, Form A (one per device). 11. If Health Risk Assessment is triggered, Form HRA (one per source). 12. Fees, calculated per Regulation 3 (Schedule B) for compressor engines, (Schedule C) for condensate tanks; and (Schedule F) for dehydrators. |
|--|---|

Emission Calculations

WELL EMISSIONS

Emissions associated with production and injection wells are from fugitive components. Fugitive emissions from component leaks occurring at wells shall be included under the fugitive emissions calculations.

COMPRESSOR EMISSIONS

Emissions from the compressor engines are estimated using the emission factors associated with that engine. Refer to the [chapter 2.3.2](#).

DEHYDRATOR EMISSIONS

Emissions from the dehydrator are from the reboiler stack and the flash drum. The flash drum gases are typically used to fuel the reboiler. A VOC control efficiency of 98% is expected for the reboiler. A condenser usually abates the vent from the reboiler stack. The resulting emissions from the reboiler burner exhaust (from the flash gas) and the reboiler stack and condenser should be estimated using the Gas Research Institute’s [GRI-GLYCalc Program](#) as recommended by EPA. To use this program, the applicant must provide the following information:

SOURCE-SPECIFIC GUIDANCE

PERMIT HANDBOOK

- 1) Dehydrator specifications
- 2) Wet gas analysis

The permit should contain a limit on hourly mass emission rates for VOC and benzene to ensure that the stated destruction efficiencies are achieved. In addition, an initial source test and additional annual source tests in the summer months should also be required in the permit conditions. The permit evaluator should summarize and include a copy of the results in the evaluation report.

FUGITIVE EMISSIONS

Additional sources of emissions are from the fugitive emissions from valves, flanges, connectors, compressors, and pumps. For each source in a permit application, the applicant must provide the number of fugitive components in each of the different service lines (i.e., wet gas, dry gas, rich glycol, lean glycol). These fittings are exempt from the Natural Gas and Crude Oil Production rule as per Regulation 8-37-111, since this is not a distribution, storage, or transportation facility. The fittings are also exempt from the Valves and Flanges at Chemical Plants rule as per [Regulation 8-22-113](#), since only natural gas or crude oil is being handled. Therefore, the emission factors proposed for this installation are the “uncontrolled” emission factors from the “California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities” prepared by the California Air Pollution Control Officers Association Engineering Managers Committee (CAPCOA) and the California Air Resources Board (ARB). The applicant will be limited to 10,000 ppmv of total hydrocarbons (THC) at the fugitive components so that the “<10,000 ppm” emission factors of Table IV-2C “CAPCOA Oil and Gas Production Screening Value Range Emission Factors” may be used. The annual fugitive emission estimates for a given facility shall include emissions from a single pegged (>10,000 ppm) component leak occurring for 90 days, as allowed under [Regulations 8-37-301 and 8-37-305](#). The “>10,000 ppm” emission factors may be used for this single pegged leaking component. For a conservative emission estimate, the highest “>10,000 ppm” emission factor may be used for the single pegged leaking component. Other Air District-approved methodologies for estimating emissions may be acceptable provided that the calculated emissions are enforceable through permit conditions.

Component Type	Service Type	< 10,000 ppmv THC Emission Factor (kg/hr/source) ^b	≥ 10,000 ppmv THC Emission Factor (kg/hr/source) ^b
Valves	Gas/Light Liquid	3.5E-05	1.386E-01
	Light Crude Oil	1.90E-05	7.07E-02
	Heavy Crude Oil	1.40E-05	N/A
Pump seals	Gas/Light Liquid	9.96E-04	8.9E-02
	Light Crude Oil	2.65E-04	8.9E-02
	Heavy Crude Oil	N/A	N/A
Others ^c	Gas/Light Liquid	1.47E-04	1.376E-01
	Light Crude Oil	1.31E-04	7.1E-03
	Heavy Crude Oil	5.7E-05	N/A
Connectors	Gas/Light Liquid	1.20E-05	2.59E-02
	Light Crude Oil	1.0E-05	2.34E-02
	Heavy Crude Oil	8.0E-06	N/A
Flanges	Gas/Light Liquid	2.80E-05	6.1E-02
	Light Crude Oil	2.4E-05	2.6E-01
	Heavy Crude Oil	2.3E-05	N/A
Open-ended lines	Gas/Light Liquid	2.4E-05	5.49E-02
	Light Crude Oil	1.8E-05	2.22E-02
	Heavy Crude Oil	1.5E-05	7.11E-02

SOURCE-SPECIFIC GUIDANCE

^aSource: Fax Transmittal from STAR Environmental, dated December 17, 1997, entitled *Comparison of Screening Value Range Factors for Oil and Gas Production Operations*. These factors were developed using the separated oil and gas production default zero factors and pegged factors. Correlation equations for the petroleum industry (revised to reflect the technical corrections and adjustments discussed in Section III of the implementation guidelines) were used for components with screening values between background and 9,999 ppmv.

^bThese factors are for total organic compound emission rates (including non-VOC's such as methane and ethane) and apply to light crude, heavy crude, gas plant, gas production, and off shore facilities.

^cThe "Others" component type was derived from compressors, diaphragms, drains, dump arms, hatches, instruments, meters, pressure relief valves, polished rods stuffing boxes, relief valves, and vents. This "Others" component type should be applied for any component type other than connectors, flanges, open-ended lines, pumps, or valves.

To determine the VOC or NMHC emissions and toxic air contaminant emissions from the fugitives associated with the dehydrator, the composition of each stream from the GRI-GLYCalc program is used. Combustion emissions from the reboiler are determined using [AP-42 Emission Factors from Table 1.4-1 for Natural Gas Combustion for Boilers less than 100 MMBtu/hr](#) for criteria pollutant emissions and BAAQMD Toxic Air Contaminant (TAC) Emission Factor Guidelines Appendix A Default TAC Emission Factors for Specific Source Categories (August 2020) for TAC emissions. Refer to the [chapter 2.1](#) and https://www.baaqmd.gov/~media/files/ab617-community-health/facility-risk-reduction/documents/tac_emission_factor_guidance_appendixa_august_2020-pdf.pdf?la=en. However, for the [section 2-1-114.1 exemption, section 2-1-316](#) is not applicable.

To determine the VOC or NMHC emissions and toxic air contaminant emissions from the fugitives associated with other sources (i.e. engines, tanks, etc.), use the composition of each stream associated with the given source.

PNEUMATIC DEVICE EMISSIONS

Natural gas powered pneumatic devices operate valves automatically and control pressure, flow, temperature, and liquid levels. As part of normal operation, these devices release natural gas to the atmosphere. Pneumatic devices are categorized as continuous bleed, actuating/intermittent bleed, and self-contained devices. A continuous bleed device is used to modulate flow, liquid level, or pressure and will generally vent gas at a steady rate. An actuating or intermittent bleed device performs snap-acting control and release gas only when it strokes a valve open or closed or as it throttles gas flow. A self-contained device releases gas into the downstream pipeline, not to the atmosphere. According to an EPA guidance document "Options for Reducing Methane Emissions from Pneumatic Devices in the Natural Gas Industry," any pneumatic device that bleeds in excess of 6 scf/hr is categorized as a high-bleed device. As described in the EPA document and based on industry trends, most existing high-bleed devices can be replaced with low-bleed devices or retrofitted or configured for low-bleed operation.

For each source in a permit application, the applicant must provide the total number of high-bleed and low-bleed pneumatic devices. Emissions for a given pneumatic device may be determined by applying the wet gas analysis data to the gas bleed rate for the device. For facilities that do not use high-bleed devices, the default bleed rate of 6 scf/hr may be assumed in the emission calculations in lieu of device-specific bleed rates. Facilities that use high-bleed devices must provide device-specific bleed rates and supporting documentation for each high-bleed device, and such facilities may be subject to additional fugitive monitoring and/or control requirements. The aforementioned EPA document contains a list of bleed rates for various pneumatic devices.

STORAGE AND SEPARATOR TANKS

The storage or separator tank emissions are estimated using [AP-42 Chapter 7.1 \(Organic Liquid Storage Tanks\)](#). The tank contains condensate with a layer of volatile hydrocarbons. The hydrocarbons float to the top of the tank and emissions should be calculated assuming that the tank contents are 100%. Based on analysis of the condensate from natural gas production wells within the District, it has been determined that the hydrocarbon is similar to gasoline with a RVP of 9. This is a very conservative estimate. Refer to [chapter 4](#).

As described previously, tanks containing produced liquid (crude oil or condensate) also expected to also release emissions from flash losses. Flash losses occur when the pressure of a liquid is decreased, or the temperature is increased. Flash emissions occur when produced liquid is exposed to temperature increases or pressure decreases during the transfer from the production separators (or similar sources) into atmospheric storage tanks. To determine

emissions from flash losses, gas samples of the headspace of such storage tanks (either on-site or a representative sample) must be obtained and tested. Such gas samples shall be obtained in accordance with CARB flash test procedure (in Appendix C on page 50 of the [CARB Oil and Gas Regulation](#)). Results of these condensate and water phase flash tests provide the composition (weight fractions) of each compound (which may be inert, NPOC, POC, TOC, or TAC) and molecular weight of flash gas.

Annual emissions of given compound (POC/NPOC/TAC) from condensate phase flash =
 (Maximum Annual Liquid Throughput, gallons/year) * (volume % of Condensate in Liquid, obtained from applicant) * (GOR (gas oil ratio) from test, scf/bbl) * (1/ 386 scf/mol) * (Molecular Weight of Flash Gas from test lb/lb-mol) * (Weight Fraction of compound in flash gas from test)

Annual Emissions of given compound (POC/NPOC/TAC) from water phase flash =
 (Maximum Annual Liquid Throughput, gallons/year) * (volume % of water in Liquid, obtained from applicant) * (GWR (gas water ratio) from test, scf/bbl) * (1/386 scf/mol) * (Molecular Weight of Flash Gas from test, lb/lb-mol) * (Weight Fraction of compound in flash gas from test)

MECHANICAL SEPARATOR HEATER EMISSIONS

Emissions associated with mechanical separator heaters are from combustion of natural gas and are estimated determined using [AP-42 Emission Factors from Table 1.4-1 for Natural Gas Combustion for Boilers less than 100 MMBtu/hr](#) for criteria pollutant emissions and BAAQMD Toxic Air Contaminant (TAC) Emission Factor Guidelines Appendix A Default TAC Emission Factors for Specific Source Categories (August 2020) for TAC emissions. Refer to the [permit handbook chapter 2.1](#) and https://www.baaqmd.gov/~media/files/ab617-community-health/facility-risk-reduction/documents/tac_emission_factor_guidance_appendixa_august_2020-pdf.pdf?la=en. However, for the [section 2-1-114.1 exemption, section 2-1-316](#) is not applicable.

Health Risk Assessment:

Emissions of hexanes, benzene, toluene, ethyl benzene, and xylene may be emitted from the dehydrator, fugitive, combustion, and condensate tanks. The permit evaluator should ensure that the emission calculations include the hourly and annual emission estimates for these TACs to determine whether an acute or chronic health risk assessment trigger level listed in [Table 2-5-1 of Regulation 2-5](#) is reached or exceeded.

Applicable Requirements

Air District Rules and Regulations

Natural gas compressor engines at natural gas or crude oil production facilities are generally subject to the nitrogen oxides and carbon monoxide emission limits of Regulation 9-8-301 because they are generally greater than 250 HP per [Regulation 9-8-110.2](#).

Glycol Natural Gas Dehydrators are generally not subject to the standards of [Regulation 8-2](#) because it is a natural gas operation per [Regulation 8-2-110](#). In addition, it is also not subject to the fugitive provision of [Regulation 8-37](#), because the rule does not apply to natural gas distribution, transportation, and storage facilities per [Regulation 8-37-111](#). However, the facility must apply for this exemption per [Regulation 8-37-403](#) by submitting a written petition for exemption to the APCO.

In addition, the other fugitive components associated with the natural gas or crude oil production facility are not subject to the fugitive provisions of [Regulation 8-37](#) for any facility, which processes natural gas streams that contain more than 90% methane by volume per [Regulation 8-37-112](#). Similarly, the facility must also apply for this exemption by submitting a written petition for exemption to the APCO. The facility must submit this petition annually. The facility must show by gas analysis, on an annual basis, that the percentage of methane in the natural gas stream is more than or equal to 90% by volume. The fittings are also exempt from the Valves and Flanges at Chemical Plants rule as per [Regulation 8-22-113](#), since only natural gas is being handled. However, these exemptions do not exempt fugitive emissions from permitting requirements. Therefore, for the purposes of determining cumulative increase and TAC emissions, these fugitive component emissions must be included and shall be determined using the calculation methods described above

The storage and separator tanks are generally subject to the provisions of [Regulation 8-5](#) because the condensate usually (or almost always) contains a layer of hydrocarbon, which has a vapor pressure greater than 0.5 psia. As a

result, as long as the storage tank is greater than 260 gallons (per [Regulation 8-5-110.1](#)), it is subject to the standards of [Regulation 8-5](#). The glycol natural gas dehydrators and tanks are not expected to be significant sources of particulates or sulfur dioxide. As a result, the natural gas production facilities are expected to comply with [Regulation 6-1](#) and [Regulation 9-1](#).

Best Available Control Technology (BACT)

BACT for Natural Gas Production Facilities are not yet specified in the [BACT/TBACT Workbook](#).

The following are applicable BACT requirements for:

Internal Combustion Engines

- [I.C. Engine – Spark Ignition, Natural Gas Fired Rich Burn Engine](#)
- [I.C. Engine – Spark Ignition, Natural Gas Fired Lean Burn Engine](#)

Organic Liquid Storage Tanks

- [Storage Tanks – Fixed Roof, Organic Liquids, < 20,000 gal](#)
- [Storage Tanks – Fixed Roof, Organic Liquids, >=20,000 gal](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

NSPS

The glycol natural gas dehydrators may be subject to the [NSPS, Subpart KKK: Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants](#), if it is located at an onshore natural gas processing plant as defined in the NSPS. The permit evaluator should review the proposed application to ensure that any proposed dehydrator is either exempt from the NSPS or complies with the NSPS.

Furthermore, if the facility does contain a sweetening unit or sulfur recovery unit, the facility is subject to [NSPS, Subpart LLL: Standards of Performance for Onshore Natural Gas Processing: SO₂ Emissions](#).

A facility that commences construction, reconstruction, or modification after August 23, 2011 may be subject to [NSPS Subpart OOOO: Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution](#). The permit evaluator should review the proposed application to ensure that any affected sources are either exempt from the NSPS or complies with the NSPS.

NESHAPS

If the facility is a major source of HAPs, the glycol natural gas dehydrators, storage vessels, and ancillary equipment at natural gas production facilities may be subject to [NESHAPS 40 CFR 63 Subpart HH: National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities](#); while the dehydrators at natural gas transmission and storage facilities may be subject to the [NESHAPS 40 CFR 63 Subpart HHH: National Emission Standards for Hazardous Air Pollutants from Natural Gas Transmission and Storage Facilities](#). The permit evaluator should review the proposed application to ensure that any proposed dehydrator and/or storage vessels are either exempt from the NESHAPS or complies with the NESHAPS, if the facility is a major source of HAPs.

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for natural gas facilities are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

4.0 ORGANIC LIQUID STORAGE TANK

July 3, 2023

Process Description

A storage tank is defined in [Regulation 8-5-202](#) as any container, reservoir, or tank used for the storage of organic liquids, excluding tanks, which are permanently affixed to mobile vehicles such as railroad tank cars, tanker trucks or ocean vessels. Storage tanks require a permit if they have a capacity of 260 gallon or greater and store liquids with 1 wt% or greater organic compounds or concentrated acids. [Regulation 2-1-123](#) provides the specific permit exemptions for storage tanks.

Completeness Determination

The following Air District forms should be completed and fees provided for organic liquid storage tanks. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form 101-B (one for facility).
2. Form T (one per source).
3. Material Safety Data Sheet for each organic liquid used, if it is a mixture of compounds.
4. If storage tank exhausts into add-on abatement device, Form A (one per device).
5. If Health Risk Assessment is triggered, Form HRA (one per source).
6. Fees, calculated per Regulation 3 (Schedule C).

Emission Calculations

[TankESP](#) is a Windows-based computer software program that estimates volatile organic compound (VOC) and hazardous air pollutant (HAP) emissions from fixed- and floating-roof storage tanks. [TankESP](#) is based on the emission estimation procedures from [Chapter 7 of EPA's Compilation Of Air Pollutant Emission Factors \(AP-42\)](#), which is an Air District approved tank emissions calculations method. The permit evaluator should include a copy of the printed, detailed [TankESP](#) report with their evaluation report. The permit evaluator should request and obtain copies of any pertinent material safety data sheets (MSDS) to verify parameters for emission calculations. Otherwise, default values are provided in Table I of Regulation 8-5. The permit evaluator should inquire about fugitive components (see Fugitive Emissions section in Chapter 3.5 of this permit handbook) pursuant to [Regulation 8-18](#), [Regulation 8-22](#), [cumulative increase](#), and/or [Regulation 2-5](#).

Applicable Requirements

Air District Rules and Regulations

Storage tanks are subject to the requirements of [Regulation 8-5](#). [Regulation 8-5-301](#) requires a vapor loss control device based on the tank capacity of the storage tank and the true vapor pressure of the organic contents of the tank. The highest vapor pressure material stored will indicate the level of control for compliance. The other standards of [Regulation 8-5](#) specific the equipment requirements of the vapor loss control devices and the tank itself. Storage tanks located at bulk plants may also be subject to the requirements of [Regulation 8-6 \(Subsection 8-6-304, Deliveries to Storage Tanks\)](#), [Regulation 8-18](#), [Regulation 8-33](#), and [Regulation 8-39](#). The permit evaluator should review the proposed storage tank application to ensure that the proposed storage tank will have complying vapor loss control devices and that the TankESP program includes such devices as inputs in the program in estimating emissions of VOCs and HAPs or use [Chapter 7 of EPA's Compilation Of Air Pollutant Emission Factors \(AP-42\)](#).

New Source Performance Standards (NSPS)

Storage tanks may be subject to the NSPS, if it has a capacity greater than or equal to 75 cubic meters (m³) (19,815 gallons) that stores volatile organic liquids for which construction, reconstruction, or modification is started after 23 July 1984. The following are the NSPS requirements:

Volatile Organic Liquid Storage Vessels Including Petroleum Storage Vessels -1973-1978 (PDF)	40 CFR 60 Subpart K
Volatile Organic Liquid Storage Vessels Including Petroleum Storage Vessels - 1978-1984 (PDF)	40 CFR 60 Subpart Ka

Volatile Organic Liquid Storage Vessels Including Petroleum Storage Vessels	40 CFR 60 Subpart Kb
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National Emission Standards for Hazardous Air Pollutants (NESHAP)

Storage tanks may be subject to the [NESHAP Subpart CC](#), if it is an affected source that meets applicable standards defined in paragraphs (c)(1) through (9) of the standard.

The permit evaluator should review the proposed storage tank application to ensure that the proposed storage tank is either exempt from the NSPS and NESHAP or complies with the NSPS and NESHAP. There is [Policy: NSPS and Permitting of New Storage Tanks](#) regarding NSPS requirements for Slotted Gauge Wells and Automatic Bleeder Vents on New External Floating Roof Tanks.

Best Available Control Technology (BACT)

BACT for Storage Tanks is specified in the [BACT/TBACT Workbook](#). The following are the applicable BACT requirements for:

Storage Tanks

- [Storage Tanks - External Floating Roof, Organic Liquids](#)
- [Storage Tanks - Fixed Roof, Organic Liquids, <20,000 gal](#)
- [Storage Tanks - Fixed Roof, Organic Liquids, >=20,000 gal](#)
- [Storage Tanks - Internal Floating Roof, Organic Liquids](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

See Fugitive Emissions section in Chapter 3.5 of this permit handbook for more information regarding Fugitive Emissions BACT.

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for storage tanks and fugitive components are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

5.1 SPRAY BOOTHS & SPRAY GUNS

December 15, 2023

Process Description

Any facility, which uses 30 or more gallons per year of coating containing more than 1 weight percent VOC on a facility-wide basis or emits more than 150 pounds per year of VOC on a facility-wide basis, is subject to permitting requirements, per Regulation 2-1-119.2. Powder coating and coating operations using ultraviolet or electron beam energy for curing, aerosol cans may be exempt from permitting requirements per [Regulation 2-1-119.1](#) and Air District [Policy: Section 2-1-119.1 Permit Exemptions for Powder and Radiation Cured Coating Operation](#). Architectural and industrial maintenance coating operations that are exclusively subject to Regulation 8-3, are exempt from permitting requirements per Regulation 2-1-113.2.5.

Additional detailed background information is available from [Chapter 4.2.2.1 General Industrial Surface Coating of AP-42 \(Fifth Edition, Volume I\)](#).

All surface coating curing and drying ovens will be included as part of the surface coating process, per policy, [Permitting of Surface Coating Curing Ovens](#). Emissions from the ovens will be accounted for on the surface coating S-form. Combustion emissions from the oven, if any, will be included as part of the combined source's emissions. These emissions shall be reported on a separate C-form with the same source number as the surface coating operation.

Two or more coating operations (including graphic arts) which are less than or equal to 3,000 pounds per year VOC may be grouped together as one source per the policy, [Grouping of Coating, Adhesive or Printing Operations into a Single Permitted Source](#). Spray gun cleaners that are associated with coating sources (i.e., cleaning of coating application equipment or cleaning of surfaces prior to their coating) are to be permitted, as part of a coating operation.

Printing operation are covered in [Graphic Arts Printing and Coating Operations](#).

Completeness Determination

The following Air District forms should be completed, and information and fees provided for coating operations. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form P101-B (one for facility).
2. Form S (one per source).
3. Form CD (one per source or facility).
4. Form C (if using natural gas fired coating oven)
5. Material Safety Data Sheet for the coatings and cleanup solvent used, if it is a mixture of compounds.
6. If coating operation exhausts to add-on abatement device, Form A (one per device).
7. If Health Risk Assessment is triggered, Form HRA (one per source).
8. Fees, calculated per Regulation 3 (Schedule E).

Emission Calculations

Using the material balance method, for VOC-containing materials, the amount of pollutant emitted is often assumed to be 100 percent of the amount of pollutant contained in the material, unless a control device is used to remove or destroy the VOC in the exhaust stream. To estimate the VOC emissions from vented operations where a VOC control device is present, it is necessary to estimate the efficiency of both the capture (exhaust) system and the control device.

The material balance method may also be used to calculate PM10 emissions if engineering judgment is made regarding the transfer efficiency of the application equipment and the control efficiency of any PM10 control devices (for vented operations). These data are used in conjunction with the manufacturer's data or calculated solids content of the coating to estimate PM10 emissions using the formula below.

$$E_{PM} = Q \times S \times (1 - TE) \times (1 - CE)$$

Where:

E_{PM} = Emissions of particulate matter (lbs)
 Q = Quantity of coatings applied (gallons)
 S = Solid content in coatings (lb/gal)
 TE = Transfer efficiency of applicator (wt. %)
 CE = Control system efficiency (wt. %)

Transfer efficiency typically varies from [0.25 to 0.75](#) depending on a multitude of factors including: the size of the substrate being sprayed, the spray gun type, and/or the distance between the substrate and spray gun. HVLP guns are typically assumed to have a transfer efficiency of [0.65](#).

If coating is performed inside a spray booth, which is equipped with a filter system to control PM emissions, the following control efficiency (CE) can be used depending on the type of filter:

[Conventional filters: CE = 0.90](#)

[3-Stage aerospace NESHAP-compliant filters: CE = 0.95](#)

[High efficiency particle arrestor \(HEPA\): CE = 0.9997](#)

Applicable Requirements

Different Air District requirements apply for different source classifications of surface coating operations. In addition, New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) and Airborne Toxic Control Measures may apply for certain surface coatings classifications. A [table](#) has been developed summarizing these different requirements. For Air District requirements, the permit evaluator shall review the VOC limits and any transfer efficiency requirements found in the 300's section of each applicable coating rule and ensure that the applicant complies with those sections with the use of complying coatings and/or cleanup solvents and spray equipment. Next the permit evaluator shall ensure that the applicant complies with the recordkeeping requirements noted in the 500's section of each applicable coating rule by ensuring that the permit conditions specify recordkeeping in accordance with the permit handbook. If a spray booth or spray gun has been deemed subject to NSPS or NESHAP requirements, then CEQA review is also triggered because elements of discretion are involved in complying with the applicable NSPS or NESHAP requirements. The permit evaluator shall follow the CEQA instructions specified in the permit handbook. Finally, Regulation 6 should apply to all coating operations with any particulate matter emissions, as approximated by the above equation.

Best Available Control Technology (BACT)

BACT for coating sources is specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

Aerospace Assembly & Component Coating Operations

[- <25 lb/day Emissions \(Uncontrolled\)](#)

[- >=25 lb/day Emissions \(Uncontrolled\)](#)

Spray Booth - Coating of Flatwood Paneling & Wood Flat Stock

[- <50 lb/day Emissions \(Uncontrolled\)](#)

[- >=50 lb/day Emissions \(Uncontrolled\)](#)

Spray Booth - Coating of Wood Products

[- Spray Booth - Coating of Wood Products](#)

Metal Container, Closure, and Coil Coating

[- Metal Container, Closure, and Coil Coating Operation](#)

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Misc. Metal Parts and Products Coating

- [<50 lb/day Emissions \(Uncontrolled\)](#)

- [≥50 lb/day Emissions \(Uncontrolled\)](#)

Misc. Solvent and Surface Coating Operations

- [<36 lb/day Emissions \(Uncontrolled\)](#)

- [≥36 lb/day Emissions \(Uncontrolled\)](#)

Motor Vehicle and Mobile Equipment Coating

Spray Booth - Coating of Motor Vehicle & Mobile Equipment, Rework or Bodyshop

- [<40 lb/day Emissions \(Uncontrolled\)](#)

- [≥40 lb/day Emissions \(Uncontrolled\)](#)

Plastic Parts and Products Coating

Spray Booth - Coating of Misc. Plastic Parts and Products

- [<50 lb/day Emissions \(Uncontrolled\)](#)

- [≥50 lb/day Emissions \(Uncontrolled\)](#)

Motor Vehicle Assembly Plant Coating

Spray Booth - Coating of Motor Vehicles, Assembly Plant

- [Spray Booth \(Manual Zones\)](#)

- [Spray Booth \(Automatic Zones\)](#)

- [Oven \(Topcoat and/or Primer\)](#)

- [Oven \(Sealer and/or Elpo\)](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review.

Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports..

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- ☐ [Offsets](#)
- ☐ [Prevention of Significant Deterioration](#)
- ☐ [School Notification](#)
- ☐ [Health Risk Assessment](#)
- ☐ [Overburdened Communities](#)

Permit Conditions

Standardized conditions for surface coating operations are available from the [Permit Condition Guidance](#).

Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

Process Description	AP-42 Chapter 4.2	Air District Regulation	NSPS (40 CFR 60)	MACT (40 CFR 63)
Architectural Coatings – Coating source may be exempt from permits per Regulation 2-1-113.2.5 – See Permit Exemption Guidance . However, applicable regulation still applies.	4.2.1 Nonindustrial	Regulation 8-3	N/A	N/A
General Solvent and Surface Coating Operations*	4.2.2.1 General Industrial	Regulation 8-4	N/A	N/A

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Process Description	AP-42 Chapter 4.2	Air District Regulation	NSPS (40 CFR 60)	MACT (40 CFR 63)
Metal Container, Closure and Coil Coating	4.2.2.2. Can Coating; 4.2.2.10 Metal Coil	Regulation 8-11	Can - Subpart WW ; Coil - Subpart TT	Can - Subpart KKKK ; Coil - Subpart SSSS
Paper, Fabric & Film Coating	4.2.2.6 Paper Coating; 4.2.2.7 Polymeric Coating of Supporting Substrates	Regulation 8-12	Subpart RR	Fabric - Subpart OOOO ; Paper & Other Web - Subpart JJJJ
Light and Medium Duty Motor Vehicle Assembly Plants	4.2.2.8 Automobile and Light Duty Truck	Regulation 8-13	Subpart MM	Subpart IIII
Surface Preparation and Coating of Large Appliances and Metal Furniture	4.2.2.11 Large Appliance ; 4.2.2.12 Metal Furniture	Regulation 8-14	Large Appliance - Subpart SS ; Metal Furniture - Subpart EE	Large Appliance - Subpart NNNN ; Metal Furniture - Subpart RRRR
Surface Preparation and Coating of Miscellaneous Metal Parts and Products	4.2.2.4 Other Metal Coating	Regulation 8-19	N/A	Subpart MMMM
Coating of Flatwood Paneling and Wood Flat Stock	4.2.2.5 Flat Wood Interior Panel Coating	Regulation 8-23	N/A	Subpart QQQQ
Magnetic Wire Coating Operation	4.2.2.3 Magnet Wire Coating	Regulation 8-26	N/A	N/A
Aerospace Assembly and Component Coating Operations		Regulation 8-29	N/A	Subpart GG
Surface Preparation and Coating of Plastic Parts and Products	4.2.2.14 Plastic Parts for Business Machines	Regulation 8-31	Subpart TTT	Subpart PPPP
Wood Products Coatings		Regulation 8-32	N/A	Wood Building Products - Subpart QQQQ ; Wood Furniture – Subpart JJ
Surface Preparation and Coating of Marine Vessels		Regulation 8-43	N/A	Subpart II
Motor Vehicle and Mobile Equipment Coating Operations**	4.2.1 Nonindustrial	Regulation 8-45	Subpart MM	Subpart HHHHHH
Aerosol Paint Products – Coating source may be exempt from permits per Regulation 2-1-119.3 – See Permit Exemption Guidance .		Regulation 8-49	N/A	N/A

SOURCE-SPECIFIC GUIDANCE

P E R M I T H A N D B O O K

Process Description	AP-42 Chapter 4.2	Air District Regulation	NSPS (40 CFR 60)	MACT (40 CFR 63)
However, applicable regulation still applies.				

* If the surface coating operation is not specifically identified in the table above, then it is subject only to the “default” coating rule (Regulation 8-4).

**Motor Vehicle and Mobile Coating Operations are subject to ATCM 17CCR § 93112, *Emissions of Hexavalent Chromium and Cadmium from Motor Vehicle and Mobile Equipment Coatings*

5.2 COATING, ADHESIVES, AND INK MANUFACTURING

December 15, 2023

Process Description

The manufacturer of coating (including adhesives) and ink involves the dispersion of a color oil or pigment in an oil or resin, followed by the addition of an organic solvent for viscosity adjustment. Only the physical processes of weighing, mixing, grinding, tinting, thinning, and packaging take place. These processes take place in large mixing tanks. Detailed descriptions of coating and ink manufacturing are provided in [Chapter 6.4 \(Paint and Varnish\)](#) and [Chapter 6.7 \(Printing Ink\)](#) of [EPA AP-42](#).

Coating and ink manufacturing operations are generally made up a number of sources of air pollution which store, convey, measure, and discharge its constituents. The following sources at these plants shall be permitted:

- Mixing Vats
- Screening Mills
- Storage Tanks (covered in [Organic Liquid Storage Tank](#))

Completeness Determination

The following Air District forms should be completed and information and fees provided for coating operations. Use the Completeness Determination Checklist to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form P101-B (one for facility).
2. Form G (one per mixing vat or screening mill)
3. Material Safety Data Sheet for the oil, resins, and solvents used.
4. If mixing vessel exhausts to add-on abatement device, Form A (one per device).
5. If Health Risk Assessment is triggered, Form HRA (one per source).
6. Fees, calculated per Regulation 3 (Schedule E).

Emission Calculations

The primary pollutants from coating and ink manufacturing is particulate (from the handling of pigments) and organic compounds. AP-42, [Table 6.4-1](#) and [Table 6.7-1](#) provides emission factors for paint and varnish and ink manufacturing:

Type of Process	POC (lb/ton)	PM10 (lb/ton)
Paint	30	20
Varnish		
Bodying Oil	40	
Oleoresinous	150	
Alkyd	160	
Acrylic	20	
Printing Ink		
General	120	
Oils	40	
Oleoresinous	150	
Alkyds	160	
Pigment Mixing		2

Using the AP-42 factor (see table) with the maximum, annual projected throughput (gallons/year) of product produced will estimate the annual estimated emissions of POCs and PM10 from the proposed coating and ink manufacturing operation.

Applicable Requirements

Rules and Regulations

Coating, ink, and adhesive manufacturing are subject to the standards of [Regulation 8-35](#). The permit evaluator should review the proposed operations and determine any proposed mixing vats will meet the mixing vat requirements of Regulation 8-35-301 and 305, cleaning operations for the mixing vats will comply with the requirements of Regulation 8-35-302, and screening mills will comply with the requirements of Regulation 8-35-304.

Best Available Control Technology (BACT)

BACT for coating and ink manufacturing is currently NOT specified in the [BACT/TBACT Workbook](#). Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for coating and ink manufacturing operations are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

5.3 GRAPHIC ARTS PRINTING AND COATING OPERATIONS

December 15, 2023

Process Description

Any graphic arts operation that emits less than 400 pounds of VOC emissions per month on a facility-wide basis is exempt from permitting requirements per [Regulation 2-1-119.5](#). However, if the graphics arts operation emits a minimum of 75 pounds but less than 400 pounds of VOC per month, it is subject to registration requirements for small graphic arts facilities, per Regulation 8-20-408. This Air District's registration program for small graphic arts facilities is [on-line](#) at the Air District's web site.

The term "graphic art" is made up of 4 basic processing of the printing industry: web offset lithography, web letterpress, rotogravure, and flexography. These processes and their estimated emissions are described in detail in [Chapter 4.91 General Graphic Printing](#) of [AP-42 \(Fifth Edition, Volume I\)](#). Additional information including screen-printing is available from [Graphic Arts, Volume III: Chapter 7, November 1996](#) and [Preferred and Alternative Methods for Estimating Air Emissions from Printing, Packaging and Graphic Arts Industry, May 2002](#).

Two or more printing presses which are less than or equal to 3,000 pounds per year VOC may be grouped together as one source per the policy, [Grouping of Coating, Adhesive or Printing Operations into a Single Permitted Source](#).

Completeness Determination

The following Air District forms should be completed and fees provided for graphic arts operations. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form 101-B (one for facility).
2. Form S (one per source).
3. Form SS (one per source or facility).
4. Material Safety Data Sheet for the inks and press washes used, if it is a mixture of compounds.
5. If graphic arts operation exhausts to add-on abatement device, Form A (one per device).
6. If Health Risk Assessment is triggered, Form HRA (one per source).
7. Fees, calculated per Regulation 3 (Schedule E).

Emission Calculations

Using the material balance method, for VOC-containing materials, the amount of pollutant emitted is often assumed to be 100 percent of the amount of pollutant contained in the material as applied, unless a control device is used to remove or destroy the VOC in the exhaust stream. In addition, for lithographic printing operations, a retention factor of 95% is used for lithographic inks, per Regulation 8-20-605. The 95% retention factor equates into a 5% release factor and was established. To estimate the VOC emissions from vented operations where a VOC control device is present, it is necessary to estimate the efficiency of both the capture (exhaust) system and the control device.

Applicable Requirements

In general, graphic arts operations are subject to the operating standards of [Regulation 8-20](#), unless the facility meets the definition of a Small User, per Regulation 8-20-110. The Air District permit evaluator should review the material to ensure that the source meets applicable operating standards or else request such information from the applicant.

Best Available Control Technology (BACT)

BACT for coating sources is specified in the [BACT/TBACT Workbook](#). A [procedure](#) has been developed for [BACT1 review of adding an automatic blanket wash system to a lithographic operation](#). The following are applicable BACT requirements for:

Graphic Arts Printing and Coating Operations

- [Flexographic Printing Line](#)

- [Lithographic Offset Printing - Heatset](#)

- [Lithographic Offset Printing - Non-Heatset](#)

PERMIT HANDBOOK

[- Rotogravure Printing - Publication and Packaging](#)

[- Screen Printing and Drying](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports. In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for graphic arts printing and coating operations are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

6.1 COLD SOLVENT CLEANING

July 6, 2022

[Note: The current Permit Handbook's source-specific guidance for Cold Solvent Cleaning Operations was deleted on 8/4/2020. It is replaced by the conditions found in the new prototype all-inclusive chapter on Cold Solvent Cleaning, which is available in [Appendix G](#) of this document.]

6.2 VAPOR SOLVENT & CONVEYORIZED SOLVENT CLEANING

December 15, 2023

Process Description

A vapor solvent cleaner is defined in [Regulation 8-16-228](#) as any solvent cleaner which cleans through the condensation of hot solvent vapor on colder parts and boils liquid solvent producing solvent vapor, while conveyORIZED solvent cleaner is defined in Regulation 8-16-207 as any continuously loaded, conveyORIZED cold or vapor solvent cleaner. Additional background information is available from [Chapter 4.6, Solvent Degreasing](#), of [AP-42 \(Fifth Edition, Volume I\)](#).

Completeness Determination

The following Air District forms should be completed and fees provided for vapor solvent and conveyORIZED solvent cleaner(s). Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form 101-B (one for facility).
2. Form S (one per source).
3. Form SC (one per source).
4. Material Safety Data Sheet for each solvent used, if it is a mixture of compounds.
5. If cleaner exhausts into add-on abatement device, Form A (one per device).
6. If Health Risk Assessment is triggered, Form HRA (one per source).
7. Fees, calculated per Regulation 3 (Schedule E).

Emission Calculations

Net organic solvents used in the solvent cleaners are assumed to be 100 percent volatile and emitted into the atmosphere. Annual emissions are calculated by multiplying the annual net solvent usage by the density of the organic solvent.

Applicable Requirements

Air District Rules and Regulations

In general, vapor solvent cleaners are subject to the operating standards of [Regulation 8-16-301](#), while conveyORIZED solvent cleaners are subject to the operating standards of [Regulation 8-16-302](#). The Air District permit evaluator should review the applicant's SC Form to ensure that the source meets applicable operating standards or else request such information from the applicant.

40 CFR 63 Subpart T ([NESHAP](#)) may apply for those cleaners using halogenated cleaning solvents specified in [Regulation 8-16-216](#) at a total concentration of 5 percent or more by weight.

Best Available Control Technology (BACT)

BACT for vapor and conveyORIZED solvent cleaners is specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

Vapor Solvent Cleaning

- [Degreaser - Film Cleaning Machine](#)
- [Degreaser - Solvent Spray Booth](#)
- [Degreaser - Vapor, ConveyORIZED](#)
- [Degreaser - Vapor, Open Top](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

☐ [Offsets](#)

☐ [Prevention of Significant Deterioration](#)

PERMIT HANDBOOK

- ☐ [School Notification](#)
- ☐ [Health Risk Assessment](#)
- ☐ [Overburdened Communities](#)

Permit Conditions

Standardized conditions for vapor and conveyORIZED solvent cleaners are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

6.3 WIPE CLEANING OPERATIONS

December 15, 2023

Process Description

Wipe Cleaning is defined in [Regulation 8-16-232](#) as that method of cleaning which utilizes a material such as a rag wetted with a solvent, coupled with a physical rubbing process to remove contaminants from surfaces. Any wipe cleaning operation, which uses 20 or more gallons per year of net cleanup solvent or having emissions to the atmosphere greater than 150 pounds per year from all facility wide wipe cleaning operation, is subject to permitting requirements, per [Regulation 2-1-118.9](#). Wipe cleaning operations may be combined as one facility-wide source or other convenient groupings per Regulation 2-1-401.4.

Wipe cleaning operations that are associated with coating sources (i.e., cleaning of coating application equipment or cleaning of surfaces prior to their coating) are to be permitted, as part of a coating operation, therefore this permit chapter does not apply -- See [Spray Booths & Spray Guns](#).

Completeness Determination

The following Air District forms should be completed, and fees provided for the wipe cleaning operation. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure fees are calculated accurately.

1. Form 101-B (one for facility).
2. Form S (one per source).
3. Form SC (one per source).
4. Material Safety Data Sheet for each solvent used
5. If wipe cleaning operation exhausts into add-on abatement device, Form A (one per device).
6. If Health Risk Assessment is triggered, Form HRA (one per source).
7. Fees, calculated per Regulation 3 (Schedule E).

Emission Calculations

Any organic solvents used for wipe cleaning are assumed to be 100 percent volatile and emitted into the atmosphere. Annual emissions are calculated by multiplying the annual gross solvent usage by the density of the organic solvent.

Applicable Requirements

Air District Rules and Regulations

Wipe cleaning operations are subject to the storage and disposal requirements of [Regulation 8-1-320, 321, and 322](#) and the recordkeeping requirements of [Regulation 8-16-501](#) and [Regulation 8-4-501](#). In addition, each wipe cleaning operation is subject to either 1) [Regulation 8-4-302.1](#) (≤ 5 TPY/source) or 2) [Regulation 8-4-302.2](#) (85% overall control) and 3) Regulation 8-4-312 (the evaporative loss minimization requirements). Moreover, wipe cleaning operations for surface preparation are subject to the surface preparation standards of [Regulation 8-4-313](#), unless specifically exempt by [Regulation 8-4-116](#). The Air District permit evaluator should ensure that the applicant is exempt per [Regulation 8-4-113](#) & [Regulation 8-4-116](#) prior to approval of any wipe cleaning permit application.

Best Available Control Technology (BACT)

BACT for Wipe Cleaning is specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

- Wipe Cleaning
- [Wipe Cleaning Operation](#)
- [Solvent Reclamation](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for wipe cleaning operations are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

7.2 ELECTRONIC ASSEMBLY AND WAVE SOLDERING OPERATIONS

December 15, 2023

Process Description

Electronic Assembly/Soldering is where electronic components are assembled and soldered onto printed circuit boards. The process steps include hand assembly, wave soldering, solder paste application with reflow oven, and solvent cleaning. Hand assembly is where components are manually assembled and soldered onto printed circuit boards. The process steps include flux application and hand soldering. Wave soldering is where components are soldered onto the printed circuit board by a wave soldering machine. The solder paste application with reflow oven involves the application of solder paste to pad locations on the printed circuit board through a stencil. Components are then surface mounted onto the printed circuit board with a pick and place machine. After inspection, the surface mounted components are joined to the printed circuit board inside the reflow oven. The potential of pollutants into the atmosphere are organic emissions from the use of solvents and solvent-containing materials.

The following equipment is typically exempt from permitting requirements:

Description of Equipment	Permit Exemption
Any flux application, hand soldering, wave soldering, solder paste application which meets the criteria of Regulation 2-1-103.	2-1-103
Any reflow oven used in conjunction with a solder paste application which meets the criteria of Regulation 2-1-103.	2-1-119.4

This chapter describes the permitting requirements and procedures for those electronic assembly and wave soldering operations which are not exempt from permitting requirements per Regulation 2-1-103. The potential of pollutants into the atmosphere are organic emissions from the use of solvents and solvent-containing materials.

Permitting of solvent cleaning is covered by other Permit Handbook Chapters such as [Wipe Cleaning \(6.3\)](#) and [Vapor Solvent Cleaning \(6.2\)](#).

Completeness Determination

The following Air District forms should be completed, and fees provided for electronic assembly and wave soldering operations. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

- Form 101-B (one for facility).
- Form S (one per source).
- Material Safety Data Sheet for each solvent-containing material used, if it is a mixture of compounds.
- If the electronic assembly and wave soldering operations exhausts into add-on abatement device, Form A (one per device).
- If Health Risk Assessment is triggered, Form HRA (one per source).
- Fees, calculated per Regulation 3 (Schedule E).

Emission Calculations

Using the material balance method for materials containing POC, NPOC, and/or toxics, the amount of pollutant emitted is often assumed to be 100 percent of the amount of pollutant contained in the material.

$$E \text{ lb POC/yr} = [X \text{ gal flux/yr}] \times [Y \text{ lb flux/gal flux}] \times [Z \text{ lb POC/lb flux}],$$

where,

E = Pollutant emission rate (lb/yr)

X = Maximum annual quantity of flux used (gal/yr)

Y = Density of flux (lb/gal)

Z = POC wt. fraction of flux (lb/lb)

Applicable Requirements

Air District Rules and Regulations

In general, electronic assembly and wave soldering operations are subject to the operating standards of [Regulation 8-1](#) and [8-4](#). The standards require that closed containers be used for disposal of cloth or paper impregnated with organic compounds, that closed containers be used for storage of organic compounds, and that evaporation of organic compounds during the cleaning of spray equipment be minimized. In addition, emissions are limited to 5 TPY per flux application and wave soldering operation.

Best Available Control Technology (BACT)

BACT for flexible and rigid disc manufacturing is specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

Circuit Board Manufacturing

- [Circuit Board Etcher – Batch Immersion Type, Subtractive Process](#)

- [Circuit Board Etcher – Conveyorized Spray Type, Subtractive Process](#)

Electronic Assembly & Wave Soldering Operations

- [Wave Solder Operation - Flux Application and Finger Cleaning](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for electronic assembly and wave soldering operations are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

7.3 FLEXIBLE AND RIGID DISC MANUFACTURING

December 15, 2023

Process Description

The manufacturer of flexible and rigid discs includes the following operations: disc lubers and disc polishing. Disc lubers are used to coat magnetic memory discs with a thin layer of fluorocarbon polymer lubricant. The solvent is typically a non-precursor organic compound. There are three types of disc lubers: gravity flow, dip, and spray.

Gravity flow disc lubers operate in the following manner:

1. A rack of discs is loaded into a chamber.
2. A lubricant/solvent mixture is pumped into the chamber, submerging the discs.
3. The lubricant/solvent mixture is allowed to drain slowly, leaving a thin layer of lubricant on the discs.
4. The discs are removed from the chamber.

Dip lubers manually coat disc(s) in a bath of lubricant/solvent mixture in a dipping (and draining) operation.

Spray lubers spray the discs with lubricant/solvent mixture in an enclosed chamber.

Disc polishing /texturing is a technique using a physical rubbing process with an organic solvent on the surface of flexible or rigid magnetic data storage disc for the purpose of removing contaminants or oxidation or for increasing surface smoothness, resolution or gloss. Solvent cleaning devices using immersion or agitation in solvent vapors are not considered disc polishing/texturing, but solvent cleaning subject to [Regulation 8-16](#) and [Vapor and Conveyorized Solvent Cleaning chapter \(6.2\)](#).

Completeness Determination

The following Air District forms should be completed, and fees provided for flexible and rigid disc manufacturing. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

- | | |
|---|--|
| 1. Form 101-B (one for facility). | 4. If the disc luber exhausts into add-on abatement device, Form A (one per device). |
| 2. Form S (one per source). | 5. If Health Risk Assessment is triggered, Form HRA (one per source). |
| 3. Material Safety Data Sheet for each solvent used, if it is a mixture of compounds. | 6. Fees, calculated per Regulation 3 (Schedule E). |

Emission Calculations

Net organic solvents used in the solvent cleaners are assumed to be 100 percent volatile and emitted into the atmosphere. Annual emissions are calculated by multiplying the annual net solvent usage by the density of the organic solvent.

Applicable Requirements

Air District Rules and Regulations

In general, disc lubers are subject to the operating standards of [Regulation 8-1](#). The standards require that closed containers be used for disposal of cloth or paper impregnated with organic compounds; that closed containers be used for storage of organic compounds; and that evaporation of organic compounds during the cleaning of spray equipment be minimized.

Specifically, disc lubers (also known as disc coaters) and disc polishing operations are subject to the operating standards of [Regulation 8-38](#). The permit evaluator should evaluate the permit application for compliance with the operating standards of Regulation 8-38.

Best Available Control Technology (BACT)

BACT for flexible and rigid disc manufacturing is specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

Magnetic Media Manufacturing - Disc Coating, Lubricant

- [Dip Luber](#)

- [Gravity Drop \(Drain\) Luber](#)

- [Spray Luber](#)

Magnetic Media Manufacturing - Disc Polishing/Texturing

- [<22 lb/day Emissions \(Uncontrolled\)](#)

- [>=22 lb/day Emissions \(Uncontrolled\)](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

☐ [Offsets](#)

☐ [Prevention of Significant Deterioration](#)

☐ [School Notification](#)

☐ [Health Risk Assessment](#)

☐ [Overburdened Communities](#)

Permit Conditions

Standardized conditions for disc lubers are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

7.4 SEMICONDUCTOR FABRICATION

December 15, 2023

Process Description

Semiconductor manufacturing refers to the series of manufacturing processes, which produce packaged integrated circuits (ICs). Most packaged ICs are assembled onto printed circuit boards (PCBs) by a separate manufacturer. However, some packaged ICs, such as microprocessor upgrades and memory modules, are used without pre-assembly onto a circuit board. PCB assembly is the subject of a separate chapter. A thorough description of the semiconductor manufacturing process is available in Chapter 1 of [Revision 2](#) of this chapter.

Completeness Determination

The following Air District forms should be completed and fees provided for semiconductor fabrication (FAB). Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. . Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form 101-B (one for facility).
2. Form FF (one per source).
3. Material Safety Data Sheet for each solvent mixture, photoresist coating, stripper, and developer identified in Form FF.
4. If fab area equipment exhausts into add-on abatement device, Form A (one per device).
5. If Health Risk Assessment is triggered, Form HRA (one per source).
6. Fees, calculated per Regulation 3 (Schedule H).

Emission Calculations

Emission factors are typically used in calculating emissions from semiconductor fabrication operations. For any material applied at a wafer coating applicator, including coatings, developers, dispensed cleanup solvents, and processing solvents, the emission factor is 90% of the total solvent content of material. For solvent station chemicals used at solvent sinks or other solvent stations, the emission factor of 30% of the total solvent content of all chemicals is used. For wipe cleaning operations, the emission factor of 100% of the total solvent content of the solvent is used. A thorough background explanation of these factors is provided in Section 3 of [Revision 2](#) of this chapter.

Applicable Requirements

Air District Rules and Regulations

Semiconductor manufacturing operations are subject to [Regulation 8-30: Semiconductor Manufacturing Operations](#). The permit evaluator shall ensure the applicant complies with all sections of the rule that apply:

If Use	Then Subject to
Solvent –based developers < 24 gals/month of solvent-based maskant and developer	Regulation 8-30-402
Solvent-based developers > 24 gals/month of solvent-based maskant and developer	Regulation 8-30-302
Solvent Sinks	Regulation 8-30-304
Solvent Spray Stations	Regulation 8-30-305
Solvent Vapor Stations	Regulation 8-30-306
Wipe Cleaning Operations	Regulation 8-30-307

[NESHAP](#) requirements may apply for a semiconductor manufacturing facility, which emits or has the potential to emit any single HAP at a rate of 10 tons per year or more or any combination of HAP at a rate of 25 tons per year or more. In general, semiconductor facilities in the Bay Area are not subject to these [NESHAP](#) requirements, because after controls their HAP emissions are well below the [NESHAP](#) trigger

levels. However, the permit evaluator should still review the applicant's HAP emissions to ensure that [NESHAP](#) requirements are not triggered.

Best Available Control Technology (BACT)

BACT for semiconductor fabrication operations is specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

Semiconductor Manufacturing Operations

- [Semiconductor Fab - Photoresist Operations](#)

- [Semiconductor Fab - Solvent Cleaning Stations](#)

- [Semiconductor Fab - Siliconizing Reactors, Furnace Chambers, Vapor Deposition](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review.

Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

☐ [Offsets](#)

☐ [Prevention of Significant Deterioration](#)

☐ [School Notification](#)

☐ [Health Risk Assessment](#)

☐ [Overburdened Communities](#)

Permit Conditions

Standardized conditions for semiconductor fabrication areas are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

8.2 WASTEWATER TREATMENT FACILITIES

December 15, 2023

Process Description

EPA's [Chapter 4.3 \(Waste Water Collection, Treatment And Storage\)](#) of [AP-42](#) provides information regarding the wastewater collection, treatment, and storage. This chapter covers the permitting of typical unit operations at publicly owned treatment works (POTW) facilities. This chapter does not cover industrial or refinery wastewater. These plants treat wastewater from sanitary and storm sewer systems prior to discharge into the Bay or reuse as reclaimed water. Typical POTW sources may be defined as a combination of the liquid or water carried wastes removed from residences, institutions, and commercial and industrial establishments, together with groundwater, surface water, and storm water runoffs.

Each of the process categories at the wastewater treatment facilities should be permitted as a separate source "grouping" with an assigned a source number and process code (for Data Form G entry) as indicated in the following table. The material code for wastewater or municipal sewage is 562 and the "usage unit" is million gallons (for Data Form G entry).

Process/Source Description	Definition of Process/Source Description	Examples of Equipment Included in Source Description	Process Code
Preliminary Treatment (use default source number, S-110 , if available)	Preliminary treatment to screen out, grind up, or separate debris is the first step in wastewater treatment. Sticks, rags, large food particles, sand, gravel, toys, etc., are removed at this stage to protect the pumping and other equipment in the treatment plant.	Treatment equipment such as bar screens, comminutors (a large version of a garbage disposal), and grit chambers are used as the wastewater first enters a treatment plant. The collected debris is usually disposed of in a landfill.	7210
Primary Treatment (use default source number, S-120 , if available)	In primary treatment systems, physical operations remove floatable and settleable solids.	Oil-water separators , primary clarifiers , and primary treatment tanks .	7220
Flow Equalization (use default source number, S-130 , if available)	Flow rate equalization results in a more uniform effluent quality in downstream settling units, such as clarifiers.	Equalization basins are used to reduce fluctuations in the wastewater flow rate and organic content before the waste is sent to downstream treatment processes. The basins are used to store large flows of wastewater produced during storms or floods so that the flows do not overwhelm treatment capacity and are not discharged with no treatment or inadequate treatment.	7230
Secondary Treatment (use default source number, S-140 , if available)	In secondary treatment systems, biological and chemical processes remove most of the organic matter in the wastewater.	Biological waste treatment in tanks, aeration basins, and oxidation ponds .	7240
Secondary Clarifiers (use default source number, S-150 , if available)	Used in secondary treatment systems to settle and remove settleable or suspended solids.	Secondary clarifier .	7250
Tertiary Treatment (use default source number, S-160 , if available)	In tertiary treatment systems, additional processes remove constituents not taken out by secondary treatment.	Advanced treatment is necessary in some treatment systems to remove nutrients from wastewater. Chemicals are sometimes added	7260

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Process/Source Description	Definition of Process/Source Description	Examples of Equipment Included in Source Description	Process Code
		during the treatment process to help settle out or strip out phosphorus or nitrogen. Some examples of nutrient removal systems include coagulant addition for phosphorus removal and air stripping for ammonia removal. Micro filtration can also be used to further increase effluent quality. Nitrification Basins, Membrane Bioreactors	
Disinfection (use default source number, S-170 , if available)	Disinfection focuses on removal of disease-causing organisms from wastewater. Treated wastewater can be disinfected by adding chlorine or by using ultraviolet light. High levels of chlorine may be harmful to aquatic life in receiving streams. Treatment systems often add a chlorine-neutralizing chemical to the treated wastewater before stream discharge. Ozone may also be used for disinfection. If ozone generators produce more than 1 lb/day of ozone, they require separate permits.	Chlorine Contact Tanks and De-chlorination.	7270
Sludge Handling Processes (use default source number, S-180 , if available)	Sludges are generated through the sewage treatment process. Primary sludges, material that settles out during primary treatment, often have a strong odor and require treatment prior to disposal. Secondary sludges are the extra microorganisms from the biological treatment processes. The goals of sludge treatment are to stabilize the sludge and reduce odors, remove some of the water and reduce volume, decompose some of the organic matter and reduce volume, kill disease-causing organisms and disinfect the sludge.	Water can be removed from sludge by using sand drying beds, vacuum filters, filter presses, rotary drum thickeners, and centrifuges.	7280
Digesters (use default source number, S-190 , if available)	Aerobic and anaerobic digestion are used to decompose organic matter to reduce sludge volume and its odors.	Aerobic and anaerobic digesters.	7290
Receiving of food waste and fats oils and greases (FOG) (any	Food waste and FOG are received to be digested in anaerobic digesters. The receiving stations are either fully	Receiving stations, pre-digestion blend tanks.	7280

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P E R M I T H A N D B O O K

Process/Source Description	Definition of Process/Source Description	Examples of Equipment Included in Source Description	Process Code
available number may be used)	enclosed or emissions are routed to carbon adsorbers/biofilters. Food waste degrades more rapidly than FOG and will produce higher emissions in a receiving station.		
Receiving of fats oils, and greases (FOG) exclusively (any available number may be used)		Receiving stations, pre-digestion blend tanks.	7999

Storage vessels, which contain hydrocarbon condensate, require a permit if the vessel is greater than 260 gallons in capacity, per [Regulation 2-1-123.1](#) and contain an organic layer which is greater than 1 weight percent VOC per [Regulation 2-1-123.6](#). The permitting of these storage tanks is covered in the permit handbook for [Organic Liquid Storage Tanks](#).

Completeness Determination

The following Air District forms should be completed and fees provided for the wastewater treatment facilities. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

- Form 101-B (one for facility).
- Form G (one per source). See the Process Description section for Process Code, Material Code, and Usage Unit.
- Process Diagram and Map.
- If any source exhausts into an add-on abatement device, Form A (one per device).
- If Health Risk Assessment is triggered, Form HRA (one per source).
- Fees, calculated per Regulation 3 (Schedule G1) for Industrial and Municipal Wastewater Treatment Facilities for primary treatment, preliminary treatment, sludge handling, and digesters at municipal wastewater facilities (except petroleum refineries), Schedule F for flow equalization, secondary treatment, secondary clarifiers, tertiary treatment, and disinfection..

Emission Calculations

In general, POTWs are large facilities with processes and flow characteristics, that may differ greatly from facility to facility. There are no emission factors, that can be used without some measure of uncertainty. There are a number of emission methods, which can be used depending on the operation and other parameters. These emission estimation methods are presented as follows:

- A) Mass Balance:** Emissions are calculated based on liquid concentrations from the proposed source (influent and effluent concentrations). If facilities choose to test the influent and effluent wastewater at a given source, the organic TACs may be reduced below what would otherwise be given using the 80th percentile emission factors, which are described below, if supported by the results. Even if the wastewater throughput is not increased and emissions are not increasing, this testing could still be useful to provide more accurate emission factors.
- B) Refined Mass Balance:** Emissions are calculated based on liquid concentrations, while accounting for competing removal mechanisms, such as biodegradation and adsorption.
- C) Fate Emissions Estimation Models (BAAT's BASTE Model):** The Bay Area Air Toxics (BAAT) Group's BASTE model can be modified to include the top 95 percent of the reactive organic gases (ROGs). This model estimates pathway losses (volatilization, sorption, and biodegradation) based on liquid-phase concentration measurements coupled with information related to wastewater flow (flow rate, depth of flow, etc), fluid characteristics (temperature, suspended solids, etc), contaminant properties, and physical properties of the unit operations.
- D) Tracer Studies:** This method utilizes a steady dosing of a tracer compound into the influent of the treatment process and simultaneous analysis for the tracer in the effluent and off-gases. The

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emissions for other compounds can be calculated based on known physical constants, such as gas/water partition and biodegradation rate.

- E) Source Tests:** This method includes stack testing, for confined sources or combustion sources, and surface isolation flux chambers for area sources.
- F) Industry-wide Emission Factors:** This method uses conservative values developed from a wide range of POTWs to determine air emission rates.
- G) 80th Percentile Emission Factors:** Although there are no universal emission factors for POTWs which can be used without some uncertainty, it is possible to use certain average emission factors developed by the [Bay Area Air Toxics \(BAAT\) POTW Group](#). The 80th percentile method allows certain POTWs to calculate air emissions from liquid processes within an 80% confidence interval. Emission Factors are entered for source S-100 (Municipal Wastewater Treatment Plant) instead of individual sources. These emission factors are presented in the following table.

80th Percentile Emission Factors	
POTW Liquid Processes	
Emission Factor	
Compound (lb/yr per MM gal/day)	
Methylene Chloride	95
Chloroform	40
1,1,1-TCA	110
Benzene	3.7
TCE	11
Toluene	28
Tetrachloroethylene	37
Xylenes	33
1,4-Dichlorobenzene	5

- H) Indirect Measurement:** This method uses indirect air measurement techniques such as transection, fenceline, and/or ambient air monitoring to calculate the sources of air emission.
- I) Overall facility VOC emissions:** The AP-42 emission factor from Webfire, factor 23940, gives an overall POTW VOC emission factor of **8.90 lb/MMgal**. This factor should be used for overall POTW VOC emissions estimation unless information in the inlet wastewater concentrations is available.
- J) Overall facility Ammonia emissions:** Ammonia emissions from the overall POTW may be estimated using an AP-42 emission factor from Webfire, which gives a general factor of **19 lb/mmgal**.
- K) Overall facility H₂S emissions:** Hydrogen sulfide is one of the main toxic and nuisance compounds emitted by wastewater treatment plants. A 2012 study from Valencia, Spain (Colomer et al, 2012, Journal of the Air & Waste Management Association) found that wastewater treatment plants lose 8-10% of influent hydrogen sulfide to the atmosphere. The CATEF database (sourceid 2554) estimates the H₂S content in wastewater at the Headworks stage to be 705 ppbv. The following calculation gives an emission factor for the average amount of H₂S lost at POTWs:

H ₂ S conc. at Headworks	705 ppbv	Source: CATEF sourceid 2254
Sewage density	8.34 lb/gal	Assume same as water
	8,340,000 lb/mmgal	
H ₂ S in sewage	5.88 lb/mmgal	
Estimated H ₂ S losses	10%	“Estimation of hydrogen sulfide emission rates at several wastewater treatment plants through experimental concentration measurements and dispersion modeling”, Journal AWMA 2012
	0.588 lb H₂S/mmgal	EF, average POTW H₂S lost

H₂S emissions calculated with this emission factor can be evenly distributed between preliminary treatment, primary treatment, and sludge handling POTW sources.

- L) Digester PRV Emissions:** The anaerobic digestion of sewage sludge produces high levels of hydrogen sulfide. Anaerobic digesters are equipped with pressure relief valves (PRVs) to eliminate the possibility of catastrophic digester failure due to over-pressurization. While over-pressurization is designed to only occur in emergency situations, such as failure of digester gas combustion equipment, activation of the PRVs does happen and can result in significant releases of H₂S. Additionally, if PRVs are not maintained, they may fail and continuously vent. An example PRV emissions calculation is shown below:

1,800	CFM, digester gas	PRV flow rate per specs
200	ppm H ₂ S	Conc. in digester gas
108,000	V, CFH, digester gas	
1	P, atm	
0.7302	R, ft ³ · atm/lb mol · °R	
559	T, Rankine	
264.59	lb-mol/hr	
0.05292	lb-mol/hr H ₂ S	
34	MW H ₂ S, lb/lb-mole	
1.799	lb/hr H ₂ S	

The digester PRV emissions calculations should be used in air dispersion analysis to demonstrate whether the source is likely to comply with Regulation 9, Rule 2. If emissions exceed the toxic trigger levels for hydrogen sulfide, an HRA should be conducted. The modeling may be used to determine the lb/hr that can be vented from a PRV while still ensuring compliance with Regulation 9, Rule 2. The facility can use the length of the release (usually minutes), the H₂S concentration at the time, and the standard flow through the PRV at the pressure setting to determine compliance.

- M) High Strength Waste Receiving Emissions:** High strength waste receiving stations allow POTWs to take in food waste and Fats, Oils, and Greases (FOG), which is then typically pumped into the anaerobic digesters. Decomposition of this material leads to emissions of VOCs, H₂S, ammonia, and toxic organic compounds. Typically, emissions are routed through some form of carbon adsorption or biofiltration. VOC emissions can be estimated with testing at the abatement stack by EPA method 25C. If testing is not available, a 2015 CARB study found that **0.196 lb VOC/wet ton-day** was emitted from stockpiles of food waste and green waste (CARB, 2015, “ARB Emissions Inventory Methodology for Composting Facilities”) at several California facilities. This number can be used to estimate VOC emissions. Toxic organic compounds can be estimated using Table 1-2 from the Composting Operations Permit Handbook Chapter 11.16, which gives emissions of TACs as a proportion of VOC emissions.

Testing conducted at SCAQMD-inland in 2001 showed **0.018 lb NH₃/wet ton-day** from stockpiled green waste. This can be used to estimate ammonia emissions if testing is not available.

- N) Carbon Adsorption Abatement Emissions:** The decomposition of organic matter in sewage leads to the emissions of VOCs, H₂S, and other compounds. Carbon abatement or biofiltration is often used to abate such emissions. Emissions from the stack of the abatement are calculated using the Ideal Gas Law, the maximum design flow rate of the abatement, and the specified, designed, or tested peak outlet concentration of the pollutant to be calculated. If this information is not provided in the permit application submittal, the applicant should submit information on the H₂S and organics concentrations out of the stack and the maximum flow rate of the abatement device.

Alternatively, the EPA’s Measurement Policy Group recommends the use of the [WATER9](#) software program. The SIMS program, referred to in [Section 4.3 of EPA’s AP-42](#), was removed from the CHIEF

web site in August 2000. Since this program requires many details of the geometry and configuration, the District cannot use this model. However, if a facility uses this model, it may submit the results.

Renewable Natural Gas

Renewable natural gas (RNG) is one way to make use of energy released by the biodegradation of wastewater solids. RNG is meant to be used anywhere natural gas, which has a heat content of 1020 Btu/scf, would be used. Because digester gas is typically composed of 60% methane and 40% carbon dioxide, as well as significant moisture and trace amounts of siloxanes and hydrogen sulfide, it must undergo a treatment process before being used as RNG. This treatment process creates the desired RNG, but also a waste gas that may have a heat content of 250 Btu/scf or more. This waste gas is often flared. A more productive use of this waste gas could be to fire boilers to create process heat at the facility, which might be used to heat the digesters.

Applicable Requirements

Air District Rules and Regulations

Wastewater collection and separation systems that handle liquid organic compounds from industrial processes are subject to the standards of Regulation 8-8. However, Regulation 8-8-115 specifically exempts publicly owned municipal waste water handling facilities from the standards of [Regulation 8-8](#).

The wastewater treatment facility may be subject to Regulation 7 (Odorous Substances), if it is considered a potential source of odors. Abatement may be warranted if the uncontrolled source has demonstrated odors in the past or has the potential to be odorous.

Best Available Control Technology (BACT)

BACT for water treatment facilities is specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

Sewage Treatment Facilities Works (POTWs)

Sewage Treatment Plants

- [Headworks and Primary Treatment](#)

- [Conventional Air Activated Sludge](#)

- [High Purity Oxygen Activated Sludge](#)

- [Secondary Clarifiers and Tertiary Treatment](#)

- [Solids Handling Equipment](#)

- [Digesters and Sludge Holding Tanks](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

NSPS

Sewage sludge incinerators (SSI) at sewage treatment facilities may be subject to the [NSPS, 40 CFR 60, Subpart O: Standards of Performance for VOC Emissions for Sewage Treatment Facilities](#). Existing SSI are subject to the Emission Guideline in 40 CFR 60, Subpart MMMM indirectly and the Federal Plan in 40 CFR 62, Subpart LLL, because the District and the State of California have not adopted a state plan. A new SSI would be subject to 40 CFR 60, Subpart LLLL.

In addition, oil-water separators at a petroleum refinery may be subject to the [NSPS, Subpart QQQ: Standards of Performance for VOC Emissions From Petroleum Refinery Wastewater Systems](#). The permit evaluator should review the proposed application to ensure that any proposed incinerator or oil-water separator is either exempt from the NSPS or complies with the NSPS.

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

☐ [Offsets](#)

☐ [Prevention of Significant Deterioration](#)

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- ☐ [School Notification](#)
- ☐ [Health Risk Assessment](#)
- ☐ [Overburdened Communities](#)

Permit Conditions

Standardized conditions for sewage treatment facilities are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

9.1 AIRSTRIPPING

December 15, 2023

Process Description

This chapter covers the permitting of air stripping operations. Air stripping involves the mass transfer of volatile contaminants from water to air. For ground water remediation, this process is typically conducted in a packed tower or an aeration tank. The typical packed tower air stripper includes a spray nozzle at the top of the tower to distribute contaminated water over the packing in the column, a fan to force air countercurrent to the water flow, and a sump at the bottom of the tower to collect decontaminated water. Auxiliary equipment that can be added to the basic air stripper includes an air heater to improve removal efficiencies; automated control systems with sump level switches and safety features, such as differential pressure monitors, high sump level switches, and explosion-proof components; and air emission control and treatment systems, such as activated carbon units, catalytic oxidizers, or thermal oxidizers. Packed tower air strippers are installed either as permanent installations on concrete pads or on a skid or a trailer.

Completeness Determination

The following Air District forms should be completed and fees provided for the air stripping operations. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form 101-B (one for facility).
2. Form G (one per source). Process code is 5040 for air stripping/DAF processing, 7155 for contaminated ground water stripping, and 7353 for sub-slab depressurization/mitigation/venting systems. Material code is 502, and usage unit is thousand gallons.
3. Form A (one per abatement device).
4. If abatement device burns fuel (i.e., thermal oxidizer), then Form C. If the abatement device is an internal combustion engine, then Form ICE.
5. Form P (one per stack).
6. If Health Risk Assessment is triggered, Form HRA (one per source).
7. Fees, calculated per Regulation 3 (Schedule G1 – Remediation Operations, Groundwater – Strippers).

Emission Calculations

Airstripping (Primary) Emissions

Emission calculations are based on a material balance from the proposed source with the following assumptions:

1. Standard conditions: Pressure = 1 atm; temperature = 70°F (21°C); 1 mole occupies 24.15 L
2. Influent concentrations based on estimates provided by the applicant (from water analyses results for total **organic** hydrocarbons (POC), and individual toxic compounds, identified in Table 2-5-1 of [Regulation 2-5](#)).
3. Assume 100% of contaminants are stripped from the water.
4. Influent flow rate based on operational parameters of equipment (i.e., flow rate into air stripping operation; abatement efficiency of abatement equipment (i.e., carbon system, thermal or catalytic oxidation).

Abated emission of the total organic hydrocarbons and individual toxic compounds can be calculated using the following equation:

$$E_p = C_i * Q * C_o * (1-A)$$

where:

E_p = Abated Emissions (lbs/day),
 C_i = Influent Concentration (ppmw),
 Q = Flow Rate (gal/min),

C_o = Dimensional Constant (Conversion Factor),
 $C_o = 8.34 \text{ lb/gal} * 1440 \text{ min/day} = 12009.6 \text{ lb-min/gal-day}$

A = Abatement Efficiency of Abatement Device (wt%),

Annual emissions are calculated by multiplying daily emissions by the maximum number of operating days (i.e., 365 days per year).

Abatement Device Emissions (Secondary)

Per Regulation 2-2-208, the aggregate sum of all increases of any given pollutant from a facility pursuant to the authority to construct or permit to operate is included in the cumulative increase. Hence, in addition to abated emissions of airstripping operation (“primary” emissions), emissions from the abatement device (“secondary” emissions) must also be calculated. Because the abatement device requires a permit, per Regulation 2-1-113.2.4, any “secondary” emissions from the abatement device must also be included in the cumulative increase.

Carbon Adsorption

There are no secondary emissions for the operation of a carbon adsorption system.

Thermal/Catalytic Oxidation

However, the combustion of fuel from thermal and catalytic oxidizers and internal combustion engines results in secondary criteria pollutants of combustion. These secondary pollutants must be calculated and included in the cumulative increase. Furthermore, per Regulation 2-2-112, although the abatement equipment is not be subject to BACT requirements when it is used to abate a source to meet BACT/TBACT requirements, it is subject to Reasonably Available Control Technology (RACT) for control of secondary pollutants. Policy: NO_x and CO RACT Levels for Thermal Oxidizers has been established:

$$\text{NO}_x = 0.2 \text{ lb/MMBTU}$$

$$\text{CO} = 0.8 \text{ lb/MMBTU}$$

Per Air District Policy: NO_x and CO RACT Levels for Thermal Oxidizers, source testing of the thermal and catalytic oxidizers are required to verify nitrogen oxide and carbon monoxide emission requirements, if the oxidizer is over 7.5 MMBTU/hr.

Emission factors from AP-42, Table 1.4-2 (Natural Gas Combustion) may be used for particulate (PM₁₀), sulfur dioxide (SO₂), and POC emissions, unless vendor data for the abatement device is available:

$$\text{PM}_{10} = 7.6 \text{ lb/MM scf} * (\text{scf}/1020 \text{ BTU}) = 0.075 \text{ lb/MMBTU}$$

$$\text{SO}_2 = 0.6 \text{ lb/MM scf} * (\text{scf}/1020 \text{ BTU}) = 0.0006 \text{ lb/MMBTU}$$

$$\text{POC} = 5.5 \text{ lb/MM scf} * (\text{scf}/1020 \text{ BTU}) = 0.0054 \text{ lb/MMBTU}$$

With these emission factors, the annual emissions from the thermal/catalytic oxidizer can be calculated using the following equation:

$$E_s = F \times B \times H$$

where:

E_s = Annual Emissions of Abatement Device (lbs/yr)

F = Emission Factor of Criteria Pollutant (lb/MMBTU)

B = Maximum Firing Rate of Burner in Abatement Device (MMBTU/hr)

H = Maximum Number of Hours The Oxidizer Will Operate
(i.e., 24 hr/day x 365 day/yr = 8760 hrs/yr)

Applicable Requirements

Air District Rules and Regulations

Air stripping operations are subject to [Regulation 8-47 \(Air Stripping and Soil Vapor Extraction Operations\)](#); which requires at least 90% control of emissions unless the applicant meets the exemptions of Sections 109 through 113 of that regulation.

Any IC engines over 250 HP used for abatement of the airstripping operation would also be subject to [Regulation 9-8 \(Nitrogen Oxide and Carbon Monoxide Emissions From Stationary Internal Combustion Engines\)](#). Initial startup source testing should be required to ensure that the IC engine (≥ 250 HP) will meet the emission standards for nitrogen oxides and carbon monoxide.

Best Available Control Technology (BACT)

BACT for airstripping is specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

[Air Stripper - Ground Water Treatment](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for air stripping operations (including that for RACT requirements for thermal oxidizers and IC engines) are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

9.2 SOIL VAPOR EXTRACTION

December 15, 2023

Process Description

This chapter covers the permitting of soil vapor extraction operations. Soil vapor extraction also known as "soil venting" or "vacuum extraction", is an in situ remedial technology that reduces concentrations of volatile constituents in petroleum products adsorbed to soils in the unsaturated (vadose) zone. In this technology, a vacuum is applied through wells near the source of contamination in the soil. Volatile constituents of the contaminant mass "evaporate" and the vapors are drawn toward the extraction wells. Extracted vapor is then treated as necessary (commonly with carbon adsorption or thermal or catalytic oxidation) before being released to the atmosphere.

Completeness Determination

The following Air District forms should be completed and fees provided for the soil vapor extraction operations. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form 101-B (one for facility).
2. Form G (one per source). Process code is 7156; material code is 572, and usage unit is cubic feet.
3. Form A (one per abatement device).
4. If abatement device burns fuel (i.e., thermal oxidizer), then Form C. If the abatement device is an internal combustion engine, then Form ICE.
5. Form P (one per stack).
6. If Health Risk Assessment is triggered, Form HRA (one per source).
7. Fees, calculated per Regulation 3 (Schedule G1 – Remediation Operations, Soil – Any Equipment).

Emission Calculations

Soil Vapor Extraction (using carbon adsorption)

For a conservative estimate of yearly emissions, we shall assume that the system is operated for an entire year within an inlet concentration corresponding to the initial soil concentration level. Emission calculations are based on a material balance from the proposed source with the following assumptions:

1. Standard conditions: Pressure = 1 atm; temperature = 70°F (21°C); 1 mole occupies 24.15 L (or 386.8 ft³/lb-mol)
2. Hydrocarbons will be abated by at least two activated carbon vessels (typically 300 – 2000 lb) in series. POC/NPOC cumulative emissions are based on a 3-ppm effluent concentration since the last carbon threshold changeout level on the last abatement vessel will be limited 3 ppm, calibrated to isobutylene.
3. Toxic Air Contaminants (TAC) emissions will be based on soil vapor data submitted with the application.
4. Assume 100% of contaminants are stripped from collected vapor.
5. All equipment can operate 24 hours per day and 365 days per year.
6. Influent flow rate based on operational parameters of equipment (i.e., flow rate into abatement equipment and an abatement efficiency of 99%).

Abated emission of the total organic hydrocarbons and individual toxic compounds can be calculated using the following equations:

$$E_p = C_i * Q * Co * (1-A)$$

where:

E_p = Abated Emissions (lbs/hr),

C_i = Influent Concentration (ug/m³),

Q = Flow Rate (scfm),

Co = Dimensional Constant (Conversion Factor)

$Co = 1 \text{ lb}/4.54\text{E}8 \text{ ug} * \text{m}^3/35.31 \text{ ft}^3 * 60 \text{ min/hr} = 3.75\text{E}-09 \text{ lb- m}^3\text{-min/ug-ft}^3\text{-hr}$

A = Abatement Efficiency of Abatement Device (wt%)

Daily emissions are calculated by multiplying hourly emissions by the maximum number of operating hours per day (i.e., 24 hours per day). Annual emissions are calculated by multiplying daily emissions by the maximum number of operating hours per year (i.e., 365 days per year).

The following are an example emissions calculation for 21,000 ug/m³ of pollutant concentration with a flow rate of 275 cfm of influent flow rate

$$21,000 \frac{\mu g}{m^3} \times 275 \frac{ft^3}{min} \times 1440 \frac{min}{day} \times \frac{1}{35.31} \frac{m^3}{ft^3} \times \frac{1}{4.54 \times 10^8} \frac{lb}{\mu g} = 0.518 \frac{lb}{day} \text{ (unabated)}$$

$$0.518 \frac{lb}{day} \times (1 - 99\%) \times 365 \frac{day}{year} = 1.89 \text{ lb/year (abated)}$$

Abatement Device Emissions (Secondary)

Per [Regulation 2-2-208](#), the aggregate sum of all increases of any given pollutant from a facility pursuant to the authority to construct or permit to operate is included in the cumulative increase. Hence, in addition to abated emissions of soil vapor extraction (“primary” emissions), emissions from the abatement device (“secondary” emissions) must also be calculated. Because the abatement device requires a permit, per Regulation 2-1-113.2.4, any “secondary” emissions from the abatement device must also be included in the cumulative increase.

Carbon Adsorption

There are no secondary emissions for the operation of a carbon adsorption system.

Thermal/Catalytic Oxidation

However, the combustion of fuel from thermal and catalytic oxidizers and internal combustion engines results in secondary criteria pollutants of combustion. These secondary pollutants must be calculated and included in the cumulative increase. Furthermore, per Regulation 2-2-112, although the abatement equipment is not be subject to BACT requirements when it is used to abate a source to meet BACT/TBACT requirements, it is subject to Reasonably Available Control Technology (RACT) for control of secondary pollutants. [Policy: NOx and CO RACT Levels for Thermal Oxidizers](#) has been established:

$$\begin{aligned} \text{NO}_x &= 0.2 \text{ lb/MMBTU} \\ \text{CO} &= 0.8 \text{ lb/MMBTU} \end{aligned}$$

Per Air District [Policy: NOx and CO RACT Levels for Thermal Oxidizers](#), source testing of the thermal and catalytic oxidizers are required to verify nitrogen oxide and carbon monoxide emission requirements, if the oxidizer is over 7.5 MMBTU/hr.

Emission factors from AP-42, Table 1.4-2 (Natural Gas Combustion) may be used for particulate (PM10), sulfur dioxide (SO₂), and POC emissions, unless vendor data for the abatement device is available:

$$\begin{aligned} \text{PM}_{10} &= 7.6 \text{ lb/MM scf} \times (\text{scf}/1020 \text{ BTU}) = 0.0075 \text{ lb/MMBTU} \\ \text{SO}_2 &= 0.6 \text{ lb/MM scf} \times (\text{scf}/1020 \text{ BTU}) = 0.0006 \text{ lb/MMBTU} \\ \text{POC} &= 5.5 \text{ lb/MM scf} \times (\text{scf}/1020 \text{ BTU}) = 0.0054 \text{ lb/MMBTU} \end{aligned}$$

With these emission factors, the annual emissions from the thermal/catalytic oxidizer can be calculated using the following equation:

$$E_s = F \times B \times H$$

where:

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E_s = Annual Emissions of Abatement Device (lbs/yr)
F = Emission Factor of Criteria Pollutant (lb/MMBTU)
B = Maximum Firing Rate of Burner in Abatement Device (MMBTU/hr)
H = Maximum Number of Hours The Oxidizer Will Operate
(i.e., 24 hr/day x 365 day/yr = 8760 hrs/yr)

Applicable Requirements

Air District Rules and Regulations

Soil vapor extraction operations are subject to [Regulation 8-47 \(Air Stripping and Soil Vapor Extraction Operations\)](#); which requires at least 90% control of emissions unless the applicant meets the exemptions of Sections 109 through 113 of that regulation.

Best Available Control Technology (BACT)

BACT for soil vapor extraction is specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

Soil Vapor Extraction

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for soil vapor extraction operations (including that for RACT requirements for thermal oxidizers and IC engines) are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

9.3 SUB-SLAB DEPRESSURIZATION

December 15, 2023

Process Description

This chapter covers the permitting of sub-slab depressurization operations. Volatile chemicals from groundwater contamination or contaminated soil can enter a building through cracks or holes in the foundation slab or walls, utility penetrations, and/or can permeate through building materials. Vapor-forming chemical compounds typically include gases, such as methane. Sub-slab depressurization is the most common and most effective gas reduction strategy in basement and slab-on-grade houses. Sub-slab depressurization reduces the pressure in the sub-slab environment by exhausting sub-slab gases before they move through floor cracks or openings. A sub-slab depressurization system consists of one or more pipes attached to a fan or blower thereby creating a suction. The collected vapors are then abated typically using an activated carbon abatement system.

Potential Permit Exemption

Note that sub-slab depressurization systems that utilize wind-driven roof-mounted exhaust fans are exempt from Air District permitting requirements provided that:

- The emissions of any toxic air contaminants (TACs) are below the acute and chronic trigger levels listed in Table 2-5-1 of [Regulation 2-5](#); and
- The exhaust fan is solely powered by natural wind action (also known as turbine ventilators). No electricity or external source of power is used.

[Regulation 2-1-128.5](#) exempts “Natural draft hoods, natural draft stacks or natural draft ventilators” from permitting requirements. Wind-driven roof-mounted exhaust fans are ventilators that rely on natural forces such as the stack and wind effects and thus should also fall within the scope of the Regulation 2-1-128.5 permit exemption.

Completeness Determination

The following Air District forms should be completed and fees provided for the sub-slab depressurization operation. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately

- | | |
|--|---|
| 8. Form 101-B (one for facility). | 13. Fees, calculated per Regulation 3 (Schedule F). |
| 9. Form G (one per source). Process code is 7353 for sub-slab; material code is 572, and usage unit is cubic feet. | 14. Detail description of proposed sub-slab depressurization operation including the location of operation, including the operating hours of the system and the location. |
| 10. Form A (one per abatement device). | 15. Soil vapor data results for total organic hydrocarbons and individual toxic compounds. |
| 11. Form P (one per stack). | |
| 12. If Health Risk Assessment is triggered, Form HRA (one per source). | |

Emission Calculations

Emission calculations are based on a material balance from the proposed source with the following assumptions:

5. Standard conditions: Pressure = 1 atm; temperature = 70°F (21°C); 1 mole occupies 24.15 L
6. Influent concentrations (ug/m³) based on soil vapor data results provided by the applicant for total organic hydrocarbons (POC/NPOC), and individual toxic compounds, identified in Table 2-5-1 of [Regulation 2-5](#);
7. Assume 100% of contaminants are stripped from collected vapor.
8. All equipment can operate 24 hours per day and 365 days per year.
9. Influent flow rate based on operational parameters of equipment (i.e., flow rate into abatement equipment and a minimum abatement efficiency of 90%).

Abated emission of the total organic hydrocarbons and individual toxic compounds can be calculated using the following equations:

$$E_p = C_i * Q * Co * (1-A)$$

where:

E_P = Abated Emissions (lbs/hr),
 C_i = Influent Concentration (ug/m³),
 Q = Flow Rate (scfm),
 C_o = Dimensional Constant (Conversion Factor)
 $C_o = 1 \text{ lb}/4.536\text{E}8 \text{ ug} * 0.02832 \text{ m}^3/\text{ft}^3 * 60 \text{ min/hr} = 3.75\text{E-}09 \text{ lb- m}^3\text{-min/ug-ft}^3\text{-hr}$
 A = Abatement Efficiency of Abatement Device (wt%)

Daily emissions are calculated by multiplying hourly emissions by the maximum number of operating hours per day (i.e., 24 hours per day). Annual emissions are calculated by multiplying daily emissions by the maximum number of operating days per year (i.e., 365 days per year).

The following are an example emissions calculation for 21,000 ug/m³ of pollutant concentration with a flow rate of 275 cfm of influent flow rate

$$21,000 \frac{\mu g}{m^3} \times 275 \frac{ft^3}{min} \times 1440 \frac{min}{day} \times \frac{1}{35.31} \frac{m^3}{ft^3} \times \frac{1}{4.54 \times 10^8} \frac{lb}{\mu g} = 0.518 \frac{lb}{day} \text{ (unabated)}$$

$$0.518 \frac{lb}{day} \times (1 - 99\%) \times 365 \frac{day}{year} = 1.89 \text{ lb/year (abated)}$$

Applicable Requirements

Air District Rules and Regulations

Sub-slab depressurization are subject to [Regulation 8-47 \(Air Stripping and Soil Vapor Extraction Operations\)](#); which requires at least 90% control of emissions unless the applicant meets the exemptions of Sections 109 through 113 of that regulation.

Operating procedures to the sub-slab depressurization are outlined in the permit conditions. Effluent volatile organic compound (VOC) concentrations will be monitored with a photoionization detector (PID) on a schedule reflecting current loading rates and predicted carbon capacity. Monitoring schedule changes will be allowed only after the Air District reviews concentration measurements and a subsequent receipt of Air District approval is granted.

Best Available Control Technology (BACT)

There is no specified BACT for sub-slab depressurization in the [BACT/TBACT Workbook](#). However, generally, sub-slab depressurization operations generally do not trigger BACT requirements because of the control requirements of [Regulation 8-47](#).

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for soil vapor extraction operations (including that for RACT requirements for thermal oxidizers and IC engines) are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

10.1 CHROME PLATING (HEXAVALENT)

December 15, 2023

Process Description

This chapter covers the permitting of chrome plating operations. Chrome plating is a finishing treatment utilizing the electrolytic deposition of chromium. These operations fall into three general categories as follows: hard (or technical) chrome plating, decorative (or bright) chrome plating, and hard chrome anodizing. Decorative chrome plating is further divided into two permit categories, hexavalent (+6 valence state) chrome based decorative plating and trivalent (+3 valence state) chrome based decorative plating. Air emissions result from these processes when byproduct hydrogen or air (air sparging is occasionally used for mixing or cooling) leaves the bath carrying bath chemicals into the atmosphere in particulate (mist) form. Although other variants of the above chrome plating processes exist, including Porous Chrome Plating, Brush Chrome Plating and Black Chrome Plating, this chapter focuses mainly on the most prevalent plating operations, hard chrome plating, decorative chrome plating and trivalent chrome plating.

Hard chrome plating usually involves plating at high current densities for time periods measured in multiple hours to produce plating thicknesses ranging from 20 to 100 µm. Decorative chrome plating, on the other hand, is conducted at relatively lower current densities for time periods measured in minutes to produce plating thicknesses that are typically less than 1 µm, but some decorative plating operations may plate up to 10 µm.

Although both hexavalent and trivalent chrome compounds are listed on the various hazardous (toxic) materials lists, only hexavalent chrome has been identified to be a human carcinogen. Therefore, those plating operations that involve hexavalent chrome-based bath chemistry (decorative, hard chrome and hard anodizing) require a Health Risk Assessment and are subject to the Statewide ATCM for chrome plating ([Regulation 11, Rule 8](#)). Decorative Trivalent Chrome Plating is also subject the Statewide ATCM for chrome plating ([Regulation 11, Rule 8](#)). No Heath Risk Assessment is required for trivalent chrome plating at this time.

Completeness Determination

The following Air District forms should be completed and fees provided for chrome plating. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

- | | |
|--|--|
| 1. Form 101-B (one for facility). | 1095 for hard and decorative chrome plating |
| 2. Form G (one per source). Process code is 3070 for decorative chrome plating (<=50000 Amp-hr), 3071 for hard chrome plating, 3079 for decorative trivalent chrome, and 3080 for decorative chrome (> 500000 Amp-hr); material code is 477; and usage unit is amp-hr. The pollutant code is | and 1340 for trivalent chrome. |
| | 3. Form A (one per abatement device). |
| | 4. A Health Risk Assessment is triggered, Form HRA (one per source). |
| | 5. Fees, calculated per Regulation 3 (Schedule G1) for Sterilization Equipment (Ethylene Oxide). |

Emission Calculations

Hard Chrome

In general, the emission standards of [Section 93102, Subchapter 7.5, Chapter 1, Division 3, Title 17, of the California Code of Regulations: “Hexavalent Chrome Airborne Toxic Control Measure For Chrome Plating and Chromic Acid Anodizing Operations”](#) should be used to estimate emissions from hard chrome platers. (see Section 93102(c)(1)).

With the emission factors and the project throughput (in amp-hr/year), the emissions of hexavalent chrome can be estimated:

$$\text{PM}_{10} \text{ (lbs/yr)} = \text{Cr}^{\text{VI}} = \text{Throughput (amp-hr/yr)} \times \text{Emission Factor (mg/amp-hr)} \times (1.0\text{E-}03 \text{ g/mg}) \times (2.203\text{E-}3 \text{ lb/g})$$

Decorative Chrome

For decorative chrome plating, emission calculations are based on source test data for decorative chrome plating operations. This information may be found in the California Air Resources Board (CARB) document "Control of Emissions from Electroplating and Anodizing Operations" December, 1988:

Decorative Chrome Plating:	0.5 mg/amp-hr
Abatement Efficiency of Mist Suppressant:	95% (factor=0.05)

With the specified emission factors and the project throughput (in amp-hr/year), the emissions of hexavalent chrome can be estimated:

$$\text{PM}_{10} \text{ (lbs/yr)} = \text{Cr}^{\text{VI}+} = \text{Throughput (amp-hr/yr)} \times \text{Emission Factor (mg/amp-hr)} \times (1.0\text{E-}03 \text{ g/mg}) \times (2.203\text{E-}3 \text{ lb/g})$$

Trivalent Chrome

A search of Internet, the known available literature including AP-42 all indicate the emissions of trivalent chrome, if any, have not been quantified at the present time. The trivalent chrome plating bath chemistry is much more dilute than hexavalent chrome, therefore any emissions created by hydrogen gas production and entrainment would be expected to be much lower than for a similar hexavalent chrome bath. To minimize any potential emissions, the trivalent chrome chemicals include an additive that is a wetting agent, thereby reducing the surface tension and reducing emissions of plating bath solution. For the purposes of this evaluation, trivalent chrome plating bath emissions are estimated to be negligible.

It should be noted that wetting agent is included in the bath formulation to facilitate optimal bonding of the trivalent chrome metal with the substrate being plated. The reduced emissions potential is a side benefit to the desired low surface tension created by the wetting agent already included in the bath chemicals. It should also be established that the presence of any hexavalent chrome constitutes a contaminated bath, compromising the quality of the trivalent chrome plating process. For this reason, it is assumed that there is no hexavalent chrome present or emitted.

Applicable Requirements

Air District Rules and Regulations

The provisions of [Section 93102, Subchapter 7.5, Chapter 1, Division 3, Title 17, of the California Code of Regulations: "Hexavalent Chrome Airborne Toxic Control Measure For Chrome Plating and Chromic Acid Anodizing Operations"](#) were incorporated by reference in Regulation 11-8.

Best Available Control Technology (BACT)

BACT for chrome plating is specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

Chrome Plating

- [Chrome Plating - Decorative Chrome](#)

Chrome Plating - Hard Chrome

- [Rectifier throughput 0 to 6,053,333^{amp-hr/yr}](#)

- [Rectifier throughput 6,053,333 to 151,333,333^{amp-hr/yr}](#)

- [Rectifier throughput >= 151,333,333^{amp-hr/yr}](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

NESHAPS

A chrome plater is subject to the [Chromium Electroplating: National Emission Standards for Hazardous Air Pollutants](#) if it emits more than 10 tons per year of hexavalent chrome (or other hazardous air pollutant). The [chrome plating ATCM](#) has been granted equivalency with the [Federal NESHAP](#). Hence, compliance with the [ATCM](#) is compliance with the [NESHAP](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for chrome plating are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

10.2 ETHYLENE OXIDE STERILIZERS

December 15, 2023

Process Description

This chapter covers the permitting of ethylene oxide (EtO) sterilizers. EtO is a substance identified as a toxic air contaminant by the Air Resources Board in Title 17 of the California Code of Regulations, Section 93000. EtO sterilization is typically performed at industrial/commercial facilities and hospitals in sealed, airtight chambers to destroy bacteria, viruses, and other unwanted organisms or materials. Most sterilizers use 100% pure EtO. Mixtures of EtO and chlorofluorocarbons (HCFC-22, HCFC-124, or Freon 12) were used in the past but chlorofluorocarbon (CFC) use is being phased out. The 100% EtO sterilizers use unit-dose cartridges to eliminate the need for external tanks.

The EtO sterilization process usually employs five steps:

1. Presterilization conditioning,
2. Sterilization,
3. Evacuation,
4. Air wash,
5. Aeration.

Conditioning includes sealing and evacuating the loaded chamber, then adjusting temperature and pressure. The sterilization step involves adding the sterilant (typically 100% pure EtO), establishing the correct operating pressure and temperature and holding the chamber for a soaking period of 4 to 24 hours. The chamber pressure should be slightly below atmospheric for pure EtO or two atmospheres for EtO and CFC mixtures. After soaking, the sterilizer is evacuated, then given a series of air washes to finish removing EtO. Any residual EtO in the sterilized product is removed by aeration. Aeration may be done either in the sterilizer chamber or in a specially designed aeration chamber (SCAQMD, 1990) using forced air flow, natural or mechanically assisted convection, or other means.

Completeness Determination

The following Air District forms should be completed and fees provided for EtO sterilizers. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

- | | |
|--|--|
| 1. Form 101-B (one for facility). | 3. Form A (one per abatement device). |
| 2. Form G (one per source). Process code is 7146 for medical equipment sterilization and 1032 for food/pharmaceutical products sterilization; material code is 487; and usage unit is in pounds. | 4. If Health Risk Assessment is triggered, Form HRA (one per source). |
| | 5. Fees, calculated per Regulation 3 (Schedule G1) for Sterilization Equipment (Ethylene Oxide). |

Emission Calculations

Ethylene Oxide Sterilizer Emissions (Primary)

Emissions from EtO sterilizers should be calculated as the total sterilant gas throughput minus the amount of inert gas present. Approximately 90% of the emissions can be attributed to the sterilizer and 10% to the aerator. If the EtO usage factor is known, (e.g., 170 grams/run), the permit evaluator shall determine the run time of each warm operation cycle (sterilization time plus aeration time). With the facility's annual operating schedule, total runs each year, and EtO usage factor, annual EtO emissions can be calculated. These emissions will be reduced, if necessary, to the levels required by the [ATCM for EtO sterilizers](#) (e.g., Table I of the ATCM for units using less than 2,000 Pounds of EtO per year)

POC = Ethylene Oxide = (lbs/yr of Sterilizer)(% of EtO in Sterilizer)(1-%Required Control Efficiency)

NPOC (if any) = CFC = (lbs/yr of Sterilizer)(1-% of EtO in Sterilizer)

Abatement Device Emissions (Secondary)

Per Regulation 2-2-208, the aggregate sum of all increases of any given pollutant from a facility pursuant to the authority to construct or permit to operate is included in the cumulative increase. Hence, in addition to abated emissions of ethylene oxide sterilizer (“primary” emissions), emissions from the abatement device (“secondary” emissions) must also be calculated. Because the abatement device requires a permit, per Regulation 2-1-113.2.4, any “secondary” emissions from the abatement device must also be included in the cumulative increase.

Thermal/Catalytic Oxidation

The combustion of fuel from thermal and catalytic oxidizers and internal combustion engines results in secondary criteria pollutants of combustion. These secondary pollutants must be calculated and included in the cumulative increase. Furthermore, per Regulation 2-2-112, although the abatement equipment is not be subject to BACT requirements when it is used to abate a source to meet BACT/TBACT requirements, it is subject to Reasonably Available Control Technology (RACT) for control of secondary pollutants. Policy: NOx and CO RACT Levels for Thermal Oxidizers has been established:

$$\text{NO}_x = 0.2 \text{ lb/MMBTU}$$

$$\text{CO} = 0.8 \text{ lb/MMBTU}$$

Per Air District Policy: NOx and CO RACT Levels for Thermal Oxidizers, source testing of the thermal and catalytic oxidizers are required to verify nitrogen oxide and carbon monoxide emission requirements, if the oxidizer is over 7.5 MMBTU/hr.

Emission factors from AP-42, Table 1.4-2 (Natural Gas Combustion) may be used for particulate (PM10), sulfur dioxide (SO₂), and POC emissions, unless vendor data for the abatement device is available:

$$\text{PM}_{10} = 7.6 \text{ lb/MM scf} * (\text{scf}/1020 \text{ BTU}) = 0.075 \text{ lb/MMBTU}$$

$$\text{SO}_2 = 0.6 \text{ lb/MM scf} * (\text{scf}/1020 \text{ BTU}) = 0.0006 \text{ lb/MMBTU}$$

$$\text{POC} = 5.5 \text{ lb/MM scf} * (\text{scf}/1020 \text{ BTU}) = 0.0054 \text{ lb/MMBTU}$$

With these emission factors, the annual emissions from the thermal/catalytic oxidizer can be calculated using the following equation:

$$E_s = F \times B \times H$$

where:

E_s = Annual Emissions of Abatement Device (lbs/yr)

F = Emission Factor of Criteria Pollutant (lb/MMBTU)

B = Maximum Firing Rate of Burner in Abatement Device (MMBTU/hr)

H = Maximum Number of Hours The Oxidizer Will Operate

(i.e., 24 hr/day x 365 day/yr = 8760 hrs/yr)

Applicable Requirements

Air District Rules and Regulations

The provisions of [Section 93108](#) and [93108.5, Title 17, of the California Code of Regulations](#): “Ethylene Oxide ATCM for Sterilizers and Aerators, Part 1 and 2” were incorporated by reference in [Regulation 11-9](#). Section 93108 is the Airborne Toxic Control Measure (ATCM) for non-commercial sterilizers and aerators and commercial sterilizers and aerators using less than 2,000 pounds of Ethylene Oxide per 12 Consecutive Months. Section 93108.5 is the ATCM for commercial sterilizers using 2,000 pounds or more of ethylene oxide per 12 consecutive months.

[Regulation 8-2](#) also applies. It is expected that with the control requirements imposed by the ATCMs that compliance with Regulation 8-2 is likely. The permit evaluator should review the application to determine whether compliance with the ATCMs and [Regulation 8-2](#). Ethylene oxide emissions should be well below 15 pounds per day of total carbon due to the toxicity of this material.

Best Available Control Technology (BACT)

BACT for ethylene oxide sterilizers is specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

Ethylene Oxide Sterilizers
[- Ethylene Oxide Sterilization](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

ATCM

CARB adopted the Airborne Toxic Control Measure (ATCM) for Ethylene Oxide for Sterilizers and Aerators. The ATCM listed operating requirements for units using less than 2,000 Pounds of EtO per year and those units using more than 2,000 Pounds of EtO per year. The ATCM included leak-free requirements, control device and efficiency requirements, concentration limits of ethylene oxide, data recording and source test requirements.

NESHAPS

Ethylene oxide sterilizers are subject to the [NESHAPS, Subpart O: Commercial Sterilizers \(Ethylene Oxide Emission Standards for Sterilization Facilities\)](#). If a facility uses less than 1 ton of EtO per year (all consecutive 12-month periods after December 6, 1996), then it is subject to only the recordkeeping requirements of the standard (Section 63.367). If the facility uses 1 ton or more of EtO per year, then it is also subject to the emission standards of the [Sterilizer NESHAP](#). Which emission standards apply depend on whether or not 10 or more tons of EtO per year are used. The [NESHAP standards](#) apply based on EtO usage, not emissions. The permit evaluator should review the application to determine whether the NESHAP applies and whether the applicant complies if it does.

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for EtO Sterilizers are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

10.4 NON-HALOGENATED SOLVENT DRYCLEANING

December 15, 2023

Process Description

This chapter covers the permitting of non-halogenated (i.e., petroleum) solvent dry cleaning operations. Petroleum solvents, as distinguished from synthetic solvents (which include halogenated solvents such as perchloroethylene), are defined as any non-halogenated hydrocarbon solvent. Types of non-halogenated solvent include Stoddard, 140F solvent. Dry Cleaning facilities using synthetic solvents are covered under a different chapter [\(10.5\)](#).

Additional background information is available from [Chapter 4.1 Dry Cleaning](#) of [AP-42 \(Fifth Edition, Volume I\)](#).

Any dry cleaning facility which uses (gross consumption) less than 200 gallons of petroleum solvent or any other non-halogenated solvent in any single year is exempt from permitting requirements per Regulation 2-1-120. However, they are subject to the registration requirements per Regulation 8-17-404. Details of how to qualified dry cleaning equipment can be registered can be found [on-line](#) at the Air District's web site.

Completeness Determination

The following Air District forms should be completed and fees provided for the non-halogenated solvent drycleaners (which are not exempt per Regulation 2-1-120). Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

- | | |
|--|--|
| 1. Form 101-B (one for facility). | 4. If Health Risk Assessment is triggered, |
| 2. Form D (one per source). | Form D(a) (one per source). |
| 3. If abated, Form A (one per abatement device). | 5. Fees, calculated per Regulation 3 (Schedule I). |

Emission Calculations

Emissions from petroleum solvent dry cleaning operations should be calculated based on the estimated net solvent evaporation.

POC in lb/yr = Net Solvent Evaporation (gals/yr) x Density of Solvent (lb/gal)

Applicable Requirements

Air District Rules and Regulations

Petroleum solvent dry cleaning operations are subject to [Regulation 8-17](#). The standards of Regulation 8-17 do not currently reflect the latest technologies of dry cleaning. Almost all non-halogenated solvent drycleaners use closed loop machines (ventless dry-to-dry systems with internal refrigerated condenser), which have been deemed by the Air District to be equivalent or better to complying with the requirements of Regulation 8-17. Regulation 8-17 will be amended in the near future; upon which time this permit handbook will also be amended to reflect the new requirements.

Best Available Control Technology (BACT)

BACT for non-halogenated solvent drycleaning is specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

Petroleum Solvent Drycleaning
- Drycleaner - Petroleum Solvent

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

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In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- ☐ [Offsets](#)
- ☐ [Prevention of Significant Deterioration](#)
- ☐ [School Notification](#)
- ☐ [Health Risk Assessment](#)
- ☐ [Overburdened Communities](#)

Permit Conditions

Standardized conditions for petroleum solvent drycleaning are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

10.5 SYNTHETIC SOLVENT DRYCLEANING

July 3, 2023

Process Description

This chapter covers the permitting of synthetic solvent drycleaning operations. Synthetic solvents used for drycleaning include n-propyl bromide. Trichlorotrifluoroethane (freon, fluorocarbon) and trichloroethane (TCA) are no longer used because of ozone depletion concerns. The [Airborne Toxic Control Measure \(ATCM\) for Emissions of Perchloroethylene from Dry Cleaning Operations](#) dictated the complete phase out of perchloroethylene on January 1, 2023. Dry Cleaning facilities using non-halogenated solvents are covered under a different chapter [\(10.4\)](#).

Additional background information is available from [Chapter 4.1 Dry Cleaning](#) of [AP-42 \(Fifth Edition, Volume I\)](#).

Completeness Determination

The following Air District forms should be completed and fees provided for the dry cleaning facilities. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form 101-B (one for facility).
2. Form D (one per source).
3. If Health Risk Assessment is triggered, Form D(a) (one per source).
4. Fees, calculated per Regulation 3 (Schedule I).

Emission Calculations

Emissions from synthetic solvent dry cleaning operations should be calculated based on the estimated net solvent evaporation. The Air District has developed instructions for the dry cleaner [Annual Update Form](#) to assist dry cleaners in calculating net solvent evaporation.

VOC in lb/yr = Net Solvent Evaporation (gals/yr) x Density of Solvent (lb/gal)

n-propyl bromide is a POC.

Applicable Requirements

Air District Rules and Regulations

Synthetic solvent dry cleaning operations are subject to Regulation 11-16.

N-propyl bromide is a compound undergoing review by OEHHA (i.e., reproductive effects and both toxics are subject to [Regulation 2-5-301](#) (Best Available Control Technology for Toxics (TBACT) Requirements) and 302 (Project Risk Requirements). The permit evaluator should ensure that the applicant uses TBACT in the dry cleaning operation and that the project risk is acceptable.

Best Available Control Technology (BACT)

BACT for synthetic solvent drycleaning is specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

- Synthetic Solvent Drycleaning
- Drycleaner - Valclene & Other Synthetic Solvents

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

NESHAPS

Dry cleaning facilities, which use perchloroethylene, are subject to the [NESHAPS, Subpart M: Dry Cleaning](#) (National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities). California's [ATCM](#) has been designed as equivalent to NESHAP and California has been delegated enforcement authority by the U.S. EPA. On January 25, 2007, the California Air Resources Board approved the

amendments to the ATCM. These amendments have been incorporated into to Regulation 11-16 to include all new [ATCM](#) requirements for perchloroethylene dry cleaning:

- Require that all Perc machines be removed from service once they become 15 years old (as a result, all remaining Perc machines must be removed from service by January 1, 2023); and
- Expand good operating practices and recordkeeping and reporting requirements.

and a definition for non-halogenated solvents:

- 8-17-201 Non-halogenated Solvent:** For the purposes of this rule only, this definition applies to the following solvents used for dry cleaning that contain less than 5% by weight of total halogens (chlorine, bromine, fluorine, and/or iodine). Non-halogenated solvents typically, but not necessarily, contain hydrogen and carbon.
- 201.1 Solvent: For the purposes of this rule only, “solvent” refers to any non-halogenated solvent subject to this rule, i.e., any non-halogenated solvent and/or solvent containing less than 5% by weight of total halogens.
- 201.2 Non-halogenated solvents include, but are not limited to, petroleum solvents, glycol ethers, and volatile methylated siloxanes:
1. Petroleum Solvent: A hydrocarbon distillate used for dry cleaning, typically having a minimum flash point of 38°C (100°F) (generically known as Stoddard solvent).
 2. High Flash Petroleum Solvent: A highly refined hydrocarbon solvent with a flash point above 60°C (140°F); typically a mixture of aliphatic hydrocarbons in the C₈-C₁₄ range (e.g. DF2000™, Ecosolve™, Drylene®, Puredry™).
 3. Glycol Ether Solvent: A glycol ether/ester based liquid used for dry cleaning, typically having a minimum flash point of 85°C (185°F). These solvents include, but are not limited to Propylene Glycol Ethers, Dipropylene Glycol Tert Butyl Ether, Propylene Glycol Dipropylene Glycol Normal Ether (e.g. Rynex®, Arcosolv® DPNB, Impress™).
 4. Volatile Methylated Siloxane Solvent: A liquid containing a volatile methyl siloxane (e.g., decamethylcyclopentasiloxane or D5) as the cleaning solvent, typically having a minimum flash point of 76°C (170°F) (e.g. Green Earth®).

(Amended March 4, 2009)

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|--|
| ☐ Offsets
☐ Prevention of Significant Deterioration
☐ School Notification | ☐ Health Risk Assessment
☐ Overburdened Communities |
|--|--|

Permit Conditions

Standardized conditions for synthetic solvent dry cleaning operations are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

11.1 ABRASIVE BLASTING OPERATIONS

December 15, 2023

Process Description

Abrasive blasting is the cleaning or preparing of a surface by forcibly propelling a stream of abrasive material against the surface using sand, glassbead, aluminum oxide, grit, slag, garnet, steel shot, slag, walnut shells, and others. Abrasive blasting is being used in many different applications to:

1. remove rust, scale, and paint;
2. roughen surfaces in preparation for bonding, painting or coating;
3. remove burr; and/or
4. develop a matte surface finish.
5. Remove flash from molding operation.

Abrasive blasting helps eliminate the use of organic solvent stripping and the generation of toxic waste material. A wide range of abrasive blasting equipment is available and blasting conditions can be selected to suit the coating and substrate. In most applications, the abrasive media are collected, cleaned to remove coating debris, and reused. The abrasive media breakdown in use so they cannot be reused indefinitely. Once the particle size gets smaller, the stripping efficiency drops. The worn abrasive media must be discarded and may require disposal.

There are two types of abrasive blasting:

1. Confined
2. Unconfined

Confined abrasive blasting is abrasive blasting, which is confined in an enclosure to reduce particulate matter emissions to the atmosphere, while unconfined is not. This chapter will discuss both types.

A thorough explanation of abrasive blasting is available from [Chapter 13.2.6, Abrasive Blasting](#), of [AP-42 \(Fifth Edition, Volume I\)](#). Generally, an Air District permit is required for any confined abrasive blasting operation or equipment that has a confined volume greater than or equal to 100 cubic feet and is located in building. If the confined abrasive blasting operation is less than 100 cubic feet and abated by a particulate filter, it is exempt from permitting requirements per [Regulation 2-1-118.1](#). In addition, blast cleaning equipment used a suspension of abrasives in water is exempt per [Regulation 2-1-118.2](#). Portable abrasive blasting equipment used on a temporary basis within the Air District is exempt per [Regulation 2-1-118.3](#).

Completeness Determination

The following Air District forms should be completed and fees provided for abrasive blasting operations. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form 101-B (one for facility).
2. Form G (one per source).
3. If Health Risk Assessment is triggered, Form HRA (one per source).
4. Fees, calculated per Regulation 3 (Schedule F).

Emission Calculations

Particulate matter (PM) and particulate hazardous air pollutants (HAP) are the major concern relative to abrasive blasting. Table 13.2.6-1 in Chapter 13.2.6, Abrasive Blasting, of [AP-42 \(Fifth Edition, Volume I\)](#).

Presents total PM emission factors for abrasive blasting as a function of wind speed. However, emissions of PM10 and PM2.5 are not significantly wind dependent.

Emission Factors for Abrasive Blasting

Unconfined and uncontrolled	PM10 = 13 lb/1000 lb of Abrasive
-----------------------------	----------------------------------

Confined and controlled by fabric filter	PM10 = 0.69 lb/1000 lb of Abrasive
--	------------------------------------

The following equation can be used to calculate daily and annual PM10 emission rates:

$$E_{PM10} = U(EF)[1-(A/100)]$$

where,

E = emissions of PM10 (lb/hr)
 U = blast media usage (lb/day or lb/yr)
 EF = emission factor (lb/1000 lb)
 A = abatement efficiency (%)

However, an alternative method is to use the grain loading rates and exhaust rates from the particulate abatement devices for confined abrasive blasting operations to calculate particulate emissions.

$$E_{PM10} = Q_{dry}(gr)(60 \text{ min/hr})/7000 \text{ gr/lb}$$

where,

E = emissions of PM10 (lb/hr)
 Q_{dry} = dry volumetric flow rate (cfm)
 gr = grain loading rate (gr/dscf)

The standard cubic feet of dry air exhaust can be calculated from actual exhaust rates using the following equation:

$$Q_{dry} = Q_{act}[(68 + 460)/(T_{act} + 460)](1 - \%H_2O)$$

where,

Q_{dry} = dry volumetric flow rate (cfm)
 Q_{act} = actual volumetric flow rate (cfm), including water vapor
 T_{act} = actual temperature of exhaust (°F)
 $\%H_2O$ = weight fraction of water vapor

AIR TOXICS

According to Chapter 13.2.6, Abrasive Blasting of [AP-42](#), hazardous air pollutants, typically particulate metals, are emitted from some abrasive blasting operations. These emissions are dependent on both the abrasive material and the targeted surfaces. The permit evaluator should assume the same percentage of toxics in the resulting emissions of PM10 as found in the abrasive material used.

Applicable Requirements

Air District Rules and Regulations

In general, the unconfined abrasive blasting operation is subject to the operating standards of [Regulation 12, Rule 4](#). With the proper operation and use of complying abrasive blasting media, the unconfined operation should comply with the operating standards of [Regulation 12, Rule 4](#). Permit conditions are imposed to ensure compliance with [Regulation 12, Rule 4](#).

Confined abrasive blasting operations are subject to the operating standards of [Regulation 6-1](#). Permit conditions are imposed to ensure compliance with [Regulation 6-1](#).

Best Available Control Technology (BACT)

BACT for the abrasive blasting operations is specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

Abrasive Blasting
[- Abrasive Blasting - Enclosed](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for abrasive blasting operations are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

11.2 ASPHALT FACILITIES

December 15, 2023

Process Description

Asphalt pavement is a mix of coarse aggregate stone, sand, fine aggregate, and asphalt cement, which is petroleum based. Depending on the asphalt manufacturing process and temperatures used, it is either considered hot mix asphalt or warm mix asphalt.

Hot Mix Asphalt (HMA)

Hot mix asphalt or HMA is the designation given to asphalt mixtures that are heated and poured at temperatures between 300- and 350-degrees Fahrenheit. This type of asphalt is the most used asphalt type in the United States for highways, interstates, and roads due to its flexibility, weather resistance and ability to repel water. Hot mix asphalt is used when the outside air temperature is above 40 degrees, due to its propensity for rapid cooling.

A HMA facility is an assembly of equipment where aggregates are blended, heated, dried, and mixed with asphalt. An aggregate is any hard, inert mineral material used for mixing in graduated particles or fragments. It includes sand, gravel, crushed stone, slag, rock dust or powder, and reclaimed asphalt pavement [RAP]. Aggregate and RAP (if used) constitutes over 90 percent by weight of the total mixture.² There are two categories of HMA facilities: batch and drum mix. A detailed description of the types of batch and drum mix HMA facilities are provided in [Chapter 11.1 \(Hot Mix Asphalt Plants\)](#) of [EPA's AP-42](#).

Recently, HMA facilities have added ground tire rubber to asphalt as the binder to meet CalTrans' specifications which requires that recycled rubber (at least 15% by weight of the total blend) be used on its highway paving projects. The same equipment used to produce HMA can be used to produce rubberized asphalt. However, there will typically be a portable asphalt rubber blending unit made up of ground tire rubber storage (i.e., silos) and handling (i.e., hoppers) equipment, storage tank for asphalt oil, extender oil, reaction tank and heaters for the extender oil and asphalt oil. Extender oil is used to promote the reaction of the asphalt cement and the ground tire rubber. The storage tanks for asphalt oil and extender oil and the reaction tanks are generally abated by air-cooled condensers designed to cool process vent emissions. As the blending process proceeds, asphalt rubber binder is transferred to the reaction tank where it is heated and maintained at the specified temperature (325-375°F), agitated, and circulated for the specified reaction time. After sufficient reaction time, the fully reacted asphalt rubber binder mixture is pumped into spreader trucks for placement on the road.

Warm Mix Asphalt (WMA)

Warm mix asphalt or WMA is used approximately one-third of all paving projects. WMA is manufactured at temperatures between 200 and 250 degrees Fahrenheit. It uses less fossil fuels and resources in its manufacturing process and includes additional binding materials and additives, including wax, emulsions and zeolites for easier pouring and spreading at low temperature. WMA is less costly to produce than HMA.

A WMA facility is also an assembly of equipment where aggregates are blended, heated, dried, and mixed with asphalt. However, the asphalt is heated to a lower temperature than for hot mix asphalt.

Most HMA and WMA facilities are comprised of the same basic air pollution sources. These components are the dryer, asphalt cement heating and storage (with dust collection system), and reclaimed asphalt paving (RAP) area. Storage tanks are used to store heated liquid asphalts and asphalt cement at the HMA or WMA facilities. Storage tanks at the HMA or WMA facilities are usually fixed roof (closed or enclosed) and vented due to the smaller size of the tanks, usually less than 30,000 gallons. The following equipment is typically exempt from permitting requirements:

² [Chapter 11.1 \(Hot Mix Asphalt Plants\)](#) of [EPA's AP-42](#), pg. 1.

P E R M I T H A N D B O O K

Description of Equipment	Permit Exemption
Any heater or dryer with less than 10 million BTU/hr rated heat input if fired exclusively with natural gas (including compressed natural gas), liquefied petroleum gas (e.g., propane, butane, isobutene, propylene, butylenes, and their mixtures), and any combination thereof. Hot oil heaters for asphalt oil and/or extender oil fueled by natural gas or LPG are often exempt.	2-1-114.2.1
Mixer and other ancillary sources at aggregate product production facility with a maximum rated production capacity less than 15 cubic yards per hour	2-1-115.1.1
Other sources at a facility with a maximum throughput less than 5000 tons per year	2-1-115.1.2
A crusher or grinder which processes exclusively material with a moisture content greater than or equal to 20 percent by weight	2-1-115.1.3
The following which process exclusively material with a moisture content greater than or equal to 5 percent by weight: - Screen or other size classifier - Conveyor, screw, auger, stacker or bucket elevator - Grizzly, or other material loading or unloading - Storage silos - Storage or weigh hopper/bin system	2-1-115.1.4
Haul or access roads	2-1-115.1.5
Drilling or blasting	2-1-115.1.6
Containers, reservoirs, tanks, and loading equipment used exclusively for the storage or loading of petroleum oils with an ASTM D-93 (PMCC) flash point of 130oF or higher, when stored or loaded at a temperature at least 36oF below the flash point.	2-1-123.3.3
Containers, reservoirs, tanks, and loading equipment used exclusively for the storage or loading of asphalt or asphalt emulsion with a sulfur content of less than 0.5 wt%. This does not include the storage of asphalt cutback with hydrocarbons having an initial boiling point of less than 302°F.	2-1-123.3.7
Containers, reservoirs, tanks, and loading equipment used exclusively for the storage or transfer of an asphalt-water emulsion heated to 150°F or less.	2-1-123.3.11

The permitting of any heater used to provide indirect heat is covered in [Chapter 2.1 \(Boilers, Steam Generators, & Process Heaters\)](#) of the permit handbook. The permit of any storage tanks is covered in [Chapter 4 \(Organic Liquid Storage Tanks\)](#) of the permit handbook. This permit handbook will cover asphalt mixers and dryers, asphalt rubber blending plants, and ancillary storage sources (i.e., piles, silos, loadouts).

Completeness Determination

The following Air District forms should be completed and fees provided for HMA facilities. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form 101-B (one for facility).
2. Form G (one per source).
3. Form C (one per dryer).
4. Form A (one per abatement device).
5. Form P (one per stack).
6. If Health Risk Assessment is triggered, Form HRA (one per source).
7. Fees, calculated per Regulation 3 (Schedule G-2 for Aggregate Dryers; Batch, Drum, and Other Mixers and Schedule F for other sources).

Emission Calculations [Batch Mix and Drum Mix]

Emissions from HMA and WMA plants may be divided into ducted production emissions, pre-production fugitive dust emissions, and other production-related fugitive emissions. Pre-production fugitive dust sources associated with HMA and WMA plants include vehicular traffic generating fugitive dust on paved and unpaved roads, aggregate handling, and other aggregate processing operations.

Pre-production fugitive emissions – PM₁₀ and PM_{2.5} from vehicle traffic

Emissions from vehicle traffic on paved and/or unpaved roads to and from the storage piles should also be accounted in the emissions for the storage piles. An paved roads emission factor equation is provided in [Chapter 13.2.1, Paved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#) for vehicles traveling on paved surfaces at industrial sites:

$$E = k(sL)^{0.91}(W)^{1.02} \text{ lb/VTM} \quad [\text{Equation 1}]$$

An unpaved roads emission factor equation is provided in [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#) for vehicles traveling on unpaved surfaces at industrial sites:

$$E = k(s/12)^a(W/3)^b((365-P)/365)) \text{ lb/VTM} \quad [\text{Equation 1a}]$$

and for vehicles traveling on publicly accessible roads, dominated by light duty vehicles:

$$E = [k(s/12)^a(S/30)^d/(M/0.5)^c - C]((365-P)/365)) \text{ lb/VTM} \quad [\text{Equation 1b}]$$

The following provides an explanation of the variables in the equation and the average values recommended for use (only if actual more specific and precise values are not available), if the source-specific values are not known:

E = Emission Factor (lb/VTM)

k = Particle size multiplier (dimensionless); for PM₁₀, k= 0.0022 for Equation 1

k = 1.5 for Equation 1a, 1.8 for Equation 1.b;

for PM_{2.5}, k = 0.00054 for Equation 1, k = 0.15 for Equation 1a, 0.18 for Equation 1.b

sL = road surface silt loading; sL = 12 g/m²

a = Empirical Constants; a = 0.9 for Equation 1a, 1 for Equation 1b

b = Empirical Constants; b = 0.45

c = Empirical Constants; c = 0.2 for Equation 1b

d = Empirical Constants; d = 0.5 for Equation 1b

s = Silt content of road surface (%); s = See Table 13.2.2-1³ and use the mean value for the applicable industry. (For example, for stone and gravel processing s=4.8 for plant roads, 7.1 for material storage areas.)

W = Mean vehicle weight (tons); W = 21 tons for Equation 1,

W=146 tons for Equation 1a, 2 tons for Equation 1b

M = surface material moisture content (%); M = 6.5

S = Mean vehicle speed (mph); S = 24 for Equation 1a, 33 for Equation 1b

C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear;

for PM₁₀, C = 0.00047⁴ and for PM_{2.5}, C= 0.00036¹⁷

P = Number of days with greater than, or equal to, 0.01 inches of precipitation per year; 70⁵

For example, the PM₁₀ and PM_{2.5} emission factors used for paved roads are calculated as follows:

³ [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 3.

⁴ [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 6.

⁵ [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 9.

$$E_1 (PM_{10}) = 0.0022(12)^{0.91}(21)^{1.02}$$

$$E_1 (PM_{10}) = \mathbf{0.47 \text{ lb/VMT}}$$

$$E_1 (PM_{2.5}) = 0.00054(12)^{0.91}(21)^{1.02}$$

$$E_1 (PM_{2.5}) = \mathbf{0.12 \text{ lb/VMT}}$$

The PM_{10} and $PM_{2.5}$ emission factors used for unpaved roads at industrial sites are calculated as follows:

$$E_{1a} (PM_{10}) = (1.5)(4.8/12)^{0.9}(146/3)^{0.45}(365-70/365)$$

$$E_{1a} (PM_{10}) = \mathbf{3.05 \text{ lb/VMT}}$$

$$E_{1a} (PM_{2.5}) = (0.15)(4.8/12)^{0.9}(146/3)^{0.45}(365-70/365)$$

$$E_{1a} (PM_{2.5}) = \mathbf{0.31 \text{ lb/VMT}}$$

The permit evaluator should determine which emission factor equation (1, 1a or 1b) is most appropriate depending on the unpaved surfaces or roads where the sources will be situated. The permit evaluator should also obtain information from the applicant regarding the maximum vehicle weight and miles traveled per year by all vehicles involved on driving on the unpaved roads at the facility. If watering is used to suppress dust, a maximum abatement efficiency of 70% may be used. If chemical dust suppressants are used, a maximum abatement efficiency of 80% may be used⁶.

For emissions from equipment traffic (truck, front-end loaders, dozer, etc.) traveling between or on piles, it is recommended that the equation for vehicle traffic on unpaved surfaces be used (see Equation 1a). The emissions from equipment traffic around the piles should be calculated using the same emission factors noted previously for unpaved roads by including the VMT around these piles and including it in the total estimated VMT on unpaved roads within the facility.

Pre-production fugitive emissions – PM_{10} and $PM_{2.5}$ from storage piles

Emission factors for storage piles are taken from [Chapter 13.2.4, Aggregate Handling and Storage Piles](#), of [AP-42 \(Fifth Edition, Volume I\)](#). These emission factors include emissions from drop operations into storage piles:

$$E = k(0.0032)(U/5)^{1.3}/(M/2)^{1.4}$$

The following provides an explanation of the variables in the equation and the average values recommended for use, if the source-specific values are not known:

E = Emission Factor (lb/ton)

k = Particle size multiplier (dimensionless); for PM_{10} , k = 0.35; for $PM_{2.5}$, k=0.053

U = mean wind speed (miles/hr); U = 8.2

M = material moisture content (%); M = 2.4

$$E = (0.35)(0.0032)(8.2/5)^{1.3}/(2.4/2)^{1.4}$$

$$E = \mathbf{2.75E-03 \text{ lb/ton}} \quad \mathbf{[PM_{10} \text{ for storage piles}]}$$

$$E = (0.053)(0.0032)(8.2/5)^{1.3}/(2.4/2)^{1.4}$$

$$E = \mathbf{4.16E-03 \text{ lb/ton}} \quad \mathbf{[PM_{2.5} \text{ for storage piles}]}$$

For emissions from equipment traffic (truck, front-end loaders, dozer, etc.) traveling between or on piles, it is recommended that the equation for vehicle traffic on unpaved surfaces be used (see Equation 1a). The emissions from equipment traffic around the piles should be calculated using the same emission factors noted previously for unpaved roads by including the VMT around these piles and including it in the total estimated VMT on unpaved roads within the facility.

⁶ [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 13.

If watering is used to suppress dust, a maximum abatement efficiency of 70% may be used. If chemical dust suppressants are used, a maximum abatement efficiency of 80% may be used⁷.

Furthermore, if railcars or ships are involved in the transportation of materials, then also the combustion emissions from the use of these transport vehicles should also be calculated and included in the facilities cumulative increase.

Pre-production dust emissions – Loadout and Silo Filling

Emission factors for HMA and WMA load-out and silo-filling operations can be estimated using the data in Tables 11.1-14, -15, and -16 of [Chapter 11.1 \(Hot Mix Asphalt Plants\)](#) of [EPA's AP-42](#). Table 11.1-14 presents predictive emission factor equations for HMA loadout and silo filling operations. Note that the equations of Chapter 11.1 can also be used to estimate WMA load-out and silo-filling emissions by using the lower temperature of WMA in the emission factor equations of Table 11.1-14. Note that if both HMA and WMA are to be produced at the same sources that the higher temperature of HMA should be used to allow maximum operating flexibility for the operation. Tables 11.1-15 and -16 present speciation profiles for organic particulate-based and volatile particulate-based compounds, respectively. The speciation profile shown in Table 11.1-15 can be applied to the extractable organic particulate matter (PM) emission factors estimated by the equations in Table 11.1-14 to estimate emission factors for specific organic PM compounds. The speciation profile presented in Table 11.1-16 can be applied to the total organic carbon (TOC) emission factors estimated by the equations in Table 11.1-14 to estimate emission factors for specific volatile organic compounds.

⁷ [Chapter 11.1 \(Hot Mix Asphalt Plants\)](#) of [EPA's AP-42](#), pg. 13.

Table 11.1-14⁸

Table 11.1-14. PREDICTIVE EMISSION FACTOR EQUATIONS
FOR LOAD-OUT AND SILO FILLING OPERATIONS^a

EMISSION FACTOR RATING: C

Source	Pollutant	Equation
Drum mix or batch mix plant load-out (SCC 3-05-002-14)	Total PM ^b	$EF = 0.000181 + 0.00141(-V)e^{((0.0251)(T + 460) - 20.43)}$
	Organic PM ^c	$EF = 0.00141(-V)e^{((0.0251)(T + 460) - 20.43)}$
	TOC ^d	$EF = 0.0172(-V)e^{((0.0251)(T + 460) - 20.43)}$
	CO	$EF = 0.00558(-V)e^{((0.0251)(T + 460) - 20.43)}$
Silo filling (SCC 3-05-002-13)	Total PM ^b	$EF = 0.000332 + 0.00105(-V)e^{((0.0251)(T + 460) - 20.43)}$
	Organic PM ^c	$EF = 0.00105(-V)e^{((0.0251)(T + 460) - 20.43)}$
	TOC ^d	$EF = 0.0504(-V)e^{((0.0251)(T + 460) - 20.43)}$
	CO	$EF = 0.00488(-V)e^{((0.0251)(T + 460) - 20.43)}$

^a Emission factor units are lb/ton of HMA produced. SCC = Source Classification Code. To convert from lb/ton to kg/Mg, multiply by 0.5. EF = emission factor; V = asphalt volatility, as determined by ASTM Method D2872-88 "Effects of Heat and Air on a Moving Film of Asphalt (Rolling Thin Film Oven Test - RTFOT)," where a 0.5 percent loss-on-heating is expressed as "-0.5." Regional- or site-specific data for asphalt volatility should be used, whenever possible; otherwise, a default value of -0.5 should be used for V in these equations. T = HMA mix temperature in °F. Site-specific temperature data should be used, whenever possible; otherwise a default temperature of 325°F can be used. Reference 1, Tables 4-27 through 4-31, 4-34 through 4-36, and 4-38 through 4-41.

^b Total PM, as measured by EPA Method 315 (EPA Method 5 plus the extractable organic particulate from the impingers). Total PM is assumed to be predominantly PM-2.5 since emissions consist of condensed vapors.

^c Extractable organic PM, as measured by EPA Method 315 (methylene chloride extract of EPA Method 5 particulate plus methylene chloride extract of impinger particulate).

^d TOC as propane, as measured with an EPA Method 25A sampling train or equivalent sampling train.

⁸ [Chapter 11.1 \(Hot Mix Asphalt Plants\)](#) of [EPA's AP-42](#), pg. 33.

Table 11.1-15⁹

Table 11.1-15. SPECIATION PROFILES FOR LOAD-OUT, SILO FILLING, AND ASPHALT STORAGE EMISSIONS—ORGANIC PARTICULATE-BASED COMPOUNDS

EMISSION FACTOR RATING: C

		Speciation Profile for Load-out and Yard Emissions ^b	Speciation Profile for Silo Filling and Asphalt Storage Tank Emissions
Pollutant	CASRN ^a	Compound/Organic PM ^c	Compound/Organic PM ^c
<u>PAH HAPs</u>			
Acenaphthene	83-32-9	0.26%	0.47%
Acenaphthylene	208-96-8	0.028%	0.014%
Anthracene	120-1207	0.070%	0.13%
Benzo(a)anthracene	56-55-3	0.019%	0.056%
Benzo(b)fluoranthene	205-99-2	0.0076%	ND ^d
Benzo(k)fluoranthene	207-08-9	0.0022%	ND ^d
Benzo(g,h,i)perylene	191-24-2	0.0019%	ND ^d
Benzo(a)pyrene	50-32-8	0.0023%	ND ^d
Benzo(e)pyrene	192-97-2	0.0078%	0.0095%
Chrysene	218-01-9	0.103%	0.21%
Dibenz(a,h)anthracene	53-70-3	0.00037%	ND ^d
Fluoranthene	206-44-0	0.050%	0.15%
Fluorene	86-73-7	0.77%	1.01%
Indeno(1,2,3-cd)pyrene	193-39-5	0.00047%	ND ^d
2-Methylnaphthalene	91-57-6	2.38%	5.27%
Naphthalene	91-20-3	1.25%	1.82%
Perylene	198-55-0	0.022%	0.030%
Phenanthrene	85-01-8	0.81%	1.80%
Pyrene	129-00-0	0.15%	0.44%
Total PAH HAPs		5.93%	11.40%
<u>Other semi-volatile HAPs</u>			
Phenol		1.18%	ND ^d

^a Chemical Abstract Service Registry Number.

^b Emissions from loaded trucks during the period between load-out and the time the truck departs the plant.

^c Emission factor for compound is determined by multiplying the percentage presented for the compound by the emission factor for extractable organic particulate (organic PM) as determined from Table 11.1-14.

^d ND = Measured data below detection limits.

⁹ [Chapter 11.1 \(Hot Mix Asphalt Plants\)](#) of [EPA's AP-42](#), pg. 34.

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Table 11.1-1610

Table 11.1-16. SPECIATION PROFILES FOR LOAD-OUT, SILO FILLING, AND ASPHALT STORAGE EMISSIONS—ORGANIC VOLATILE-BASED COMPOUNDS

EMISSION FACTOR RATING: C

Pollutant	CASRN	Speciation Profile for Load-Out and Yard Emissions	Speciation Profile for Silo Filling and Asphalt Storage Tank Emissions
		Compound/TOC ^a	Compound/TOC (%) ^a
VOC ^b		94% ^b	100%
<u>Non-VOC/non-HAPs</u>			
Methane	74-82-8	6.5%	0.26%
Acetone	67-64-1	0.046%	0.055%
Ethylene	74-85-1	0.71%	1.1%
Total non-VOC/non-HAPS		7.3%	1.4%
<u>Volatile organic HAPS</u>			
Benzene	71-43-2	0.052%	0.032%
Bromomethane	74-83-9	0.0096%	0.0049%
2-Butanone	78-93-3	0.049%	0.039%
Carbon Disulfide	75-15-0	0.013%	0.016%
Chloroethane	75-00-3	0.00021%	0.0040%
Chloromethane	74-87-3	0.015%	0.023%
Cumene	92-82-8	0.11%	ND ^c
Ethylbenzene	100-41-4	0.28%	0.038%
Formaldehyde	50-00-0	0.088%	0.69%
n-Hexane	100-54-3	0.15%	0.10%
Isooctane	540-84-1	0.0018%	0.00031%
Methylene Chloride	75-09-2	0.0% ^d	0.00027%
MTBE	596899	0.0% ^d	ND ^c
Styrene	100-42-5	0.0073%	0.0054%
Tetrachloroethene	127-18-4	0.0077%	ND ^c
Toluene	100-88-3	0.21%	0.062%
1,1,1-Trichloroethane	71-55-6	0.0% ^d	ND ^c
Trichloroethene	79-01-6	0.0% ^d	ND ^c
Trichlorofluoromethane	75-69-4	0.0013%	ND ^c
m-/p-Xylene	1330-20-7	0.41%	0.2%
o-Xylene	95-47-6	0.08%	0.057%
Total volatile organic HAPs		1.5%	1.3%

3/04

Mineral Products Industry

11.1-35

¹⁰ [Chapter 11.1 \(Hot Mix Asphalt Plants\)](#) of [EPA's AP-42](#), pg. 35.

Table 11.1-16 (cont.)

- ^a Emission factor for compound is determined by multiplying the percentage presented for the compound by the emission factor for total organic compounds (TOC) as determined from Table 11.1-14.
- ^b The VOC percentages are equal to 100 percent of TOC minus the methane, acetone, methylene chloride, and 1,1,1-trichloroethane percentages.
- ^c ND = Measured data below detection limits. Additional compounds that were not detected are: acrylonitrile, allyl chloride, bromodichloromethane, bromoform, 1,3-butadiene, carbon tetrachloride, chlorobenzene, chloroform, dibromochloromethane, 1,2-dibromoethane, 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, 1,2-dichloropropane, cis-1,3-dichloropropene, trans-1,3-dichloropropene, 1,2-epoxybutane, ethyl acrylate, 2-hexanone, iodomethane, methyl methacrylate, 1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, vinyl acetate, vinyl bromide, and vinyl chloride
- ^d Values presented as 0.0% had background concentrations higher than the capture efficiency-corrected measured concentration.

Production Emissions

[Chapter 11.1 \(Hot Mix Asphalt Plants\)](#) of [EPA's AP-42](#) presents emission factors for batch mix and drum mix HMA plants as follows:

Emission Factors for PM10/PM2.5 from HMA Plants¹¹

Process	PM10/PM2.5 Emission Factor (lb/ton)
Dryer, hot screens, mixer – Batch Mix HMA Plant	
Uncontrolled	4.5
Fabric Filter (i.e., Baghouse)	0.027
Dryer – Drum Mix	
Uncontrolled	6.5
Fabric Filter (i.e., Baghouse)	0.023

All PM generated is assumed equivalent to PM₁₀ and 100% of PM₁₀ is PM_{2.5} for conservative emission estimation.

Emission Factors for CO, NOx, SO2, and POC from HMA Plants¹²

Process	CO (lb/ton)	NOx (lb/ton)	SO2 (lb/ton)	POC (lb/ton)
Natural Gas Dryer				
Batch Mix	0.40	0.025	0.0046	0.0082
Drum Mix	0.13	0.026	0.0034	0.032

¹¹ [Chapter 11.1 \(Hot Mix Asphalt Plants\)](#) of [EPA's AP-42](#), pg. 11-14.

¹² [Chapter 11.1 \(Hot Mix Asphalt Plants\)](#) of [EPA's AP-42](#), pg. 15-18.

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TOXICS

Table 11.1-9¹³ presents organic pollutant emission factors for batch mix plants.

Table 11.1-9. EMISSION FACTORS FOR ORGANIC POLLUTANT
EMISSIONS FROM BATCH MIX HOT MIX ASPHALT PLANTS^a

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. Nos.
	CASRN	Name			
Natural gas- or No. 2 fuel oil-fired dryer, hot screens, and mixer with fabric filter (SCC 3-05-002-45,.46)	Non-PAH Hazardous Air Pollutants ^b				
	75-07-0	Acetaldehyde	0.00032	E	24,34
	71-43-2	Benzene	0.00028	D	24,34,46, 382
	100-41-4	Ethylbenzene	0.0022	D	24,46,47,49
	50-00-0	Formaldehyde	0.00074	D	24,34,46,47,49,226,382
	106-51-4	Quinone	0.00027	E	24
	108-88-3	Toluene	0.0010	D	24,34,46,47
	1330-20-7	Xylene	0.0027	D	24,46,47,49
		Total non-PAH HAPs	0.0075		
	PAH HAPs				
	91-57-6	2-Methylnaphthalene ^c	7.1x10 ⁻⁵	D	24,47,49
	83-32-9	Acenaphthene ^c	9.0x10 ⁻⁷	D	34,46,226
	208-96-8	Acenaphthylene ^c	5.8x10 ⁻⁷	D	34,46,226
	120-12-7	Anthracene ^c	2.1x10 ⁻⁷	D	34,46,226
	56-55-3	Benzo(a)anthracene ^c	4.6x10 ⁻⁹	E	46,226
	50-32-8	Benzo(a)pyrene ^c	3.1x10 ⁻¹⁰	E	226
	205-99-2	Benzo(b)fluoranthene ^c	9.4x10 ⁻⁹	D	34,46,226
	191-24-2	Benzo(g,h,i)perylene ^c	5.0x10 ⁻¹⁰	E	226
	207-08-9	Benzo(k)fluoranthene ^c	1.3x10 ⁻⁸	E	34,226
	218-01-9	Chrysene ^c	3.8x10 ⁻⁹	E	46,226
	53-70-3	Dibenz(a,h)anthracene ^c	9.5x10 ⁻¹¹	E	226
	206-44-0	Fluoranthene ^c	1.6x10 ⁻⁷	D	34,46,47,226
	86-73-7	Fluorene ^c	1.6x10 ⁻⁶	D	34,46,47,226
	193-39-5	Indeno(1,2,3-cd)pyrene ^c	3.0x10 ⁻¹⁰	E	226
	91-20-3	Naphthalene	3.6x10 ⁻⁵	D	34,46,47,49,226
	85-01-8	Phenanthrene ^c	2.6x10 ⁻⁶	D	34,46,47,226
	129-00-0	Pyrene ^c	6.2x10 ⁻⁸	D	34,46,226
		Total PAH HAPs	0.00011		
	Total HAPs		0.0076		
	Non-HAP organic compounds				
	100-52-7	Benzaldehyde	0.00013	E	24
	78-84-2	Butyraldehyde/ isobutyraldehyde	3.0x10 ⁻⁵	E	24
	4170-30-3	Crotonaldehyde	2.9x10 ⁻⁵	E	24
	66-25-1	Hexanal	2.4x10 ⁻⁵	E	24
		Total non-HAPs	0.00019		

¹³ [Chapter 11.1 \(Hot Mix Asphalt Plants\)](#) of [EPA's AP-42](#), pg. 20.

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Table 11.1-10¹⁴ presents organic pollutant emission factors for drum mix plants.

**Table 11.1-10. EMISSION FACTORS FOR ORGANIC POLLUTANT
EMISSIONS FROM DRUM MIX HOT MIX ASPHALT PLANTS^a**

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. No.
	CASRN	Name			
Natural gas-fired dryer with fabric filter ^b (SCC 3-05-002-55, -56, -57)	Non-PAH hazardous air pollutants ^c				
	71-43-2	Benzene ^d	0.00039	A	25,44,45,50, 341, 342, 344-351, 373, 376, 377, 383, 384
	100-41-4	Ethylbenzene	0.00024	D	25,44,45
	50-00-0	Formaldehyde ^e	0.0031	A	25,35,44,45,50, 339-344, 347-349, 371-373, 384, 388
	110-54-3	Hexane	0.00092	E	339-340
	540-84-1	Isooctane (2,2,4-trimethylpentane)	4.0x10 ⁻⁵	E	339-340
	71-55-6	Methyl chloroform ^f	4.8x10 ⁻⁵	E	35
	108-88-3	Toluene	0.00015	D	35,44,45
	1330-20-7	Xylene	0.00020	D	25,44,45
		Total non-PAH HAPs	0.0051		
	PAH HAPs				
	91-57-6	2-Methylnaphthalene ^g	7.4x10 ⁻⁵	D	44,45,48
	83-32-9	Acenaphthene ^g	1.4x10 ⁻⁶	E	48
	208-96-8	Acenaphthylene ^g	8.6x10 ⁻⁶	D	35,45,48
	120-12-7	Anthracene ^g	2.2x10 ⁻⁷	E	35,48
	56-55-3	Benzo(a)anthracene ^g	2.1x10 ⁻⁷	E	48
	50-32-8	Benzo(a)pyrene ^g	9.8x10 ⁻⁹	E	48
	205-99-2	Benzo(b)fluoranthene ^g	1.0x10 ⁻⁷	E	35,48
	192-97-2	Benzo(e)pyrene ^g	1.1x10 ⁻⁷	E	48
	191-24-2	Benzo(g,h,i)perylene ^g	4.0x10 ⁻⁸	E	48
	207-08-9	Benzo(k)fluoranthene ^g	4.1x10 ⁻⁸	E	35,48
	218-01-9	Chrysene ^g	1.8x10 ⁻⁷	E	35,48
	206-44-0	Fluoranthene ^g	6.1x10 ⁻⁷	D	35,45,48
	86-73-7	Fluorene ^g	3.8x10 ⁻⁶	D	35,45,48,163
	193-39-5	Indeno(1,2,3-cd)pyrene ^g	7.0x10 ⁻⁹	E	48
	91-20-3	Naphthalene ^g	9.0x10 ⁻⁵	D	35,44,45,48,163
	198-55-0	Perylene ^g	8.8x10 ⁻⁹	E	48
	85-01-8	Phenanthrene ^g	7.6x10 ⁻⁶	D	35,44,45,48,163
	129-00-0	Pyrene ^g	5.4x10 ⁻⁷	D	45,48
		Total PAH HAPs	0.00019		

¹⁴ [Chapter 11.1 \(Hot Mix Asphalt Plants\)](#) of [EPA's AP-42](#), pg. 21.

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Table 11.1-10 (cont.)

Process	Pollutant		Emission Factor, lb/ton	Emission Factor Rating	Ref. No.
	CASRN	Name			
Natural gas-fired dryer with fabric filter ^b (SCC 3-05-002-55, -56, -57) (cont.)	Total HAPs		0.0053		
	Non-HAP organic compounds				
	106-97-8	Butane	0.00067	E	339
	74-85-1	Ethylene	0.0070	E	339-340
	142-82-5	Heptane	0.0094	E	339-340
	763-29-1	2-Methyl-1-pentene	0.0040	E	339,340
	513-35-9	2-Methyl-2-butene	0.00058	E	339,340
	96-14-0	3-Methylpentane	0.00019	D	339,340
	109-67-1	1-Pentene	0.0022	E	339-340
	109-66-0	n-Pentane	0.00021	E	339-340
		Total non-HAP organics	0.024		

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Tables 11.1-11¹⁵ and –12¹⁶ present metals emission factors for batch and drum mix plants, respectively.

Table 11.1-11. EMISSION FACTORS FOR METAL EMISSIONS
FROM BATCH MIX HOT MIX ASPHALT PLANTS^a

Process	Pollutant	Emission Factor, lb/ton	Emission Factor Rating	Reference Numbers
Dryer, hot screens, and mixer ^b (SCC 3-05-002-45,-46,-47)	Arsenic ^c	4.6x10 ⁻⁷	D	34, 40, 226
	Barium	1.5x10 ⁻⁶	E	24
	Beryllium ^c	1.5x10 ⁻⁷	E	34, 226
	Cadmium ^c	6.1x10 ⁻⁷	D	24, 34, 226
	Chromium ^c	5.7x10 ⁻⁷	D	24, 34, 226
	Hexavalent chromium ^c	4.8x10 ⁻⁸	E	34, 226
	Copper	2.8x10 ⁻⁶	D	24, 34, 226
	Lead ^c	8.9x10 ⁻⁷	D	24, 34, 226
	Manganese ^c	6.9x10 ⁻⁶	D	24, 34, 226
	Mercury ^c	4.1x10 ⁻⁷	E	34, 226
	Nickel ^c	3.0x10 ⁻⁶	D	24, 34, 226
	Selenium ^c	4.9x10 ⁻⁷	E	34, 226
	Zinc	6.8x10 ⁻⁶	D	24, 34, 226

^a Emission factor units are lb/ton of HMA produced. Emissions controlled by a fabric filter.

SCC = Source Classification Code. To convert from lb/ton to kg/Mg, multiply by 0.5.

^b Natural gas-, propane-, No. 2 fuel oil-, or waste oil-/drain oil-/No. 6 fuel oil-fired dryer. For waste oil-/drain oil-/No. 6 fuel oil-fired dryer, use a lead emission factor of 1.0x10⁻⁵ lb/ton (References 177 and 321, Emission factor rating: E) in lieu of the emission factor shown.

^c Arsenic, beryllium, cadmium, chromium, hexavalent chromium, lead, manganese, mercury, nickel, and selenium are HAPs as defined in the 1990 CAAA.

¹⁵ [Chapter 11.1 \(Hot Mix Asphalt Plants\)](#) of [EPA's AP-42](#), pg. 29.

¹⁶ [Chapter 11.1 \(Hot Mix Asphalt Plants\)](#) of [EPA's AP-42](#), pg. 30.

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Table 11.1-12. EMISSION FACTORS FOR METAL EMISSIONS
FROM DRUM MIX HOT MIX ASPHALT PLANTS^a

Process	Pollutant	Emission Factor, lb/ton	Emission Factor Rating	Reference Numbers
Fuel oil-fired dryer, uncontrolled (SCC 3-05-002-58, -59, -60)	Arsenic ^b	1.3x10 ⁻⁶	E	340
	Barium	0.00025	E	340
	Beryllium ^b	0.0	E	340
	Cadmium ^b	4.2x10 ⁻⁶	E	340
	Chromium ^b	2.4x10 ⁻⁵	E	340
	Cobalt ^b	1.5x10 ⁻⁵	E	340
	Copper	0.00017	E	340
	Lead ^b	0.00054	E	340
	Manganese ^b	0.00065	E	340
	Nickel ^b	0.0013	E	340
	Phosphorus ^b	0.0012	E	340
	Selenium ^b	2.4x10 ⁻⁶	E	340
	Thallium	2.2x10 ⁻⁶	E	340
	Zinc	0.00018	E	340
Natural gas- or propane-fired dryer, with fabric filter (SCC 3-05-002-55, -56, -57))	Antimony	1.8x10 ⁻⁷	E	339
	Arsenic ^b	5.6x10 ⁻⁷	D	25, 35, 339-340
	Barium	5.8x10 ⁻⁶	E	25, 339-340
	Beryllium ^b	0.0	E	339-340
	Cadmium ^b	4.1x10 ⁻⁷	D	25, 35, 162, 301, 339-340
	Chromium ^b	5.5x10 ⁻⁶	C	25, 162-164, 301, 339-340
	Cobalt ^b	2.6x10 ⁻⁸	E	339-340
	Copper	3.1x10 ⁻⁶	D	25, 162-164, 339-340
	Hexavalent chromium ^b	4.5x10 ⁻⁷	E	163
	Lead ^b	6.2x10 ⁻⁷	E	35
	Manganese ^b	7.7x10 ⁻⁶	D	25, 162-164, 339-340
	Mercury ^b	2.4x10 ⁻⁷	E	35, 163
	Nickel ^b	6.3x10 ⁻⁵	D	25, 163-164, 339-340
	Phosphorus ^b	2.8x10 ⁻⁵	E	25, 339-340
	Silver	4.8x10 ⁻⁷	E	25, 339-340
	Selenium ^b	3.5x10 ⁻⁷	E	339-340
	Thallium	4.1x10 ⁻⁹	E	339-340
	Zinc	6.1x10 ⁻⁵	C	25, 35, 162-164, 339-340

Spreadsheets for [Emission Calculations \[Batch Mix and Drum Mix\]](#) are provided.

Emission Calculations [Asphalt Rubber Blending Plant]

Crumb Rubber Materials Weigh Hopper Loading Emissions

The uncontrolled PM₁₀ emission factors of **0.0028 lbs/ton** for weigh hopper loading of crumb rubber materials is obtained from Table 11.12-2 in Chapter 11.12, "Concrete Batching," of AP-42 (Fifth Edition, Volume I). Since PM_{2.5} emission factor was not provided, all PM generated is assumed equivalent to PM₁₀ and 100% of PM₁₀ is PM_{2.5} for conservative emission estimation.

Mixing Tank Emissions from the Mixing of Asphalt Oil and Rubber

The POC emission factor of **0.023 lbs/ton** was taken from Application # 16460, which utilized Source Test # 91078 from 10/9/1990 and # 91064 from 9/24/1990 to derive emission factors. This POC emission factor is equivalent to the BACT level of 0.015 lbs/ton for asphalt mixing tank, which was provided by the asphalt mixing tank manufacturer in Application # 26584 for DeSilva Gates Construction and was verified through a source test by the South Coast Air Quality Management District.

POC working and breathing losses for storage tanks for extender oil and asphalt oil can be calculated using EPA Table 4.0.9d program, per [Chapter 4 \(Organic Liquid Storage Tanks\)](#) of the permit handbook.

PM emissions from the storage of extender oil, asphalt oil, or asphalt oil/rubber mixtures can be estimated by assuming a PM grain loading of **0.04 gr/dscf** (40 CFR Part 60, Subpart I limit) and an exhaust flowrate of **37 scfm** for the vent condenser of the storage tank unless the applicant or equipment manufacturer can provide the information related to exhaust flowrate for the vent condenser. The exhaust flowrate of 37 scfm was provided for a 30,000-gallon asphalt tank from Application # 38649 for Granite Construction Company. Using exhaust flowrate for a 30,000-gallon asphalt tank is expected to lead to conservative estimate of PM emissions, since the volumetric capacity of most storage tanks are smaller. All PM generated is assumed equivalent to PM₁₀ and 100% of PM₁₀ is PM_{2.5} for conservative emission estimation.

AP-42 Table 11.1-9 provides emissions factors for toxic gases emitted from standard batch asphalt mixers. It was assumed that the POC emissions calculated above are the same as standard batch mixer emissions. To be consistent, the same assumption will be made with toxic gases with the exception that PAH emissions will not be calculated. The asphalt rubber mixer uses indirect heating that does not promote PAH formation. All toxic gas emissions will be assumed to result from asphalt evaporation and not combustion.

Applicable Requirements

Air District Rules and Regulations

In general, the particulate sources at HMA (including Asphalt Rubber Blending) and WMA plants are subject to the operating standards of [Regulation 6-1](#). All but the transfer points of storage silos are fugitive in nature. The storage silos are generally abated by a fabric filter or baghouse device. Fugitive sources include the transfer of sand and aggregate, truck loading, mixer loading, vehicle traffic, and wind erosion from sand and aggregate storage piles. The amount of fugitive emissions generated during the transfer operations depend primarily on the surface moisture content of these materials. Types of controls used may include water sprays, enclosures, and baghouse devices. With these controls of the equipment and good maintenance and wetting of unpaved road surfaces, particulate emissions should comply with the operating standards of [Regulation 6-1](#). Permit conditions are imposed to ensure compliance with [Regulation 6-1](#).

HMA (not including Asphalt Rubber Blending) and WMA facilities are subject to the Federal [NSPS Subpart I for Hot Mix Asphalt Facilities](#), which prohibits the owner/operator from discharging or causing to discharge into the atmosphere from any affected facility any gases which: 1) Contain particulate matter in excess of 90 mg/dscm (0.04 gr/dscf); and 2) Exhibit 20% opacity, or greater. Note that the NSPS Subpart I does not apply to the mixing and reaction tanks for asphalt rubber. Because these NSPS requirements are less restrictive than Air District BACT requirements for HMA plants, new/modified HMA facilities should meet the NSPS.

Best Available Control Technology (BACT)

BACT for the sources at asphalt plants are specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

Miscellaneous Operations

- [Asphalt Batch Plant – Material Handling](#)
- [Asphalt \(Hot Mix\) Batch Mix Facilities](#)
- [Asphalt \(Hot Mix\) Drum Mix Facilities](#)
- [Asphalt \(Hot Mix\) Drum and Batch Mix Facilities, Asphalt Material Handling \(Conveyors and Storage Silos; and Loadout Operations](#)
- [Asphalt Roofing Line](#)
- [Asphalt Storage Tank](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

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- ☐ [Offsets](#)
- ☐ [Prevention of Significant Deterioration](#)
- ☐ [School Notification](#)
- ☐ [Health Risk Assessment](#)
- ☐ [Overburdened Communities](#)

Permit Conditions

Standardized conditions for HMA plants are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

11.3 COFFEE ROASTING OPERATIONS

December 15, 2023

Process Description

The roasting of coffee beans is a common activity that occurs throughout the Bay Area at a wide variety of facilities ranging from small gourmet coffee shops to medium-sized commercial operations with locally distributed products to large facilities with national product distribution that operate 24 hours per day. Drum-type coffee bean roasters are the most common type used in the coffee bean roasting industry. The associated coffee roasting equipment ranges from small 25 pound per hour batch roasters located at gourmet coffee shops to industrial, 4 ton per hour, recirculating, continuous roasters located at large facilities.

The coffee roasting process consists essentially of cleaning, roasting, cooling, grinding, and packaging operations. Bags of green coffee beans are hand- or machine-opened, dumped into a hopper, and screened to remove debris. The green beans are then weighed and transferred by belt or pneumatic conveyor to storage hoppers. From the storage hoppers, the green beans are conveyed to the roaster. At the end of the roasting cycle, water sprays are used to “quench” the beans. Following the roasting, the beans are cooled and run through a “destoner”. Destoners remove stones, metal fragments, and other waste not removed during initial screening from the beans.

The majority of coffee bean roasters are equipped with natural gas-fired burners to provide heat for the roasting process. Emissions from coffee roasting are typically controlled using a combination of a cyclone and an afterburner. The air pollutant emissions resulting from coffee roasting operations include particulate matter (PM10 and PM2.5), volatile organic compounds (VOC), organic acids, sulfur dioxide (SO2), and natural gas combustion products like oxides of nitrogen (NOx) and carbon monoxide (CO). The odorous and visible emissions (smoke) resulting from the roasting process have the most obvious and direct impact on the public. A thorough explanation of coffee roasting is available from [Chapter 9.13.2, Coffee Roasting](#), of [AP-42 \(Fifth Edition, Volume I\)](#). Generally, an Air District permit is required for any coffee roaster, which processes 15 or more pounds of coffee per hour, per [Regulation 2-1-117.8](#). In addition, separate coolers/destoners, if used, should be permitted as sources of particulate.

Completeness Determination

The following Air District forms should be completed and fees provided for coffee roasting operations. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

- | | |
|--|---|
| 1. Form 101-B (one for facility). | coffee roasting facilities will be subject to |
| 2. Form G (one per source). | Fee Schedules F, "Miscellaneous Sources." |
| 3. Form C (one per coffee roaster and afterburner) for the combustion of fuel. | Combustion equipment may also be subject to Fee Schedule B, "Combustion of Fuel." |
| 4. If Health Risk Assessment is triggered, Form HRA (one per source). | When sources are subject to two Fee Schedules, the schedule resulting in the highest fee is used. Abatement equipment is not subject to fee requirements, if they are permitted at the same time as the source that it will be abating. |
| 5. The higher of the following: fees, calculated per Regulation 3 (Schedule F) and fees, calculated for combustion of fuel per Regulation 3 (Schedule B). All sources at | |

Emission Calculations

The coffee roaster is the main source of gaseous pollutants, including alcohols, aldehydes, organic acids, and nitrogen and sulfur compounds. Because roasters are typically natural gas fired, NOx, CO, and carbon dioxide (CO2) emissions are expected as a result of fuel combustion. Particulate emission factors for coffee roasting are given in Tables 9.13.2-1 and 9.13.2-2 in [Chapter 9.13.2, Coffee Roasting](#), of [AP-42 \(Fifth Edition, Volume I\)](#).

[Table 9.13.2-1 and 9.13.2-2 from AP-42 Chapter 9.13.2 \(Coffee Roasting\)](#) provides the following emission factors for particulate (as PM₁₀, which are also assumed to be 100% PM_{2.5}), VOC, and CO from the coffee roasting process.

Emission Factors for Coffee Roasting Operations

Green coffee bean screening, handling, and storage System with fabric filter	PM ₁₀ = 0.059 lb/ton PM _{2.5} = 0.059 lb/ton
Batch roaster	VOC = 0.86 lb/ton
Batch roaster with thermal oxidizer	VOC = 0.047 lb/ton
	PM ₁₀ = 0.12 lb/ton PM _{2.5} = 0.12 lb/ton

Air District staff has reviewed source test results from different size coffee roasters in the Bay Area. Air District staff suggests using source test emission factors from similar size and brand/model roasters for emission estimation in the application. Most new facilities have chosen batch roasters. Based on batch capacity of the roasters, three groups of coffee roasters are defined here: small to medium commercial roaster (5 kg to 35 kg), large commercial roaster (35 kg to 70 kg), and extra-large commercial roaster (70 kg and up). Suggested emission factors for each group are summarized in the following table based on source test results.

	Small to Medium Roaster (5 – 35 kg) ¹	Large Commercial Roaster (35 - 70 kg) ²	Extra-Large Roaster (70 kg & up) ³
Pollutant	(lb/ton)	(lb/ton)	(lb/ton)
NO _x	0.56	0.36	2.08
CO	3.44	1.63	3.67
POC	0.22	0.047	0.73
PM ₁₀	0.44	0.10	0.077
Sulfates	0.021	0.021	0.021
Formaldehyde	2.0E-04	1.2E-02	0.064
Acetaldehyde	1.0E-04	8.0E-04	0.038

Notes:

1. Emission Factors shown are from Source Test on July 31, 2009 at Plant 16718 Tailor Maid Farming (S-1, Loring S35 35kg/batch).
2. Emission Factors shown are from Source Test on April 19, 2019 at Plant 15081 Equator Coffees (S-6, Loring S70 70kg/batch).
3. Emission Factors are maximum source test values for roasters range from 120 kg/batch to 250 kg/batch at Plant 167, Kraft foods, Plant 23015, Philtz Coffee, Plant #21613, Mountanos Brothers Coffee Company, and Plant #17456, Peet's Coffee)
4. Kraft Source Test Result, Air District Test 99126 12/17/98 (see Application 25356)

If the applicant has more representative emission factors (i.e., from manufacturer's specifications or guarantees), those factors should be used.

The requirement to apply Reasonably Available Control Technology (RACT) to secondary pollutants from thermal oxidizers is contained in Regulation 2-2-112, which state that emissions of secondary pollutants from an abatement device are subject to RACT requirements, when the abatement device is being used to meet Best Available Control Technology (BACT) or Best Available Retrofit Technology (BARCT) requirements for a source or sources. The Air District [Policy: NO_x and CO RACT Levels for Thermal Oxidizers](#) requires the following RACT control levels for afterburners:

50 ppmvd NO_x @ 15% O₂ [0.2 lb/MMBTU]
 350 ppmvd CO @ 15% O₂ [0.8 lb/MMBTU]

AIR TOXICS

Air toxics such as acrolein, acetaldehyde and formaldehyde are emitted as a result of the coffee roasting process. Uncontrolled coffee roasting results in significant odors and visible emissions smoke. According to [Chapter 9.13.2, Coffee Roasting](#) of AP-42, the roaster is the main source of gaseous pollutants, including aldehydes and acrolein. However, the California Air Resources Board has invalidated the source test method for acrolein. Until CARB approves a new test method and acrolein emissions are estimated from factors developed using the new test method, the Air District is not evaluating risk for acrolein. There are no California Air Toxics Emission Factors (CATEF) factors for the aldehydes from coffee roasting. However, source tests were performed at several facilities and acetaldehyde and formaldehyde emission factors have been summarized in the table in the Emission Calculations section.

If the applicant has more representative toxic emission factors (i.e., from manufacturer's specifications or guarantees), those factors should be used. If toxic emissions for the project exceed an acute or chronic trigger level in Table 2-5-1, a health risk assessment is required for the project. HRA results and the margin of compliance with [Regulation 2-5](#) health risk limits should be considered when setting toxic emission limits in the permit conditions and requiring verification by source testing.

Based on these emission factors and the maximum projected throughput for the coffee roasting operations, emissions can be calculated. The combustion emissions are based on estimated usage of the burners at their estimated firing rates or maximum projected natural gas usage.

Applicable Requirements

Air District Rules and Regulations

In general, the particulate sources at coffee roasting facilities are subject to the operating standards of [Regulation 6-1](#). With the proper operation and abatement of the coffee roasters and its destoning/cooling operations, particulate emissions should comply with the operating standards of [Regulation 6-1](#). Permit conditions are imposed to ensure compliance with [Regulation 6-1](#).

Best Available Control Technology (BACT)

BACT for the coffee roasters (including its handling) is specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

Coffee Roasters

- [Coffee Roasting < 110,000 Btu/hr](#)
- [Coffee Roasting 110,000 Btu/hr to 3.5 MM Btu/hr](#)
- [Coffee Roasting Handling Equipment < 1,590 lb/hr](#)
- [Coffee Roasting Handling Equipment ≥ 1,590 lb/hr](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

PERMIT HANDBOOK

Standardized conditions for coffee roasters are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

11.4 COOLING TOWERS

July 3, 2023

Process Description

This chapter describes the permitting procedures for cooling towers. A detailed description of cooling towers is provided in [Chapter 13.4 Wet Cooling Towers](#) of [EPA's AP-42](#).

A cooling tower relies on the latent heat of water evaporation to exchange heat between the process and the air passing through the tower. In a cooling tower, warmer water is brought into direct contact with the cooler air. When the air enters the cooling tower, its moisture content is generally less than saturation. When the air exits, it emerges at a higher temperature and with moisture content at or near saturation. Even at saturation, cooling can take place since a temperature increase results in an increase in heat capacity which allows more sensible heat to be absorbed.

There are two main types of cooling towers: natural draft and mechanical draft cooling towers. A natural draft cooling tower receives its air supply from natural wind currents that results in a convection flowing up the tower. This air convection cools the water on contact. Due to the tremendous size of these towers (500 feet high, 400 foot diameter at the base) they are generally used for flow rates above 200,000 gal/min which are generally only used in utility power stations in the United States. It is generally loaded at about 2 to 4 gal/(min ft²) or 1.4 to 2.7 L/(s m²). Currently there are no natural draft cooling towers operating within the Air District.

A mechanical draft cooling tower is much more widely used. A mechanical draft cooling tower employs large fans to either force or induce a draft. This increases the contact time between the water and the air maximizing the heat transfer. A forced draft tower has the fan mounted at the base, forcing air in at the bottom and discharging air at low velocity through the top. An induced draft tower uses fans to create a draft that pulls air through the cooling tower fill. Mechanical draft cooling towers may also employ a crossflow or counterflow design. A crossflow (XF) tower is designed so that the air and water is mixed at a 90-degree angle. A counterflow (CF) design allows vertically falling water to mix with vertically rising, cooling air at an angle of 180 degrees. Generally, crossflow and counterflow cooling towers have similar drift loss. A typical mechanical draft cooling tower has a loading capacity of 2 to 6 gal/(min ft²) or 1.4 to 4.1 L/(s m²).

Drift eliminators are often used to reduce the amount of drift in the exiting air flow. There are four main types of drift eliminators: blade-type; herringbone; waveform; and cellular or honeycomb. Blade-type and herringbone drift eliminators are usually the least efficient; waveform drift eliminators are typically moderately efficient; cellular units are the most efficient. The velocity of the airflow in the fill is typically 300 to 700 feet per minute. Drift rates are highest when the air velocity is at either end of the range. Important design considerations for drift eliminators include the air velocity and pressure drop through the eliminators, as well as provisions from reducing or eliminating droplet reentrainment and air leakage. Better drift eliminators expand the range of airflow rates that produce minimum drift rates and reduce the effect of substantially higher or lower airflow rates on the drift rate.

Completeness Determination

The following Air District forms should be completed and information and fees provided for cooling tower operations. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form P101-B (one for facility).
2. Form G (one per source).
3. If Health Risk Assessment is triggered, Form HRA (one per source).
4. Fees, calculated per Regulation 3 (Schedule F).
5. See the Emissions Calculations section for additional information that should be provided by the applicant regarding the cooling tower.
6. Form Appendix H

Emission Calculations

Most of the emissions from cooling towers are a result of drift droplets, liquid water entrained in the air stream which are carried out of the tower. The amount of drift escaping the cooling tower depends on the type and model, the capacity, the velocity of the air, the temperature of the inlet and outlet flow, and the density of the air in the cooling tower. Drift loss can usually be obtained by requesting the drift loss from the manufacturer or vendor. Drift droplets can be reduced to less than 0.1 % by effectively using an eliminator. Due to safety reasons, a cooling tower is often designed, if necessary, to allow leakage to the cooling water side of the heat exchanger. These leaks within the system may result in hydrocarbon emissions.

The water transfer system, including pumps, valves, and piping is generally not subject to the fugitive emissions regulations. These components are typically exempt by definition since the system should normally contain only water containing little or no volatile organic compounds (VOCs).

Major emission constituents are organic compounds, particulate matter (PM10), salts, and any other chemicals that may either be present in the stream being cooled or that may be added to the circulating water. The visible emissions (the plume) mainly consist of water vapor. Precipitation of the plume may occur near the vicinity due to adiabatic cooling. Interaction of nearby stacks and the cooling tower plume may also occur causing changes in pH and other problems. Refer to the Cooling Tower spreadsheet for the emission calculation based of Method 1 and Method 2 below.

1. Particulate Matter < 10 microns (PM10)

The operator/owner can usually obtain the drift loss by requesting the drift loss from the manufacturer or vendor. The operator/owner should also provide the manufacturer's written documentation for the premise, basis, and justification for the drift loss that was determined. If the applicant fails to provide the drift loss, then the 0.02 % value should be used in these calculations for the drift loss value. Per the August 1993 EPA publication titled "[Chromium Emissions from Industrial Process Cooling Towers - Background Information for Proposed Standards](#)", typical drift loss rates for cooling towers range from 0.001 to 0.02 %. The drift loss of an induced draft cooling tower is typically 0.02 % ([AP-42 Table 13.4-1, 1/95](#)). The drift loss of a natural draft cooling tower is typically 0.00088 % ([AP-42 Table 13.4-1, 1/95](#)). The drift loss is a function of air velocity through the fill material, recirculation rate, type of fill material and drift eliminator used. Source testing is not normally recommended since there are no source test procedures that comply with Air District standards.

Typically, the operators of cooling towers have readily available the TDS content of the water due to reporting requirements of agencies responsible for regulating water quality and water treatment testing requirement. Typical cooling tower water recirculation capacities range from 3,200 to 90,000 gallons/minute. Power plant cooling towers can be much larger than this.

2. Precursor Organic Compounds (POC)

Only cooling towers that use process water (water containing organics) will emit POCs. For those towers that do not use process water, no POC emissions will be assumed to be emitted.

Obtained from the applicant (usually this is supplied by the cooling tower vendor to the applicant)
Cooling water capacity of the cooling tower, gallons/minute
Refinery feed rate, gallons/minute
Operating time

If the cooling water rate is unknown (in gallons) assume it is 40 ([AP-42, Table 5.1-3, 1/95](#)) times the refinery feed rate (in gallons). Refinery feed rate is defined as the crude oil feed rate to the atmospheric distillation column. Unless the facility can demonstrate an more appropriate emission factor for the tower, the emission calculation shall be conducted using one of the following emission factors for either uncontrolled or controlled cooling towers [controlled means minimization of hydrocarbon leaks into the cooling water system and monitoring of cooling water for hydrocarbons]:

PERMIT HANDBOOK

Method 1 (VOC and PM/PM₁₀): The default emission factors listed below can be used to estimate the PM/PM₁₀ and VOC emissions using the equation below:

$$E = Q \times EF$$

Where:

E = Annual emissions in pounds per year (lb/yr)

Q = Cooling tower recirculating water in million gallons or cooling tower capacities

EF = Emission factor expressed in lb/throughput

Default Emission Factors for Cooling Towers:

Industry	Throughput Unit	Uncontrolled VOC EF (lb/MMgal)	Controlled VOC EF (lb/MMgal)	Controlled PM/PM ₁₀ EF
Refineries	Million gallon	6.0	0.7	19 (lb/MMgal)
Chemical Manufacturing Plant	Million gallon	6.0	0.7	19 (lb/MMgal)
Others	Million gallon	Not expected	Not expected	19 (lb/MMgal)

Assuming PM₁₀ = PM

References:

- Uncontrolled VOC: AP-42, Section 5.1, Table 5.1-3 (April 2015)
- Controlled VOC: AP-42, Section 5.1, Table 5.1-2 (April 2015)
- PM: AP-42, Section 13.4, Table 13.4-1 (January 1995). This average corresponds to an effective cooling tower recirculating water TDS content of approximately 11,500 ppm for induced draft towers.

Method 2 (PM/PM₁₀): Total Dissolved Solids (TDS) and Drift Loss % of the recirculating water are provided.

Information obtained from the applicant for a cooling tower (usually this is supplied by the cooling tower vendor to the applicant):

$$EF_{PM/PM_{10}} = TDS \times \text{Drift Loss \%}/100 \times \text{density water}$$

Where:

EF_{PM/PM₁₀} = Emission factor, lb/gal

TDS = Concentration of total dissolved solids in circulating water (ppm by weight)

TDS of the recirculating water, ppm by wt. (1,000 ppmw = 1,000 lb solid/10⁶ lb water)

TDS = Conductivity (micromho per centimeter, umho/cm) x CF_{TDS}.

CF_{TDS} Correlation factor to convert conductivity to TDS concentration = 0.5 to 1.0; default is 0.67

Drift Loss (percentage of liquid water emitted to the air), % wt. [Drift loss = ((makeup water – evaporated water- blow down water)/recirculating cooling water) x100%]

Density of water = 8.34 lb/gallon

A conservatively high PM₁₀ emission can be obtained by multiplying the drift loss by the TDS fraction in the circulating water and by assuming that, once the water evaporates, all remaining solid particles are within the PM₁₀ size range.

Example:

$$EF_{PM/PM_{10}} = 5,000 \text{ ppmw}/10^6 \times 0.0005\%/100 \times 8.34 \text{ lb/gal} = 2.085 \text{ E-7 lb/gal}$$

$$PM/PM_{10} \text{ Emissions (lb/hr)} = (\text{Recirculating water capacity}) \times EF_{PM/PM_{10}} \times (\text{operating time})$$

$$PM/PM_{10} \text{ (lb/hr)} = 60,000 \text{ gpm} \times 2.087 \text{ E-7 lb/gal} \times 60 \text{ min/hr} = 0.75 \text{ lb/hr}$$

Note: BACT for Cooling Tower at TECQ

- PM10 required drift < 0.001% achieved by drift eliminator.
- VOC required Non-contact design. Monthly monitoring of VOC in water per Appendix P or approved equivalent (assume all VOC stripped out). Repair identified leaks as soon as possible, but before next scheduled shutdown, or shutdown triggered by 0.08 ppmw cooling water VOC concentration.

3. Toxic Air Contaminant (TAC) Emission Estimation - cooling tower

The toxic air contaminant emissions will be dependent on the type of water treatment chemical used by the applicant for corrosion inhibition and to discourage algae growth. In many cases, bromine is used for this purpose. The maximum concentration of the water chemical treatment is typically obtained from the applicant. TAC emission factor calculation is shown below:

$$EF_{TAC} = EF_{VOC \text{ or } PM/PM_{10}} \times W$$

Where:

$$EF_{TAC} = \text{Toxics air contaminants emission factor (lb/gal)}$$

$$EF_{VOC \text{ or } PM/PM_{10}} = \text{VOC or PM/PM}_{10} \text{ emission factor used to report colling towers emissions (lb/MMgal)}$$

$$W = \text{Weight fraction of TAC in VOC or PM/PM}_{10} \text{ (decimal format)}$$

Example:

Nickel = 0.2% by weight

$$EF_{\text{nickel}} = 2.085 \text{ E-7 lb/gal} \times 0.2\%/100 = 4.17 \text{ E-10 lb/gal}$$

$$E_{\text{Nickel-PM/PM}_{10}} \text{ (lb/hr)} = 60,000 \text{ gpm} \times 4.17 \text{ E-10 lb/gal} \times 60 \text{ min/hr} = 0.0015 \text{ lb/hr}$$

Alternatively: If the TAC concentration of the toxic compound is known, the TAC emission calculation is shown below:

$$\text{Chloroform concentration} = 0.004 \text{ ppmv in cooling water}$$

$$E_{\text{Chloroform}} \text{ (lb/hr)} = 0.004 \text{ ppmv}/10^6 \times 60,000 \text{ gpm} \times 8.34 \text{ lb/gal} \times 60 \text{ min/hr} = 0.12 \text{ lb/hr}$$

Chloroform

Applicable Requirements

[Regulation 2, Rule 1, Section 128.4](#) exempts from permits "water cooling towers and water cooling ponds not used for evaporative cooling of process water, or not used for evaporative cooling of water from barometric jets or from barometric condensers." The Air District's policy has interpreted process water to be water that contains organics. On May 17, 2000 [Regulation 2, Rule 1, Section 319](#) was amended to require permits for any source with an emission rate of any regulated air pollutant from the source greater than 5 tons per year, after abatement. This includes cooling towers that had been previously exempt. Along with this, Section 93103, Subchapter 7.5, Chapter 1, Part III, Titles 17 and 26, Code of California Regulations and Air District [Regulation 11-10-301](#) prohibits hexavalent chromium-containing compounds from being added to the circulating water. As a result, all cooling towers are subject to [Regulation 11-10](#); therefore the exemption in Regulation 2-1-103 is also not applicable.

A cooling tower is defined by Air District [Regulation 11-10-201](#) as "any open water recirculation device that uses fans or natural draft to draw or force air to contact and cool water by evaporation." They are often referred to as evaporative or wet cooling towers. Air emissions typically result from entrainment of liquid water in the air stream which is carried out of the tower as drift droplets. Drift droplets are any water droplets and dissolved and suspended solids they contain that are entrained in the air and emitted from the cooling tower stack. Generally, the concentration of the dissolved solids in the drift is the same as that in the circulating cooling water. Drift in the exiting airflow can be reduced with various types of drift eliminators. A non-evaporative or dry cooling tower has negligible emissions because there are no drift droplets.

Although the bacterium *Legionella pneumophila* (the bacterium that causes Legionnaire's Disease) is not regulated by the Air District, it is suggested that the facility follow the guidelines and recommendations made by the Cooling Technology Institute in their February 2000 report titled "Legionellosis, Guideline: Best Practices for Control of *Legionella*" in order to minimize the risks associated with this

bacterium. It is also suggested that the facility contact their local public health officer to obtain procedures for handling this bacterium.

Cooling towers may or may not be subject to Regulation 2-2 – Prevention of Significant Deterioration (PSD):

Regulations 2-2-304 through 309 and 2-2-315 apply to PSD facilities. Sites belonging to one of the 28 PSD source categories listed in section 169(l) of the federal Clean Air Act have a PSD threshold of 100 tons/year for each regulated air pollutant and must include fugitive emissions when making a PSD major facility determination. However, sites that fall within unlisted categories (such as landfill facilities) have a PSD major facility threshold of 250 tons/year for each regulated air pollutant and may exclude fugitive emissions when making this major facility determination. The increase in emissions in this project may or may not exceed the major modification thresholds.

Regulation 2, Rule 2: Major Modification of a Major Facility

Section 2-2-221 defines Major Modification as any modification, as defined in Regulation 2-1-234, at an existing major facility that the APCO determines will cause an increase of the facility's emissions by the following amounts or more:

POC: 40 tons per year

NO_x: 40 tons per year

SO₂: 40 tons per year

PM₁₀: 15 tons per year

CO: 100 tons per year

Regulation 2, Rule 5: Permits – New Source Review of Toxic Air Contaminants (TAC) - Health Risk Assessment (HRA) Requirements

The Air District's regulation concerning toxic air contaminant emissions is codified in Regulation 2, Rule 5, New Source Review of TACs. All TAC emissions from new and modified sources are subject to risk assessment, if the emissions of any individual TAC exceed either the acute or chronic emission thresholds defined in Table 2-5-1. If a health risk screening analysis is triggered, related projects permitted within the previous three years must also be considered in the analysis.

Cooling towers are exempt from [Regulation 8, Rule 2](#), per [Section 8-2- 114](#) exempts cooling towers from [Section 8-2-301](#) provided best modern practices are used. The permit evaluator shall ensure that the cooling tower uses best modern practices in its operations.

Cooling towers are subject to [Regulation 6-1](#)- Particulate Matter-General Requirements:

- Section 6-1-301 limits particulate matter emissions for a period or periods aggregating more than three minutes in any hour to a visible emission of No. 1 on the Ringelmann Chart. Visible emissions are usually not associated with cooling towers.
- Section 6-1-302 limits cooling tower emissions for a period or periods aggregating more than three minutes in any hour equal to or greater than 20% opacity as perceived by an opacity sensing device (if required by the District).
- Section 6-1-305 prohibits emission of visible particles from causing public nuisance.
- Section 6-1-310 limits particulate matter grain loading of 0.15 grains/dscf in exhaust gas volume, corrected to 12% CO₂ by volume. The permit evaluator should review emission calculations of particulate to ensure that the cooling tower will comply with Regulation 6-1 requirements.

[Regulation 11-10](#)-Hexavalent Chromium Emissions from All Cooling Towers and Total Hydrocarbon Emissions from Petroleum Refinery Cooling Towers:

- [Section 11-10-301](#) prohibits hexavalent chromium-containing compounds from being added to the circulating water.
- Section 11-10-304 required one of the three options for hydrocarbon leak monitoring at the cooling tower return line(s): either 1) sample and analyze recirculating cooling tower water; 2) install a continuous hydrocarbon; or 3) alternative APCO approved method.
- Section 11-10-305 minimizes the leak within 7 calendar days and conduct leak repair within 21

- calendar day.
- Section 11-10-401 reports exceedance of leak action level *4 ppbw for existing unit and 42 ppbw for new/modified unit) and conducts sampling of total hydrocarbon concentration and chlorine concentration no later than 24 hours.

Cooling towers may or may not be subject to Major Facility Review, Regulation 2, Rule 640 CFR Part 70, State Operating Permit Programs (Title V):

If the facility is subject to MFR Permit requirements pursuant to Regulation 2-6-301, because it has the potential to emit more than 100 tons per year of any regulated air pollutant. This facility was required to obtain a Title V Federal Operating Permit. The requirements of this program have been codified in District Regulation 2, Rule 6.

NESHAP

Subpart CC (Maximum Available Control Technology (MACT CC)) of 40 CFR Part 63 is the [National Emission Standard for Hazardous Air Pollutants from Petroleum Refineries Section 63.654 and 63.655](#).

- [Section 63.654 \(c\)\(4\) leak level action of 6.2 ppmv of strippable hydrocarbon concentration \(as methane\) using modified El Paso Method if measured monthly, or 3.1 ppmv of strippable hydrocarbon concentration \(as methane\) using modified El Paso Method if measured quarterly.](#)
- Section 63.655 reporting and recordkeeping requirements.

Subpart Q of 40 CFR Part 63 is the [National Emission Standard for Hazardous Air Pollutants for Industrial Process Cooling Towers](#). The requirements of this NESHAP were also implemented as Regulation 11-10. Both ban the use of hexavalent chromium chemicals in cooling towers. The permit evaluator shall ensure that the cooling tower complies with these requirements.

Best Available Control Technology (BACT)

Because these types of operations are somewhat unique, BACT for Cooling Towers is currently NOT specified in the [BACT/TBACT Workbook](#). As a result, any Cooling Tower, which triggers BACT, shall require a cost-effectiveness determination for add-on organic abatement. Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

The Air District conducted a review of the BACT Clearinghouses and BACT Guidelines from US Environmental Protection Agency, California Air Resources Board, and other Air Districts in the state of California. Texas Commission on Environmental Quality (TCEQ) lists a BACT Guideline for cooling towers. The TCEQ BACT Guideline states BACT is as follows:

- VOC: Non-contact design. Monthly monitoring of VOC in water per Appendix P or approved equivalent (assume all VOC stripped out). Repair identified leaks as soon as possible, but before next scheduled shutdown, or shutdown triggered by 0.08 ppmw cooling water VOC concentration.
- PM₁₀: Drift < 0.001% achieved by drift eliminators

BACT for PM/PM₁₀ at cooling tower (Application 29657)

- Use of mist/drift eliminators designed to achieve a drift rate of 0.0005%
- TDS limits of 2,000 ppm averaged over 12 consecutive months (taken from the EPA RACT/BACT/LAER Clearinghouse, cooling tower listed for company PTTGCA US Petrochemical Complex permitted by the Ohio EPA).

BACT for VOC at cooling tower (Application 29657)

- Continuous hydrocarbon analyzer monitor with VOC concentration not to exceed 42 ppb (new/modified source)
- Repair leaks as soon as detected not to exceed 15 days from date of detection. Cooling tower shall be shutdown until repairs are completed if repairs cannot be performed within 15 days of detection.
- Employ the following best modern practices (BMPs) to ensure emissions from the cooling tower are minimized:
 - All heat exchangers upstream of the CWTs are closely examined during turnaround, and are back flushed.

- The steel contained in the heat exchangers undergoes re-passivation.
- The tubes within the heat exchangers that show evidence of corrosion or pitting are sealed.
- Frequent visual observations (several times on a daily basis) of the cooling water by refinery operators to detect any changes in the appearance of the water that could indicate hydrocarbon contamination.
- Regular refinery operator presence on the CWT decks, which would allow the operators to detect any unexpected odors from the water.
- Measurement of the residual chlorine by refinery operators at the CWTs one or two times per shift for the following reasons:

Hydrocarbons are reducers, which tend to combine with the oxidizing chlorine atoms. In the presence of hydrocarbons, the residual chlorine would drop significantly. In addition to being detected via measurement, a reduction in chlorine (a biocide) could foster microbial growth, which could be visually observed by the refinery operators.
- Use of hand-held monitors, such as PIDs or FIDs, to detect the presence of hydrocarbons in the air, in the event that refinery operators suspect a leak.
- Measurement of the Oxidation Reduction Potential (ORP) by refinery operators using a hand-held monitor if a leak is suspected. A change in the reducer side of the measurement would indicate the presence of hydrocarbons.
- Use of an on-line Total Hydrocarbon Analyzer that continuously determines the hydrocarbon vapor concentration from the cooling water.

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|--|
| ☐ Offsets | ☐ Overburdened Communities |
| ☐ Prevention of Significant Deterioration | ☐ Notice of Exemption (NOE)/Notice of Determination (NOD) |
| ☐ School Notification | |
| ☐ Health Risk Assessment | |

Permit Conditions

Standardized conditions for cooling towers are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

11.5 CONCRETE BATCH PLANTS

March 1, 2024

Process Description

Concrete is composed essentially of water, cement, cement supplement (pozzolan material), fine (sand) and coarse (i.e., gravel, crushed stone) aggregate. A thorough explanation of these type of plants is available from [Chapter 11.12, Concrete Batching](#), of [AP-42 \(Fifth Edition, Volume I\)](#).

Concrete batch plants are generally made up a number of sources of air pollution which store, convey, measure, and discharge its constituents into trucks for transport to a job site. Per [Air District policy](#), the following sources at the plants shall be permitted:

- Sand and Aggregate Storage Piles (grouped as one source if they are all in the same general area)
- Cement and Cement Supplement Storage Silos (each silo is a separate source)
- Conveyors (grouped as one source if they are all in the same general area)
- Weigh Hoppers (each weigh hopper is a separate source)
- Batch Mixers (each batch mixer is a separate source)

Completeness Determination

The following Air District forms should be completed and fees provided for concrete batch plants. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately. There is a specific [policy](#) for the grouping of sources and the calculation of fees at concrete batch plants and quarrying/crushing operations.

1. Form 101-B (one for facility).
2. Form G (one per source).
3. Process Diagram and Map of the Concrete Batch Plant.
4. Form A for watering system (one per facility)
5. Form A (one per device) for any particulate abatement device (i.e., baghouse).
6. If Health Risk Assessment is triggered, Form HRA (one per source).
7. Fees, calculated per Regulation 3 (Schedule F for all sources except, batch mixer, which is subject to Schedule G-2 for Concrete Batching).
8. See the Emissions Calculations section for additional information that should be provided by the applicant regarding the concrete batch plant.

Emission Calculations

Particulate matter, consisting primarily of cement and cement supplement dust but including some aggregate and sand dust, is the primary pollutant of concern. In addition, there are emissions of toxic air contaminants that include metals from cement and cement supplements and crystalline silica from sand. Particulate emission factors for concrete batching are given in Table 11.12-2 in [Chapter 11.12, Concrete Batching](#), of [AP-42 \(Fifth Edition, Volume I\)](#). These emission factors are based upon source tests of centralized- and on-truck mixing facilities.

Since cement is the primary contributor to fugitive particulate matter generated during concrete batching operations, the California Air Resources Board (CARB) further defined particulate matter emissions by using the chemical composition of Portland cement to develop the PM3431 chemical speciation profile.¹⁷ PM3431 defines the portion of particulate matter in concrete batching operations which is PM2.5, information which is not identified in AP-42.

¹⁷ CARB PM 3431: https://ww2.arb.ca.gov/sites/default/files/2024-01/concretebatching_pm3431.pdf

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Process	Unabated PM10 Emission Factor (lb/ton)	Unabated PM2.5 Emission Factor (lb/ton)	Abated PM10 Emission Factor (lb/ton)	Abated PM2.5 Emission Factor (lb/ton)
Aggregate transfer	0.0033 ¹	0.0005 ²	*	ND
Sand transfer	0.00099 ¹	0.00015 ²	*	ND
Cement pneumatic unloading to elevator storage silo	0.47 ¹	0.07 ²	0.00034 ¹	0.00034 ³
Cement supplement unloading to elevator storage silo	1.10 ¹	0.17 ²	0.0049 ¹	0.0049 ³
Weight hopper loading (emission factor is of lb of pollutant per ton of aggregate and sand)	0.0028 ¹	0.0004 ²	*	ND
Central Mix – Mixer loading (emission factors are of lb of pollutant per ton of cement and cement supplement)	0.156 ¹	0.023 ²	0.0055 ¹	0.0055 ³
Truck Mix – Truck loading (emission factors are of lb of pollutant per ton of cement and cement supplement)	0.310 ¹	0.047 ²	0.0263 ¹	0.0263 ³

* = If watering is used to suppress dust, a maximum abatement efficiency of 70% may be used.

ND = No data.

¹ – Emission factors obtained from AP-42, Table 11.12-2.

² – Size fraction obtained from PM3431, Table 3, which shows that unabated PM2.5 = 15% of PM10

³ – For abated emissions, all abated PM emissions are conservatively assumed to be 100% PM2.5

Use of the abated emission rates in the table above is appropriate when BACT does not apply to the source. For operations that are abated by baghouses, the abated emission rates shown in the table above include any fugitive emissions that are not captured by the hoods or vents plus the post-control emissions from the baghouse. A comparison of the abated emission rates to the unabated emission rates in the table above shows the overall capture and control efficiency that is assumed for the hood and baghouse. For example, the factors in the table above represent an overall capture and control efficiency of 96% for PM10 from central mix operations and 92% for PM10 from truck loading operations. If BACT applies to these operations and the source is required to meet high capture and control requirements (for example a minimum of 99% capture for the truck loading operation with captured emissions vented to a baghouse emitting no more than 0.0013 grains/dscf), it is more accurate to calculate the fugitive emissions and abated emissions separately.

For example, fugitive truck loading emissions can be calculated by applying the minimum capture efficiency to the uncontrolled emission rate:

Fugitive Truck Loading Emission Factor Based on 99% Minimum Capture Efficiency:

PM10 (0.310 lbs/ton) * (1-0.99) = 0.0031 lbs/ton fugitive PM10

PM2.5 (0.047 lbs/ton) * (1-0.99) = 0.00047 lbs/ton fugitive PM2.5

Baghouse Emissions Based on a Maximum Grain Loading Limit:

PM10 (8000 sdcf/min)*(60 mins/hr)*(0.0013 gr/sdcf)/(7000 gr/lb)/(500 tons/hr) = 0.000178 lbs/ton

PM2.5 (same as PM10) = 0.000178 lbs/ton

For this example, the total emission rate for fugitive and baghouse emissions would be:

PM10 0.0013 + 0.000178 = 0.00148 lbs/ton PM10

PM2.5 $0.00047 + 0.000178 = 0.00065$ lbs/ton PM2.5

These emission rates are more representative of the BACT controlled operation than the abated emission rates shown in the table.

The permit evaluator should obtain information from the applicant regarding the composition and maximum annual quantity of the concrete to be produced. If such composition information is not available, footnote a of Table 11.12-2 of [AP-42 \(Fifth Edition, Volume I\)](#) indicates that one yard of concrete is typically composed of the following:

Material	Composition by Weight (pounds/cubic yd)
Course aggregate	1865
Sand	1428
Cement	491
Cement Supplement	73
Water	20 gallons
Total Quantity Concrete Produced (lbs/cubic yd)	4024

Metals emission factors for concrete batching are given in Tables 11.12-7 and 11.12-8 in [Chapter 11.12, Concrete Batching](#), of [AP-42 \(Fifth Edition, Volume I\)](#).

Per EPA AP-42 Table 11.12-8, metal emissions from cement loading and mix batching include arsenic, beryllium, cadmium, total chromium, lead, manganese, nickel, and selenium. The constituents of Portland cement, including metals, were also used to develop the PM3431 chemical speciation profile. TAC hexavalent chromium emission, Cr(VI) to total chromium ratio (5/58) in cement dust was adopted from an analysis by the San Diego mineral products industry. In addition, crystalline silica emissions from aggregates processing were calculated. Crystalline silica emission factor (average 6.38% of aggregate processing PM₁₀ emission, excluding fugitive road dust PM₁₀) is derived from a journal paper published in 2009. In that paper¹⁸, Richards et al. (2009) reported PM4 crystalline silica emission factors at three aggregate producing facilities in California. The average of the crystalline silica emission factor from the Vernalis plant in Tracy, CA was used.

Pollutant	Process	PM3431 Speciation (lb-pollutant/ton-cement) ¹	AP-42 Emission Factor (lb-pollutant/ton-material) ²
Arsenic	Cement Silo Filling		1.68E-06
	Cement Silo Filling (w/ fabric filter)		4.24E-09
	Cement Supplement Silo Filling		ND
	Cement Supplement Silo Filling (w/ fabric filter)		1.00E-06
	Central Mix Batching		8.38E-06
	Central Mix Batching (w/ fabric filter)		2.96E-07
	Truck Loading		1.22E-05
	Truck Loading (w/ fabric filter)		6.02E-07
	Cement Silo Filling		1.79E-08

¹⁸ Richards, J.R. et al. (2009). PM4 Crystalline Silica Emission Factors and Ambient Concentrations at Aggregate-Producing-Sources in California. Journal of the Air & Waste Management Association. 59:1287–1295. <http://www.tandfonline.com/doi/pdf/10.3155/1047-3289.59.11.1287>

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Pollutant	Process	PM3431 Speciation (lb-pollutant/ton-cement) ¹	AP-42 Emission Factor (lb-pollutant/ton-material) ²
Beryllium	Cement Silo Filling (w/ fabric filter)		4.86E-10
	Cement Supplement Silo Filling		ND
	Cement Supplement Silo Filling (w/ fabric filter)		9.04E-08
	Central Mix Batching		ND
	Central Mix Batching (w/ fabric filter)		ND
	Truck Loading		2.44E-07
	Truck Loading (w/ fabric filter)		1.04E-07
Cadmium	Cement Silo Filling		2.34E-07
	Cement Silo Filling (w/ fabric filter)		ND
	Cement Supplement Silo Filling		ND
	Cement Supplement Silo Filling (w/ fabric filter)		1.98E-10
	Central Mix Batching		1.18E-10
	Central Mix Batching (w/ fabric filter)		7.10E-10
	Truck Loading		3.42E-08
	Truck Loading (w/ fabric filter)		9.06E-09
Total Chromium ³	Cement Silo Filling		2.52E-07
	Cement Silo Filling (w/ fabric filter)		2.90E-08
	Cement Supplement Silo Filling		ND
	Cement Supplement Silo Filling (w/ fabric filter)		1.22E-06
	Central Mix Batching		1.42E-06
	Central Mix Batching (w/ fabric filter)		1.27E-07
	Truck Loading		1.14E-05
	Truck Loading (w/ fabric filter)		4.10E-06
Lead	Cement Silo Filling		7.36E-07
	Cement Silo Filling (w/ fabric filter)		1.09E-08
	Cement Supplement Silo Filling		ND
	Cement Supplement Silo Filling (w/ fabric filter)		5.20E-07
	Central Mix Batching		3.82E-07
	Central Mix Batching (w/ fabric filter)		3.66E-08
	Truck Loading		3.62E-06
	Truck Loading (w/ fabric filter)		1.53E-06
Manganese	All	2.4	
	Cement Silo Filling		2.02E-04
	Cement Silo Filling (w/ fabric filter)		1.17E-07
	Cement Supplement Silo Filling		ND
	Cement Supplement Silo Filling (w/ fabric filter)		2.56E-07
	Central Mix Batching		6.12E-05

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Pollutant	Process	PM3431 Speciation (lb-pollutant/ton-cement) ¹	AP-42 Emission Factor (lb-pollutant/ton-material) ²
	Central Mix Batching (w/ fabric filter)		3.78E-06
	Truck Loading		6.12E-05
	Truck Loading (w/ fabric filter)		2.08E-05
Nickel	Cement Silo Filling		1.76E-05
	Cement Silo Filling (w/ fabric filter)		4.18E-08
	Cement Supplement Silo Filling		ND
	Cement Supplement Silo Filling (w/ fabric filter)		2.28E-06
	Central Mix Batching		3.28E-06
	Central Mix Batching (w/ fabric filter)		2.48E-07
	Truck Loading		1.19E-05
	Truck Loading (w/ fabric filter)		4.78E-06
Selenium	Cement Silo Filling		ND
	Cement Silo Filling (w/ fabric filter)		ND
	Cement Supplement Silo Filling		ND
	Cement Supplement Silo Filling (w/ fabric filter)		7.24E-08
	Central Mix Batching		ND
	Central Mix Batching (w/ fabric filter)		ND
	Truck Loading		2.62E-06
	Truck Loading (w/ fabric filter)		1.13E-07
Crystalline Silica	6.38% of aggregate processing PM ¹⁰ emissions (excluding fugitive road dust PM ¹⁰) ⁴		

ND = No Data

¹ – Emission factors obtained from chemical speciation in PM3431.

² – Emission factors obtained from AP-42, Table 11.12-8.

³ – The amount of hexavalent chromium in the total chromium was estimated using San Diego APCD information¹⁹.

⁴ – The average of the crystalline silica emission factor from the Vernalis plant in Tracy, CA was used.²⁰

Emissions from vehicle traffic on paved and/or unpaved roads to and from the storage piles should also be accounted in the emissions for the storage piles. An paved roads emission factor equation is provided in [Chapter 13.2.1, Paved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#) for vehicles traveling on paved surfaces at industrial sites:

¹⁹ [San Diego APCD, Concrete Batch Plant Operations, November 30, 1998 update:](#)

[Cr6/Total Cr](#)

[Cement](#) [5/58](#)

[Cement Supplement](#) [3/26](#)

[Central Mix](#) [2/50](#)

[Truck Loading](#) [2/50](#)

²⁰ Richards, J.R. et al. (2009). PM4 Crystalline Silica Emission Factors and Ambient Concentrations at Aggregate-Producing-Sources in California. Journal of the Air & Waste Management Association. 59:1287–1295. <http://www.tandfonline.com/doi/pdf/10.3155/1047-3289.59.11.1287>

$$E = k(sL)^{0.91}(W)^{1.02} \text{ lb/VMT} \quad [\text{Equation 1}]$$

An unpaved roads emission factor equation is provided in [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#) for vehicles traveling on unpaved surfaces at industrial sites:

$$E = k(s/12)^a(W/3)^b((365-P)/365) \text{ lb/VMT} \quad [\text{Equation 1a}]$$

and for vehicles traveling on publicly accessible roads, dominated by light duty vehicles:

$$E = [k(s/12)^a(S/30)^d/(M/0.5)^c - C]((365-P)/365) \text{ lb/VMT} \quad [\text{Equation 1b}]$$

The following provides an explanation of the variables in the equation and the average values recommended for use (only if actual more specific and precise values are not available), if the source-specific values are not known:

E = Emission Factor (lb/VMT)

k = Particle size multiplier (dimensionless); for PM₁₀, k = 0.0022 for Equation 1

k = 1.5 for Equation 1a, 1.8 for Equation 1b;

for PM_{2.5}, k = 0.00054 for Equation 1, k = 0.15 for Equation 1a, 0.18 for Equation 1b

sL = road surface silt loading; sL = 12 g/m² for concrete batching

a = Empirical Constants; a = 0.9 for Equation 1a, 1 for Equation 1b

b = Empirical Constants; b = 0.45

c = Empirical Constants; c = 0.2 for Equation 1b

d = Empirical Constants; d = 0.5 for Equation 1b

s = Silt content of road surface (%); s = See Table 13.2.2-1²¹ and use the mean value for the applicable industry. (For example, for stone and gravel processing s=4.8 for plant roads, 7.1 for material storage areas.)

W = Mean vehicle weight (tons); W = 21 tons for Equation 1,

W=146 tons for Equation 1a, 2 tons for Equation 1b

M = surface material moisture content (%); M = 6.5

S = Mean vehicle speed (mph); S = 24 for Equation 1a, 33 for Equation 1b

C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear;

for PM₁₀, C = 0.00047²² and for PM_{2.5}, C= 0.00036¹⁷

P = Number of days with greater than, or equal to, 0.01 inches of precipitation per year; 70²³

For example, the PM₁₀ and PM_{2.5} emission factors used for paved roads are calculated as follows:

$$E_1 (\text{PM}_{10}) = 0.0022(12)^{0.91}(21)^{1.02}$$

$$E_1 (\text{PM}_{10}) = \mathbf{0.47 \text{ lb/VMT}}$$

$$E_1 (\text{PM}_{2.5}) = 0.00054(12)^{0.91}(21)^{1.02}$$

$$E_1 (\text{PM}_{2.5}) = \mathbf{0.12 \text{ lb/VMT}}$$

The PM₁₀ and PM_{2.5} emission factors used for unpaved roads at industrial sites are calculated as follows:

$$E_{1a} (\text{PM}_{10}) = (1.5)(4.8/12)^{0.9}(146/3)^{0.45}(365-70/365)$$

$$E_{1a} (\text{PM}_{10}) = \mathbf{3.05 \text{ lb/VMT}}$$

$$E_{1a} (\text{PM}_{2.5}) = (0.15)(4.8/12)^{0.9}(146/3)^{0.45}(365-70/365)$$

²¹ [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 3.

²² [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 6.

²³ [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 9.

$$E_{1a} (PM_{2.5}) = 0.31 \text{ lb/VT}$$

The permit evaluator should determine which emission factor equation (1, 1a or 1b) is most appropriate depending on the unpaved surfaces or roads where the sources will be situated. The permit evaluator should also obtain information from the applicant regarding the maximum vehicle weight and miles traveled per year by all vehicles involved on driving on the unpaved roads at the facility. If watering is used to suppress dust, maximum abatement efficiencies of 70% may be used for PM10 emissions and 40% control for PM2.5 emissions. If chemical dust suppressants are used, a maximum abatement efficiency of 80% may be used²⁴ for PM10 and 40% control for PM2.5.

Emission factors for storage piles at concrete batch plants are taken from [Chapter 13.2.4, Aggregate Handling and Storage Piles](#), of [AP-42 \(Fifth Edition, Volume I\)](#). These emission factors include emissions from drop operations into storage piles:

$$E = k(0.0032)(U/5)^{1.3}/(M/2)^{1.4}$$

The following provides an explanation of the variables in the equation and the mean values recommended for use, if the source-specific values are not known:

E = Emission Factor (lb/ton)

k = Particle size multiplier (dimensionless); for PM₁₀, k = 0.35; for PM_{2.5}, k = 0.053

U = mean wind speed (miles/hr); U = 8.2

M = material moisture content (%); M = 2.1

$$E = (0.35)(0.0032)(8.2/5)^{1.3}/(2.1/2)^{1.4}$$

$$E = 2.75E-03 \text{ lb/ton} \quad [\text{PM}_{10} \text{ for storage piles}]$$

$$E = (0.053)(0.0032)(8.2/5)^{1.3}/(2.4/2)^{1.4}$$

$$E = 4.16E-03 \text{ lb/ton} \quad [\text{PM}_{2.5} \text{ for storage piles}]$$

For emissions from equipment traffic (truck, front-end loaders, dozer, etc.) traveling between or on piles, it is recommended that the equation for vehicle traffic on unpaved surfaces be used (see Equation 1a). The emissions from equipment traffic around the piles should be calculated using the same emission factors noted previously for unpaved roads by including the VMT around these piles and including it in the total estimated VMT on unpaved roads within the facility. If watering is used to suppress dust, a maximum abatement efficiency of 70% may be used.

Furthermore, if railcars or ships are involved in the transportation of materials, then also the combustion emissions from the use of these transport vehicles should also be calculated and included in the facilities cumulative increase.

Applicable Requirements

Air District Rules and Regulations

In general, the particulate sources at concrete batch plants are subject to the operating standards of [Regulation 6-1](#). All but the transfer points of cement and cement supplement into the storage silos are fugitive in nature. The storage silos are generally abated by a fabric filter or baghouse device. Fugitive sources include the transfer of sand and aggregate, truck loading, mixer loading, vehicle traffic, and wind erosion from sand and aggregate storage piles. The amount of fugitive emissions generated during the transfer operations depend primarily on the surface moisture content of these materials. Types of controls used may include water sprays, enclosures, and baghouse devices. With these controls of the equipment and good maintenance and wetting of unpaved road surfaces, particulate emissions should comply with the operating standards of [Regulation 6-1](#). Permit conditions are imposed to ensure compliance with [Regulation 6-1](#).

²⁴ [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 13.

Best Available Control Technology (BACT)

BACT for the particulate sources at concrete batch plants are specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

Concrete Batch Plant

- [< 5 cubic yards per batch](#)
- [≥ 5 cubic yards per batch](#)

Crushing and Grinding

- [Solid Material Handling - Dry](#)
- [Solid Material Handling - Wet](#)
- [Solid Material Storage - Enclosed](#)
- [Solid Material Storage - Open](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for human and animal crematories are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

11.6 CREMATORIES

December 15, 2023

Process Description

Cremation is the act of reducing a corpse by burning, generally in a crematorium furnace or crematory fire. A multiple chamber incinerator is generally used to cremate human and pet animal remains. An incinerator with two chambers, namely primary and secondary, is the most widely used type of cremator. The secondary chamber is heated first by igniting the afterburner and heating to an operating temperature at or above 1600° F. A "cremation case charge" (human or animal remains enclosed in a wooden casket/cardboard casket or a body bag) is introduced in the primary chamber, called a retort, and the retort door is closed. The charge is placed on the hearth in a manner that provides for maximum exposure to the flame of the primary burner. Control timers are set, and an opacity monitor and power switch are activated. The low fire ignition burner in the primary chamber is activated. Within approximately 30 minutes, the high fire cremation burner in the primary chamber begins a controlled cycling range of 1750 to 1800° F. This cycling continues until the cremation process is complete. During the cremation process, a large part of the body (especially the organs) and other soft tissue are vaporized and oxidized due to the heat, and the gases are discharged through the exhaust system. All that remains after cremation are dry bone fragments (mostly calcium phosphates and minor minerals). The approximate time for complete cremation is 2 hours, which may vary depending on charge weight.

After the incineration is completed, the bone fragments are swept out of the retort and the operator uses an enclosed process called a cremulator to pulverize the incinerated remains them into what are known as cremains, which exhibit the appearance of grains of sand and recognizable chips of very dry bone.

Completeness Determination

The following Air District forms should be completed and fees provided for cremators. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

- | | |
|--|---|
| 1. Form 101-B (one for facility). | than an afterburner in secondary chamber of a crematory retort). |
| 2. Form G (one per source). | 8. Form P (one per stack). |
| 3. Source Description: Crematory Retort with Integral Afterburner | 9. If Health Risk Assessment is triggered, Form HRA (one per source). |
| 4. Process Code: 8011 (crematory retort)
Material Code: 791 (bodies - human) and Usage Unit: tons | 10. Fees, calculated per Regulation 3 (Schedule G-1 for incinerators - crematory). |
| 5. or Material Code: 498 (Animal carcasses) and Usage Unit: pounds | 11. Any emission data available for the proposed crematory retort, or use standard emission factors indicated in Emission Calculations section. |
| 6. Form C (one per Retort and Afterburner). | |
| 7. Form A (only if applicant chooses to control emissions with abatement equipment other | |

Emission Calculations

Crematory retort can produce emissions of flyash, smoke, gases, and odor. Odor and visible emissions can be objectionable to many people on aesthetic grounds. A poorly designed retort with inadequate turbulence, temperatures, and residence time can result in the objectionable emissions. The visible and odor emissions can best be controlled by good retort design. An afterburner in the secondary chamber of the retort compensates for deficiencies, if any, in the design of the primary chamber to minimize air contaminants.

Almost all crematory retorts use natural gas as the fuel to cremate "cremation case charge." A "cremation case charge" is a body in a casket or a bag. As a result, the emission factors available for natural gas combustion in [AP-42 Chapter 1.4 \(Tables 1.4-1 and 1.4-2\)](#) can be used to estimate particulate matter (PM10 and PM2.5), nitrogen oxides (NOx), carbon monoxide (CO), sulfur dioxide (SO2), precursor organic compounds (POC). And non-precursor organic compounds (NPOC) emissions from the

combustion of natural gas in the crematory retort. The emission factors for natural gas combustion are as follows:

NATURAL GAS COMBUSTION EMISSION FACTORS²⁵

Pollutant	Emission Factor (lb/MM cu ft)
PM10	7.6
PM2.5	7.6
NO _x	100
CO	84
SO ₂	0.6
POC (VOC, not including methane)	5.5
NPOC (TOC-methane-VOC)	3.2

In addition to natural gas combustion, there are also emissions attributed to the combustion of the casket and body. According to EPA's FIRE Program²⁶, the PM10 emission factor associated with the combustion of body and the wrapping material is 8.5×10^{-2} pounds per each body burned²⁷. In deriving the PM10 emission factor, the average weight per body incinerated was approximately 150 pounds (rounded up). The particulate emissions from all combustion materials are assumed to be PM2.5. In calculating the other criteria pollutants, the emission factors available for medical waste incineration in [AP-42 Chapter 2.3 \(Table 2.3-1 and 2.3-2\)](#) can be used to estimate NO_x, CO, SO₂, and POC emissions. There are no NPOC emissions from EPA's FIRE program for combustion of the casket and body. Therefore, NPOC emissions are expected from natural gas combustion only. In summary, the following are the emission factors for the combustion of the body and its case:

BODY AND CASE COMBUSTION EMISSION FACTORS

Pollutant	Emission Factor (lb/ton) – used in human emissions calculation	Emission Factor (lb/body) ²⁸ – used in animal emissions calculation	Reference
PM10	1.13	8.50E-02	FIRE
PM2.5	1.13	8.50E-02	FIRE
NO _x	3.56	2.67E-01	AP-42 Table 2.3-1
CO	2.95	2.21E-01	AP-42 Table 2.3-1
SO ₂	2.17	1.63E-01	AP-42 Table 2.3-1
POC	0.299	2.24E-02	AP-42 Table 2.3-2

TOXICS

For toxic emissions, emissions factors for crematories from FIRE database were also obtained:

TOXICS EMISSION FACTORS²⁹

²⁵ Emission factor is for uncontrolled natural gas boilers less than 100 MMBTU/hr.

²⁶ The [Factor Information Retrieval System \(FIRE\) Data System](#) is a database containing EPA's emission estimation factors for criteria and hazardous air pollutants..

²⁷ Standard Classification Code (SCC) = 31502101 for Crematoriums from [Emissions Testing of a Propane Fired Incinerator at a Crematorium](#), October 29, 1992.

²⁸ The average weight of a body (including casing) is 150 pounds.

²⁹ Except for mercury, formaldehyde and acetaldehyde, pollutant emission factors are from EPA's FIRE database for crematoriums (SCC = 31502101).

P E R M I T H A N D B O O K

Pollutant	Emission Factor (pounds/body)
Acetaldehyde ³⁰	1.3 E-04
Arsenic	1.5E-05
Beryllium	1.4 E-06
Cadmium	1.1 E-05
Chromium, hexavalent	1.4 E-05
Copper	2.7 E-05
Formaldehyde ³¹	3.4 E-05
Hydrogen chloride	7.2 E-02
Hydrogen fluoride	6.6 E-04
Lead	6.6 E-05
Mercury ³¹	1.5 E-03(annual average); 5.3 E-03 (acute)
Nickel	3.8 E-05
Selenium	2.2 E-05
Chlorinated dibenzodioxins and furans (expressed as 2,3,7,8 TCDD equivalents) ³²	1.1 E-09
Polycyclic Aromatic Hydrocarbons (PAHs) [expressed as benzo(a)pyrene equivalent] ³³	2.4 E-08

A [crematories spreadsheet](#) has been developed with worksheets to calculate emissions from human and animal cremations using all the emissions indicated above.

Mercury emissions are expected to decrease over time as the use of amalgam in restorative dental procedures decreases. The mercury emission factor should be updated approximately every ten years.

Applicable Requirements

Air District Rules and Regulations

In general, a permit is required for each crematory retort. The [cremulator](#) is exempt from permitting requirements per Regulation 2-1-121.

Crematory retorts are subject to the operating standards of Regulation 6-1 and Regulation 8-2. The visible and odor emissions can best be controlled by good retort design. The permit conditions for crematories

³⁰ Formaldehyde and acetaldehyde emission factors are calculated based on the data in CARB's Test Report No. C-90-004, "Evaluation Test on Two Propane Fired Crematories Camellia Memorial Lawn Cemetery", October 29, 1992.

³¹ The mercury emission factors are from "Mercury Emissions from the Cremation of Human Remains" September 24, 2012, by Jane Lundquist and updated in accordance with the Addendum to Mercury Emissions from Cremation of Human Remains, August 3, 2021. These factors should only be applied for human cremations.

³² Using the latest FIRE factors (dated 3/6/2008), the dioxin/furan emission factor was calculated based on the equivalency factors in the 2015 OEHHEA risk assessment guidelines (see Note 1 of [Crematories spreadsheet](#)).

³³ Using the latest FIRE factors (dated 3/6/2008), the PAH emission factor was calculated based on the equivalency factors in the 2015 OEHHEA risk assessment guidelines (see Note 2 of [Crematories spreadsheet](#)).

include parts which will ensure compliance with Regulation 6-1. The permit evaluator calculated emissions for POCs should be compared to the operating standards of Regulation 8-2 to determine compliance.

Best Available Control Technology (BACT)

BACT for the crematory retorts are specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

Crematories
- Crematory

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for human and animal crematories are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

11.7 CRUSHING AND GRINDING

December 15, 2023

Process Description

Crushing and grinding operations are performed typically at quarries. A thorough explanation of the crushed stone processing and pulverized mineral processing is available from [Chapter 11.19.2, Crushed Stone Processing and Pulverized Mineral Processing](#) of [AP-42 \(Fifth Edition, Volume I\)](#).

Crushing and grinding operations are generally made up a number of sources of air pollution which store, convey, measure, and discharge its constituents. Per [Air District policy](#), the following sources at the plants shall be permitted:

- Sand and Aggregate Storage Piles (grouped as one source if they are all in the same general area)
- Storage Silos (each silo is a separate source)
- Conveyors (grouped as one source if they are all in the same general area)
- Crushers (each crusher is a separate source)
- Screens (each screen is a separate source)

Completeness Determination

The following Air District forms should be completed and fees provided for crushing and grinding h plants. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately. There is a [Policy: Fees Associated with Concrete Batch Facilities and Quarrying/Crushing Operations](#) for the grouping of sources and the calculation of fees at concrete batch plants and quarrying/crushing operations.

1. Form 101-B (one for facility).
2. Form G (one per source).
3. Process Diagram and Map of the Crushing and Grinding Plant.
4. Form A for watering system (one per facility)
5. Form A (one per device) for any particulate abatement device (i.e., baghouse).
6. If Health Risk Assessment is triggered, Form HRA (one per source).
7. Fees, calculated per Regulation 3 (Schedule F for all sources except, crushers and grinders, which is subject to Schedule G-1).
8. See the Emissions Calculations section for additional information that should be provided by the applicant regarding the crushing and grinding plant.

Emission Calculations

Particulate matter, consisting primarily of cement and cement supplement dust but including some aggregate and sand dust, is the primary pollutant of concern. In addition, there are emissions of metals that are associated with this particulate matter. Particulate emission factors for crushing and grinding are given in Table 11.19.2-2 in Chapter 11.19.2, Crushed Stone Processing and Pulverized Mineral Processing of AP-42 (Fifth Edition, Volume I).

Crushing Process	PM10 Emission Factor (lb/ton)	Controlled PM10 Emission Factor (lb/ton)	Controlled PM2.5 Emission Factor (lb/ton)
Tertiary Crushing	0.0024	0.00054	0.00010
Fines Crushing	0.0150	0.0012	0.000070
Screening	0.0087	0.00074	0.000050
Fines Screening	0.072	0.0022	Note 1
Conveyor Transfer Point	0.0011	4.6E-5	1.3E-05
Drop Unloading	0.00010	Note 2	Note 1

Notes: 1= Because the controlled emission factor (EF) for PM2.5 was not determined, conservatively assume same as PM10 EF.

2 = If watering is used to suppress dust, a maximum abatement efficiency of 70% may be used.

The permit evaluator should obtain information from the applicant regarding maximum annual quantity of the stone to be crushed.

Emissions from vehicle traffic on paved and/or unpaved roads to and from the storage piles should also be accounted in the emissions for the storage piles. An paved roads emission factor equation is provided in [Chapter 13.2.1, Paved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#) for vehicles traveling on paved surfaces at industrial sites:

$$E = k(sL)^{0.91}(W)^{1.02} \text{ lb/VMT} \quad [\text{Equation 1}]$$

An unpaved roads emission factor equation is provided in [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#) for vehicles traveling on unpaved surfaces at industrial sites:

$$E = k(s/12)^a(W/3)^b((365-P)/365) \text{ lb/VMT} \quad [\text{Equation 1a}]$$

and for vehicles traveling on publicly accessible roads, dominated by light duty vehicles:

$$E = [k(s/12)^a(S/30)^d/(M/0.5)^c - C]/((365-P)/365) \text{ lb/VMT} \quad [\text{Equation 1b}]$$

The following provides an explanation of the variables in the equation and the average values recommended for use (only if actual more specific and precise values are not available), if the source-specific values are not known:

- E = Emission Factor (lb/VMT)
- k = Particle size multiplier (dimensionless); for PM₁₀, k=0.0022 for Equation 1
 k = 1.5 for Equation 1a, 1.8 for Equation 1.b
 for PM_{2.5}, k = 0.00054 for Equation 1, k = 0.15 for Equation 1a, 0.18 for Equation 1.b
- sL = road surface silt loading; sL = 70 g/m²
- a = Empirical Constants; a = 0.9 for Equation 1a, 1 for Equation 1b
- b = Empirical Constants; b = 0.45
- c = Empirical Constants; c = 0.2 for Equation 1b
- d = Empirical Constants; d = 0.5 for Equation 1b
- s = Silt content of road surface (%); s = See Table 13.2.2-1³⁴ and use the mean value for the applicable industry. (For example, for stone and gravel processing s=4.8 for plant roads, 7.1 for material storage areas.)
- W = Mean vehicle weight (tons); W = 21 tons for Equation 1,
 W=146 tons for Equation 1a, 2 tons for Equation 1b
- M = surface material moisture content (%); M = 6.5
- S = Mean vehicle speed (mph); S = 24 for Equation 1a, 33 for Equation 1b
- C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear;
 for PM₁₀, C = 0.00047³⁵ and for PM_{2.5}, C= 0.00036³¹
- P = Number of days with greater than, or equal to, 0.01 inches of precipitation per year; 70³⁶

For example, the PM₁₀ and PM_{2.5} emission factors used for paved roads are calculated as follows:

$$E_1 (\text{PM}_{10}) = 0.0022(12)^{0.91}(21)^{1.02}$$

$$E_1 (\text{PM}_{10}) = \mathbf{0.47 \text{ lb/VMT}}$$

$$E_1 (\text{PM}_{2.5}) = 0.00054(12)^{0.91}(21)^{1.02}$$

³⁴ [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 3.

³⁵ [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 6.

³⁶ [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 9.

$$E_1 \text{ (PM}_{2.5}\text{)} = 0.12 \text{ lb/VMT}$$

The PM₁₀ and PM_{2.5} emission factors used for unpaved roads at industrial sites are calculated as follows:

$$E_{1a} \text{ (PM}_{10}\text{)} = (1.5)(4.8/12)^{0.9}(146/3)^{0.45}(365-70/365)$$

$$E_{1a} \text{ (PM}_{10}\text{)} = \mathbf{3.05 \text{ lb/VMT}}$$

$$E_{1a} \text{ (PM}_{2.5}\text{)} = (0.15)(4.8/12)^{0.9}(146/3)^{0.45}(365-70/365)$$

$$E_{1a} \text{ (PM}_{2.5}\text{)} = \mathbf{0.31 \text{ lb/VMT}}$$

The permit evaluator should determine which emission factor equation (1, 1a, or 1b) is most appropriate depending on the unpaved surfaces or roads where the sources will be situated. The permit evaluator should also obtain information from the applicant regarding the maximum vehicle weight and miles traveled per year by all vehicles involved on driving on the unpaved roads at the facility. If watering is used to suppress dust, a maximum abatement efficiency of 70% may be used. If chemical dust suppressants are used, a maximum abatement efficiency of 80% may be used³⁷.

Emission factors for storage piles at crushing and grinding plants are taken from [Chapter 13.2.4, Aggregate Handling and Storage Piles](#), of [AP-42 \(Fifth Edition, Volume I\)](#). These emission factors include emissions from drop operations into storage piles:

$$E = k(0.0032)(U/5)^{1.3}/(M/2)^{1.4}$$

The following provides an explanation of the variables in the equation and the mean values recommended for use, if the source-specific values are not known:

E = Emission Factor (lb/ton)

k = Particle size multiplier (dimensionless); for PM₁₀, k = 0.35; for PM_{2.5}, k=0.053

U = mean wind speed (miles/hr); U = 8.2

M = material moisture content (%); M = 2.1

$$E = (0.35)(0.0032)(8.2/5)^{1.3}/(2.1/2)^{1.4}$$

$$E = \mathbf{2.75E-03 \text{ lb/ton}} \quad \mathbf{[PM_{10} \text{ for storage piles}]}$$

$$E = (0.053)(0.0032)(8.2/5)^{1.3}/(2.4/2)^{1.4}$$

$$E = \mathbf{4.16E-03 \text{ lb/ton}} \quad \mathbf{[PM_{2.5} \text{ for storage piles}]}$$

For emissions from equipment traffic (truck, front-end loaders, dozer, etc.) traveling between or on piles, it is recommended that the equation for vehicle traffic on unpaved surfaces be used (see Equation 1a). The emissions from equipment traffic around the piles should be calculated using the same emission factors noted previously for unpaved roads by including the VMT around these piles and including it in the total estimated VMT on unpaved roads within the facility.

If watering is used to suppress dust, a maximum abatement efficiency of 70% may be used.

Furthermore, if railcars or ships are involved in the transportation of materials, then also the combustion emissions from the use of these transport vehicles should also be calculated and included in the facilities cumulative increase.

³⁷ [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 13.

Applicable Requirements

Air District Rules and Regulations

In general, the particulate sources at crushing and grinding plants are subject to the operating standards of [Regulation 6, Rule 1](#). All but the transfer points of cement and cement supplement into the storage silos are fugitive in nature. The storage silos are generally abated by a fabric filter or baghouse device. Fugitive sources include the transfer of sand and aggregate, truck loading, mixer loading, vehicle traffic, and wind erosion from sand and aggregate storage piles. The amount of fugitive emissions generated during the transfer operations depend primarily on the surface moisture content of these materials. Types of controls used may include water sprays, enclosures, and baghouse devices. With these controls of the equipment and good maintenance and wetting of unpaved road surfaces, particulate emissions should comply with the operating standards of [Regulation 6-1](#). Permit conditions are imposed to ensure compliance with [Regulation 6-1](#).

Best Available Control Technology (BACT)

BACT for the particulate sources at crushing and grinding plants are specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

Crushing and Grinding

- [Rock - Aggregate Processing](#)
- [Solid Material Handling - Dry](#)
- [Solid Material Handling - Wet](#)
- [Solid Material Storage - Enclosed](#)
- [Solid Material Storage - Open](#)
- [Wood Processing Equipment](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

New Source Performance Standards (NSPS)

[Subpart OOO](#) of the NSPS standard covers nonmetallic mineral processing, which includes regulations for emissions from operating equipment that was manufactured, modified or reconstructed after August 31, 1983. Processing equipment regulated under Subpart OOO affecting the crushed stone, sand and gravel industry includes crushers, grinding mills, screens, bucket elevators, bagging operations, storage bins, enclosed truck and railcars and transfer points on belt conveyors.

Under [Subpart OOO](#), aggregate facilities are required to conduct performance testing on stationary equipment in accordance with EPA Reference Method 9. Method 9 is a visual emissions test that determines opacity or the percentage of the light that is prevented from passing through a plume or fugitive emission. Individuals performing the opacity readings are required to be trained and certified in accordance with the method. EPA has set specific limits for the aggregates industry based on opacity readings designated to various processing equipment ranging from 7-15 percent (%). Among the requirements of Method 9 is determining the average of twenty-four readings over a six-minute period for a total of one hour for each piece of equipment that falls under the purview of NSPS.

The permit evaluator should determine whether the source is subject to [Subpart OOO](#). If applicable, the permit evaluator should ensure that the facility has conducted or will be required to conduct the performance testing required by the NSPS.

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets
☐ Prevention of Significant Deterioration | ☐ School Notification
☐ Health Risk Assessment |
|--|---|

❑ [Overburdened Communities](#)

Permit Conditions

Standardized conditions for crushing and grinding equipment are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

11.8.1 METHY BROMIDE FUMIGATION

December 15, 2023

Process Description

This chapter covers the permitting of methyl bromide fumigation operations. Fumigation is a method of using a lethal gas to exterminate pests within an enclosed space. Depending on the shipping requirements for different countries, methyl bromide may be used as the fumigant for the products which can occur at the source location (ie. agricultural farms or product producers), the distribution facility, or at certain ports in the Bay Area (such as the Port of Oakland). Methyl bromide is stored as a gas and injected into a sealed and enclosed space such as a fumigation chamber or a tarpaulin tent. The fumigation gas is introduced into the area as outlined by the [United States Department of Agriculture, Animal and Plant Health Inspection Service's Treatment Manual, Chapter 2-1-1, Chemical Treatments](#). The concentration of methyl bromide is monitored for a designated period of time based on the product. Following the fumigation process, the gas is vented to the atmosphere.

Methyl bromide is listed as a restricted material under 3 CCR Section 6400 and regulated under the California Department of Pesticide Regulations (DPR). The County Agricultural Commissioners acting on behalf of DPR issues a Restricted Materials Permit for the use of each fumigant. Since they are not allowed to operate without a Restricted Materials Permit, the District permits are not valid if the Restricted Materials Permit is allowed to expire.

Completeness Determination

The following District forms should be completed and fees provided for methyl bromide fumigation operation. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form 101-B (one for facility).
2. Form G (one per source).
3. Fees, calculated per Regulation 3 (Schedule F).
4. Point of contact from the County Agricultural Department.
5. Copy of the Restricted Materials Permit from the local County Agricultural Department.
6. Detailed description of fumigation operation: including,
 - a. Fumigant gas(es) to be used;
 - b. Maximum concentration of fumigation gas in the chamber (lb/ft³);
 - c. Length, width, and height of fumigation chamber(s) (ft);
 - d. Maximum exhaust flow rate from fumigation chamber when venting (ft³/min);
 - e. Maximum number of fumigations per day; and
 - f. Maximum number of fumigations per year.

Emission Calculations

Emissions will be based on the maximum concentration of fumigation gas (in lb/ft³) in the volume (length x width x height = ft³) of the fumigation container multiplied by the number of fumigations per day and per year. Although the venting process will span several hours, hourly emissions are estimated conservatively by assuming that the entire content of the fumigation chamber is released to the atmosphere within the first hour based on the applicant's maximum exhaust flow rate (ft³/min).

$$\begin{aligned} \text{Maximum Hourly Emissions } \left(\frac{\text{lb}}{\text{hr}} \right) &= [(Length, ft) \times (Width, ft) \times (Height, ft)] \\ &\times \left(\text{Maximum Concentration per Operation, } \frac{\text{lb}}{\text{ft}^3 - \text{operation}} \right) \times \left(\frac{\# \text{ of operations}}{\text{hour}} \right) \end{aligned}$$

$$\begin{aligned} \text{Maximum Daily Emissions } \left(\frac{\text{lb}}{\text{day}} \right) &= [(Length, ft) \times (Width, ft) \times (Height, ft)] \\ &\times \left(\text{Maximum Concentration per Operation, } \frac{\text{lb}}{\text{ft}^3 - \text{operation}} \right) \times \left(\frac{\# \text{ of operations}}{\text{day}} \right) \end{aligned}$$

$$\begin{aligned} \text{Maximum Annual Emissions } \left(\frac{\text{lb}}{\text{year}} \right) &= [(\text{Length, ft}) \times (\text{Width, ft}) \times (\text{Height, ft})] \\ &\times \left(\text{Maximum Concentration per Operation, } \frac{\text{lb}}{\text{ft}^3 - \text{operation}} \right) \times \left(\frac{\# \text{ of operations}}{\text{year}} \right) \end{aligned}$$

Methyl bromide has the following health risk assessment trigger levels.

Pollutant	TAC Health Risk Assessment Triggers	
	Acute lb/hr	Chronic lb/yr
Methyl Bromide	1.7	190

Applicable Requirements

District Rules and Regulations

The fumigation operation is subject to Regulation 8-2-301 (Miscellaneous Operations). If daily emissions exceed 15.0 pounds per day, then the permit evaluator should ensure emissions do not exceed 300 ppmv with the installation of blowers and stacks to dilute the concentration during the venting process .

Best Available Control Technology (BACT)

Although the BACT/TBACT workbook does not set forth any guidelines for a fumigation chamber, the permit evaluator can perform a cost effectiveness determination to determine if more stringent emission controls are necessary to mitigate emissions. BACT controls that are achieved in practice include minimizing the use of fumigant and operating under negative pressure while venting through a stack. In addition, the template permit conditions limit the amount of fumigant gas permitted for use at the facility.

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

The Memorandum of Understanding (MOU) between the District and the County Agricultural Commissioners regarding Methyl Bromide Agricultural Commodity Fumigation Chamber Facilities provides some guidance regarding the responsibilities of each party. In the MOU, the District “will not issue a separate permit, provided that the permit issued by the Agricultural Commissioner includes the District’s recommended permit conditions”. This District is requesting the applicable County Department of Agriculture and Environmental Management amend their permit to include the District’s permit conditions. If the applicable County Agricultural Commissioner agrees to incorporate the District’s permit conditions with the permit issued by the applicable County Department of Agriculture, the CEQA requirements will also be met under the Restricted Materials Permit Program and the District will not issue a separate permit. Instead, the District shall invoice the permit as a standard source, but will not charge a Permit to Operate fee. The District shall issue a Letter of Exemption with the condition the facility will need a Permit to Operate from the District if the County Agricultural Commissioner chooses to remove the District’s permit conditions from the Restricted Materials Permit. If the applicable County Agricultural Commissioner does not agree to incorporate the District’s permit conditions with the Restricted Materials Permit, then the Air District will issue a Permit to Operate.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for tub grinders are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

11.8.2 PHOSPHINE FUMIGATION

December 15, 2023

Process Description

This chapter covers the permitting of phosphine fumigation operations. Fumigation is a method of using a lethal gas to exterminate pests within an enclosed space. Depending on the shipping requirements for different countries, phosphine may be used as the fumigant for the products which can occur at the distribution facility, or at certain ports in the Bay Area (such as the Port of Oakland). Phosphine gas is introduced either in gas form or in pellet form. Phosphine is typically introduced to either a sealed container (ie. cargo container) or under a tarpaulin tent to minimize leaks. The fumigation gas is introduced into the area as outlined by the [United States Department of Agriculture, Animal and Plant Health Inspection Service's Treatment Manual, Chapter 2-1-1, Chemical Treatments](#). The concentration of phosphine gas is introduced to the product and allowed to remain for up to 72 hours, depending on the product.. Following the fumigation process, the gas is released to the atmosphere.

Phosphine is listed as a restricted material under 3 CCR Section 6400 and regulated under the California Department of Pesticide Regulations (DPR). The County Agricultural Commissioners acting on behalf of DPR issues a Restricted Materials Permit for the use of each fumigant. Since they are not allowed to operate without a Restricted Materials Permit, the District permits are not valid if the Restricted Materials Permit is allowed to expire.

Completeness Determination

The following District forms should be completed and fees provided for fumigation operation. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

7. Form 101-B (one for facility).
8. Form G (one per source).
9. Fees, calculated per Regulation 3 (Schedule F)
10. Point of contract from the County Agricultural Department.
11. Copy of the Restricted Material Permit from the local County Agricultural Department.
12. Detailed description of fumigation operation: including,
 - a. How the phosphine gas will be introduced (gas or pellet form);
 - b. SDS for the fumigation gas;
 - c. Maximum concentration of fumigation gas (lb/operation or lb/ft³);
 - d. If applicable, length, width, and height of fumigation chamber(s) (ft);
 - e. Maximum number of fumigations per day; and
 - f. Maximum number of fumigations per year.

Emission Calculations

Phosphine gas can be introduced in either gas form or pellet form. Phosphine in gas cylinders such as Eco2Fume is typically a mixture of phosphine gas and carbon dioxide. The exact concentration of the gas mixture will be listed on the SDS for the fumigation gas, but the mixture is around 97% carbon dioxide and 3% phosphine. Emissions will be based on the maximum concentration of fumigation gas (in lb/ft³) in the volume (length x width x height = ft³) of the fumigation container multiplied by the number of fumigations per day and per year. Although the venting process will span several hours, hourly emissions are estimated conservatively by assuming that the entire content of the fumigation chamber is released to the atmosphere within the first hour.

$$\begin{aligned}
 \text{Maximum Hourly Emissions } \left(\frac{\text{lb}}{\text{hr}} \right) &= [(Length, ft) \times (Width, ft) \times (Height, ft)] \\
 &\times \left(\text{Maximum Concentration per Operation, } \frac{\text{lb}}{\text{ft}^3 - \text{operation}} \right) \times \left(\frac{\# \text{ of operations}}{\text{hour}} \right)
 \end{aligned}$$

PERMIT HANDBOOK

$$\begin{aligned} \text{Maximum Daily Emissions } \left(\frac{\text{lb}}{\text{day}} \right) &= [(Length, ft) \times (Width, ft) \times (Height, ft)] \\ &\times \left(\text{Maximum Concentration per Operation, } \frac{\text{lb}}{\text{ft}^3 - \text{operation}} \right) \times \left(\frac{\# \text{ of operations}}{\text{day}} \right) \end{aligned}$$

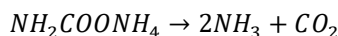
$$\begin{aligned} \text{Maximum Annual Emissions } \left(\frac{\text{lb}}{\text{year}} \right) &= [(Length, ft) \times (Width, ft) \times (Height, ft)] \\ &\times \left(\text{Maximum Concentration per Operation, } \frac{\text{lb}}{\text{ft}^3 - \text{operation}} \right) \times \left(\frac{\# \text{ of operations}}{\text{year}} \right) \end{aligned}$$

When using phosphine pellets (ie. aluminum phosphide or magnesium phosphide), the quantity is predetermined based on the USDA guidelines. The applicant will need to provide the quantity

Phosphine have the following health risk assessment trigger levels.

Pollutant	Health Risk Assessment Triggers	
	Acute lb/hr	Chronic lb/yr
Phosphine		3.1E+01
Ammonia	1.4	7.7E+03

Note that ammonia is only produced from the use of phosphine pellet fumigation because the products used for phosphine fumigation contain ammonium carbamate, an inorganic salt that forms ammonia through the following reaction:



Based on that maximum throughput limits of phosphine proposed by the applicant, the hourly and annual emissions of ammonia can be estimated:

$$\begin{aligned} \text{Hourly Emissions, } NH_3 \left(\frac{\text{lb}}{\text{hr}} \right) &= \left(\frac{\text{Maximum lb } PH_3}{\text{hr}} \right) \times \left(\frac{\text{lbmol } PH_3}{33.997 \text{ lb } PH_3} \right) \times \left(\frac{\text{lbmol } Mg_3P_2}{2 \text{ lbmol } PH_3} \right) \times \left(\frac{134.88 \text{ lb } Mg_3P_2}{\text{lbmol } Mg_3P_2} \right) \\ &\times \left(\frac{29.5 \text{ lb } NH_2COONH_4}{66.0 \text{ lb } Mg_3P_2} \right) \times \left(\frac{\text{lbmol } NH_2COONH_4}{78.07 \text{ lb } NH_2COONH_4} \right) \times \left(\frac{2 \text{ lbmol } NH_3}{1 \text{ lbmol } NH_2COONH_4} \right) \\ &\times \left(\frac{17.031 \text{ lb } NH_3}{\text{lbmol } NH_3} \right) \end{aligned}$$

$$\begin{aligned} \text{Annual Emissions, } NH_3 \left(\frac{\text{lb}}{\text{yr}} \right) &= \left(\frac{\text{Maximum lb } PH_3}{\text{hr}} \right) \times \left(\frac{\text{lbmol } PH_3}{33.997 \text{ lb } PH_3} \right) \times \left(\frac{\text{lbmol } Mg_3P_2}{2 \text{ lbmol } PH_3} \right) \times \left(\frac{134.88 \text{ lb } Mg_3P_2}{\text{lbmol } Mg_3P_2} \right) \\ &\times \left(\frac{29.5 \text{ lb } NH_2COONH_4}{66.0 \text{ lb } Mg_3P_2} \right) \times \left(\frac{\text{lbmol } NH_2COONH_4}{78.07 \text{ lb } NH_2COONH_4} \right) \times \left(\frac{2 \text{ lbmol } NH_3}{1 \text{ lbmol } NH_2COONH_4} \right) \\ &\times \left(\frac{17.031 \text{ lb } NH_3}{\text{lbmol } NH_3} \right) \end{aligned}$$

Applicable Requirements
District Rules and Regulations

Phosphine is considered an inorganic gas, which is not considered a criteria pollutant. Phosphine fumigation operations is subject to [Regulation 2-5](#). The permit evaluator should ensure that the applicant will meet these requirements.

Best Available Control Technology (BACT)

Although the BACT/TBACT workbook does not set forth any guidelines for phosphine fumigation operations, the permit evaluator can perform a cost effectiveness determination to determine if more stringent emission controls are necessary to mitigate emissions. TBACT controls that are achieved in practice include minimizing the use of fumigant and using an airtight fumigation process. In addition, the template permit conditions limit the amount of fumigant gas permitted for use at the facility.

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

The Memorandum of Understanding (MOU) between the District and the County Agricultural Commissioners regarding Methyl Bromide Agricultural Commodity Fumigation Chamber Facilities provides some guidance regarding the responsibilities of each party. In the MOU, the District “will not issue a separate permit, provided that the permit issued by the Agricultural Commissioner includes the District’s recommended permit conditions”. The MOU is only applicable to methyl bromide fumigation operations. As such, the MOU does not apply to phosphine fumigation.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for fumigation operations are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

11.9 MISCELLANEOUS ORGANIC OPERATIONS

December 15, 2023

Process Description

This chapter covers the permitting of miscellaneous operations that emit precursor organic compounds and are subject to [Regulation 8, Rule 2](#). These are operations that are not specifically exempted under this rule and are not subject to any other rule in Regulation 8 or 10. [Regulation 8 - Policy: Regulation 8 Rule Applicability](#) has been developed to clarify how a source/operation that is exempt from the provisions of a specific Regulation 8 rule defaults to Regulation 8, Rule 2 or 4. In general surface coating operations not specifically subject to a specific surface coating rule in Regulation 8 defaults to Regulation 8-4. Such operations are covered under the [chapter 5.1](#).

Following are examples of operations that are subject to [Regulation 8, Rule 2](#):

- Wastewater treatment facilities.
- Sludge dewatering.
- Paint mixers, excluding paint manufacturers.
- Solvent dispensing stations.
- Solvent stills.
- Paint filtering.
- Paint packaging.
- Adhesive manufacturing.
- Storage of organic liquids that is exempt from Regulation 8-5.
- Storage of organic liquids, which have a vapor pressure less than 0.5 psia.
- Combustion sources that are not subject to Regulation 10.

The following operations are exempt from [Regulation 8, Rule 2](#):

- Natural gas operations, per Regulation 8-2-110.
- Preparation of food, per Regulation 8-2-111.
- Cold reduction equipment used in metal forming when certain cooling oils are used, per Regulation 8-2-112.
- Blind changing, per Regulation 8-2-113.
- Cooling towers, per Regulation 8-2-114. (The permitting of Cooling Towers is described in Permit Handbook [Chapter # 11.4](#).)
- Railroad tank cars, per Regulation 8-2-114.
- Marine vessels, per Regulation 8-2-114.
- Crude oil production, per Regulation 8-2-114.

The following equipment is exempt from [Regulation 8, Rule 2](#): per Regulation 8-2-115:

- Rubber or plastic presses, per Regulation 8-2-115.1.
- Certain plastic curing ovens, per Regulation 8-2-115.2.
- Certain vinyl plastisol ovens, per Regulation 8-2-115.3.
- Melting or applying of wax, per Regulation 8-2-115.4.
- Packaging of lubricants and greases, per Regulation 8-2-115.5.
- Manufacture of water emulsions of waxes, greases, or oils, per Regulation 8-2-115.6.
- Vacuum producing devices in laboratories, per Regulation 8-2-115.7.
- Vacuum producing devices which do not remove or convey air contaminants, per Regulation 8-2-115.8.
- Vitreous or porcelain enameling furnaces or ovens, per Regulation 8-2-115.9.
- All printing presses other than rotogravure printing presses, per Regulation 8-2-115.10.
- Bonding of lining to brake shoes, per Regulation 8-2-115.11.
- Equipment for hydraulic and hydrostatic testing, per Regulation 8-2-115.12.
- Ovens and furnaces used heat-treating and annealing metals, per Regulation 8-2-115.13.
- Oil quench tanks for tempering metals, per Regulation 8-2-115.14.
- Molten metal furnaces with a capacity of less than 450 in³ per Regulation 8-2-115.15.

- Space heating and heat transfer operations using gas fuel and rated at less than one million BTU/hr, per Regulation 8-2-115.16.
- Steam cleaning equipment, per Regulation 8-2-115.17.

The following equipment or exhaust from the following equipment is exempt from [Regulation 8, Rule 2](#) in accordance with Regulation 8-2-116:

- Ovens for curing potting materials, per Regulation 8-2-116.1.
- Ovens for castings made with epoxy resins, per Regulation 8-2-116.2.
- Injection or compressions molding of plastics, per Regulation 8-2-116.3.
- Dipping operations for coating with oils, waxes, or greases, per Regulation 8-2-116.4.
- Dipping operations for coating with natural or synthetic resins which contain no organic solvents
- Unheated solvent dispensing containers, per Regulation 8-2-116.5.
- Ceramic firing kilns, if heated by natural gas, LPG, or electricity, per Regulation 8-2-115.6.
- Shell core and shell molding machines, per Regulation 8-2-115.7.
- Die casting machines, per Regulation 8-2-115.8.
- Laboratory equipment used exclusively for chemical or physical analyses and bench scale laboratory equipment, per Regulation 8-2-115.9.

The following main categories of operations are subject to other rules in Regulation 8:

- [Most surface coating operations.](#)
- All general solvent and surface coating operations ([Regulation 8-4](#)).
- Most organic liquid storage ([Regulation 8-5](#)).
- Solvent cleaning ([Regulation 8-16](#)).
- Gasoline distribution ([Regulation 8-7](#)).

The contents of these rules should be examined to determine if a specific operation is exempt from [Regulation 8-2](#). Exemption from [Regulation 8-2](#) or any rule in Regulation 8 is not an exemption from the requirement for permits. A source or operation that emits air contaminants will require a permit unless excluded by a provision in Regulation 1-110 or exempted by Regulation 2-1. Review the [Permit Exemption Guidance](#) to determine if the source is potentially exempt.

Completeness Determination

The following Air District forms should be completed and information and fees provided for coating operations. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

- | | |
|---|---|
| 1. Form P101-B (one for facility). | 4. If miscellaneous organic operation exhausts to add-on abatement device, Form A (one per device). |
| 2. Form S (one per source), if it is a miscellaneous coating or solvent source. | 5. If Health Risk Assessment is triggered, Form HRA (one per source). |
| 3. Form G (one per source), if it is NOT a miscellaneous coating or solvent source. | 6. Fees, calculated per Regulation 3 (Schedule E). |

Emission Calculations

The emission factors for miscellaneous operations will depend on the type of source. Emissions factors may be determined from AP-42, source testing, calculations, or using established emissions factors from similar sources.

Applicable Requirements

The source must comply with [Regulation 8, Rule 2](#). The miscellaneous operation shall not have emissions of more than 15 lb/day with a concentration of more than 300 ppm total carbon into the atmosphere. The source must exceed both conditions on a given day to be in violation of Regulation 8-2. Total carbon is defined as the ppm of each compound multiplied by the number of carbon atoms in the molecule, excluding 1,1,1-trichloroethane, methylene chloride, methane, and chlorofluorocarbons.

Best Available Control Technology (BACT)

Because these types of operations are somewhat unique, BACT for miscellaneous organic operations is currently NOT specified in [the BACT/TBACT Workbook](#). As a result, any miscellaneous organic operation, which triggers BACT, shall require a cost-effectiveness determination for add-on organic abatement. Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for miscellaneous organic operations are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

11.10 PORTABLE EQUIPMENT

December 15, 2023

Process Description

This chapter covers the permitting of portable equipment. Air District [Regulation 2-1-413](#) defines portable equipment as equipment at multiple locations that will not remain at any single location (facility boundaries) for more than twelve consecutive months, will not be within 1000 feet of a school, will comply with [Regulation 2-5](#), will not cause a public nuisance, must be exempt from CEQA or covered by a chapter in the permit handbook and will not cause a Synthetic Minor Facility to exceed a federally enforceable emission limit.. Hence, any equipment which meets these criteria, may be permitted as portable.

Portable diesel engines are covered in Permit Handbook [Chapter 2.3.3](#). If the owner/operator must operate the portable equipment within 1000 feet of a school, then they must submit a modification to their portable permit so that a health risk analysis can be performed.

Completeness Determination

The fees and Air District forms associated with the portable source are identical to those for like-kind stationary source (refer to applicable chapter for the specific source requirements). Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. For facility address, indicate the physical address where the equipment will be operated initially, or the mailing address, if it is within the Bay Area counties that the Air District covers. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

Emission Calculations

The emission calculation procedures associated with the portable source are identical to those for the like-kind stationary source (refer to applicable chapter for specific source requirements).

Applicable Requirements

Air District Rules and Regulations

The Air District rules and regulations associated with the portable source are identical to those for the like-kind stationary source (refer to applicable chapter for specific source requirements). In addition, the source must meet the criteria of portability set forth in Air District [Regulation 2-1-413](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- ☐ [Offsets](#)
- ☐ [Prevention of Significant Deterioration](#)
- ☐ [School Notification](#)
- ☐ [Health Risk Assessment](#) (if portable equipment is placed within 1000 feet of a school)
- ☐ [Overburdened Communities](#)

Permit Conditions

Standardized conditions for portable equipment are available from the [Permit Condition Guidance](#). These conditions should be included with the standardized conditions for the like-kind stationary source. Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

11.11 POLYESTER RESIN MANUFACTURING

December 15, 2023

Process Description

This chapter covers the permitting of resin manufacturing. A resin is defined as a solid or semi-solid, water insoluble, organic material with little or no tendency to crystallize. Resins may be used as the basic components of plastics and as components of surface coating formulations. Resins are generally produced by combining various monomers, solvents, oils, catalysts, and other materials in batch or continuous reactors. Generally, an Air District permit is required for each reactor, thinning tank, and/or blending tank, which are defined in [Regulation 8-36](#). However, for small polyester resin storage (< 600 gallon capacity), grouping of tanks may be allowed, per [Grouping Resin Storage Tanks at Fiberglass Operations](#). If the facility has organic liquid storage tanks, then the chapter for [Organic Liquid Storage Tanks](#) should also be referenced.

[Chapter 6.6.3 Polystyrene](#), of [AP-42 \(Fifth Edition, Volume I\)](#) provides a detailed description of how resins are manufactured.

Completeness Determination

The following Air District forms should be completed and fees provided for polyester resin manufacturing. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form 101-B (one for facility).
2. Form G (one form for each reactor, thinning tank, and/or blending tank).
3. Form A (one per device).
4. Fees, calculated per Regulation 3 (Schedule F).

Emission Calculations

According to EPA's FIRE Program³⁸, the following are the emission factors for resin manufacturing:

SCC Code	Description	Pollutant	Emission Factor (lb/ton)
3-01-018-17	General*	POC	1.07 E 01
3-01-018-19	Solvent Recovery	POC	3.20 E 00
3-01-018-21	Extruding/Pelletizing/Conveying/Storage	POC	3.00 E-01
3-01-018-27	Polyamide Resins	NOx	1.00 E 00
3-01-018-32	Urea-Formaldehyde Resins	POC	1.47 E 01
3-01-018-42	Melamine Resin	POC	5.00 E 01
3-01-018-47	Epoxy Resin	POC	5.10 E 00
3-01-018-49	Acrylonitrile-Butadiene-Styrene (ABS)	POC	6.00 E 01
3-01-018-70	Reactor (Polyester Resins)	POC	5.00 E 01
3-01-018-80	Reactor (Polyurethane)	POC	5.20 E 01
3-01-018-92	Separation Process	POC	2.00 E 00

* This factor may be used to calculate total emissions from a polystyrene resin production plant.

The following equation can be used to calculate emission rates:

$$E_{\text{Pollutant}} = U(EF)$$

where,

$E_{\text{Pollutant}}$ = emissions of pollutant (lb/yr)

U = throughput (tons/yr)

³⁸ The [Factor Information Retrieval \(FIRE\) Data System](#) is a database containing EPA's emission estimation factors for criteria and hazardous air.

EF = emission factor (lb/ton)

TOXICS

According to EPA's FIRE Program³⁹, the following are the toxics emission factors for resin manufacturing:

SCC Code	Description	Pollutant	Emission Factor (lb/ton)
3-01-018-19	Solvent Recovery	Styrene	1.45 E-01
3-01-018-21	Extruding/Pelletizing/Conveying/Storage	Styrene	2.463 E-01
3-01-018-32	Urea-Formaldehyde Resins	Formaldehyde	3.00 E-01
3-01-018-49	Acrylonitrile-Butadiene-Styrene (ABS)	Styrene	2.78 E 00

The following equation can be used to calculate emission rates:

$$E_{\text{Pollutant}} = U(EF)$$

where,

$E_{\text{Pollutant}}$ = emissions of pollutant (lb/yr)

U = throughput (tons/yr)

EF = emission factor (lb/ton)

Applicable Requirements

Air District Rules and Regulations

Resin manufacturing is subject to the requirements of [Regulation 8, Rule 36 \(Resin Manufacturing Operations\)](#).

Best Available Control Technology

BACT for polyester resin manufacturing is not yet specified in the [BACT/TBACT Workbook](#).

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review.

Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- ☐ [Offsets](#)
- ☐ [Prevention of Significant Deterioration](#)
- ☐ [School Notification](#)
- ☐ [Health Risk Assessment](#)
- ☐ [Overburdened Communities](#)

Permit Conditions

Standardized conditions for polyester resin manufacturing are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

³⁹ The [Factor Information Retrieval \(FIRE\) Data System](#) is a database containing EPA's emission estimation factors for criteria and hazardous air pollutants.

11.12 POLYESTER RESIN OPERATIONS

December 15, 2023

This chapter describes the permitting procedures for the manufacturing of products using polyester resins. [Regulation 8, Rule 50](#) limits organic compound emissions from polyester resin operations. Section 8-50-214 defines polyester resin operations as "methods used for the production or rework of product by mixing, pouring, hand laying-up, impregnating, injecting, forming, spraying, and/or curing unsaturated polyester materials with fiberglass, fillers, or any other reinforcement materials and associated clean-up."

The first section of this chapter describes the types of polyester resin operations that may be encountered, the process description, and the air emissions associated with polyester resin operations. The next three sections discuss Bay Area Air Quality Management District permit requirements for this equipment and items necessary for a permit application. The sixth section is an engineering evaluation template which includes typical equipment/process descriptions, sample emission calculations, applicable regulatory requirements, applicable Air District policies, and sample permit conditions.

Some of the information presented in the Process Description and Evaluation sections was obtained from the following sources: EPA AP-42; [The Minnesota Technical Assistance Program \(MnTAP\)](#); EPA's National Risk Management Research Laboratory; and The Air Pollution Engineering Manual. A complete reference list is included at the end of this section.

Process Description

A growing number of products are fabricated from liquid polyester resin reinforced with glass fibers and extended with various inorganic filler materials such as calcium carbonate, talc, mica, or small glass spheres. These composite materials are often referred to as fiberglass reinforced plastic (FRP), or simply "fiberglass". In some processes, resin products are fabricated without fibers, an example are the synthetic marble fabricators. The polyester resin/fiberglass industry consists of many small facilities (such as boat repair and small contract firms) and relatively few large firms that consume the major fraction of the total resin.

The major product using resins with fillers, but no reinforcing fibers is the synthetic marble used in manufacturing bathroom countertops, sinks, and related items. Other applications of non reinforced resin plastics include automobile body filler, bowling balls and coatings. Fiber reinforced plastics products have a wide range of applications in industry, transportation, home and recreation. Industrial uses include storage tanks, skylights, electrical equipment, ducting, pipes, machine components, and corrosion resistant structural and process equipment. In transportation, automobile and aircraft applications are increasing rapidly. Home and recreational items include bathroom tubs and showers, boats (building and repair), surfboards, snowboards and skis, helmets, swimming pools and hot tubs, and a variety of sporting goods. In order to be used in the fabrication of products, the liquid resin must be mixed with a catalyst to initiate polymerization into a solid thermoset. Catalyst concentrations generally range from 1 to 2 percent by original weight of resin; within certain limits, the higher the catalyst concentration, the faster the cross-linking reaction proceeds. Common catalysts are organic peroxides, typically methyl ethyl ketone peroxide (MEKP). Resins may contain inhibitors, to avoid self-curing during resin storage, and promoters, to allow polymerization to occur at lower temperatures.

Non-Reinforced Polyester Resins

Synthetic marble casting, a large segment of the resin products industry, involves production of bathroom sinks, vanity tops, bathtubs and accessories using filled resins that have the look of natural marble. No reinforcing fibers are used in these products. Pigmented or clear gel coat can either be applied to the mold itself or sprayed onto the product after casting to simulate the look of natural polished marble. Marble casting can be an open mold process or it can be considered a semi-closed process if cast parts are removed from a closed mold for subsequent gel coat spraying.

The polyester resin used in synthetic marble casting usually has higher viscosity and lower monomer levels than the resins used for laminating and gel coats. Fillers and colorants are mixed with the resin in large

vats. To achieve the marbled effect, the colorants are often hand stirred. The mixed resin is then hand poured into partially closed molds. The resin is cured at room temperature and, after curing, the mold is removed. Gel coats may also be used, in which case, they are applied to the mold surface before pouring in the resin. Gel coats are highly pigmented unsaturated polyester resins that provide a smooth, colored surface that gives the appearance of a painted part. Sources of emissions include equipment leaks, resin storage tanks, process operations, and transfer and handling operations. The major sources of process operation emissions are the gel coat area and casting areas, where resin is mixed and poured into molds.

Reinforced Polyester Resins

Reinforced plastics products are fabricated using any of several processes, depending on their size, shape and other desired physical characteristics. The principle molding processes are open molding and closed molding. The primary types of open molding fabrication processes include spray lay-up (resin spray-up), hand lay-up, continuous lamination and pultrusion. Closed molding processes are primarily represented by bag molding. Process descriptions for these molding processes are given below.

Open Molding

Most open mold fabricators use similar processes to produce products with varying composition, sizes, and shapes. For products with a smooth, durable surface, a smooth and highly polished mold is required. For many products, a catalyzed gel coat is applied as the initial step. The resins are generally either hand rolled or sprayed into the fiberglass reinforcement. Some hand rolling is essential even when the resin is sprayed, for removing voids and ensuring proper compaction of resin and reinforcing material. Most open mold fabrication facilities consist of one or more open production areas. In these open areas, a large number of exhaust fan outlets are provided.

Spray Lay-up (Resin Spray-Up)

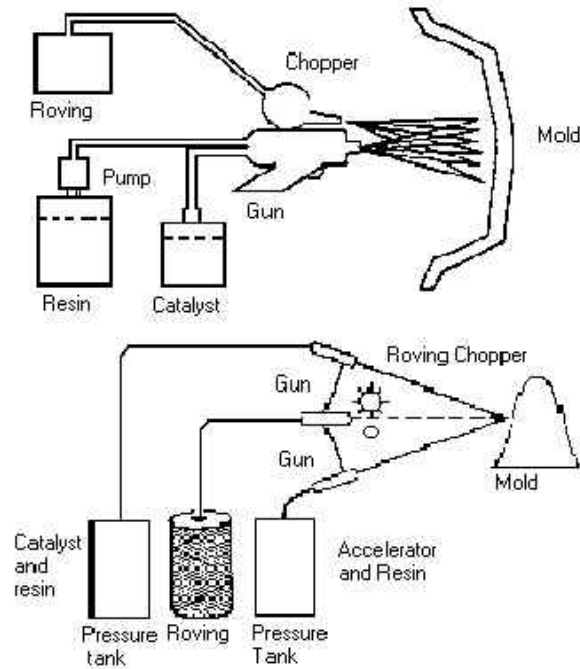
Spray lay-up is an open mold process that uses mechanical spraying and chopping equipment for depositing the resin and glass reinforcement. Chopping equipment consists of a spray gun attachment which chops glass fiber into predetermined lengths and projects it to merge with the resin mix stream. This causes the resin and chopped glass to be deposited simultaneously to the desired layer thickness on the mold surface (or on the gel coat that was applied to the mold). This process allows a greater production rate and more uniform parts than does hand lay-up, and often uses more complex molds.

In spray lay-up, the mold defines the shape of the outer surface, and the mold itself is usually made of reinforced plastic. The mold is first coated with a wax to ensure removal after curing. A layer of gel coat is then sprayed on to the mold to form the outermost surface of the products. The gel coat is allowed to cure for several hours but remains tacky so subsequent resin layers adhere better.

The polyester resin is applied with a spray gun that has a glass chopper attachment. Layers are built up and rolled out on the mold as necessary to form the part. The spray gun has separate resin and catalyst streams which mix as they exit the gun. However, compared to hand lay-up, more resin is typically used to produce similar parts by spray lay-up because of the inevitable over spray of resin during application.

Air spray guns require a large volume of air flow at high pressures. This provides good control over spray patterns; however, this type of spraying contributes to excessive fogging, over spray, and bounce back, resulting in increased emissions and material loss. To reduce styrene emissions, air-assisted airless spray guns can be used to apply gel coats and resins. Because high pressure is not needed at the nozzle, air-assisted airless spraying results in lower emissions and less material loss. Polyester resins designed for use in spray lay-up are promoted for cure at room temperature and usually are catalyzed with a liquid peroxide such as MEKP.

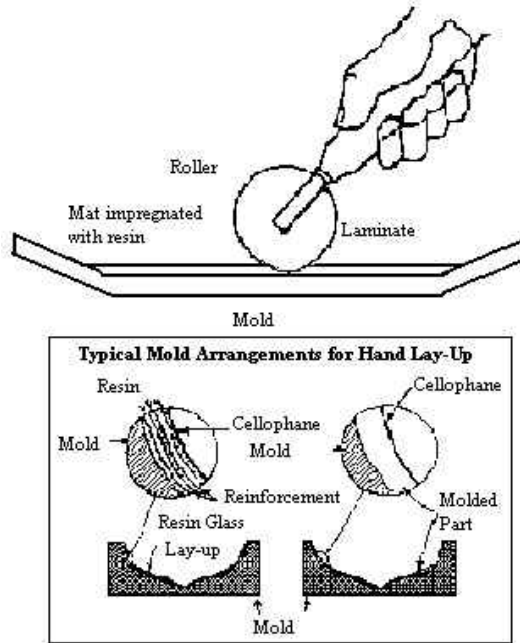
Drawing 1 - Spray Lay-up



Hand Lay-up

Hand lay-up, the simplest fabrication process, is another open mold process. Hand lay-up uses no mechanical spraying or chopping equipment for depositing the resin or glass reinforcement. This process involves the same initial steps (up through application of the gel coat) as used in spray lay-up. Following gel coat application, alternate layers of catalyzed polyester resin and reinforcement material are applied. The ratio of resin to glass is usually 60 to 40 by weight, but varies by product. Each reinforcement layer is "wetted out" with resin, and then rolled out to remove air pockets. The process continues until the desired thickness is achieved. Hand lay-up is also a room temperature curing process.

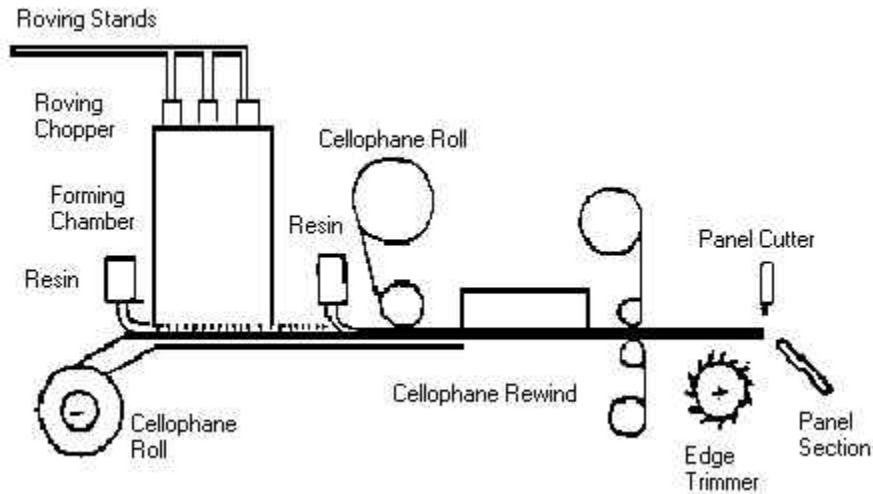
Drawing 2 - Hand Lay-up



Continuous Lamination (Flow Coater With Chop)

Continuous Lamination of reinforced plastics materials involves impregnating various reinforcements with resins on an in-line conveyor. The resulting laminate is cured and trimmed as it passes through the various conveyor zones. In this process, the resin mix is metered onto a bottom carrier film, using a blade to control thickness. This film, which defines the panel's surface, is generally polyester, cellophane or nylon, and may have a smooth, embossed or matte surface. Methyl methacrylate is sometimes used as the cross-linking agent, either alone or in combination with styrene, to increase strength and weather resistance. Chopped glass fibers free-fall into the resin mix and are allowed to saturate with resin, or "wet out". A second carrier film is applied to the top of the panel before subsequent forming and curing. The cured panel is then stripped of its films, trimmed, and cut to the desired length. Principal products include translucent industrial skylights, and greenhouse panels, wall and ceiling liners for food areas, garage doors and cooling tower louvers.

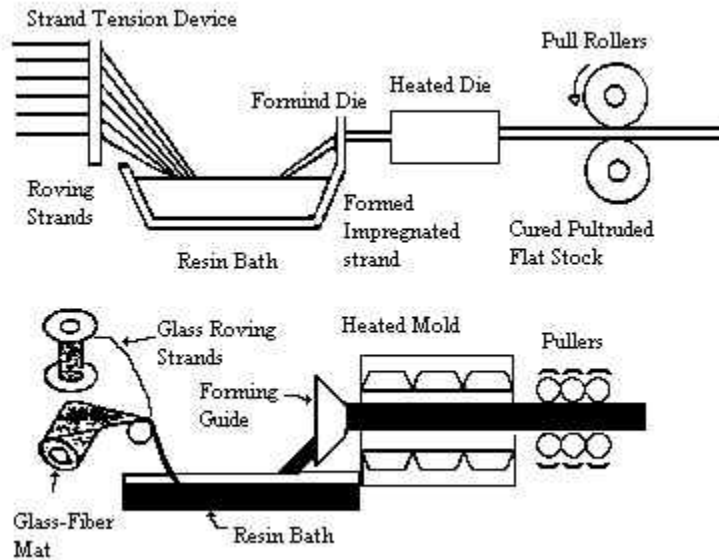
Drawing 3 - Continuous Lamination



Pultrusion

Pultrusion, which can be thought of as extrusion by pulling, is used to produce continuous cross-sectional lines similar to those made by extruding metals such as aluminum. Reinforcing fibers are pulled through a liquid resin mix bath and into a long-machined steel die, where heat initiates an exothermic reaction to polymerize the thermosetting resin matrix. The composite profile emerges from the die as a hot, constant cross-sectional that cools sufficiently to be fed into a clamping and pulling mechanism. The product can then be cut to desired lengths. Example products include electrical insulation materials, ladders, walkway gratings, structural supports, and rods and antennas.

Drawing 4 - Pultrusion



Closed Molding

Closed, such as compression or injection, molding operations involve the use of two matched dies to define the entire outer surface of the part. When closed and filled with a resin mix, the matched die mold is subjected to heat and pressure to cure the plastic. For the most durable production configuration, hardened metal dies are used (matched metal molding). Another closed molding process is vacuum or pressure bag molding. The range of closed molded parts includes tool and appliance housings, cookware, brackets and other small parts, and automobile body and electrical components.

Bag Molding

Bag molding is best used to produce an intermediate volume of small to mid-size components such as seats, boat hatches, boat deck structures, and other items with shallow draft molds. Bag molding is conducted in sealed molds at room temperature. The process is initiated with gel coat applied to the surface of the mold. Glass reinforcing fibers and other materials are carefully cut to fit the mold and placed over it. Catalyzed resin is sprayed, pumped or poured over the lay-up. Once the lay-up materials are in place, the exposed area is covered with special layers of plastic which are sealed to the edges of the mold.

The bag molding process uses a bag or flexible membrane to apply pressure during molding; usually in conjunction with an autoclave, a device which uses superheated steam to create pressure. A reinforced laminate is layed-up by hand or sprayed and pressure is applied by drawing a vacuum under a cellophane, vinyl, or nylon bag covering it. This assembly is then heated under pressure in an autoclave. The use of bag molding allows the final product to have a higher fiberglass to resin ratio.

Spraying Operations

Regulation 8, Rule 50, Section 302 requires the use of high transfer efficiency spray equipment. It requires the use of one of the following: airless spray, air-assisted airless spray, electrostatic spray, or high-volume, low-pressure spray.

The four basic types of coating spray application methods are air-atomized spray, airless spray, electrostatic spray, and high-volume, low-pressure spray. Typically, coatings are sprayed in a spray booth to protect the coated surface from dirt and to provide a well-ventilated area that protects workers from solvent vapors. Air-atomized spray guns use compressed air to atomize the coating into tiny droplets and to spray the coating onto the surface of the article to be coated. Note that air-atomized spray guns are prohibited per section 302. The transfer efficiency for spray guns varies based on the configuration of the surface being coated, the skill of the operator, and the type of spray gun being used.

In airless spray coating, the coating is atomized without air as it is forced through specially designed nozzles at pressures of 17 to 14MPa (1000-2000 psi). Electrostatic spraying involves the use of an electrical transformer capable of delivering up to 60,000+ volts to create an electrical potential between the coating particles and the surface to be coated. These charged coating particles are thus electrically attracted to the surface, increasing the transfer efficiency over that of the nonelectrostatic air-atomized and airless spray guns.

Another type of coating spray equipment is the high-volume, low-pressure or turbine spray gun. In this system, a turbine is used to generate and deliver atomizing air. The turbine draws in filtered air, which is driven through several stages at up to 10,500 rpm. The result is a high volume of warm, dry, atomizing air that is delivered to the spray gun at less than 7 psi. This low-pressure gives greater control of the spray, with less over spray because of the absence of the blasting effect common with high pressure systems.

Completeness Determination

The following Air District forms should be completed and fees provided for polyester resin manufacturing. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form 101-B (one for facility).
2. Form S (one per source for each molding or spraying operation).
3. Fees, calculated per Regulation 3 (Schedule E).

Emission Calculations

Sources of Emissions

The only emissions of any significance from this source category are organic compounds. Organic vapors consisting of volatile organic compounds (VOC) are emitted from fresh resin surfaces during the fabrication process and from the use of solvents (usually acetone) for cleanup of hands, tools, molds and spraying equipment. Cleaning solvent emissions can account for a significant portion of the total plant VOC emissions. There may also be some release of particulate emissions from automatic fiber chopping equipment, but these emissions have not yet been quantified.

Organic emissions from polyester resin/fiberglass fabrication processes occur when the cross-linking agent (monomer) contained in the liquid resin evaporates into the air during resin application curing. Styrene, methyl methacrylate and vinyl toluene are three of the principal monomers used in cross linking agents. Styrene is by far the most common. Other chemical components of resins are emitted only at trace levels because they not only have low vapor pressures but are also substantially converted to polymers. Since emissions result from evaporation of monomer from the uncured resin, they depend upon the amount of resin surface exposed to the air and the time of exposure. Thus, the potential for emissions varies with the manner in which the resin is mixed, applied, handled and cured. These factors vary among the different fabrication processes. For example, the spray lay-up process has the highest potential for VOC emissions because the atomization of resin into spray creates an extremely large surface area from which volatile monomer can evaporate.

For continuous lamination, exposure of the resin surface to air at the impregnation table is a source of styrene emissions. In addition, the ovens and the final sawing operations release some uncured resin to the atmosphere. The emissions from pultrusion operations are assumed to be the same as continuous lamination.

By contrast, the emission potential in synthetic marble casting and closed molding operations is considerably lower, because of the lower monomer content in the casting resins (30 to 38%, versus about 43%) and of the enclosed nature of these moldings. It has been found that styrene evaporation increases with increasing gel time, wind speed and ambient temperature, and that increasing the hand rolling time on a hand lay-up or spray-up results in significant styrene losses. Thus, production changes that lessen the exposure of fresh resin surfaces to the air should be effective in reducing these evaporation losses.

Emission Reduction Strategies

Styrene monomer is a significant source of VOCs from most polyester resin processes. Emissions from open-mold processes tend to be the highest because of the spray-up technique used to apply the resin and the large surface area of the part that is exposed during the curing. Operations located in California are faced with some of the toughest air quality standards in the country. In response to the needs of this area, resin manufacturers have developed low-organic emission resins. These products fall into the following categories:

1. Vapor Suppressed Resins,
2. Benzoyl Peroxide (BPO)-Catalyzed Resins, and Low Styrene Resins

Vapor Suppressed Resins

These resins contain a wax-like additive that migrates to the surface of the laminate during the cure step, forming a barrier that inhibits the release of styrene. Vapor suppressant resins may reduce styrene emissions by 30 to 50 percent during curing. These resins have had limited acceptance because the waxy additive has the potential to inhibit the bonding of subsequent layers. The resins form a wax layer during curing which must be thoroughly removed between each laminate application to ensure interlaminate bonding. If maximum strength is not required, reducing the curing time between laminate applications can partially address the wax layer buildup problem. Because of the difficulty in removing the wax layer, vapor suppressant resins are only suitable for selected applications. However, the bond strength can be improved by lightly sanding the surface of cure parts prior to applying the next laminate layer.

A 1982 California study found that vapor suppressed resins were used for 26 percent of resin and gel coat application. Vapor suppressants are typically paraffin waxes that reduce styrene emissions by migrating to the surface and reducing volatilization of styrene. In laminating resins, the vapor suppressant content can range from 0.3 to 0.6 percent by weight.

Other vapor suppressants in use are thermoplastics and fatty acid esters. Other ways to reduce styrene emissions would be to change from open to closed molding, reduce rollout times, and in general improve housekeeping. In addition, the amount of polyester resin used can be reduced by redesigning products, adding more fillers, and improving spray gun efficiency. Reformulation of resin could also be used to reduce the monomer content in the resin.

BPO-Catalyzed Resins and Low-Styrene Resins

The Minnesota Technical Assistance Program (MnTAP) recently conducted a study of low-styrene emissions resins that focused on evaluating resins formulated with lower amounts of styrene (below 38%) and resins catalyzed with BPO. The following general characteristics were observed:

1. Styrene emissions were reduced from 45 to 25%.
2. Substitutes were easily incorporated into existing processes.
3. Required minimal changes to spray equipment.
4. Economics of the substitution were favorable.

For more details see the [MnTAP website](#).

The use of low styrene resins (35 percent styrene versus 43 percent) can potentially reduce total styrene emission by 20 percent from resin application and curing. Problems with application may occur as viscosity increases and curing problems may result in structural defects. By improving the transfer efficiencies of the spray guns used to apply gel coat and resin, styrene emissions due to over spray can be reduced to 42 percent for gel coat and 33 percent for resin spray lay-up.

The use of low vapor pressure solvents such as Dibasic Ester (DBE) can reduce the amount of clean up solvent needed due to the reduction in evaporation volumes.

Add-on Controls

In lieu of using complying resins, polyester resin operators can use add-on emission control devices. Four emission control devices were evaluated for use at polyester resin operations: incineration; adsorption; absorption; and condensation. These control technologies have been demonstrated to be highly effective in reducing volatile organic emissions when exhaust gas concentrations are relatively high. However, exhaust

concentrations from polyester resin operations are typically less than 1000 ppm which make these control technologies less effective and most likely not cost-effective. Each of the four technologies are defined below.

Adsorption

Adsorption is the condensation of a gaseous substance on a solid surface. When adsorption is used in control devices for air pollution, it is the removal of pollutants from a gas stream by attachment of the pollutants to a solid surface. Adsorption with carbon is a popular type of air pollution control of VOCs and odors.

Absorption

Absorption, or scrubbing, is a process where a soluble component of a gas mixture (absorbate) is removed from the gas by dissolving it in a liquid (absorbent). In absorption, a gas can be absorbed by simply being dissolved within a liquid, or it may be chemically reacted with the absorbing liquid. The liquid used to do the absorbing is relatively nonvolatile.

Absorption is different from adsorption in that absorption involves collecting a pollutant (or gas vapor) by passing it from a liquid surface throughout the liquid phase. In adsorption, the pollutant collects on a solid surface and not within the solid phase. The pollutant may diffuse into the pores of the solid, but not within its chemical structure. Furthermore, absorption involves removing a gas or a vapor by dissolving it into a liquid while adsorption involves removing a substance by attaching it to a solid surface.

Condensation

Condensation is the process of changing a gaseous substance into a liquid. Condensation can be applied into an air stream contaminated with VOCs by condensing volatile compounds in a waste stream and removing them. Condensation operations allow valuable solvents to be recovered while providing air pollution control.

Incineration

Incineration or oxidation involves destroying VOCs through the use of high temperatures from combustion to oxidize pollutants. Incinerators or oxidizers for the destruction of VOCs from processes are often used when it is not economical to recover solvents.

Emission Factors and Estimates

Resin Storage Tank Emissions

Styrene can be emitted during storage and transfer of the polyester resin and from the lamination area. Resin is typically stored in outdoor temperature-controlled tanks and transferred to 55-gallon drums for spray application. Emissions from these sources are expected to be small compared to the process emissions. As discussed previously, styrene emissions occur during gel coat and resin application and from resin curing. Gel coats are typically sprayed on and the resins are applied either by hand or spray lay-up. Storage Emissions Other possible sources of styrene emissions are storage tank losses and handling losses that occur during product loading into drums, tank trucks, tank cars, barges, or ships. Styrene production plants typically have from 2 to 12 small, fixed-roof monomer storage tanks. Storage tank losses are either working losses that occur while filling the tank, or breathing losses due to expansion from temperature changes. Both can be estimated using equations for storage tank emissions given in the U. S. Environmental Protection Agency's "Estimating Air Toxic Emissions from Organic Liquid Storage Tanks" report. In the absence of specific data on the storage tank, two emission factors were identified in the literature. Shown in Table 1, both are for uncontrolled emissions. No facilities are known to currently control emissions with floating roof tanks or incineration, although several use condensing units to recover styrene.

TABLE 1. STYRENE STORAGE EMISSION FACTORS

Emission Source	Estimated Emission Factor
Breathing Loss	0.0016 lb/gal-yr storage capacity

Emission Source	Estimated Emission Factor
Working Loss	0.000179 lb/gal gallons throughput

Resin Process Emissions

Section 4.4 of EPA AP-42 was removed from the EPA website as of 3/18/98 because the emission factors presented in that section, "Polyester Resin Operations", appeared to under predict styrene emissions from most polyester resin operations. EPA suggests that there is no AP-42 factor or estimation method for this category at this time. In the case of permits, sources are expected to use "best available data", not necessarily AP-42, to determine their emissions. In place of section 4.4, the user is referred to the Potentially Useful For Emissions Estimation link, where EPA has posted material which document and analyze recent data on emissions from this source category. The emission estimation model, "Nine-Variable ORD/RTI FRP Emission Model," can be downloaded from the EPA AP-42 website at http://widit.knu.ac.kr/epa/ebtpages/Air/Air_Pollution_Monitoring/Emission_Factor/siteout/s4out5.exe. More information on this program can be downloaded from FRP Model, Version 1.0 User's Guide.

Several factors influence the styrene process emissions during fiberglass product manufacture. These include resin temperature, air temperature, air velocity in the lamination area, mold surface area, and spray gun transfer efficiency (Table 2). Control of styrene emission from fiberglass manufacturing can be accomplished with several of the options described above for resin use including: Reduction of styrene content in resin; Improved transfer efficiency of spray guns; Use vapor suppressed resins; and Use of add-on controls.

TABLE 2. FACTORS AFFECTING STYRENE EMISSIONS FROM LAMINATION

Factors	Effect on Emissions
Resin Temperatures	Emissions increase as temperature rises
Air temperatures	Emissions increase as temperature rises
Spray gun pressure/equipment atomization	Greater air flow may increase evaporation resulting in increased emissions and decreased concentration
Mold surface area	Greater surface area allows more vaporization in terms of total mass
Resin/gel coat styrene content	Increase emissions from increased styrene monomer content

Emission Measurements by Molding Process

The U. S. Environmental Protection Agency has published emission factors for fabrication processes using styrene as the monomer. These emission factors, shown in Table 3, are presented as pound VOC per pound monomer used. The following emission factors are presented but not used in the estimation of emissions from polyester resin operations. Styrene is by far the most common monomer used. Table 3 includes emission factors for vapor-suppressed (VS) resins, which can be used to reduce VOC emissions in place of non vapor-suppressed (NVS) resins. Discussions with industry representatives indicate, however, that VS gel coats are not used, nor are VS resins used in closed molding processes. The California Air Resources Board (CARB) has also developed emission factors for resins by molding process. These emission factors are shown in Table 4, and are based on resin monomer content, lay-up process, and micro environmental conditions (such as temperature, indoor versus outdoor processes, and ventilation). It should be noted that the CARB emission factors are given in pounds of monomer emitted per pound of monomer used. The emission factors published by EPA and CARB are similar for many of the processes shown in Tables 3 and 4. Notable exceptions are the emission factors for hand lay-up. The EPA emission factors are much lower than CARB's emission factors.

The emission factor ranges shown for marble casting in Tables 3 and 4 include emissions for both gel coat spraying and casting. In general, the styrene emissions from synthetic marble casting are expected to be lower than those from other processes because of the closed mold nature of the process. Emissions vary

with the amount of time the resin is exposed to air, and the majority of emissions were due to gel coat spraying.

TABLE 3. VOC EMISSION FACTORS FOR POLYESTER RESIN PRODUCT FABRICATION PROCESS (a)

(Pound VOC emitted/pound monomer used)

	Resin		Gel Coat	
Process	NVS	VS (b)	NVS	VS (b)
Hand Lay-up	0.05-0.10	0.02-0.07	0.26-0.35	0.08-0.25
Spray Lay-up	0.09-0.13	0.03-0.09	0.26-0.35	0.08-0.25
Continuous Lamination	0.04-0.07	0.01-0.05	(c)	(c)
Pultrusion (d)	0.04-0.07	0.01-0.05	(c)	(c)
Filament Winding (e)	0.05-0.10	0.02-0.07	(c)	(c)
Marble Casting	0.01-0.03	0.01-0.02	(f)	(f)
Closed Molding (g)	0.01-0.03	0.01-0.02	(c)	(c)

(a) Ranges represent the variability of processes and sensitivity of emissions to process parameters. Single value factors should be selected with caution. NVS = vapor-suppresses resin. VS = vapor-suppressed resin.

(b) Factors are 30-70% of those for non vapor-suppressed resins.

(c) Gel coat is not normally used in this process.

(d) Resin factors for the continuous lamination process are assumed to apply.

(e) Resin factors for the hand lay-up process are assumed to apply.

(f) Factors unavailable. However, when case parts are subsequently sprayed with gel coat, hand and spray lay-up gel coat factors are assumed to apply.

(g) Resin factors for marble casting, a semi closed process, are assumed to apply.

TABLE 4. MONOMER BASED EMISSION FACTORS FOR POLYESTER RESIN/FIBERGLASS OPERATIONS

(Pound monomer emitted/pound monomer used)

	Resin		Gel Coat	
Process	NVS	VS	NVS	VS
Hand Lay-up Only	0.16-0.35	0.14-0.20	0.47	0.24-0.33
Spray Lay-up Only	0.09-0.13	0.05-0.09	0.16-0.35	0.13-0.25
Hand and Spray	0.11-0.19	0.06-0.13	0.31-0.38	0.16-0.27
Marble Casting	0.01-0.03	0.01-0.03	0.26-0.35	0.13-0.25

Continuous Lamination	0.06-0.13	0.06-0.13	NA	NA
Pultrusion	0.06-0.13	0.06-0.13	NA	NA
Filament Winding	0.06-0.13	0.03-0.09	0.26-0.35	0.13-0.25
Closed Molding	0.01-0.03	0.01-0.03	NA	NA

NA - Not applicable; gel coat normally not used for these processes.

Applicable Requirements

Air District Rules and Regulations

Polyester Resin Operations are subject to the requirements of [Regulation 8, Rule 50 \(Polyester Resin Operations\)](#).

Best Available Control Technology (BACT)

BACT for the particulate sources at polyester resin operations are specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

Resin Manufacturing

- [Polyester Resin Operations – Molding and Casting](#)
- [Polyester Resin Operations – Hand and Spray Layup](#)
- [Polyester Resin Operations – Panel Manufacturing](#)
- [Polyester Resin Operations – Pultrusion](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for gel coat and resin applications are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

REFERENCES

1. [Air & Waste Management Association - Air Pollution Engineering Manual, Van Nostrand Reinhold, New York, 1992, pgs 362-363.](#)
2. EPA AP-42, Chapter 4.12 - *Polyester Resin Plastics Product Fabrication*, September 1988.
3. [EPA National Risk Management Research Laboratory, Air Pollution Prevention and Control Division, in cooperation with Research Triangle Institute - FPR Model.](#)
4. [The Minnesota Technical Assistance Program \(MnTAP\) - MnTAP Fact Sheet: Reducing Volatile Emissions in Fiber Reinforced Plastics Industry, July 13, 2000.](#)

11.13 TUB GRINDERS

December 15, 2023

Process Description

This chapter covers the permitting of tub grinders. Tub grinders are typically used to grind wood pieces from bigger to smaller pieces. The tub grinder may be powered by electricity or by a prime diesel engine. The permitting of the prime diesel engine is detailed in permit handbook [chapter 2.3.1 \(stationary\)](#) or [2.3.3 \(portable\)](#). The tub grinder may be stationary and located primarily within one facility's boundaries or may be portable from one location to another.

Completeness Determination

The following Air District forms should be completed and fees provided for tub grinders. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form 101-B (one for facility).
2. Form G (one per source).
3. Form A for watering system (one per facility)
4. Form A (one per device) for any particulate abatement device (i.e., baghouse).
5. Fees, calculated per Regulation 3 (Schedule F).
6. If the tub grinder is powered by a diesel engine, refer to the chapter for stationary ([2.3.1](#)) or portable ([2.3.3](#)) diesel engines for additional forms and fees that are required for the diesel engine.

Emission Calculations

To approximate the particulate emissions for wood grinding, the emission factor for "Log Debarking" from a previous edition of AP-42, Table 10.3-1 of (0.024 lb TSP/ton) will be used with the throughput quantity of wood processed, as provided by the applicant. Approximately 60% of the particulate emissions are assumed to be PM10. Water suppression will also provide 50% abatement of particulate emissions.

$$\text{PM10 (lb/yr)} = (\text{THROUGHPUT tons/yr})(0.024 \text{ lb TSP/ton})(0.60 \text{ lb PM10/lb TSP})(0.50)$$

If the tub grinder is powered by electricity, there are no other criteria pollutant emissions. However, if it is powered by a diesel engine, emissions from the diesel engines must also be added to that of the tub grinder. Refer to the chapter for stationary ([2.3.1](#)) or portable ([2.3.3](#)) diesel engines for emission calculation procedures for the combustion of diesel fuel.

Applicable Requirements

Air District Rules and Regulations

The tub grinder is subject to the requirements of [Regulation 6-1](#). If the tub grinder is powered by a diesel engine, refer to the chapter for stationary ([2.3.1](#)) or portable ([2.3.3](#)) diesel engines for applicable requirements.

Best Available Control Technology (BACT)

BACT for tub grinders are specified in the [BACT/TBACT Workbook](#). The following are applicable BACT requirements for:

Crushing and Grinding
- [Wood Processing Equipment](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

PERMIT HANDBOOK

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- ☐ [Offsets](#)
- ☐ [Prevention of Significant Deterioration](#)
- ☐ [School Notification](#)
- ☐ [Health Risk Assessment](#)
- ☐ [Overburdened Communities](#)

Permit Conditions

Standardized conditions for tub grinders are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

11.14 LANDFILL GAS FLARES

December 15, 2023

Process Description

Modern landfills are managed facilities for the disposal of solid waste. Landfills are located, designed, operated and monitored for landfill gas, as well as other factors (i.e., groundwater contamination). A landfill's gas collection system requires frequent monitoring and operational adjustments to optimize its performance. Landfill gas (LFG) is a natural byproduct of the decomposition of organic material in landfills. LFG is composed of roughly 50 percent methane (the primary component of natural gas), 50 percent carbon dioxide (CO₂) and a small amount of non-methane organic compounds. Methane is a potent greenhouse gas 28 to 36 times more effective than CO₂ at trapping heat in the atmosphere over a 100-year period⁴⁰.

LFG is extracted from landfills using a series of wells and a blower/flare (or vacuum) system. This system directs the collected gas to a central point where it can be processed and treated depending upon the ultimate use for the gas. From this point, the gas can be flared or beneficially used in an LFG energy project (i.e., see [Biogas Engines](#)). Using LFG helps to reduce odors and other hazards associated with LFG emissions and prevents methane from migrating into the atmosphere and contributing to local smog and global climate change.

This chapter will cover the permitting of landfill flares.

Completeness Determination

The following Air District forms should be completed and fees provided for stationary natural gas engines. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form 101-B (one for facility).
2. Form A (1 per flare).
3. Form C (1 per flare).
4. Manufacturer specification data including maximum fuel consumption, emission rates for NO_x, CO, hydrocarbons (VOC) and particulate.
5. Landfill gas constituent profile.
6. If Health Risk Assessment is triggered, Form HRA (one per source).
7. Fees, calculated per Regulation 3 (Schedule K)

Emission Calculations

The primary pollutants from landfill gas flares are the products of combustion, including oxides of nitrogen (NO_x), hydrocarbon and other organic compounds (POC), carbon monoxide (CO), sulfur dioxide (SO₂), and particulate (PM₁₀ and PM_{2.5}). In calculating emissions, emission factor data from the manufacturer or the applicant proposed emission limits (i.e., in lbs/MMBTU of gas) should be used to estimate emissions for NO_x and CO. In addition, manufacturer or actual source test data, if available, may be used to estimate emissions of criteria or toxic air contaminants. Total reduced sulfur (TRS) in the landfill gas is generally assumed to be converted to SO₂ emissions.

The following are an example emission factor calculation for SO₂ emissions based on a TRS limit of 300 ppmv as H₂S and with a landfill gas (LFG) heat content of 500 BTU/scf:

$$300E - 6 \frac{lb - mole S}{lb - mole LFG} \times \frac{lb - mole SO_2}{lb - mole S} \times 64 \frac{lb SO_2}{lb - mole SO_2} \times \frac{1}{387} \frac{lb - mole LFG}{scf} \times 500 \frac{BTU}{scf}$$

$$= 0.1 \frac{lb SO_2}{MMBTU}$$

Emission factors for criteria and toxic pollutants can also be found in [EPA AP-42, Chapter 3.2 Natural Gas-fired Reciprocating Engines](#) and the [California Air Toxics Emission Factors \(CATEF\) database](#) (Internal Combustion Engines; Natural Gas). For example, EPA's AP-42, Compilation of Air Pollutant Emission Factors, Table 2.4-5 "Emission Rates for Secondary Compounds Exiting Control Devices" specifies a PM emission factor of 17

⁴⁰ [AR5 Synthesis Report: Climate Change 2014 — IPCC](#).

lbs/million dscf methane. Assuming the landfill gas contains 50% methane with a heat content of 500 BTU/dscf, the following is an example emission factor calculation for PM₁₀ emissions:

$$\frac{17 \text{ lb PM}_{10}}{1 \text{E}6 \text{ dscf CH}_4} \times \frac{0.5 \text{ dscf CH}_4}{1 \text{ dscf LFG}} \times \frac{\text{dscf LFG}}{500 \text{ BTU}} \times 1 \text{E}6 \frac{\text{BTU}}{\text{MMBTU}} = 0.017 \frac{\text{lb PM}_{10}}{\text{MMBTU}}$$

PM_{2.5} emissions are assumed to be the same as PM₁₀ emissions.

Total non-methane organic compound (NMOC) emission rates may be based on the Air District's regulatory limit for landfill gas flares (Regulation 8-34-301.3: 30 ppmv of NMOC in the exhaust at 3% O₂, expressed as methane). Maximum precursor organic compounds (POC) emissions have the potential to be 100% of NMOC emissions. Therefore, using a conservative approach, POC emissions calculated below are assumed to be 100% NMOC emissions. Non-precursor organic compound (NPOC) emissions are calculated using the Air District's standard assumption that NPOC emissions have the potential to be 5% of NMOC emissions.

The 30 ppmv NMOC outlet concentration is equivalent to an NMOC emission rate of 1.306 × 10⁻² lbs/MMBtu, as determined below:

$$(30 \text{ ppmv at } 3\% \text{ O}_2) (20.9-0)/(20.9-3) = 35 \text{ ppmv at } 0\% \text{ O}_2$$

$$\frac{35 \text{ scf NMOC}}{1 \text{E}6 \text{ scf flue}} \times \frac{9628 \text{ scf flue}}{\text{MMBTU}} \times \frac{\text{lbmole NMOC}}{387 \text{ scf NMOC}} \times 16 \frac{\text{lbs NMOC}}{\text{lbmol NMOC}} = 0.014 \frac{\text{lb NMOC}}{\text{MMBTU}}$$

The NPOC emission rate calculated at 5% of NMOC emissions is:

$$(0.014 \text{ lbs POC/MM BTU}) \times (0.05 \text{ lbs NPOC/lbs POC}) = 7 \text{E-}4 \text{ lbs NPOC/MM BTU}$$

The permit evaluator may choose the most representative emission factors to calculate emissions. Toxic air contaminant (TAC) emissions can be calculated based on site-specific landfill gas constituent data (e.g., maximum permitted TAC limits) and default TAC concentrations for Bay Area landfills that the Air District summarized for Rule 11-18 purposes. Hazardous air pollutant (HAP) emissions are a subset of these TAC emissions as determined by the current EPA list of HAPs. Residual TAC emissions can be calculated by assuming 98% destruction efficiency for each individual compound detected in the landfill gas at the landfill site. Secondary TAC emissions include formaldehyde and acid gases (hydrogen chloride and hydrogen fluoride) that form due to the presence of halogenated compounds in the landfill gas. Formaldehyde emissions can be calculated using the Air District's standard factor for enclosed landfill gas flares (0.18 lbs/million scf of landfill gas burned), which is based on a landfill gas fired turbine emission factor from the California Air Toxic Emission Factor (CATEF) database. PAHs and Dioxin emission factors are from EPA source tests from five municipal solid waste facilities.⁴¹ Site-specific landfill gas data and default halogenated compounds concentrations should be used to determine the maximum expected concentrations of chlorine and fluorine in the landfill gas. These ions are converted to hydrogen chloride and hydrogen fluoride during combustion (100% conversion is assumed).

Greenhouse Gas Emissions

GHG emissions are not a regulated New Source Review (NSR) pollutant under [40 CFR 52.21\(b\)\(50\)](#), unless they are emitted from a facility that exceeds the 250 ton per year major PSD threshold for another pollutant besides GHGs. Landfills are not in one of the 28 PSD source categories and unless the permit facility exceeds the 250-ton major PSD facility thresholds for any pollutant, GHG emissions are not required to be calculated.

Applicable Requirements

Air District Rules and Regulations

⁴¹ EPA, 2007. Field Test Measurements at Five Municipal Solid Waste Landfills with Landfill Gas Control Technology. https://www.arb.ca.gov/ei/an-delete/landfill_st2.pdf

Landfill gas flares are subject to the Ringelmann No. 1 limitations of [Regulation 6-1-301](#). Properly operated and maintained landfill flares are expected to meet this requirement. Each stack is also subject to the [Regulation 6-1-310, Section 6-1-310.1](#), particulate weight limitation of 0.15 grains/dscf. Note that the permit evaluator should also review [Regulation 6-1-310.3](#) to determine whether the flare has a Potential to Emit TSP (as defined in [Regulation 2-1-217](#)) greater than 1,000 kg per year. If it does, it must meet the limits specified in [Table 6-1-311.1 \(Process Weight Rate vs. Allowable TSP Emission Limits\)](#). The template permit conditions will require initial source testing at each engine and subsequent periodic testing of the flares.

Landfill gas flares are required to meet the requirements of [Regulation 8, Rule 34, Regulation 8-34-301.3](#) requires the use of enclosed ground flares that have either a destruction efficiency of 98% by weight for NMOC or that emit no more than 30 ppmv of NMOC (as methane at 3% O₂, dry basis) from the flare. The permit evaluator should review the manufacturer's specifications to determine if the proposed flare will comply with these NMOC destruction efficiency and outlet concentration limits. Continuous temperature monitoring (pursuant to [Regulation 8-34-507](#)) will ensure that this flare complies with [8-34-301.3](#) on an on-going basis. The flare should also be equipped with a data recording system that will maintain all records required pursuant to [Sections 501.2 and 501.3](#).

In accordance to [Regulation 9-1-301](#), a person shall not emit from sources, other than ships, SO₂ in quantities which result in ground level concentrations in excess of 0.5 ppm continuously for 3 consecutive minutes or 0.25 ppm averaged over 60 consecutive minutes, or 0.05 ppm averaged over 24 hours. In accordance with [Regulation 9-1-302](#), a person shall not emit from any source, a gas stream containing SO₂ in excess of 300 ppm (dry). The template permit conditions will require annual source testing and quarterly analyses of the fuel sulfur content to ensure compliance with the limits.

[New Source Performance Standards \(NSPS\)](#)

The federal Emission Guidelines for Municipal Solid Waste (MSW) Landfills ([40 CFR Part 60, Subpart Cc](#)) requires that landfills subject to this requirement have sufficient landfill gas control system capacity to control all of the landfill gas that is expected to be generated by the landfill during the life of the collection system (typically about 10-15 years). Compliance with Regulation 8, Rule 34 will also ensure compliance with [40 CFR Subpart Cc](#).

New Emission Guidelines (EG) for existing MSW Landfills were adopted in 2016 ([40 CFR Part 60, Subpart Cf](#)). The revised EG applies to landfills that accepted waste after November 8, 1987, and commenced construction, reconstruction, or modification on or before July 17, 2014. [40 CFR Part 60, Subpart Cf](#) requires affected landfills to submit a state plan to the EPA that implements the EG contained in this subpart. For approval, a state plan must include provisions for the installation of a gas collection and control system within 30 months after the first annual report in which the NMOC emission rate equals or exceeds 34 megagrams per year. The permit evaluator should use the EPA LandGEM Model to demonstrate that the NMOC emission rate complies with [Subpart Cf requirements](#).

[40 CFR Part 60, Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills](#), will continue to apply to MSW landfills that commenced construction, reconstruction, or modification after May 30, 1991, and on or before July 17, 2014 until there is an approved state or federal plan that implements the emission guidelines in [40 CFR Part 60, Subpart Cf](#). Currently, California's state plan has not been fully approved.

On March 26, 2020, the EPA adopted changes to [40 CFR Part 60, Subpart Cf](#), which allowed impacted sources to demonstrate compliance with landfill gas control, operational, monitoring, record-keeping, and reporting requirements by following the corresponding requirements in the [NESHAP for MSW Landfills \(40 CFR Part 63, Subpart AAAA\)](#).

[National Emission Standards for Hazardous Air Pollutants \(NESHAP\)](#)

To assess applicable requirements under [Subpart AAAA](#), the permit evaluator should calculate HAP emissions for this site based on the maximum projected landfill gas generation rate and the maximum detected concentration for each HAP, determined from recent site-specific landfill gas analyses. If site-wide HAP emissions are found to be less than 10 tons/year for any single HAP and less than 25 tons/year for all HAPs combined, then the site is not a major source of HAP emissions. In this case, the only applicable requirements from this [Subpart AAAA NESHAP](#) are the requirement to have and follow a start-up, shutdown, and malfunction plan and a requirement to submit semi-annual reports instead of the annual report required under [Part 60, Subpart Cc](#) above.

[State Requirements:](#)

[CARB Methane Rule: CCR Title 17, Division 3, Chapter 1, Subchapter 10 Climate Change, Article 4, Regulations to Achieve Greenhouse Gas Emission Reductions Subarticle 6, Methane Emissions from Municipal Solid Waste Landfills, Sections 95460-95476](#) is the state regulation adopted to reduce methane emissions from municipal solid waste landfills and applies to all MSW landfills that received waste after January 1, 1977. This rule requires operation of an enclosed flare that achieves a methane destruction efficiency of at least 99% by weight and specifies monitoring and operational requirements for shutdown, restart, and startup scenarios. It also contains periodic source testing, monitoring, and recording requirements. After three years of annual testing shows compliance with the methane limit, the regulation allows testing to be reduced to once every three years.

BACT

A landfill gas collection and control system that meets the requirements of [Regulation 8, Rule 34](#) satisfies the BARCT and BACT control requirements for POC emissions from the landfill waste decomposition process.

BACT for landfill flare is specified in the [BACT/TBACT Workbook](#). The following are the applicable BACT requirements for biogas fired engines:

- [Flare – Digester Gas or Landfill Gas from Non-Hazardous Waste Landfill](#)
- [Flare – Digester Gas or Landfill Gas from Hazardous Waste Landfill](#)

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

CEQA

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for biogas engines are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

11.15 MATERIAL RECOVERY OPERATIONS

July 3, 2023

Process Description

Material Recovery Facilities (MRFs, such as those operated by organic waste operators at landfills) handle non-hazardous general waste, including municipal solid waste (MSW), recyclable materials, green waste (composting), and construction and demolition (C&D) debris. Composting Operations are separately covered in chapter 11.9.

Material Recovery (MR) operations are generally made up a number of sources of air pollution which store, convey, measure, and discharge the non-hazardous general wastes. The following sources at the MRFs shall be permitted:

Paper/Cardboard sorting line, with conveyors and screens (conveyors can be grouped together as one source if they are in the same general area, but any screens should be permitted separately)

Metal/Plastic/Glass sorting line, with conveyors, screens (conveyors can be grouped together as one source if they are in the same general area, but any screens should be permitted separately)

Residue/Trash Sorting Line, with conveyors (conveyors can be grouped together as one source if they are in the same general area, but any screens should be permitted separately)

Construction and Demolition (C&D) material processing (conveyors can be grouped together as one source if they are in the same general area, but any screens should be permitted separately)

Completeness Determination

The following Air District forms should be completed and fees provided for the MR operations. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

- | | |
|--|---|
| 1. Form 101-B (one for facility). | 5. Form A (one per device) for any particulate abatement device (i.e., baghouse). |
| 2. Form G (one per source). Note the number of transfer points in the description, where applicable. | 6. If Health Risk Assessment is triggered, Form HRA (one per source). |
| 3. Process Diagram and Map of the Material Recovery Operation sources. | 7. Fees, calculated per Regulation 3 (Schedule F for all sources). |
| 4. Form A for any watering system (one per facility) | |

Emission Calculations

The storage of the material handling stockpile will be the primary sources for precursor organic compounds (POC). Particulate emissions are primarily from wind erosion from the static piles, the storage and handling of stockpiles at the facility, and associated vehicle traffic.

VOC Emissions

Organic emissions from stockpiling operations are due to the biological degradation of materials from the process. Emission factors are based on the results from stockpiling operations presented in the California Air Resource Board (CARB) report “ARB Emissions Inventory Methodology for Composting Facilities” dated March 2, 2015. For the static (feedstock) stockpiles, the VOC emission factor of 0.2 lb of VOC per wet ton per day may be used based on the CARB Report, Table III-1.

$$\text{Stockpile Emission Factor for VOC (unabated)} = (0.2 \text{ lb/wet ton})$$

In most Bay Area cities, residential recyclables (metal, glass, plastic, paper, and old corrugated cardboard (OCC)) have been source-separated from MSW and put into the recycle bins before curb collection and then sent to the nearby MRF facilities. The recyclables processed by the conveyors and screens would have very

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low PM emissions. As stated in the [EPA AP-42 Section 13.2.4.3](#), aggregate handling emission factors, “it is reasonable to expect that the silt content and emission factors are interrelated”, since the silt content of the recyclables generally are low, handling the recyclables in the screening and conveying processes does not generate much dust in the work area.

The particulate matter emission factor for handling of the recyclables is from [AP-42 Section 13.2.4 Aggregate Handling and Storage Piles Table 13.2.4-1, November 2006 version](#).

The following equation may be used for estimation of particulate emissions during a batch drop of materials, such as adding material to stockpile or removing it from a stockpile and dropping it into a truck. This equation will be used to estimate particulate emissions due to material handling.

$$E = k(0.0032) \left[\frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \right]$$

Where

E = emission factor (lb/ton)

k = particle size multiplier = 0.35, for PM₁₀, 0.053 for PM_{2.5}

U = mean wind speed (mph) = 2.27 (SCAQMD inward face velocity requirement of 200 ft/min for MRF with 5% enclosure openings)

M = material moisture content (%) = typical value of 6% for paper, 5% for OCC ⁴²

M = material moisture content (%) = typical value 2% for plastic, glass and metal²

M = material moisture content (%) = 11% for residue (residential rubbish)

([AP-42 Table 13.2.4-1](#), misc. MSW fill materials)

E (PM₁₀) = 0.35*(0.0032)*[(2.27/5)^{1.3}]/[(6/2)^{1.4}] = 0.000086 lb/ton for paper-transfer point

E (PM₁₀) = 0.35*(0.0032)*[(2.27/5)^{1.3}]/[(5/2)^{1.4}] = 0.000111 lb/ton for OCC-transfer point

E (PM₁₀) = 0.35*(0.0032)*[(2.27/5)^{1.3}]/[(2/2)^{1.4}] = 0.000401 lb/ton for plastic, glass and metal-transfer point

E (PM₁₀) = 0.35*(0.0032)*[(2.27/5)^{1.3}]/[(11/2)^{1.4}] = 0.000037 lb/ton for residue-transfer point

E (PM_{2.5}) = 0.053*(0.0032)*[(2.27/5)^{1.3}]/[(6/2)^{1.4}] = 1.305E-5 lb/ton for paper-transfer point

E (PM_{2.5}) = 0.053*(0.0032)*[(2.27/5)^{1.3}]/[(5/2)^{1.4}] = 1.685E-5 lb/ton for OCC-transfer point

E (PM_{2.5}) = 0.053*(0.0032)*[(2.27/5)^{1.3}]/[(2/2)^{1.4}] = 6.076E-5 lb/ton for Plastic, Glass and Metal-transfer point

E (PM_{2.5}) = 0.053*(0.0032)*[(2.27/5)^{1.3}]/[(11/2)^{1.4}] = 5.586E-6 lb/ton for Residue-transfer point

PM10 and PM2.5 Emissions from conveyors and screens

Conveyers and screen emission factors are from [EPA AP-42, Table 11.19.2-2, Crushed Stone Processing and Pulverized Mineral Processing](#). Since the moisture contents of the recyclables are greater than 1.5%, as indicated in AP-42 Chapter 11-19 which states wet material typically contains >1.5% water, controlled EFs are used here.

PM10 Emission Factor for screens = 0.00074 lb/ton-transfer point

PM10 Emission Factor for conveyors = 4.6 x 10⁻⁵ lb/ton-transfer point

PM2.5 Emission Factor for screens = 0.000050 lb/ton-transfer point

PM2.5 Emission Factor for conveyors = 1.3x 10⁻⁵ lb/ton-transfer point

² Table 4-1, Tchobanoglous G., Theisen H. and Vigil S.A. (1993) Integrated Solid Waste Management, Engineering Principles and Management Issues, McGraw-Hill.

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Total PM10 and PM2.5 Emissions for (metal, glass, plastic, paper, and OCC) Sorting Lines:

To determine the PM10 and PM2.5 emissions per day, multiply the quantity of each material processed by the emission factors for material handling and conveyors and screens and then multiply by the number of transfer points for the MRF source. To determine the PM10 emissions per year, multiply daily emission by 365.

PM Emissions from conveyor sort line and handling C&D waste

The particulate matter emission factor for handling of the C&D waste is from [AP-42 Section 13.2.4 Aggregate Handling and Storage Piles Table 13.2.4-1, November 2006 version](#).

The following equation may be used for estimation of particulate emissions during a batch drop of materials.

$$E = k(0.0032) \left[\frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \right]$$

Where

E = emission factor (lb/ton)

k = particle size multiplier = 0.35, for PM₁₀, 0.053 for PM_{2.5}

U = mean wind speed (mph) = 7.6⁴³

M = material moisture content (%) = 19.3% for C&D waste⁴⁴

E (PM₁₀) = 0.35*(0.0032)*[(7.6/5)^{1.3}]/[(19.3/2)^{1.4}] = 0.000081 lb/ton for C&D

E (PM_{2.5}) = 0.053*(0.0032)*[(7.6/5)^{1.3}]/[(19.3/2)^{1.4}] = 1.22E-5 lb/ton for C&D

Total PM10 and PM2.5 Emissions from conveyor sort line and handling C&D waste:

To determine the PM10 and PM2.5 emissions per day, multiply the quantity of material processed by the emission factor and then multiply by the number of transfer points for the MRF source. To determine the PM10 emissions per year, multiply daily emission by 365.

PM10 and PM2.5 Emissions From Road Dust:

Emissions from vehicle traffic on paved and/or unpaved roads to and from the storage piles should also be accounted in the emissions for the storage piles. A paved roads emission factor equation is provided in [Chapter 13.2.1, Paved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#) for vehicles traveling on paved surfaces at industrial sites:

$$E = k(sL)^{0.91}(W)^{1.02} \text{ lb/VMT} \quad [\text{Equation 1}]$$

An unpaved roads emission factor equation is provided in [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#) for vehicles traveling on unpaved surfaces at industrial sites:

$$E = k(s/12)^a(W/3)^b((365-P)/365) \text{ lb/VMT} \quad [\text{Equation 1a}]$$

and for vehicles traveling on publicly accessible roads, dominated by light duty vehicles:

$$E = [k(s/12)^a(S/30)^d/(M/0.5)^c - C]((365-P)/365) \text{ lb/VMT} \quad [\text{Equation 1b}]$$

The following provides an explanation of the variables in the equation and the average values recommended for use (only if actual more specific and precise values are not available), if the source-specific values are not known:

⁴³ <https://wind.willyweather.com/ca/alameda-county/pleasanton.html>

³ Asakura, et al. (2010). Characteristics of fine processed construction and demolition waste in Japan and method to obtain fines having low gypsum component and wood contents. *Waste Management & Research*, 28(7), 634-646.

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E = Emission Factor (lb/VMT)

k = Particle size multiplier (dimensionless); for PM₁₀, k=0.0022 for Equation 1

k = 1.5 for Equation 1a, 1.8 for Equation 1.b

for PM_{2.5}, k = 0.00054 for Equation 1, k = 0.15 for Equation 1a, 0.18 for Equation 1.b

sL = road surface silt loading; sL = 70 g/m²

a = Empirical Constants; a = 0.9 for Equation 1a, 1 for Equation 1b

b = Empirical Constants; b = 0.45

c = Empirical Constants; c = 0.2 for Equation 1b

d = Empirical Constants; d = 0.5 for Equation 1b

s = Silt content of road surface (%); s = See Table 13.2.2-1⁴⁵ and use the mean value for the applicable industry. (For example, for stone and gravel processing s=4.8 for plant roads, 7.1 for material storage areas.)

W = Mean vehicle weight (tons); W = 21 tons for Equation 1,

W=146 tons for Equation 1a, 2 tons for Equation 1b

M = surface material moisture content (%); M = 6.5

S = Mean vehicle speed (mph); S = 24 for Equation 1a, 33 for Equation 1b

C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear;

for PM₁₀, C = 0.00047⁴⁶ and for PM_{2.5}, C= 0.00036³¹

P = Number of days with greater than, or equal to, 0.01 inches of precipitation per year; 70⁴⁷

For example, the PM₁₀ and PM_{2.5} emission factors used for paved roads are calculated as follows:

$$E_1 (\text{PM}_{10}) = 0.0022(12)^{0.91}(21)^{1.02}$$

$$E_1 (\text{PM}_{10}) = \mathbf{0.47 \text{ lb/VMT}}$$

$$E_1 (\text{PM}_{2.5}) = 0.00054(12)^{0.91}(21)^{1.02}$$

$$E_1 (\text{PM}_{2.5}) = \mathbf{0.12 \text{ lb/VMT}}$$

The PM₁₀ and PM_{2.5} emission factors used for unpaved roads at industrial sites are calculated as follows:

$$E_{1a} (\text{PM}_{10}) = (1.5)(4.8/12)^{0.9}(146/3)^{0.45}(365-70/365)$$

$$E_{1a} (\text{PM}_{10}) = \mathbf{3.05 \text{ lb/VMT}}$$

$$E_{1a} (\text{PM}_{2.5}) = (0.15)(4.8/12)^{0.9}(146/3)^{0.45}(365-70/365)$$

$$E_{1a} (\text{PM}_{2.5}) = \mathbf{0.31 \text{ lb/VMT}}$$

The permit evaluator should determine which emission factor equation (1, 1a, or 1b) is most appropriate depending on the unpaved surfaces or roads where the sources will be situated. The permit evaluator should also obtain information from the applicant regarding the maximum vehicle weight and miles traveled per year by all vehicles involved on driving on the unpaved roads at the facility. If watering is used to suppress dust, a maximum abatement efficiency of 70% may be used. If chemical dust suppressants are used, a maximum abatement efficiency of 80% may be used⁴⁸.

Furthermore, if railcars or ships are involved in the transportation of materials, then also the combustion emissions from the use of these transport vehicles should also be calculated and included in the facilities cumulative increase.

Toxic Air Contaminants

⁴⁵ [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 3.

⁴⁶ [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 6.

⁴⁷ [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 9.

⁴⁸ [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 13.

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Ammonia

During the stockpiling operations, ammonia (NH₃) is formed from the biological degradation process. For the stockpiles, an emission factor of 0.02 lb/wet ton-day was derived based on factors used in the [CARB report](#). For a conservative estimate, the abatement efficiency of 0%, presented in the CARB report Table III-3 for a static pile with no biofilter, will be used for the stockpiles.

$$\begin{aligned} \text{Stockpile Emission Factor for NH}_3(\text{unabated}) &= (0.02 \text{ lb/wet ton}) \\ \text{Emissions} &= (\text{Emission Factor}) \times (\text{Throughput}) \times (\text{Storage period}) \end{aligned}$$

Toxic Air Contaminants from VOCs

Organic emissions from stockpiling operations are due to the biological degradation of materials from the process. For the static stockpiles, the VOC emission factor of 0.2 lb of VOC per wet ton per day may be used based on the [CARB Report, Table III-1: Recommend Emission Factors for Greenwaste and Food Waste](#).

A summary of the toxic air contaminants in VOC weight fractions, derived from multiple source tests, are provided in the following tables:

Table I: Summary of Toxic Air Contaminants from VOCs

Table I-1: Feedstock Pile - Green Waste Only

Toxic Air Contaminant	Weight Fraction ⁴ , lb TAC/lb VOC
Acetone	1.44E-02
1,4-Dichlorobenzene	1.98E-04
2-Propanol (Isopropyl alcohol, IPA)	1.72E-04
Acetaldehyde	1.21E-02
Allyl Chloride (3-Chloropropene)	5.95E-05
Benzene	8.20E-05
Carbon disulfide	6.02E-05
Chloroethane	6.77E-05
Chloroform	1.25E-04
Ethylbenzene	1.02E-04
Ethylene Dichloride (1,2-dichloroethane)	8.16E-05
Hexane	1.66E-04
Methanol (Methyl alcohol)	4.66E-02
Methyl Ethyl Ketone (2-butanone)	5.49E-03
Naphthalene	9.14E-05
Propene (Propylene)	1.72E-04
Styrene	2.31E-04
Toluene	2.41E-04
Vinyl acetate	5.87E-03
Xylenes	1.03E-04

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Table I-2: Feedstock Pile - Food Waste and Green Waste

Toxic Air Contaminant	Weight Fraction ⁴ , lb TAC/lb VOC
Acetone	8.25E-03
1,4-Dichlorobenzene	4.21E-04
2-Propanol (Isopropyl alcohol, IPA)	1.13E-03
Acetaldehyde	8.96E-02
Allyl Chloride (3-Chloropropene)	2.19E-04
Benzene	2.24E-04
Carbon disulfide	2.18E-04
Chloroethane	1.85E-04
Chloroform	3.42E-04
Ethylbenzene	3.04E-04
Ethylene Dichloride (1,2-dichloroethane)	2.84E-04
Hexane	7.86E-03
Methanol (Methyl alcohol)	9.68E-02
Methyl Ethyl Ketone (2-butanone)	5.36E-02
Naphthalene	2.81E-04
Propene (Propylene)	9.45E-05
Styrene	2.98E-04
Toluene	2.64E-04
Vinyl acetate	1.45E-02
Xylenes	3.15E-04

Applicable Requirements

Air District Rules and Regulations

Regulation 6, Rule 1: Particulate Matter – General Requirements

The facility is expected to comply with Regulation 6-1-301 Ringelmann No. 1 Limitation, 6-1-305 Visible Particles.

Regulation 6-1-311 does not apply to sources at this facility because these sources are Type B (fugitive) sources, which do not have a vent that is of regular geometry that can be modified/enclosed to conduct source test using approved methods. The Staff Report for Regulation 6-1 indicates that Sections 6-1-310, 311, 320, and 330 apply only to sources with a Type A emissions point.

Regulation 6, Rule 6: Prohibition of Trackout

BAAQMD Regulation 6, Rule 6 was adopted in 2018. The purpose of this Rule is to limit the quantity of particulate matter in the atmosphere through control of trackout of solid materials onto paved public roads outside the boundaries of Large Bulk Material Sites, Large Construction Sites, and Large Disturbed Surface sites including landfills. Pleasanton Garbage Service is subject to this new rule. The requirements of the Rule will be enforced through the permit conditions.

Regulation 7, Rule 1: Odorous Substances

This material recovery facility and transfer station operation is not expected to be violating this regulation as shown in the attached Transfer Processing Report, provided that the facility has and follows an Odor Impact Minimization Plan (OIMP). The OIMP includes an odor monitoring protocol, an odor complaint response protocol, and design considerations and procedures to minimize odors. Each operating day the operator would

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do site inspection and temperature reading at the stockpiles. If questionable on-site odors are detected by site personnel, operations personnel will investigate and determine the likely source of the odor and access of on-site management practices to resolve the odor event and take steps to reduce the odor-generating capacity of the on-site material. For example, for odors generated after running the stockpile, the operator would choose to increase turning frequency, increase pile porosity, add odor-absorbing amendment like sawdust.

Regulation 8, Rule 2: Miscellaneous Operations

Organic emissions from miscellaneous operations that are not subject to any other Regulation 8 rules may be subject to Regulation 8, Rule 2, Section 301. However, this section only applies to sources with organic emissions emitted from a stack. Since it is not possible to conduct source testing on fugitive organic emission sources, such as the greenwaste stockpiles and the MSW storage and handling operations, to assess compliance with the Regulation 8-2-301 total carbon concentration limit, these sources are not subject to Regulation 8-2-301.

Best Available Control Technology (BACT)

BACT for the particulate sources at MRF are not yet specified in the [BACT/TBACT Workbook](#).

Inform the BACT Coordinator of updates to the [BACT/TBACT Workbook](#).

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|--|---|
| ☐ Offsets | ☐ Health Risk Assessment |
| ☐ Prevention of Significant Deterioration | ☐ Overburdened Communities |
| ☐ School Notification | |

Permit Conditions

Standardized conditions for crushing and grinding equipment are available from the [Permit Condition Guidance](#). Refer to the [Evaluation Report Template Guidance](#) to obtain the Microsoft Word formatted permit conditions for this source category.

11.16 COMPOSTING OPERATIONS

December 15, 2023

Process Description

Composting is the deliberate decomposition of yard waste or other solid waste (such as food wastes), resulting in a humus-like substance beneficial to the soil. Composting also serves as an alternative to landfilling reusable resources. The resulting compost is a mixture of ingredients used to fertilize and improve the soil. The resulting mixture is rich in plant nutrients and beneficial organisms, such as worms and fungal mycelium.

Composting operations are generally made up of organic material stockpiles. The descriptions of the composting sources should include descriptions of the material stored in the storage piles and whether the storage piles are covered and abated to reduce the potential particulate (PM10 and PM2.5) and organic emissions. Biofilters are used for controlling odorous and volatile organic compound air emissions from composting operations. They work based on the concept of an active biological film supported by a substrate – the same principle as composting. The volatile compounds are absorbed on to the surface of the media and bio-oxidized by the microbes present. As long as the media is appropriate, installed in a manner that does not allow the air flow to channel or short-circuit, and the moisture and temperature levels are maintained, biofilters work very efficiently to oxidize a broad spectrum of volatile chemicals at low part-per-million concentrations.

In a covered aerated static pile (CASP) composting operation, pre-processed, water conditioned feedstock will be placed over an aeration system consisting of in-floor perforated channels connected to blowers to force air into the active compost piles. Since this forced air system eliminates or reduces the need to mechanically turn the active compost piles for aeration, the particulate emissions generated during turning the piles are reduced/eliminated, and the potential for odors from disturbing the compost piles is reduced. The other emission reduction associated with the conversion from windrow composting to CASP composting is that the active, aerated compost piles will be covered with a layer of mature compost or other biofilter media. The biofilter abates organic and ammonia emissions, generated from the decomposition of waste feedstock, through physical scrubbing action and microbial activity. If properly operated, the use of a biofilter has been shown to greatly reduce odors and emissions of organic compounds and ammonia from the active composting phase. Abatement by water spray is common to reduce particulate emissions and ensure composting and biofilter media is maintained at the correct moisture content.

Through temperature monitoring of the CASP, the operator can assess if more air should be introduced to an active compost pile to cool the pile if reaching the top end of the temperature range and to maintain aerobic conditions. Temperatures in the range of 130 to 140 °F are referenced as ideal conditions for active composting. In addition to monitoring temperature and adjusting aeration, adequate moisture in the biofilter cover and initial feedstock is necessary for optimum microbial activity. Without adequate moisture, microbial activity is inhibited – the feedstock does not compost and the biofilter does not effectively reduce emissions from the active composting phase, as represented.

Completion of the active composting stage is signaled by a consistent drop in or stabilization of pile temperature below 122 °F at the end of a well-operated active stage period of about 22 days. Ideally, the stabilized material is removed from the forced air system and biofilter cover and placed into separate stockpiles for curing when most of the decomposition of organic matter has finished and the temperature has stabilized. The decomposition process does continue to a lesser degree during the curing phase. Some compost operations either aerate the curing piles or periodically turn the curing piles to maintain oxygen levels necessary to prevent anaerobic conditions and reduce pile temperature. The addition of water may also be necessary to maintain biological activity in the curing piles and to reduce temperature. The curing phase can last from 40 days to several months depending on the stability of material at the end of the active phase and the maturity requirements of the compost product.

The active and curing phases should be permitted as separate sources as well as the feedstock piles and finished compost, because they each have different emissions. The following are typical descriptions of composting sources:

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- S-# Feedstock Pile, Green Waste Only, abated by A-# Water Spray
tons/day and ### tpy of green waste
- S-# Feedstock Pile, Food Waste and Green Waste, abated by A-# Water Spray,
tons/day and ### tpy of food waste and green waste
- S-# Compost – Active Phase, ## acres maximum capacity
tons/day and ## tpy of composting green waste and food waste
Abated by
- A-# Biofilter, a minimum of 6 inches thick, consisting of wood chips, screenings of bulk grindings, 4-6
inches in size with forced positive aeration, and by
- A-# Water Spray
- S-# Compost – Curing Phase, ## acres maximum capacity
tons/day and ## tpy of composting green waste and food waste
- S-# Finished Compost, ## acres maximum capacity
tons/day and ## tpy of composting green waste and food waste

Completeness Determination

The following Air District forms should be completed and fees provided for the MR operations. Use the [Completeness Determination Checklist](#) to verify completeness. Use the [Data Form Guidance](#) to ensure that the forms are completed correctly. Use the [Fee Calculation Guidance](#) to ensure that the fees are calculated accurately.

1. Form 101-B (one for facility).
2. Form G (one per source).
3. Process Diagram and Map of the Composting Operation source(s).
4. Form A for any watering system (one per facility)
5. Form A (one per device) for biofilter for each composting source which uses one.
6. If Health Risk Assessment is triggered, Form HRA (one per source).
7. Fees, calculated per Regulation 3 (Schedule G-1 for the composting sources (for both Active Phase and Curing Phase) and F for other sources).

Emission Calculations

The storage of the material handling stockpile and the biological process involved with the composting operations will be the primary sources for precursor organic compounds (POC). Particulate emissions are primarily from wind erosion from the static piles, the storage and handling of stockpiles at the facility, and associated vehicle traffic.

VOC Emissions

Organic emissions from composting operations are due to the aeration and biological degradation of materials from the process. Emission factors are based on the results from composting operations presented in the [California Air Resource Board \(CARB\) report "ARB Emissions Inventory Methodology for Composting Facilities" dated March 2, 2015](#). For composting operations, the VOC emission factor of 3.58 lb/wet ton may be used for green waste and food waste, as indicated in [Table III-1: Recommended Emission Factors for Greenwaste and Foodwaste of the CARB report](#). In [Appendix A, Table A-1](#), the emission factor approved by San Joaquin Valley Air Pollution Control District (SJVAPCD) and the South Coast Air Quality Monitoring District (SCAQMD) indicates a windrow emission factor of 5.71 lb VOC/wet ton for green waste, food waste, and grape pomace.

For the static (feedstock) stockpiles, the VOC emission factor of 0.2 lb of VOC per wet ton per day may be used based on the [CARB Report, Table III-1](#).

Acetone is a non-precursor organic compound (NPOC) that needs to be subtracted from the VOC emissions to determine the emissions for POCs. The calculation of acetone emissions is explained in the [Toxic Air Contaminants from VOCs](#) section later in this chapter.

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As for the abatement factors, studies conducted in the South Coast and San Joaquin Valley Air Districts indicate that a CASP system accompanied by biofiltration reduces VOC emissions by up to 90% as compared to uncontrolled windrow operations. For a conservative estimate, VOC emissions will be reduced by 80% during the active phase with a biofilter in place. A reduction factor will not be applied to the curing phase or the static stockpiles.

$$\text{Composting Emission Factor for VOC (unabated)} = (5.71 \text{ lb/wet ton})$$

$$\begin{aligned} \text{Composting Emission Factor for VOC (abated by biofilter on active phase)} \\ = (5.71 \text{ lb/wet ton}) \times [(90\% \times (1 - 80\%) + (10\%))] = 1.5988 \text{ lb/wet ton} \end{aligned}$$

$$\text{Stockpile Emission Factor for VOC (unabated)} = (0.2 \text{ lb/wet ton})$$

The emission calculations for POC and NPOC are presented below:

$$\text{Emissions} = (\text{Emission Factor}) \times (\text{Throughput}) \times (\text{Storage period})$$

Particulate Matter

Particulate matter (PM) emissions will be generated during material handling and storage. No specific PM emission factors are available for waste feedstock and compost product handling activities. The Air District has used AP-42's aggregate handling ([Chapter 13.2.4](#)) and crushed stone processing ([Chapter 11.19.2](#)) emissions factors for similar applications to estimate emissions from waste feedstock and compost handling activities. Note that using these factors for waste handling emissions will result in conservative estimates because the moisture content in aggregate and crushed stone is less than 4.8% and 2.88%, respectively, whereas the moisture content in waste feedstock and compost product is higher than 30%.

PM10 and PM2.5 Emissions From Material Handling:

PM emissions for storage piles include emissions from vehicle and equipment traffic on paved and unpaved roads to and from storage piles, emissions from material transfer to and from the piles, emissions from wind erosion, and combustion emissions from cargo carriers (locomotives and marine vessels). Emissions from vehicle and equipment traffic associated with stockpiles must be included in PM emissions, such as emissions from vehicle and equipment traffic between active composting and curing piles.

The particulate matter emission factor for handling of the material for composting is from [AP-42 Section 13.2.4 Aggregate Handling and Storage Piles Table 13.2.4-1, November 2006](#). The following equation is used for estimation of particulate emissions during a batch drop of aggregate materials, such as adding material to stockpile or removing it from a stockpile and dropping it into a truck. Lacking any more appropriate data, this equation will be used to estimate particulate emissions due to the batch drop of fresh and shredded green waste, wood waste, and compost as the material moves through each processing stage. The equation is appropriate for material silt contents ranging from 0.44%-19%. From [Table 13.2.4-1](#), silt content for miscellaneous landfill fill materials is about 12%. The maximum moisture content for use in the equation is 4.8%. As indicated earlier, using these factors for waste handling emissions will result in conservative estimates because the moisture content in waste feedstock and compost product is higher than 30%.

$$E = k(0.0032) \left[\frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \right]$$

Where,

E = emission factor (lb/ton)

k = particle size multiplier = 0.35, for PM₁₀, 0.053 for PM_{2.5}

U = mean wind speed (mph) = 8 mph

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M = material moisture content (%) = 4.8%

$$E (PM_{10}) = 0.35 * (0.0032) * [(8/5)^{1.3}] / [(4.8/2)^{1.4}] = 0.00061 \text{ lb/ton-transfer point}$$

$$E (PM_{2.5}) = 0.053 * (0.0032) * [(8/5)^{1.3}] / [(4.8/2)^{1.4}] = 0.000092 \text{ lb/ton-transfer point}$$

To determine the PM10 and PM2.5 emissions per day, multiple the quantity of material processed per day by the emission factor and then multiply by the number of transfer points for the source. To determine the PM10 and PM2.5 emissions per year, multiply daily emission by 365.

$$\text{Emissions} = (\text{Emission Factor}) \times (\text{Throughput}) \times (\text{Transfer Points})$$

Wind Erosion Emission Factor

It has been determined that [AP-42 Chapter 13.2.5 \(Industrial Wind Erosion\)](#) is not appropriate for use with stockpiles or composting operations. Chapter 13.2.5 uses assumptions regarding the wind speed with a larger, completely exposed, and dry stockpile. The feed stockpiles and composting operations have a higher moisture content than coal, which is the basis for Chapter 13.2.5. The emission calculations from [AP-42 Chapter 11.9-4 \(Western States Coal Mining\)](#) is more appropriate given the material and situation at the facility.

AP-42 Table 11.9-4 specifies an emission factor of 0.38 tons of total suspended solids (TSP) per acre per year. The particle size multiplier used to calculate PM10 and PM2.5 is based on the multiplier from AP-42 Section 13.2.4-1. An abatement factor of 70% will be applied to the emission calculations due to the high moisture content from food waste.

$$\text{Particle Size Multiplier } (PM_{10}) = 0.35$$

$$\text{Particle Size Multiplier } (PM_{2.5}) = 0.053$$

Wind Erosion Emissions (TSP)

$$= \left(\frac{0.38 \text{ tons TSP}}{\text{acre} - \text{year}} \right) \times (\text{## acre}) \times \left(\frac{2,000 \text{ lb}}{\text{ton}} \right) \div \left(\frac{365 \text{ days}}{\text{year}} \right) \times (1 - 70\%)$$

$$\text{Daily Emissions } (PM_{10}) = 0.35 \times (\text{TSP lb / day})$$

$$\text{Daily Emissions } (PM_{2.5}) = 0.053 \times (\text{TSP lb / day})$$

To determine the PM10 and PM2.5 emissions per year, multiply daily emission by 365.

PM10 and PM2.5 Emissions From Road Dust:

Emissions from vehicle traffic on paved and/or unpaved roads to and from the storage piles should also be accounted in the emissions for the storage piles. A paved roads emission factor equation is provided in [Chapter 13.2.1, Paved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#) for vehicles traveling on paved surfaces at industrial sites:

$$E = k(sL)^{0.91}(W)^{1.02} \text{ lb/VMT} \quad [\text{Equation 1}]$$

An unpaved roads emission factor equation is provided in [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#) for vehicles traveling on unpaved surfaces at industrial sites:

$$E = k(s/12)^a(W/3)^b((365-P)/365)) \text{ lb/VMT} \quad [\text{Equation 1a}]$$

and for vehicles traveling on publicly accessible roads, dominated by light duty vehicles:

$$E = [k(s/12)^a(S/30)^d/(M/0.5)^c - C]((365-P)/365)) \text{ lb/VMT} \quad [\text{Equation 1b}]$$

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The following provides an explanation of the variables in the equation and the average values recommended for use (only if actual more specific and precise values are not available), if the source-specific values are not known:

E = Emission Factor (lb/VMT)
 k = Particle size multiplier (dimensionless); for PM₁₀, k=0.0022 for Equation 1
 k = 1.5 for Equation 1a, 1.8 for Equation 1b
 for PM_{2.5}, k = 0.00054 for Equation 1, k = 0.15 for Equation 1a, 0.18 for Equation 1b
 sL = road surface silt loading; sL = 7.4 g/m² (mean silt loading for municipal solid waste landfills)⁴⁹
 a = Empirical Constants; a = 0.9 for Equation 1a, 1 for Equation 1b
 b = Empirical Constants; b = 0.45
 c = Empirical Constants; c = 0.2 for Equation 1b
 d = Empirical Constants; d = 0.5 for Equation 1b
 s = Silt content of road surface (%); s = See Table 13.2.2-1⁵⁰ and use the mean value for the applicable industry. (For example, for stone and gravel processing s=4.8 for plant roads, 7.1 for material storage areas.)
 W = Mean vehicle weight (tons); W = 21 tons for Equation 1,
 W=146 tons for Equation 1a, 2 tons for Equation 1b
 M = surface material moisture content (%); M = 6.5
 S = Mean vehicle speed (mph); S = 24 for Equation 1a, 33 for Equation 1b
 C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear;
 for PM₁₀, C = 0.00047⁵¹ and for PM_{2.5}, C= 0.00036³¹
 P = Number of days with greater than, or equal to, 0.01 inches of precipitation per year; 70⁵²

For example, the PM₁₀ and PM_{2.5} emission factors used for paved roads are calculated as follows:

$$E_1 (\text{PM}_{10}) = 0.0022(7.4)^{0.91}(21)^{1.02}$$

E₁ (PM₁₀) = 0.30 lb/VMT

$$E_1 (\text{PM}_{2.5}) = 0.00054(7.4)^{0.91}(21)^{1.02}$$

E₁ (PM_{2.5}) = 0.074 lb/VMT

The PM₁₀ and PM_{2.5} emission factors used for unpaved roads at industrial sites are calculated as follows:

$$E_{1a} (\text{PM}_{10}) = (1.5)(4.8/12)^{0.9}(146/3)^{0.45}(365-70/365)$$

E_{1a} (PM₁₀) = 3.05 lb/VMT

$$E_{1a} (\text{PM}_{2.5}) = (0.15)(4.8/12)^{0.9}(146/3)^{0.45}(365-70/365)$$

E_{1a} (PM_{2.5}) = 0.31 lb/VMT

$$\text{Emissions} = (\text{Emission Factor}) \times (\text{VMT Throughput})$$

The permit evaluator should determine which emission factor equation (1, 1a, or 1b) is most appropriate depending on the unpaved surfaces or roads where the sources will be situated. The permit evaluator should also obtain information from the applicant regarding the maximum vehicle weight and miles traveled per year by all vehicles involved on driving on the unpaved roads at the facility. If watering is

⁴⁹ [Chapter 13.2.1, Paved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#)

⁵⁰ [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 3.

⁵¹ [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 6.

⁵² [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 9.

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used to suppress dust, a maximum abatement efficiency of 70% may be used. If chemical dust suppressants are used, a maximum abatement efficiency of 80% may be used⁵³.

Furthermore, if railcars or ships are involved in the transportation of materials, then also the combustion emissions from the use of these transport vehicles should also be calculated and included in the facilities cumulative increase.

Toxic Air Contaminants

Ammonia

During the composting operations, ammonia (NH₃) is formed from the biological degradation process. Emission factors are based on the results from composting operations presented in [the CARB report “ARB Emissions Inventory Methodology for Composting Facilities” dated March 2, 2015](#). A factor of 0.78 pounds of NH₃ per wet ton of material is used for composting. 70% of the NH₃ emissions (0.546 lb/wet-ton) occur in the active phase of composting and 30% of the NH₃ emissions (0.234 lb/wet-ton) occur in the curing phase. From Table III-3: Control Techniques for Composting Operations in the [CARB report](#), positive aerated static piles with a biofilter cover can reduce NH₃ emissions by 53%:

$$\text{Composting Emission Factor for NH}_3(\text{unabated}) = (0.78 \text{ lb/wet ton})$$

$$\begin{aligned} \text{Composting Emission Factor for NH}_3(\text{abated by biofilter in active phase}) \\ = (0.78 \text{ lb/wet ton}) \times [(70\% \times (1 - 53\%) + (30\%))] = 0.49062 \text{ lb/wet ton} \end{aligned}$$

For the stockpiles, an emission factor of 0.02 lb/wet ton-day was derived based on factors used in the [CARB report](#). For a conservative estimate, the abatement efficiency of 0%, presented in the CARB report Table III-3 for a static pile with no biofilter, will be used for the stockpiles.

$$\begin{aligned} \text{Stockpile Emission Factor for NH}_3(\text{unabated}) &= (0.02 \text{ lb/wet ton}) \\ \text{Emissions} &= (\text{Emission Factor}) \times (\text{Throughput}) \times (\text{Storage period}) \end{aligned}$$

Toxic Air Contaminants from VOCs

Organic emissions from composting operations are due to the aeration and biological degradation of materials from the process. Emission factors are based on the results from composting operations presented in the [California Air Resource Board \(CARB\) report “ARB Emissions Inventory Methodology for Composting Facilities” dated March 2, 2015](#). For composting operations, the VOC emission factor of 3.58 lb/wet ton may be used for green waste and food waste, as indicated in [Table III-of the CARB report](#). In [Appendix A, Table A-1](#), the emission factor approved by San Joaquin Valley Air Pollution Control District (SJVAPCD) and the South Coast Air Quality Monitoring District (SCAQMD) indicates a windrow emission factor of 5.71 lb VOC/wet ton for green waste, food waste, and grape pomace.

For the static stockpiles, the VOC emission factor of 0.2 lb of VOC per wet ton per day may be used based on the [CARB Report, Table III-1: Recommend Emission Factors for Greenwaste and Food Waste](#).

Acetone is a non-precursor organic compound (NPOC) that needs to be subtracted from the VOC emissions to determine the emissions for POCs. For the composting operations, 0.47% of acetone per pound of VOC is based on the [University of California, Davis article titled “Volatile Organic Compound Emissions from Green Waste Composting: Characterization and Ozone Formation”](#). In addition, source test data from multiple facilities for composting and stockpiles is available to quantify acetone and other TACs.

A summary of the toxic air contaminants in VOC weight fractions, derived from multiple source tests, are provided in the following tables:

Table I: Summary of Toxic Air Contaminants from VOCs

⁵³ [Chapter 13.2.2, Unpaved Roads](#) of [AP-42 \(Fifth Edition, Volume I\)](#), pg. 13.

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Table I-1: Feedstock Pile - Green Waste Only

Toxic Air Contaminant	Weight Fraction ⁴ , lb TAC/lb VOC
Acetone	1.44E-02
1,4-Dichlorobenzene	1.98E-04
2-Propanol (Isopropyl alcohol, IPA)	1.72E-04
Acetaldehyde	1.21E-02
Allyl Chloride (3-Chloropropene)	5.95E-05
Benzene	8.20E-05
Carbon disulfide	6.02E-05
Chloroethane	6.77E-05
Chloroform	1.25E-04
Ethylbenzene	1.02E-04
Ethylene Dichloride (1,2-dichloroethane)	8.16E-05
Hexane	1.66E-04
Methanol (Methyl alcohol)	4.66E-02
Methyl Ethyl Ketone (2-butanone)	5.49E-03
Naphthalene	9.14E-05
Propene (Propylene)	1.72E-04
Styrene	2.31E-04
Toluene	2.41E-04
Vinyl acetate	5.87E-03
Xylenes	1.03E-04

Table I-2: Feedstock Pile - Food Waste and Green Waste

Toxic Air Contaminant	Weight Fraction ⁴ , lb TAC/lb VOC
Acetone	8.25E-03
1,4-Dichlorobenzene	4.21E-04
2-Propanol (Isopropyl alcohol, IPA)	1.13E-03
Acetaldehyde	8.96E-02
Allyl Chloride (3-Chloropropene)	2.19E-04
Benzene	2.24E-04
Carbon disulfide	2.18E-04
Chloroethane	1.85E-04
Chloroform	3.42E-04
Ethylbenzene	3.04E-04
Ethylene Dichloride (1,2-dichloroethane)	2.84E-04
Hexane	7.86E-03
Methanol (Methyl alcohol)	9.68E-02

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Table I-2: Feedstock Pile - Food Waste and Green Waste

Toxic Air Contaminant	Weight Fraction ⁴ , lb TAC/lb VOC
Methyl Ethyl Ketone (2-butanone)	5.36E-02
Naphthalene	2.81E-04
Propene (Propylene)	9.45E-05
Styrene	2.98E-04
Toluene	2.64E-04
Vinyl acetate	1.45E-02
Xylenes	3.15E-04

Table I-3: Compost - Active Phase

Toxic Air Contaminant	Weight Fraction ⁴ , lb TAC/lb VOC
Acetone	7.23E-02
1,4-Dichlorobenzene	2.22E-04
2-Propanol (Isopropyl alcohol, IPA)	2.59E-04
Acetaldehyde	4.29E-02
Allyl Chloride (3-Chloropropene)	1.08E-04
Benzene	1.60E-04
Carbon disulfide	3.74E-04
Chloroethane	8.30E-05
Chloroform	1.63E-04
Ethylbenzene	3.50E-04
Ethylene Dichloride (1,2-dichloroethane)	5.37E-04
Hexane	3.18E-04
Methanol (Methyl alcohol)	4.88E-02
Methyl Ethyl Ketone (2-butanone)	7.82E-02
Naphthalene	7.14E-04
Propene (Propylene)	5.89E-03
Styrene	3.53E-04
Toluene	6.30E-04
Vinyl acetate	3.01E-03
Xylenes	4.36E-04

Table I-4: Compost - Curing Phase

Toxic Air Contaminant	Weight Fraction ⁴ , lb TAC/lb VOC
Acetone	1.08E-01
1,4-Dichlorobenzene	6.10E-04

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Table I-4: Compost - Curing Phase

Toxic Air Contaminant	Weight Fraction ⁴ , lb TAC/lb VOC
2-Propanol (Isopropyl alcohol, IPA)	7.37E-04
Acetaldehyde	2.83E-02
Allyl Chloride (3-Chloropropene)	8.75E-04
Benzene	5.42E-04
Carbon disulfide	1.30E-03
Chloroethane	2.68E-04
Chloroform	4.99E-04
Ethylbenzene	8.06E-04
Ethylene Dichloride (1,2-dichloroethane)	5.78E-04
Hexane	6.42E-04
Methanol (Methyl alcohol)	3.07E-02
Methyl Ethyl Ketone (2-butanone)	3.77E-02
Naphthalene	1.12E-03
Propene (Propylene)	3.21E-02
Styrene	6.34E-04
Toluene	2.54E-03
Vinyl acetate	7.67E-04
Xylenes	1.24E-03

Table I-5: Finished Compost

Toxic Air Contaminant	Weight Fraction ⁴ , lb TAC/lb VOC
Acetone	4.86E-02
1,4-Dichlorobenzene	3.56E-03
2-Propanol (Isopropyl alcohol, IPA)	1.46E-03
Acetaldehyde	1.86E-02
Allyl Chloride (3-Chloropropene)	1.86E-03
Benzene	1.89E-03
Carbon disulfide	7.75E-03
Chloroethane	1.56E-03
Chloroform	2.89E-03
Ethylbenzene	2.57E-03
Ethylene Dichloride (1,2-dichloroethane)	2.40E-03
Hexane	2.09E-03
Methanol (Methyl alcohol)	7.77E-04
Methyl Ethyl Ketone (2-butanone)	1.75E-03
Naphthalene	3.11E-03
Propene (Propylene)	6.87E-02

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Table I-5: Finished Compost

Toxic Air Contaminant	Weight Fraction ⁴ , lb TAC/lb VOC
Styrene	2.53E-03
Toluene	6.96E-03
Vinyl acetate	2.09E-03
Xylenes	5.15E-03

A template spreadsheet is available for use in calculating the TACs from VOCs using the emission factors provided above.

Applicable Requirements

Air District Rules and Regulations

Regulation 6, Rule 1: Particulate Matter – General Requirements

The facility is expected to comply with Regulation 6-1-301 Ringelmann No. 1 Limitation, 6-1-305 Visible Particles as long as proper handling of the materials and composting operations. The requirements of the Rule will be enforced through the permit conditions.

Regulation 6-1-311 does not apply to sources at this facility because these sources are Type B (fugitive) sources, which do not have a vent that is of regular geometry that can be modified/enclosed to conduct source test using approved methods. The Staff Report for Regulation 6-1 indicates that Sections 6-1-310, 311, 320, and 330 apply only to sources with a Type A emissions point.

Regulation 6, Rule 6: Prohibition of Trackout

BAAQMD Regulation 6, Rule 6 was adopted in 2018. The purpose of this Rule is to limit the quantity of particulate matter in the atmosphere through control of trackout of solid materials onto paved public roads outside the boundaries of Large Bulk Material Sites, Large Construction Sites, and Large Disturbed Surface sites including landfills. Pleasanton Garbage Service is subject to this new rule. The requirements of the Rule will be enforced through the permit conditions.

Regulation 7, Rule 1: Odorous Substances

This material recovery facility and transfer station operation is not expected to be violating this regulation as shown in the attached Transfer Processing Report, provided that the facility has and follows an Odor Impact Minimization Plan (OIMP). The OIMP includes an odor monitoring protocol, an odor complaint response protocol, and design considerations and procedures to minimize odors. Each operating day the operator would do site inspection and temperature reading at the stockpiles. If questionable on-site odors are detected by site personal, operations personnel will investigate and determine the likely source of the odor and access of on-site management practices to resolve the odor event and take steps to reduce the odor-generating capacity of the on-site material. For example, for odors generated after running the stockpile, the operator would choose to increase turning frequency, increase pile porosity, add odor-absorbing amendment like sawdust.

Regulation 8, Rule 2: Miscellaneous Operations

Organic emissions from miscellaneous operations that are not subject to any other Regulation 8 rules may be subject to Regulation 8, Rule 2, Section 301. However, this section only applies to sources with organic emissions emitted from a stack. Since it is not possible to conduct source testing on fugitive organic emission sources, such as the green waste stockpiles and the MSW storage and handling operations, to assess compliance with the Regulation 8-2-301 total carbon concentration limit, these sources are not subject to Regulation 8-2-301.

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Regulation 9- Inorganic Compounds, Rule 2, Hydrogen Sulfide

The ground level concentration limit on hydrogen sulfide (H₂S) is 0.06 ppm average over 3 minutes or 0.03 ppm average over 60 minutes. H₂S is generated due to anaerobic decomposition of organic material. The production of H₂S is not anticipated as long as the facility maintains aerobic conditions at the sources. H₂S is usually detected by smell well before the concentrations approach the limits in Section 9-2-301. Both the facility and the Air District inspection staff should monitor for the potential compliance issues regarding hydrogen sulfide.

Best Available Control Technology (BACT)

BACT for Composting is specified in the BACT/TBACT Workbook.

Inform the BACT Coordinator of updates to the BACT/TBACT Workbook.

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the General Evaluation Guidance, which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

In addition to the above-mentioned source-specific applicable requirements, other requirements may also be applicable depending on the facility, its application emissions, and its source location:

- | | |
|---|--|
| ☐ <u>Offsets</u> | ☐ <u>Health Risk Assessment</u> |
| ☐ <u>Prevention of Significant Deterioration</u> | ☐ <u>Overburdened Communities</u> |
| ☐ <u>School Notification</u> | |

Permit Conditions

Standardized conditions for crushing and grinding equipment are available from the Permit Condition Guidance. Refer to the Evaluation Report Template Guidance to obtain the Microsoft Word formatted permit conditions for this source category.

12.1 BANKING

July 3, 2023

Process Description

This chapter covers applications for the banking of emission reduction credits for bankable pollutants, as defined in [Regulation 2-4-203](#), for applicants to obtain offsets required per [Regulation 2-2](#), Sections 302 and 303. Emission reduction credits are defined in Regulation 2-2-211:

- 2-2-211 Emission Reduction Credit:** Emission reductions associated with a physical change, change in method of operation, change in throughput or production, or other similar change at a source that are in excess of the reductions required by applicable regulatory requirements, and that are real, permanent, quantifiable, and enforceable, as calculated in accordance with Section 2-2-605.

In order to qualify for emission reduction credits, the emission reductions must be a bankable reduction as specified in the standards of Sections 301 through 305 of the Emission Banking rule ([Regulation 2-4](#)).

Completeness Determination

The following is required to complete a banking application:

1. Completed [Application for Emission Reduction Credits Form P-401](#) (one per application).
2. Documentation to verify emission reductions (such as operating logs, material purchase records, fuel use records, and/or source test results). Measurements and/or calculations before and after reductions are achieved, including a discussion of the calculations and/or measurement methods. The documentation should be for the 3-year period immediately preceding the submittal of a complete banking application (i.e., the baseline period). The emission reduction credit calculation procedures should be in accordance with [Regulation 2-2-605](#). For shutdown sources, the applicant must be able to demonstrate that the emission reductions from the shutdown source will not result in a similar increase of emissions at other sources in the Bay Area because of continued demand for the product or service, per Regulation 2-4-303.2.
3. Pay all applicable fees (filing fee and initial fee) for each permitted source for which emission reduction credits are being requested, per Regulation 3-311. The permit evaluator should review the facility's prior renewal invoice to verify the correct Schedule in Regulation 3 to use to calculate the applicable initial fees for the source(s) in the banking application.

Per [Regulation 2-4-402](#), the permit evaluator shall determine whether the banking application is complete not later than 30 calendar days following receipt of the application, or after a longer time period agreed upon in writing by both the applicant and the permit evaluator. If the permit evaluator determines that the application is not complete, the applicant shall be notified in writing that the application is incomplete.

The banking fees (filing fee and initial fee) for each permitted source for which emission reduction credits are being requested shall be calculated per Regulation 3-311. The permit evaluator should review the facility's prior renewal invoice to verify the correct Schedule in Regulation 3 to use to calculate the applicable initial fees for the source(s) in the banking application. The banking application fees could be quite high in comparison to the quantity of emission reduction credits available for banking.

In addition, [Regulation 2-4-303.5](#) prohibits banking of emission reductions at facilities belonging to companies that have received offsets of the same pollutant from the Small Facility Bank. Once those offsets have been reimbursed, the remaining emission reductions may be banked. Many applicants cancel after they receive the invoice and realize how much credit they will receive. The permit evaluator should review the applying facility's cumulative increase to see whether it has received offsets from the Small Facility Bank and notify the applicant, accordingly, and provide an invoice for all applicable fees and request additional documentation, if needed, to verify emission reductions, in the written notification to the applicant regarding the incomplete status of their application.

PERMIT HANDBOOK

The permit evaluator should make sure that applicant still wants to proceed ahead with their banking application by making sure that they have paid all invoiced fees and provided all requested documentation to complete their banking application.

If, at the end of 90 days from first notifying the applicant of their incomplete status, no requested documentation or fees are submitted and the application is still incomplete, the permit evaluator may cancel the banking application with written notification to the applicant, per [Regulation 2-4-402](#).

Emission Reduction Credit Calculations

[Regulation 2, Rule 4](#) governs Emissions Banking. The emission calculation procedure in Section 2-4-601 refers to the emission calculation procedures in Section 600 of [Regulation 2, Rule 2](#).

Below are the general steps of calculating emission reduction credits:

1. Determine baseline period.
2. Estimate baseline emissions using baseline throughput and baseline emission rate.
3. Adjust downward baseline throughout, emission rates, and/or emissions with any exceedance of a limit and/or a permit condition.
4. Adjust downward baseline throughout, emission rates, and/or emissions to comply with the most stringent of RACT, BARCT, and applicable District rules and regulations in effect or contained in the most recently adopted Clean Air Plan, if applicable.

Per Section 2-2-603.2, the baseline period consists of the 3-year period immediately preceding the submittal of a complete banking application.

Per Section 2-2-603.3, the baseline throughput is the lesser of (i) the actual average throughput during the baseline period or (ii) the average permitted throughput during the baseline period, if limited by a permit condition (excluding any throughputs and/or emissions that exceed any permit limits).

Per Section 2-2-603.4, the baseline emissions are the actual average annual emissions during the baseline period (excluding any emissions that exceed any regulatory or permit limits). If the applicant does not have sufficient verifiable records of the source's operation to substantiate the emission rate during any portion(s) of the baseline period, the applicant is not entitled to credit to emissions during any such periods.

Per Section 2-2-603.5, the baseline emission rate is the emission rate per unit of throughput during the baseline period, calculated by dividing the source's baseline emissions by its baseline throughput. If available, results of the source tests conducted within the baseline period may be used to determine the baseline emission rate. However, if only results of the tests conducted outside the baseline period are available, permit evaluator may use those results provided that it was for the same material and the source had not gone through any operational method change. If no source tests were conducted for the source, permit evaluator should use engineering judgment to determine if results of the tests conducted for another source can be used, with (and not limited to) the following considerations: the source test results are for the same source category, and same material.

Per Section 2-2-603.6, the baseline emission rate must be adjusted downward to comply with the most stringent of RACT, BARCT, and applicable District rules and regulations in effect or contained in the most recently adopted Clean Air Plan, if applicable. Per Regulation 2-2-225 RACT differs for sources that are going to continue to operate versus sources that will be shutdown.

Per Section 2-2-603.7, the adjusted baseline emissions are the adjusted baseline emission rate multiplied by the baseline throughput.

Regulation 2-2-605.2 defines ERCs as the difference between the adjusted baseline emissions before the change and the source's potential to emit after the change. For sources which are shut down, the potential to emit is zero.

PERMIT HANDBOOK

Regulation 2-4-602 and 603 provide the calculation procedure for converting filterable PM₁₀ to Filterable PM_{2.5} and condensable PM₁₀ to condensable PM_{2.5}, respectively.

Applicable Requirements

Air District Rules and Regulations

The ERC calculation should be performed in accordance with the procedures outlined in [Regulation 2-2-603 and 2-2-605](#).

[Regulation 2-2-211 Emission Reduction Credits](#) defines ERCs to be any emission reductions associated with a physical change, change in method of operation, change in throughput of production, or other similar change at a source that are in excess of the reductions required by applicable regulatory requirements, and that are real, permanent, quantifiable, and enforceable.

[Regulation 2-4-302.1 Bankable Reductions for Closures](#) states that if it is unclear whether the emission reduction from a source closure will be replaced by an emission increase elsewhere within the Air District, the emission reduction credits are only bankable if the applicant accepts a condition restricting use of the deposits to offsetting emission increases in the same or closely related industries.

[Regulation 2-4-303.3](#) prohibits banking of emission reductions due to the shutdown of sources or the installation of controls on sources excluded from Air District regulations (pursuant to Regulation 1-110) or exempt from permit requirements (pursuant to [Regulation 2-1](#)).

In addition, [Regulation 2-4-303.5](#) prohibits banking of emission reductions at facilities belonging to companies that have received offsets of the same pollutant from the Small Facility Bank. Once those offsets have been reimbursed, the remaining emission reductions may be banked. The permit evaluator should review the facility's (per Regulation 2-1-213) cumulative increase to see whether it has received offsets from the Small Facility Bank.

[Regulation 2-4-405 Publication, Public Comment and Inspection](#) requires the Air District to publish a public notification of the preliminary decision before approving the banking of any emission reduction in excess of 40 tons per year of any pollutant.

California Environmental Quality Act (CEQA)

The Air District has determined that emissions banking is not a "project" as that term is used in CEQA, because it does not involve a "physical change in the environment." (See Pub. Res. Code § 21065.) Moreover, even if the issuance of a banking certificate were considered to be a "physical change in the environment," it can be seen with certainty that the mere issuance of the certificate will not have any significant environmental impacts because simply issuing a certificate does not authorize any emissions. (See CEQA Guidelines, 14 Cal. Code Regs. 15061(b)(3).) Accordingly, no CEQA environmental document is required at the time of issuance of a banking certificate. In addition, the Air District has determined that this permit action is categorically exempt from CEQA per Air District Regulation 2-1-312.10, "Applications to deposit emission reductions in the emissions bank pursuant to Regulation 2, Rule 4 or Regulation 2, Rule 9." The action is further exempt under the "common sense" exemption. (CEQA Guidelines § 15061(b)(3)).

Permit Conditions

Per Regulation 2-4-301, the permit evaluator may include a condition in an authority to construct involving bankable reductions stating that the emission reductions shall be eligible for banking after being demonstrated by source test or other means acceptable to the Air District. Conditions are commonly imposed on banking applications when an emission reduction is permanent at the source, but it is unclear whether the reduction will be replaced by an emission increase elsewhere at the facility or within the Air District (per Regulation 2-4-302.1), or to ensure the permanency of the closure.

LIST OF APPENDICES

- A. [Permit Exemption Guidance](#)
- B. [Data Form Guidance](#)
- C. [Fee Calculation Guidance](#)
- D. [Completeness Determination Checklist](#)
- E. [Evaluation Report Template Guidance](#)
- F. [Frequently Asked Questions](#)

PERMIT HANDBOOK

A. PERMIT EXEMPTION GUIDANCE

May 13, 2024

Air District Regulation 2 Rule 1 describes the permit requirements for sources of air pollution. In general, any equipment or operation that emits pollutants into the atmosphere requires an Authority to Construct before installation of the equipment or start of the operation. Upon receipt of the Authority to Construct and after start-up of the equipment or operation, a Permit to Operate is required for continued operation of the equipment or operation. Any air pollution control equipment associated with a source that requires a District permit also requires an Authority to Construct and/or Permit to Operate.

Unless a source of emissions is excluded from Air District Regulations per Regulation 1 or exempted from Air District permit requirements by a specific section of [Regulation 2-1](#), a permit is required for any source of air pollution. Figure 2-1-101 Permit/Exemption Flow Chart illustrates the process of determining whether permits are required for a specific source of air pollution. A source of air pollution that does not require a Permit to Operate may require a certificate of registration.

**Regulation 2, Rule 1
Permit / Exemption Flow Chart**

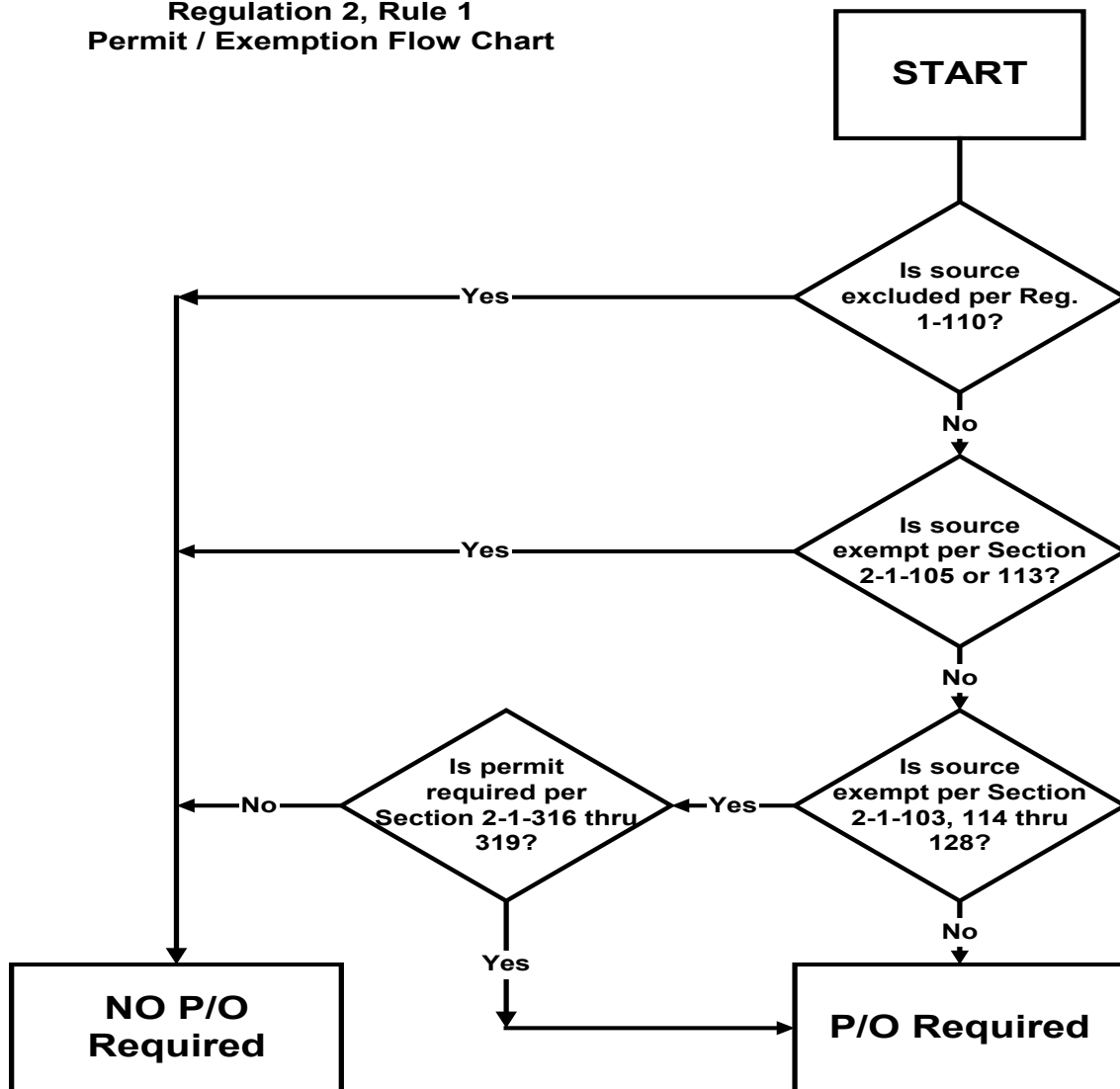


Figure 2-1-101

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Explanation of Figure 2-1-101

1. First, review the proposed equipment or operation to see if it is excluded from Air District regulation per [Regulation 1-110](#). Permit exclusions exclude specific equipment or operations from any Air District regulation (including permitting requirements and operational standards). If the source meets one of the exclusions in [Regulation 1-110](#), then the source is exempt from permitting requirements, per the regulation it met.
2. If a source is not excluded per [Regulation 1-110](#), then review whether the source is exempt per Regulations [2-1-105](#) or [2-1-113](#). If the source meets one of the exemptions in Regulations [2-1-105](#) or [2-1-113](#), then the source is exempt from permitting requirements, per the regulation it met.
3. If none of the listed exemptions in Regulations [2-1-105](#) or [2-1-113](#) apply to the equipment or operation, then review Regulations [2-1-103](#) and [2-1-114 through 128](#) to see whether these exemption apply.
4. If none of the exemptions listed in Regulations [2-1-103](#) and [2-1-114 through 128](#) apply, then the source(s) most likely requires an Authority to Construct and/or Permit to Operate (go to [General Application Guidance](#) for instructions on applying for a permit.)
5. If one or more of the exemptions in Regulations [2-1-103](#) and [2-1-114 through 128](#) do apply,
 - a) The emissions of toxins from the source must be at a rate that it satisfies the Air District's Toxic Best Available Control requirements and risk limits of [Regulation 2, Rule 5](#).
 - b) The source cannot be a public nuisance pursuant to [Regulation 2-1-317](#);
 - c) If it is a new or modified source at a PSD Major Facility, the emissions from hazardous substances must be less than the quantities listed in [Regulation 2-1-318](#); and
 - d) The source must not emit more than 5 tons per year of any regulated air pollutant, after abatement ([Regulation 2-1-319.1](#)).
6. If the emissions do not result in the requirement of a permit per [Regulation 2-1-316 through 2-1-319](#), then the source(s) are most likely exempt from permitting requirements per the exemptions identified in Regulations [2-1-103](#) and [2-1-114 through 128](#).
7. If the emissions do result in the requirement of a permit per [Regulation 2-1-316 through 2-1-319](#), then the source(s) most likely requires an Authority to Construct and/or Permit to Operate (go to [General Application Guidance](#) for instructions on applying for a permit.)

Applicants who are unsure about whether or not a permit is required or wish confirmation of an exemption should submit a permit application for the source or operation; and the Air District will make the final determination. Note that a filing fee is required for any application for exemption per Regulation 3-337.

The following are hyperlinks to the direct citation of the exemptions that apply for each source category.

Select the type of equipment/operation from list below:

- | | |
|---|--|
| ☐ Combustion Equipment | ☐ General Sources and Operations |
| ☐ Organic Liquid Storage Tanks | ☐ Quarries, Mineral Processing and Biomass Facilities |
| ☐ Coating Operations (including Graphic Arts Printing) | ☐ Furnaces, Ovens and Kilns |
| ☐ Solvent Cleaning | ☐ Food and Agricultural Equipment |
| ☐ Electronic & Semiconductor Industry | ☐ Material Working and Handling Equipment |
| ☐ Semiconductor Manufacturing | ☐ Casting and Molding Equipment |
| ☐ Printed Circuit Board Manufacturing | ☐ Testing Equipment |
| ☐ Wastewater Storage | ☐ Chemical Processing Equipment |
| ☐ Wastewater Treatment | ☐ Miscellaneous Equipment |
| ☐ Sub-Slab Depressurization | ☐ Not Subject to Any Rule |
| ☐ Abrasive Blasting Operations | |
| ☐ Miscellaneous Operations | |
| ☐ Portable Equipment | |

Excerpts from Regulation 1:

Regulation 1-110

- 1-110 Exclusions:** District Regulations shall not apply to the following:
- 110.1 Engines used to propel motor vehicles and defined by the Vehicle Code of the State of California.
 - 110.2 Deleted May 17, 2000.
 - 110.3 Aircraft.
 - 110.4 Fires from residential cooking.
 - 110.5 Open outdoor fires, other than for the disposal of waste propellants, explosives or pyrotechnics by manufacturing facilities; recreational fires and outdoor cooking fires, except as limited by Regulation 5.
 - 110.6 Any emission point which is not an intended opening and from which no significant quantities of air contaminants are emitted.
 - 110.7 Smoke generators intentionally operated to train observers in appraising the shade of emissions.
 - 110.8 Air contaminants, where purposely emitted for the sole purpose of a specific beneficial use, and where essentially all of the air contaminants are confined to the area in which such beneficial use is obtained. The quantity and nature of the air contaminants, and the proportion of air contaminants used in relation to amounts of other materials involved in the beneficial use of air contaminants, shall conform to accepted practice in type of use employed.
 - 110.9 Agricultural sources except as provided in:
 - 9.1 Regulation 5: Open Burning; and
 - 9.2 Regulation 2: Permits.
- (Renumbered 3/17/82; Amended 12/19/90; 11/3/93; 5/17/00; 5/2/01; 7/19/06; 7/9/08)*

Regulation 2-1-103 [see [policy](#)]

- 2-1-103 Exemption, Source not Subject to any District Rule:** Any source that is not already exempt from the requirements of Section 2-1-301 and 302 as set forth in Sections 2-1-105 to 2-1-128, is exempt from Section 2-1-301 and 302 if the source meets all of the following criteria:
- 103.1 The source is not in a source category subject to any of the provisions of Regulation 6⁽¹⁾, Regulation 8⁽²⁾ excluding Rules 1 through 4, or Regulations 9 through 12; and
 - 103.2 The source is not subject to any of the provisions of Sections 2-1-316 through 319; and
 - 103.3 Actual emissions of precursor organic compounds (POC), non-precursor organic compounds (NPOC), nitrogen oxides (NO_x), sulfur dioxide (SO₂), PM_{2.5}, PM₁₀ and carbon monoxide (CO) from the source are each (i) less than 10 pounds per highest day; or (ii) if greater than 10 pounds per highest day, total emissions are less than 150 pounds per year, per pollutant; and
 - 103.4 The source is not an ozone generator (a piece of equipment designed to generate ozone) emitting 1 lb/day or more of ozone.

Note 1: Typically, any source may be subject to Regulation 6, Particulate Matter and Visible Emissions. For the purposes of this section, Regulation 6 applicability shall be limited to the following types of sources that emit PM_{2.5} and PM₁₀: combustion source; material handling/processing; sand, gravel or rock processing; cement, concrete and asphaltic concrete production; tub grinder; or similar PM_{2.5} and PM₁₀-emitting sources, as deemed by the APCO.

Note 2: If an exemption in a Regulation 8 Rule indicates that the source is subject to Regulation 8, Rules 1 through 4, then the source must comply with all applicable provisions of Regulation 8, Rules 1 through 4, to qualify for this exemption.

(Adopted 6/7/95; Amended 5/17/00; 12/21/04)

Regulation 2-1-105

- 2-1-105 Exemption, Registered Statewide Portable Equipment:** Equipment that complies with all applicable requirements of and is registered under the Statewide Portable

Equipment Registration Program (California Code of Regulations Title 13, Division 3, Chapter 3, Article 5) is exempt from the requirements of Sections 2-1-301 and 302. If the equipment ceases to qualify for this exemption for any reason (for example, if it remains at any fixed location for more than twelve months or otherwise ceases to be portable as defined by the Program), the equipment shall be subject to the requirements of Regulation 2 as if it were a new source.

(Adopted 6/7/95; Amended 10/7/98; 5/17/00)

Regulation 2-1-113

2-1-113 Exemption, Sources and Operations:

- 113.1 The following sources and operations are exempt from the requirements of Sections 2-1-301 and 302, in accordance with the California Health and Safety Code:
 - 1.1 Single and multiple family dwellings used solely for residential purposes.
 - 1.2 Agricultural sources (as defined in Section 2-1-239) with actual emissions of each regulated air pollutant, excluding fugitive dust and greenhouse gases, less than 50 tons per year. Agricultural sources engaged in composing and other similar biomass processing that primarily process green materials or animal waste products derived from agricultural operations shall not become ineligible for this exemption for processing material from non-agricultural operations as long as the facility processes less than 500 tons per year of such material from non-agricultural operations.
 - 1.3 Any vehicle. Equipment temporarily or permanently attached to a vehicle is not considered to be a part of that vehicle unless the combination is a vehicle as defined in the Vehicle Code. Specialty vehicles may include temporarily or permanently attached equipment including, but are not limited to, the following: oil well production service unit; special construction equipment; and special mobile equipment.
 - 1.4 Tank vehicles with vapor recovery systems subject to state certification, in accordance with the Health and Safety Code.
- 113.2 The following sources and operations are exempt from the requirements of Sections 2-1-301 and 302:
 - 2.1 Road construction, widening and rerouting.
 - 2.2 Restaurants, cafeterias and other retail establishments for the purpose of preparing food for human consumption.
 - 2.3 Structural changes which do not change the quality, nature or quantity of air contaminant emissions.
 - 2.4 Any abatement device which is used solely to abate equipment that does not require an Authority to Construct or Permit to Operate.
 - 2.5 Architectural and industrial maintenance coating operations that are exclusively subject to Regulation 8, Rules 3 or 48, because coatings are applied to stationary structures, their appurtenances, to mobile homes, to pavements, or to curbs. This does not apply to coatings applied by the manufacturer prior to installation, nor to the coating of components removed from such structures and equipment.
 - 2.6 Portable abatement equipment exclusively used to comply with the tank degassing or vacuum truck control requirements of Regulation 8, Rules 5, 40 or 53.
 - 2.7 Equipment that transports, holds or stores California Public Utilities Commission regulated natural gas, excluding drivers.
 - 2.8 Deleted May 17, 2000
 - 2.9 Deleted May 17, 2000
 - 2.10 Deleted May 17, 2000
 - 2.11 Teaching laboratories used exclusively for classroom experimentation and/or demonstration.

- 2.12 Laboratories located in a building where the total laboratory floor space within the building is less than 25,000 square feet, or the total number of fume hoods within the building is less than 50, provided that Responsible Laboratory Management Practices, as defined in Section 2-1-224, are used. Buildings connected by passageways and/or corridors shall be considered as separate buildings, provided that structural integrity could be maintained in the absence of the passageways and/or corridors and the buildings have their own separate and independently operating HVAC and fire suppression systems. For the purposes of this subsection, teaching laboratories that are exempt per Section 2-1-113.2.11 are not included in the floor space or fume hood totals. In addition, laboratory units for which the owner or operator of the source can demonstrate that toxic air contaminant emissions would not occur, except under accidental or upset conditions, are not included in the floor space or fume hood totals.
- 2.13 Maintenance operations on natural gas pipelines and associated equipment, provided that emissions from such operations consist solely of residual natural gas that is vented after the equipment is isolated or shut down.
- 2.14 [Deleted 12/19/2012]
- 2.15 Asbestos and asbestos containing material renovation or removal conducted in compliance with Regulation 11, Rule 2 and Regulation 3.
- 2.16 Closed landfills that have less than 1,000,000 tons of decomposable solid waste in place and that do not have an operating landfill gas collection system.
- 2.17 Closed landfills that have not accepted waste for at least 30 years and that never had a landfill gas collection system.
- 2.18 Construction of a building or structure that is not itself a source requiring a permit.
- 2.19 Vacuum trucks subject to Regulation 8, Rule 53 and processing regulated material as defined in that rule.

(Adopted 10/19/83; Amended 7/17/91; 6/7/95; 5/17/00; 11/15/00; 5/2/01; 7/19/06; 4/18/12; 12/06/17)

Regulation 2-1-114 through 128

2-1-114 Exemption, Combustion Equipment: The following equipment is exempt from the requirements of Sections 2-1-301 and 302, only if the source does not emit pollutants other than combustion products, and those combustion products are not caused by the combustion of a pollutant generated from another source, and the source does not require permitting pursuant to Section 2-1-319. However, for the purposes of this permit exemption determination, sources subject to Section 2-114.1.2, 2-1-114.2.1, and 2-1-114.2.3 are not subject to Section 2-1-316.

- 114.1 Boilers, Heaters, Steam Generators, Duct Burners, and Similar Combustion Equipment:
 - 1.1 Any of the above equipment with less than 1 million BTU per hour rated heat input.
 - 1.2 Any of the above equipment with less than 10 million BTU per hour rated heat input if fired exclusively with natural gas (including compressed natural gas), liquefied petroleum gas (e.g. propane, butane, isobutane, propylene, butylenes, and their mixtures), or any combination thereof.
- 114.2 Internal Combustion Engines and Gas Turbines:
 - 2.1 Internal combustion (IC) engines and gas turbines with a maximum output rating less than or equal to 50 bhp.
 - 2.2 Internal combustion (IC) engines and gas turbines used solely for instructional purposes at research, teaching, or educational facilities.
 - 2.3 Portable internal combustion engines which are at a location for less than 72 consecutive hours.

- 2.4 Any engine mounted on, within, or incorporated into any vehicle, train, ship, boat, or barge used to provide propulsion for the vehicle, train, ship, boat, or barge.
- 2.5 Any engine mounted on, within, or incorporated into any vehicle, train, ship, boat, or barge used to provide propulsion for the vehicle, train, ship, boat, or barge and which is also used to supply mechanical or electrical power to ancillary equipment (e.g., crane, drill, winch, etc.) which is affixed to or is a part of the vehicle, train, ship, boat, or barge.

(Adopted 10/19/83; Amended 7/17/91; 6/7/95; 5/17/00; 8/1/01, 12/06/17, 12/15/21)

2-1-115 Exemption, Particulate Sources at Quarries, Mineral Processing and Biomass Facilities: The following potential PM₁₀ sources are exempt from the requirements of sections 2-1-301 and 302, provided that the source does not require permitting pursuant to Section 2-1-319.

- 115.1 Sources located at quarrying; mineral or ore handling or processing; concrete production; asphaltic concrete production; marine bulk transfer stations; concrete or asphaltic concrete recycling; vehicle shredding; glass manufacturing; handling or processing of cement, coke, lime, flyash, fertilizer, or catalyst; or other similar facility which meets one of the following:
 - 1.1 Mixer and other ancillary sources at concrete or aggregate product production facilities with a maximum rated production capacity less than 15 cubic yards (yd³) per hour;
 - 1.2 Other source at a facility with a maximum throughput less than 5000 tons per year;
 - 1.3 Operating, loading and unloading a crusher or grinder which processes exclusively material with a moisture content greater than or equal to 20 percent by weight;
 - 1.4 Operating, loading and unloading the following sources which process exclusively material with a moisture content greater than or equal to 5 percent by weight:
 - 1.4.1 Screen or other size classification;
 - 1.4.2 Conveyor, screw, auger, stacker or bucket elevator;
 - 1.4.3 Grizzly, or other material loading or unloading;
 - 1.4.4 Storage silos;
 - 1.4.5 Storage or weigh hopper/bin system.
 - 1.5 Haul or access roads;
 - 1.6 Drilling or blasting.
- 115.2 Sources located at biomass recycling, composting, landfill, POTW, or related facilities specializing in the operation of, but not limited to, the following:
 - 2.1 Tub grinder powered by a motor with a maximum output rating less than 10 horsepower;
 - 2.2 Hogger, shredder or similar source powered by a motor with a maximum output rating less than 25 horsepower;
 - 2.3 Other biomass processing/handling sources at a facilities with a total throughput less than 500 tons per year.

(Amended 6/7/95; 5/17/00)

2-1-116 Exemption, Furnaces, Ovens and Kilns: The following equipment is exempt from the requirements of Sections 2-1-301 and 302, provided that the source does not require permitting pursuant to Section 2-1-319.

- 116.1 Porcelain enameling furnaces, porcelain enameling drying ovens, vitreous enameling furnaces or vitreous enameling drying ovens.
- 116.2 Crucible furnaces, pot furnaces, induction furnaces, cupolas, electric arc furnaces, reverberatories, or blast furnaces with a capacity of 1000 lbs or less each.
- 116.3 Crucible furnaces, pot furnaces, or induction furnaces for sweating or distilling that process 100 tons per year of all metals or less.
- 116.4 Drying or heat-treating ovens with less than 10 million BTU per hour capacity provided that a) the oven does not emit pollutants other than combustion

products and b) the oven is fired exclusively with natural gas (including compressed natural gas), liquefied petroleum gas (e.g. propane, butane, isobutane, propylene, butylenes, and their mixtures), or any combination thereof.

- 116.5 Ovens used exclusively for the curing of plastics which are concurrently being vacuum held to a mold, or for the softening and annealing of plastics.
- 116.6 Ovens used exclusively for the curing of vinyl plastisols by the closed mold curing process.
- 116.7 Ovens used exclusively for curing potting materials or castings made with epoxy resins.
- 116.8 Kilns used for firing ceramic ware, heated exclusively by natural gas, liquefied petroleum gas, electricity or any combination thereof.
- 116.9 Parts cleaning, bake-off, and similar ovens that meet both of the following:
 - 9.1 Oven is equipped with a secondary combustion chamber or abated by a fume incinerator; and
 - 9.2 Internal oven volume is 1 cubic yard or less.
- 116.10 Electric ovens used exclusively for curing or heat-treating where no significant off-gassing or evaporation of any air contaminants occurs.

(Adopted 10/19/83; Amended 7/17/91; 6/7/95; 5/17/00)

2-1-117 Exemption, Food and Agricultural Equipment: The following equipment is exempt from the requirements of Sections 2-1-301 and 302, provided that the source does not require permitting pursuant to Section 2-1-319.

- 117.1 Smokehouses or barbecue units in which the maximum horizontal inside cross sectional area does not exceed 20 square feet.
- 117.2 Equipment at facilities other than restaurants, cafeterias or other retail operations, which is used to dry, cook, fry, bake, or grill less than 1000 tons per year of food products.
- 117.3 Any oven with a total production of yeast leavened bakery products of less than 10,000 pounds per operating day, averaged over any period of seven consecutive days, and which is heated either electrically or exclusively by natural gas firing with a maximum capacity of less than 10 million BTU per hour.
- 117.4 Equipment used exclusively to grind, blend, package, or store tea, cocoa, spices, or coffee.
- 117.5 Equipment used to dry, mill, grind, blend, or package less than 1000 tons per year of dry food products such as seeds, grains, corn, meal, flour, sugar, and starch.
- 117.6 Equipment used to convey, transfer, clean, or separate less than 1000 tons per year of dry food products or waste from food production operations.
- 117.7 Storage equipment or facilities containing dry food products; which are not vented to the outside atmosphere, or which handle less than 1000 tons per year.
- 117.8 Coffee, cocoa and nut roasters with a roasting capacity of less than 15 pounds of beans or nuts per hour; and any stoners or coolers operated in conjunction with these roasters.
- 117.9 Containers, reservoirs, tanks, or loading equipment used exclusively for the storage or loading of beer, wine or other alcoholic beverages.
- 117.10 Fermentation tanks for beer or wine. Fermentation tanks used for the commercial production of yeast for sale are not exempt.
- 117.11 Brewing operations at facilities producing less than 3 million gallons per year of beer.
- 117.12 Fruit sulfuring operations at facilities producing less than 10 tons per year of sulfured fruits and vegetables.

(Adopted 10/19/83; Amended 4/16/86; 7/17/91; 6/7/95; 5/17/00)

2-1-118 Exemption, Surface Preparation and Cleaning Equipment: The following equipment is exempt from the requirements of Sections 2-1-301 and 302, provided that the source does not require permitting pursuant to Section 2-1-319.

- 118.1 Permanent abrasive blasting source, as defined by Regulation 12, Rule 4, that has a confined volume less than 100 cubic feet (ft³) and is abated by a particulate filter.
- 118.2 Blast cleaning equipment using a suspension of abrasive in water.
- 118.3 Portable abrasive blasting equipment used on a temporary basis within the District.
- 118.4 Equipment, including solvent cold cleaners using an unheated solvent mixture for surface preparation, cleaning, wipe cleaning, fluxing or stripping by use of solutions with a VOC content less than or equal to 50 grams per liter (0.42 lb/gal).
- 118.5 Equipment using a heated solvent mixture for steam cleaning, surface preparation, fluxing, stripping, wipe cleaning, washing or drying products, provided that a) only solutions containing less than 2.5 percent VOC (wt) are used; and b) any combustion sources used in the process are exempt under Section 2-1-114.
- 118.6 Equipment or operations which use unheated solvent and which contain less than 1 gallon of solvent or have a liquid surface area of less than 1 ft². This exemption does not apply to solvent stations at semiconductor manufacturing operation fabrication areas or aerospace stripping operations.
- 118.7 Deleted December 21, 2004
- 118.8 Batch solvent recycling equipment where all of the following apply:
 - 8.1 Recovered solvent is used primarily on site (more than 50% by volume); and
 - 8.2 Maximum heat input (HHV) is less than 1 million BTU per hour; and
 - 8.3 Batch capacity is less than 150 gallons.
- 118.9 Wipe cleaning at a facility with a net solvent usage less than 20 gallons per year, or which emits to the atmosphere less than 150 lb/year of VOC from all wipe cleaning operations. At a facility with total wipe cleaning emissions greater than 150 lb/yr, wipe cleaning operations may be grouped per Section 2-1-401.4.
- 118.10 Any solvent cleaning or surface preparation source which employs only non-refillable hand held aerosol cans.
- 118.11 Spray gun cleaning performed in compliance with Regulation 8, provided the cleaning is associated with a source, such as a spray booth, subject to the requirements of Section 2-1-301 and 302.

(Adopted 10/19/83; Amended 4/16/86; 8/2/89; 7/17/91; 6/7/95; 5/17/00; 12/21/04)

2-1-119 Exemption, Surface Coating and Printing Equipment: The following equipment and operations are exempt from the requirements of Sections 2-1-301 and 302, provided that the source does not require permitting pursuant to Section 2-1-319.

- 119.1 Any powder coating operation, or radiation cured coating operation where ultraviolet or electron beam energy is used to initiate a reaction to form a polymer network.
- 119.2 Any coating, adhesive, dipping, laminating, screening, masking, electrodeposition, resist application, or similar source or operation at any facility that is not operated or conducted as part of a graphic arts operation, which:
 - 2.1 Consumes a total of less than 30 gallons of coating, adhesive, laminate or resist per year on a facility wide basis, or emits less than 150 pounds per year of uncontrolled VOC on a facility wide basis, resulting from the application of these materials; or
 - 2.2 Uses exclusively materials that contain less than one percent VOC (wt). At a facility with emissions from these sources or operations of greater than 150 lb/yr, these sources or operations may be grouped per Section 2-1-401.3.
- 119.3 Any coating source which employs only non-refillable hand held aerosol cans.
- 119.4 An oven associated with an exempt coating source, provided that the oven is electrically heated, or the oven is fired exclusively with natural gas, liquefied petroleum gas (e.g. propane, butane, isobutane, propylene, butylenes, and

their mixtures) and the maximum firing rate is less than 10 million BTU per hour.

- 119.5 Any graphic arts operation that emits less than 400 pounds of VOC emissions per month on a facility-wide basis.

(Adopted 10/19/83; Amended 4/16/86; 7/17/91; 6/7/95; 5/17/00; 12/21/04; 11/19/08)

- 2-1-120 Exemption, Dry Cleaning Equipment:** Any dry cleaning facility which uses (gross consumption) less than 200 gallons of petroleum solvent or any other non-halogenated solvent in any single year is exempt from the requirements of Sections 2-1-301 and 302, provided that the source does not require permitting pursuant to Section 2-1-319; the facility is in compliance with the registration requirement in Regulation 8, Rule 17, Section 404; and the equipment does not use solvent that contains perchloroethylene or more than 1% by weight of any other halogenated compound.

(Adopted 10/19/83; Amended 7/17/91; 6/7/95; 5/17/00; 3/4/09)

- 2-1-121 Exemption, Material Working and Handling Equipment:** The following equipment is exempt from the requirements of Sections 2-1-301 and 302, provided that the source does not require permitting pursuant to Section 2-1-319.

- 121.1 Equipment used for buffing, carving, cutting, drilling, grinding, machining, planing, routing, sanding, sawing, shredding, stamping or turning of wood, ceramic artwork, ceramic precision parts, leather, metals, plastics, rubber, fiberboard, masonry, glass, silicon, semiconductor wafers, carbon or graphite, provided that organic emissions from the use of coolant, lubricant, or cutting oil are 5 ton/yr or less.
- 121.2 Equipment used for pressing or storing sawdust, wood chips or wood shavings.
- 121.3 Equipment used exclusively to mill or grind coatings and molding compounds in a paste form provided the solution contains less than one percent VOC (wt).
- 121.4 Tumblers used for the cleaning or deburring of metal products without abrasive blasting.
- 121.5 Batch mixers with a rated working capacity of 55 gallons or less.
- 121.6 Mixing equipment provided no material in powder form is added and mixture contains less than one percent VOC (wt).
- 121.7 Equipment used exclusively for the mixing and blending of materials at ambient temperature to make water based adhesives.
- 121.8 Equipment used exclusively for the mixing and packaging of lubricants or greases.
- 121.9 Presses used exclusively for extruding metals, minerals, plastics or wood.
- 121.10 Presses used for the curing of rubber products and plastic products. The use of mold release products or lubricants is not exempt unless the VOC content of these materials is less than or equal to 1 percent, by weight, or unless the total facility-wide uncontrolled VOC emissions from the use of these materials are less than 150 lb/yr.
- 121.11 Platen presses used for laminating.
- 121.12 Roll mills or calendars for rubber or plastics.
- 121.13 Equipment used exclusively for forging, pressing, rolling, stamping or drawing metals or for heating metals immediately prior to forging, pressing, rolling, stamping or drawing, provided that: (1) maximum fuel use rate is less than 10 million BTU/hr; (2) no lubricant with an initial boiling point less than 400°F is used; and (3) organic emissions are 5 ton/yr or less.
- 121.14 Atmosphere generators used in connection with metal heat treating processes.
- 121.15 Equipment used exclusively for the sintering of glass or metals.
- 121.16 Equipment used exclusively for the melting or applying of wax containing less than one percent VOC (wt).
- 121.17 Equipment used exclusively for conveying and storing plastic pellets.
- 121.18 Solid waste transfer stations that receive or load out a total of all material less than 50 tons/day.
- 121.19 Inactive solid waste disposal sites which do not have an operating landfill gas collection system.

(Adopted 10/19/83; Amended 7/17/91; 6/7/95; 5/17/00)

2-1-122 Exemption, Casting and Molding Equipment: The following equipment is exempt from the requirements of Sections 2-1-301 and 302, provided that the source does not require permitting pursuant to Section 2-1-319.

- 122.1 Molds used for the casting of metals.
- 122.2 Foundry sand mold forming equipment to which no heat is applied, except processes utilizing organic binders yielding in excess of 0.25% free phenol by weight of sand.
- 122.3 Shell core and shell-mold manufacturing machines.
- 122.4 Equipment used for extrusion, compression molding and injection molding of plastics. The use of mold release products or lubricants is not exempt unless the VOC content of these materials is less than or equal to 1 percent, by weight, or unless the total facility-wide uncontrolled VOC emissions from the use of these materials are less than 150 lb/yr.
- 122.5 Die casting machines.

(Adopted 10/19/83; Amended 7/17/91; 6/7/95; 5/17/00)

2-1-123 Exemption, Liquid Storage and Loading Equipment: The following equipment is exempt from the requirements of Sections 2-1-301 and 302, provided that the source does not require permitting pursuant to Section 2-1-319.

- 123.1 Storage tanks and storage vessels having a capacity of less than 260 gallons.
- 123.2 Tanks, vessels and pumping equipment used exclusively for the storage or dispensing of any aqueous solution which contains less than 1 percent (wt) organic compounds. Tanks and vessels storing the following materials are not exempt.
 - 2.1 Sulfuric acid with an acid strength of more than 99.0% by weight.
 - 2.2 Phosphoric acid with an acid strength of more than 99.0% by weight.
 - 2.3 Nitric acid with an acid strength of more than 70.0% by weight.
 - 2.4 Hydrochloric acid with an acid strength of more than 30.0% by weight.
 - 2.5 Hydrofluoric acid with an acid strength of more than 30.0% by weight.
 - 2.6 More than one liquid phase, where the top phase contains more than one percent VOC (wt).
- 123.3 Containers, reservoirs, tanks or loading equipment used exclusively for:
 - 3.1 Storage or loading of liquefied gases.
 - 3.2 Storage or loading of organic liquids or mixtures containing organic liquids; where the initial boiling point of the organics is greater than 302°F and exceeds the actual storage temperature by at least 180°F. This exemption does not apply to the storage or loading of asphalt or asphalt emulsion with a sulfur content equal to or greater than 0.5 wt%.
 - 3.3 The storage or loading of petroleum oils with an ASTM D-93 (PMCC) flash point of 130°F or higher, when stored or loaded at a temperature at least 36°F below the flash point.
 - 3.4 The storage or loading of lubricating oils.
 - 3.5 The storage of fuel oils with a gravity of 40 API or lower and having a capacity of 10,000 gallons or less.
 - 3.6 The storage or loading of liquid soaps, liquid detergents, tallow, or vegetable oils, waxes or wax emulsions.
 - 3.7 The storage of asphalt or asphalt emulsion with a sulfur content of less than 0.5 wt%. This does not include the storage of asphalt cutback with hydrocarbons having an initial boiling point of less than 302°F.
 - 3.8 The storage of wine, beer or other alcoholic beverages.
 - 3.9 The storage of organic salts or solids in an aqueous solution or suspension, provided that no liquid hydrocarbon layer forms on top of the aqueous phase.
 - 3.10 The storage or loading of fuel oils with a gravity of 25 API or lower.
 - 3.11 The storage and/or transfer of an asphalt-water emulsion heated to 150°F or less.
- 123.4 Tank seal replacement. For any tank subject to Regulation 8, Rule 5, any new seal must comply with the applicable provisions of Regulation 8, Rule 5, and

the District must receive written notification of the tank source number and seal type at least three days prior to the installation.

(Adopted 10/19/83; Amended 7/11/84; 7/17/91; 6/7/95; 5/17/00)

- 2-1-124 Exemption, Semiconductor Manufacturing:** Semiconductor fabrication area(s) at a facility which complies with all of the following are exempt from the requirements of Sections 2-1-301 and 302, provided that the source does not require permitting pursuant to Section 2-1-319.

124.1 Net solvent usage is less than 20 gallons of VOC per year on a facility wide basis; or uncontrolled VOC emissions to the atmosphere resulting from the usage of solvent are less than 150 pounds per year of VOC on a facility wide basis, and

124.2 Maskant and/or coating usage is less than 30 gallons per year, on a facility wide basis; or uncontrolled VOC emissions from the application of maskant and coatings are less than 150 pounds per year on a facility wide basis.

(Adopted 10/19/83; Amended 1/9/85; 4/16/86; 7/17/91; 6/7/95; 10/20/99; 5/17/00)

- 2-1-125 Exemption, Printed Circuit Board Manufacturing Equipment:** The following equipment is exempt from the requirements of Sections 2-1-301 and 302, provided that the source does not require permitting pursuant to Section 2-1-319.

125.1 Equipment used exclusively for:

1.1 Plating of printed circuit boards.

1.2 Buffing, polishing, carving, cutting, drilling, machining, routing, sanding, sawing, surface grinding or turning of printed circuit boards.

1.3 Soldering. This section does not exempt fluxing and finger cleaning (see Section 2-1-118.4).

(Adopted 10/19/83; Amended 7/17/91; 6/7/95; 5/17/00)

- 2-1-126 Exemption, Testing Equipment:** The following equipment is exempt from the requirements of Sections 2-1-301 and 302, provided that the source does not require permitting pursuant to Section 2-1-319.

126.1 Equipment used for hydraulic or hydrostatic testing.

126.2 Bench scale laboratory equipment or processes used exclusively for chemical or physical analyses or experimentation, quality assurance and quality control testing, research and development, or similar bench scale equipment, excluding pilot plants.

126.3 Equipment used for inspection of metal products.

(Adopted 10/19/83; Amended 7/17/91; 6/7/95; 5/17/00)

- 2-1-127 Exemption, Chemical Processing Equipment:** The following equipment is exempt from the requirements of Sections 2-1-301 and 302, provided that the source does not require permitting pursuant to Section 2-1-319.

127.1 Equipment used exclusively for the dyeing or stripping (bleaching) of textiles provided that only solutions containing less than one percent VOC (wt) are used.

127.2 Photographic process equipment by which an image is reproduced upon material sensitized to radiant energy.

127.3 Containers, reservoirs, or tanks used exclusively for electrolytic plating with, or electrolytic polishing of, or electrolytic stripping of the following metals: aluminum, brass, bronze, cadmium, copper, iron, nickel, tin, zinc and precious metals.

127.4 Containers, reservoirs, or tanks used exclusively for etching (not chemical milling), except where ammonia or ammonium-based etchants are used.

(Adopted 10/19/83; Amended 7/17/91; 6/7/95; 5/17/00)

- 2-1-128 Exemption, Miscellaneous Equipment:** The following equipment is exempt from the requirements of Sections 2-1-301 and 302, provided that the source does not require permitting pursuant to Section 2-1-319.

128.1 Comfort air conditioning or comfort ventilating systems which are not designed to remove air contaminants generated by or released from specific units of equipment.

128.2 Refrigeration units except those used as, or in conjunction with, air pollution control equipment.

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- 128.3 Vacuum producing devices in laboratory operations which are used exclusively in connection with other equipment which is exempted by this Rule, and vacuum producing devices which do not remove or convey air contaminants from another source.
- 128.4 Water cooling towers and water cooling ponds not used for evaporative cooling of process water, or not used for evaporative cooling of water from barometric jets or from barometric condensers.
- 128.5 Natural draft hoods, natural draft stacks or natural draft ventilators.
- 128.6 Vacuum cleaning system used exclusively for industrial commercial or residential housekeeping purposes.
- 128.7 Equipment used to liquefy or separate oxygen, nitrogen or the rare gases from the air.
- 128.8 Equipment used exclusively to compress or hold dry natural gas, excluding drivers.
- 128.9 Equipment used exclusively for bonding lining to brake shoes.
- 128.10 Equipment used exclusively for the manufacture of water emulsions of waxes, greases or oils.
- 128.11 Brazing, soldering or welding equipment.
- 128.12 Pharmaceutical manufacturing equipment with annual VOC emissions less than 150 pounds per source. Material working and handling equipment such as mills, grinders, blenders, granulators, tablet presses, capsule fillers, packagers, and conveyors are only exempt if the source also processes less than 100 tons per year of pharmaceutical products.
- 128.13 Equipment used exclusively to blend or package cosmetics.
- 128.14 Any wastewater (oil-water) separator, as defined in Regulation 8, Rule 8, which processes less than 200 gallons per day of waste water containing organic liquids.
- 128.15 Exploratory drilling activities for methane recovery at waste disposal sites, for natural gas or for oil. Production wells for the above operations are not exempt.
- 128.16 Passive aeration of soil, only if:
 - 16.1 The duration of the passive aeration operation will not exceed three months, and
 - 16.2 The soil is not being used as a cover material at a landfill.
- 128.17 Ozone generators which produce less than 1 pound per day of ozone.
- 128.18 Any source or operation which exclusively uses consumer products regulated by the California Air Resources Board (California Code of Regulations Title 17, Article 2, Sections 94507-94517).
- 128.19 Any source or operation deemed by the APCO to be equivalent to a source or operation which is expressly exempted by Sections 2-1-113 through 128.
- 128.20 Wastewater pumping stations where no treatment is performed, excluding any drivers.
- 128.21 Modification, replacement, or addition of components that have only fugitive emissions during routine operation (e.g. valves, flanges, pumps, compressors, relief valves, process drains) at existing permitted equipment at petroleum refineries, chemical plants, bulk terminals or bulk plants, provided that:
 - 21.1 the modification, replacement or addition of the components will not result in any increase in emissions of any source at the facility (other than the fugitive emissions from the components being modified, replaced or added) in such a manner as to result in a modification of such source as defined in Section 2-1-234 (e.g., through debottlenecking of a source);
 - 21.2 the total allowable fugitive emissions from all additional components installed pursuant to this exemption at a given process unit during any consecutive twelve month period do not exceed 10 lb/day (or, for components that are not associated with a process unit, the total allowable fugitive emissions from all additional components installed at the facility that are not associated with a process unit during any

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- twelve-month period do not exceed 10 lb/day), based on the maximum fugitive emissions rate allowed under District regulations;
- 21.3 the components installed satisfy the “typical control technology” listed in the BACT/TBACT Workbook;
 - 21.4 the components meet applicable requirements of Regulation 8 rules; and
 - 21.5 fugitive emissions from the components are included when calculating emissions from the equipment on which the components are installed for purposes of applying District regulations to that equipment (e.g., BACT and offsets requirements).
- 128.22 Fuel cells that use phosphoric acid, molten carbonate, proton exchange membrane, solid oxide or equivalent technologies.
- 128.23 Structure demolition that does not involve asbestos or asbestos containing materials.

(Adopted 10/19/83; Amended 7/16/86; 7/17/91; 6/7/95; 5/17/00; 11/15/00; 12/21/04)

Regulation 2-1-301

2-1-301 Authority to Construct: Any person who, after July, 1972, puts in place, builds, erects, installs, modifies, modernizes, alters or replaces any article, machine, equipment or other contrivance, the use of which may cause, reduce or control the emission of air contaminants, shall first secure written authorization from the APCO in the form of an authority to construct. Routine repairs, maintenance, or cyclic maintenance that includes replacement of components with identical components is not considered to be an alteration, modification or replacement for the purpose of this Section unless the APCO determines the changes to be non-routine. The use or operation of the source shall initiate the start-up period in accordance with Section 2-1-411.

(Amended 3/17/82; 10/19/83; 7/17/91; 5/17/00)

Regulation 2-1-302

2-1-302 Permit to Operate: Before any person, as described in Section 2-1-401, uses or operates any article, machine, equipment or other contrivance, the use of which may cause, reduce or control the emission of air contaminants, such person shall first secure written authorization from the APCO in the form of a permit to operate.

- 302.1 Permit to Operate, MFR: Any facility subject to the requirements of Regulation 2, Rule 6, Major Facility Review, shall comply with the permitting requirements included in that Rule in addition to securing a permit to operate under this Rule.
- 302.2 Permit to Operate, Accelerated Permitting Program: Unless subject to any of the provisions of Sections 2-1-316 through 319, a temporary permit to operate may be obtained to authorize operation of a new source or a modification or alteration of an existing source under this Section pending full review for the following categories of operation:

2.1 A new source or a modification of an existing source if the following conditions are satisfied:

- 1.1 The source will not have the potential to emit POC, NPOC, NO_x, SO₂, PM_{2.5}, PM₁₀, or CO in an amount of 10 pounds or more on any day, determined without taking into account the effect of any abatement device or equipment; or the source has been pre-certified under Section 2-1-415; and
- 1.2 The source will not have the potential to emit toxic air contaminants in an amount that exceeds any of the trigger levels set forth in Table 2-5-1 of Regulation 2, Rule 5, determined without taking into account the effect of any abatement device or equipment; and
- 1.3 The source is not subject to the public notice requirements of Section 2-1-412.

2.2 An abatement device that is a replacement for an existing abatement device, provided that the replacement will not increase the potential to emit any regulated air pollutant from the abatement device and the source(s) whose emissions it abates.

2.3 An alteration of an existing source, as defined in Section 2-1-233.

An applicant seeking a permit for a new, modified or altered source that is in any of the preceding categories may apply for a temporary permit to operate under the Accelerated Permitting Program by submitting (i) a permit application form and source data form(s) properly filled out with all required information; (ii) payment of applicable fees (the minimum permit fee required to install and operate each source); (iii) a statement explaining which of the categories in subsections 2.1 through 2.3 above the source is in; (iv) a certification that the source meets all of the requirements of that category; (v) a certification that the source is not subject to Sections 2-1-316 through 2-1-319; and (vi) a certification that the applicant has reviewed all applicable New Source Performance Standards and has determined that the application will comply. The APCO shall issue a temporary Permit to Operate promptly upon determining that the application contains all of the elements required by (i)-(vi) of the preceding sentence. The owner or operator of the source may begin construction or operation of the source, or of the modification or alteration of the source, immediately upon receipt of the temporary Permit to Operate. The APCO shall complete a full review of the application and take final action in accordance with Section 2-1-408 within the time period provided for in that section. Any applicable offset requirements under Regulation 2, Rule 2, Sections 302 and 303 shall be satisfied before final permit issuance. The temporary Permit to Operate shall cease to be effective upon final action by the APCO under Section 2-1-408 (or if the permit application is canceled or withdrawn prior to such final action). During periods that the source is operating under the temporary Permit to Operate, the operator shall keep records sufficient to demonstrate that emissions do not exceed applicable qualifying levels for the Accelerated Permitting Program as set forth in subsections 2.1 through 2.3 above.

302.3 Permit to Operate, Temporary Operation: A temporary permit may be obtained to allow an operator to test equipment, processes, or new formulations. A temporary permit may also be obtained for a temporary source which replaces critical equipment during scheduled maintenance. The APCO may issue a non-renewable temporary Permit to Operate a temporary operation at any source, subject to the following:

3.1 The proposed operation will comply with all requirements of Regulation 1 and Regulations 5 through 12.

3.2 The permit shall expire 3 months after issuance.

3.3 The operator shall provide offsets, at a ratio of 1.15 to 1, for all increased emissions of NO_x, POC, SO₂, PM_{2.5}, and PM₁₀ resulting from the use of the temporary permit.

3.4 The operator shall certify that the temporary operation is for one of the following purposes:

4.1 Equipment testing

4.2 Process testing, including new formulations

4.3 Temporary replacement of an existing permitted source with an identical or functionally equivalent source

3.5 The operator shall comply with the provisions of Regulation 2-2-301, except that the cost-effectiveness analysis shall consider the short duration of the operation.

(Amended 11/3/93; 6/7/95; 10/7/98; 11/15/00)

Regulation 2-1-316 through 2-1-319

2-1-316 New or Modified Sources of Toxic Air Contaminants or Hazardous Air Pollutants: Notwithstanding any exemption contained in Section 2-1-103 or Section 114 through 128, any new or modified source meeting any of the following criteria shall be subject to the requirements of Regulation 2, Rule 1, Section 301 and/or 302.

316.1 If a new or modified source emits one or more toxic air contaminants in quantities that exceed the trigger levels listed in Table 2-5-1 of Regulation 2-5 and the source did not have a valid exemption from Regulation 2-1-302 when the source was constructed or modified, then the source shall be subject to the requirements of Sections 2-1-301 and 302, unless the owner or operator of the source can demonstrate to the satisfaction of the APCO that the source:

- 1.1 Will comply with the TBACT requirement of [Regulation 2-5-301](#) (if applicable); and
- 1.2 Will comply with the project risk limits of [Regulation 2-5-302](#) (if applicable).

316.2 If a new or modified source, or group of related sources in a proposed construction or modification will emit 2.5 or more tons per year of any single hazardous air pollutant or 6.25 or more tons per year of any combination of hazardous air pollutants, then the source or group of sources shall be subject to the requirements of Sections 2-1-301 and 302.

(Adopted 4/16/86; Amended 7/17/91; Renumbered and Amended 6/7/95; Amended 5/17/00; 6/15/05)

2-1-317 Public Nuisance Sources: Notwithstanding any exemption contained in Section 2-1-103 or Section 114 through 128, any new or modified source meeting any of the following criteria shall be subject to the requirements of Regulation 2, Rule 1, Section 301 and/or 302. If any exempt source receives two or more public nuisance violations, under Regulation 1, Section 301 or Section 41700 of the California Health & Safety Code, within any consecutive 180-day period, then the source shall be subject to the requirements of Section 2-1-301 and 302. Such a source will be treated as loss of exemption source under Section 2-1-414, and will be subject to the annual permit to operate fee specified in Regulation 3. This section does not apply to a source that is exempt per section 2-1-113.

(Adopted 6/7/95; Amended 5/17/00)

2-1-318 Hazardous Substances: Notwithstanding any exemption contained in Section 2-1-103 or Section 114 through 128, any new or modified source meeting any of the following criteria shall be subject to the requirements of Regulation 2, Rule 1, Section 301 and/or 302. If a new or modified source at a PSD Major Facility, as defined in Regulation 2, Rule 2, Section 220.3, emits the following air contaminants in excess of the quantities listed below, then it is subject to the requirements of Sections 2-1-301 and 302.

- 318.1 0.6 ton per year of lead,
- 318.2 0.007 ton per year of asbestos (excepting demolition, renovation, and waste disposal),
- 318.3 0.0004 ton per year of beryllium,
- 318.4 0.1 ton per year of mercury,
- 318.5 1 ton per year of vinyl chloride,
- 318.6 3 tons per year of fluorides,
- 318.7 7 tons per year of sulfuric acid mist, and
- 318.8 10 tons per year of reduced sulfur compounds (including hydrogen sulfide).

(Adopted 10/19/83; Renumbered and Amended 6/7/95; Amended 5/17/00)

2-1-319 Source Expressly Subject to Permitting Requirements: Notwithstanding any exemption contained in Section 2-1-103 or Section 114 through 128, any source meeting any of the following criteria shall be subject to the requirements of Section 2-1-302:

- 319.1 The emission rate of any regulated air pollutant from the source is greater than 5 tons per year, after abatement.
- 319.2 The source is subject to the requirements of Section 2-1-316, 317, or 318.

(Adopted May 17, 2000)

Regulation 2-5-301

2-5-301 Best Available Control Technology for Toxics (TBACT) Requirement: The applicant shall apply TBACT to any new or modified source of TACs where the source risk is a cancer risk greater than 1.0 in one million (10^{-6} or 1.0E-6), and/or a chronic hazard index greater than 0.20.

(Amended December 7, 2016)

Regulation 2-5-302

2-5-302 Project Risk Requirement: The APCO shall deny an Authority to Construct or Permit to Operate for any new or modified source of TACs if the project risk exceeds any of the following project risk limits:

- 302.1 a cancer risk of 10.0 in one million n (10×10^{-6} or 10E-6); or for a project located within an Overburdened Community as defined in Regulation 2-1-243 (other than a project at an Essential Public Service), a cancer risk of 6.0 in one million (6.0×10^{-6} or 6.0E-6);
- 302.2 a chronic hazard index of 1.0;
- 302.3 an acute hazard index of 1.0.

(Amended December 7, 2016; Amended December 15, 2021)

B. DATA FORM GUIDANCE

March 1, 2024

The following instructions are intended to assist permit applicants on the completion of Air District forms. Use blue or black ink to complete the forms. Click on the desired items below to find the instructions for each form: Note that on the various forms, that the terms facility (used on Permit Application Cover, Facility Creation, and Facility Contact forms), plant, company, or business (used on various data forms) are used synonymously.

FORMS (DOWNLOAD)	FORMS INSTRUCTIONS
Permit Application Cover Form	Permit Application Cover Form
Facility Creation Form	Facility Creation Form
Facility Contacts Form	Facility Contacts Form
A	A
C	C
CD	CD
F	F
FF	FF
G	G
ICE	ICE
P	P
HRA	HRA
S	S
SC	SC
SS	SS
T	T
Appendix H	Appendix H

FORM Permit Application Cover	ONE completed Form is required per permit application. The Application Cover form is required for all permit application requests, including but not limited to: → New devices/operations including replacements → Modify existing devices/operations → Change permit condition If your application triggers CEQA, then the CEQA Worksheet is required.
DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
Application Title	Provide a title that identifies this application.
Project Description	Enter a brief summary of the permit(s) being requested.
Facility Name	Enter name of Facility (company) who is requesting permit.
BAAQMD Facility ID	If you are an existing facility, fill the facility ID is available on your permit or invoice issued by BAAQMD. → If this application is for a new facility (not currently permitted by BAAQMD), you must also submit a Facility Creation and Facility Contacts forms.
Application Contact	Fill out this section only if it is application contact is different than Owner or Operator contact(s). If Owner or Operator is to be application contact, mark the box indicating who is application contact. Note that all correspondence regarding this application will be sent to the indicated application contact person unless this section is not filled in. However, all issued permits will be sent to owner contact.
First Name	Enter first name of application contact.
Last Name	Enter last name of application contact.
Business Name of Contact	Enter the Business or Company Name of Application Contact if different from that of the Facility Name indicated in the Form.
Contact Title	Enter title of application contact.
Address	Enter mailing street address of application contact.
City	Enter city of application contact.
E-mail Address	Enter e-mail address of application contact.
Primary Phone	Enter primary telephone number of application contact.
Alternate Phone	Enter an alternate telephone of application contact, if available.
Fax Number	Enter fax number of application contact, if available.
Small Business & Green Business Certification	This section is optional. The questions refer to the facility that the permits will be issued to, not any third party filling out the forms on behalf of the facility. The Small Business questions does not apply to gas dispensing facilities.
Proximity to a School (K-12)	You are required to identify whether the devices/operations in the permit application (specifically the emission points/outlets) are within 1000 feet of the outer boundary of a kindergarten through 12th grade school. Suggested online places to find school locations are www.greatschools.net or school locator using Google Earth.
CEQA	Answer each question by marking Yes or No. If you indicated Yes to Part 6A, you would need to fill out page 2 of this form (CEQA Worksheet). Question 6B is to identify whether this application is a smaller part of a larger project that could trigger CEQA when considered as a whole.
Application Billing Contact	Fill out this section only if it is application contact is different than Owner or Operator or Billing contact(s). If Owner or Operator or Billing is to be application billing contact, mark the box indicating who is application billing contact. Note that all invoices regarding this application will be sent to the indicated application billing contact person unless this section is not filled in.
First Name	Enter first name of application billing contact.
Last Name	Enter last name of application billing contact.

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FORM Permit Application Cover	ONE completed Form is required per permit application. The Application Cover form is required for all permit application requests, including but not limited to: → New devices/operations including replacements → Modify existing devices/operations → Change permit condition If your application triggers CEQA, then the CEQA Worksheet is required.
DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
Business Name of Contact	Enter the Business or Company Name of Application Billing Contact if different from that of the Facility Name indicated in the Form.
Contact Title	Enter title of application billing contact.
Address	Enter mailing street address of application billing contact.
City	Enter city of application billing contact.
E-mail Address	Enter e-mail address of application billing contact.
Primary Phone	Enter primary telephone number of application billing contact.
Alternate Phone	Enter an alternate telephone of application billing contact, if available.
Fax Number	Enter fax number of application billing contact, if available.
Certification/Signature	The person responsible for the information on this form should sign and complete this section of the form.

CEQA Worksheet	SPECIFIC LINE INSTRUCTIONS
CEQA Documentation	Provide a title that identifies this application.
Date of Document/Notice of Expected Date of Completion	If there is a approved or to be approved CEQA document (Environment Impact Report, Negative Declaration, etc.) prepared or to be prepared by the Lead Agency, please provide date of document or expected date of document.
Electronic Link to document, if available	Provide electronic link, if available, for copy of document.
Lead Agency Name	The Lead Agency is the primary authority to implement or approve a project, such as when it adopts air quality plans for the region, issues stationary source permits, or adopts rules and regulations
Lead Agency Contact Name	Enter Lead Agency Contact Name, if available.
Lead Agency Contact Phone	Enter Agency Contact Phone number, if available.
Lead Agency Contact E-mail Address, if available	Enter Lead Agency Contact E-mail Address, if available.
Related Projects	If the related projects were also submitted as separate BAAQMD permit applications, provide the Application number as it was assigned. The number was also provided on the Authority to Construct permit if it was issued.
Name of Related Prior or Current Project	If available, enter name of related project.
BAAQMD Application #, if available	If available, enter BAAQMD Application #.
Description of Related Project	If available, enter description of related project.
Certification/Signature	The person responsible for the information on this form should sign and complete this section of the form.

FORM Facility Creation	ONE completed Form is required per permit application.
Facility Name	Enter name of company requesting a permit, or exemption
Owning Entity	Enter name of a parent company, if applicable.
Type of Business	Check one box only.
Facility Physical Address/Location	Check box if a street address does not exist and submit map with location clearly marked on the map.

PERMIT HANDBOOK

Street Address or Intersection or Nearest Street	Enter Address or nearest street intersection or nearest street if a street address does not exist.
Address Line 2 (optional)	Enter Suite #, mail stop, or additional postal information
City	Enter City where equipment or operations is to be located.
Zip	Enter zip code where equipment or operations is to be located.
Overburdened Community	Check box yes or no based on the physical location of the Facility. (https://www.baaqmd.gov/about-air-quality/interactive-data-maps)
NAICS Code	Use website URL on form to list, choose and enter the most applicable 6-digit code that describes the type of facility.
Name	Enter Name of Person Providing Form Information
Title	Enter Title of Certification Contact
Signature	Sign or electronically sign this document
Date	Enter Date of Submittal
Phone	Enter Phone Number of Certification Contact

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FORM Facility Contacts	One completed Form is required per permit application.
Purpose	Check Box new facility or Update Information
Facility Name	Enter name of company requesting a permit update, or exemption
BAAQMD Facility ID	Enter Facility ID, Plant Number or Site Number or Leave Blank
Owner First Name	Enter Owner Contact First Name
Owner Last Name	Enter Owner Contact Last Name
Business Name of Contact	Enter Contact Business Name if different From Facility
Contact Title	Enter Owner Contact Title
Address Line 1	Enter Owner Contact Address
Address Line 2	Enter Suite #, mail stop, or additional postal information
City	Enter City for Owner Contact Address
State	Enter State for Owner Contact
Zip Code	Enter Zip for Owner Contact Address
E-mail address	Enter Email for Owner Contact
Primary Phone	Enter primary Phone Number for Owner Contact
Alternative Phone	Enter Alternative Phone Number for Owner Contact
Fax number	Enter Fax Number for Owner Contact
Operator Contact	Check Box if the Operator Contact is the Same as the Owner Contact
Business Name of Contact	Enter if Different from the Facility Name
First Name	Enter Operator Contact First Name
Last Name	Enter Operator Contact Last Name
Address Line 1	Enter Operator Contact Address
Address Line 2	Enter Suite #, mail stop, or additional postal information
City	Enter City for Operator Contact Address
State	Enter State for Operator Contact
Zip Code	Enter Zip for Operator Contact Address
E-mail Address	Enter Email for Operator Contact
Primary Phone	Enter primary Phone Number for Operator Contact
Alternative Phone	Enter Alternative Phone Number for Operator Contact
Fax Number	Enter Fax Number for Operator Contact
Billing Contact	Check Box if the Billing Contact is the Same as the Owner and/or Operator Contact
First Name	Enter Billing Contact First Name
Last Name	Enter Billing Contact Last Name
Address Line 1	Enter Billing Contact Address
Address Line 2	Enter Suite #, mail stop, or additional postal information
City	Enter City for Billing Contact Address
State	Enter State for Billing Contact
Zip Code	Enter Zip for Billing Contact Address
E-mail Address	Enter Email for Billing Contact
Primary Phone	Enter primary Phone Number for Billing Contact
Alternative Phone	Enter Alternative Phone Number for Billing Contact
Fax Number	Enter Fax Number for Billing Contact
Name	Enter Name of Person Providing Form Information
Title	Enter Title of Certification Contact
Signature	Sign or electronically sign this document
Date	Enter Date of Submittal
Phone	Enter Phone Number of Certification Contact

PERMIT HANDBOOK

FORM A	ABATEMENT DEVICE	This form should be completed for each abatement device, which is used to abate the emissions of a source that requires a permit. Applicant should fill out the name of the person completing this form and date it at the blanks located on the bottom of the page.
LINE #	DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
Line 1	Business Name	Enter name of business.
	Plant No.	Enter plant number, if known.
Line 2	Name or Description	Enter name or description of abatement device.
	Abatement Device	Enter abatement device number. The applicant may number the abatement device any number of their choosing as long as it is entirely numerical. If this field is left blank, the Air District will assign an abatement device number.
Line 3	Make, Model, and Rated Capacity	Enter make, model, and rated capacity of abatement device.
Line 4.	Abatement Device Code	Using the table on the second page of Form A , enter the abatement device codes.
	Date of Initial Operation	Enter Date of Initial Operation. If abatement device not yet in operation, then enter desired start-up date or ASAP. For dates, use the format MM/DD/YYYY.
Line 5.	With regard to air pollutant flow into this abatement device, what source(s) and/or abatement device(s) are immediately upstream?	Enter the source(s) and/or abatement device(s) that are to be abated by this abatement device.
Line 6.	Typical gas temperature at inlet (°F)	Enter the typical inlet temperature into the abatement device. Provide your best guess or estimate on this value.
Line 7 through 13	Weight Percent Reduction & Basis Code	Enter your best guess or estimate of the abatement efficiency of the abatement device. This field should be completed or else this abatement device is assumed to have no abatement efficiency. Make sure to provide documentation from the manufacturer to support the abatement device indicated.
Line 14	Check box if this Abatement Device burns fuel; complete lines 1, 2, and 15-36 on Form C (using the Abatement Device No. above for the Source No.) and attach to this form.	Check the box, only if this abatement device burns fuel. If this box is checked, make sure to complete Form C and complete lines 1, 2, and 15 through 36 (using the same abatement device number indicated in Line 2 above) and attach this Form A with it.
Line 15	With regard to air pollutant flow from this abatement device, what source(s), abatement device(s) and/or emission point(s) are immediately downstream?	Enter the source(s), abatement device(s), and/or emission points that this abatement devices exhaust to.

PERMIT HANDBOOK

FORM C	Fuel Combustion Source	This form should be completed for each fuel combustion source. Applicant should fill out the name of the person completing this form and date it at the blanks located on the bottom of the page.
LINE #	DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
1	Company Name	Enter name of business.
	Plant No.	Enter plant number, if known.
	Source No.	Enter source number.
2	Equipment Name & Number, or Description	Enter Equipment Name and Model, or Description of Fuel Combustion Source.
3	Make, Model	Enter the make and model of the equipment.
4	Date of modification or initial operation	Enter date of the modification or initial operation of the source. If unknown, leave blank.
5	SIC No.	Enter Standard Industrial Code .
7.	Equipment type	Indicate by checking the box what the equipment type. (Check only one item.)
8	Overfire air?	Indicate yes or no to this question. If yes, indicate the percent of overfired air.
9	Fuel gas recirculation?	Indicate yes or no to this question. If yes, indicate the percent of fuel gas recirculation.
10	Air preheat?	Indicate yes or no to this question.
11	Low NOx burners?	Indicate yes or no to this question.
12	Maximum flame temperature	Enter the maximum flame temperature in °F.
13	Combustion products	Enter the exhaust wet gas flowrate in acfm and the temperature in °F.
14	Typical operating time	Enter the operating hours per day, days per week, and weeks per year.
15	Typical % of total annual usage (%)	Enter the percentage of usage between December through February, March through May, June through August, and September through November. The range of acceptable percentages is between 0 and 25.
16	With regard to air pollutant flow into this source, what source(s), abatement device(s) and/or emission points are immediately downstream?	Enter the source(s), abatement device(s) and/or emission points that are to be vented from this source.
	SECTION A	Complete one line in Section A for each fuel used. Please use the units at the bottom of each table. N/A means "Not Applicable"
	SECTION B	Section B is OPTIONAL.

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FORM CD	COATER DATA WORKSHEET	This form should be completed for each coating source or grouping of coating sources. Applicant should fill out the name of the person completing this form and date it at the blanks located on the bottom of page.
LINE #	DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
1	Business Name	Enter name of business.
2	Make, Model, and Rated Capacity of Equipment	Enter make, model, and rated capacity of equipment.
3	Year equipment was installed	Enter date equipment was installed. If not yet installed, indicate so.
4	Typical operating time	Enter the operating hours per day, days per week, and weeks per year.
5	Description of typical products coated	Enter description of typical products coated.
6	Items Coated	Indicate by checking boxes whether metal, plastic, or wood is coated. Check all that apply.
7 through 11	Type of Coater	Indicate by checking box whether the source is a Spray Booth, Roller Coater, Flow Coater, Dipping operation, or other. If other, fill in the blank to indicate what other is.
12 through 17	Spraying Method	Indicate by checking box whether the spraying method is air-atomized, air-assisted, airless, electrostatic (air atomized, airless, disc), HVLP, or other. If other, fill in the blanks to indicate what others is.
18	Drying Method – Air Dried	If the drying method is air dried, check the box and skip lines 19 and 20.
19.	Drying/Curing Oven	
	Electric/Infrared	Enter the make, model, and BTU/hr rating, if Electric/Infrared Oven is used.
	Gas fired	Enter the make, model, and BTU/hr rating, if Gas fired oven is used.
20	If more than one oven is associated with this coating source, please indicate how many, and provide a description for each	Fill in this blank, if applicable.
	Coating Usage Table	List the names, makers, and product codes of your most commonly used coatings. Please estimate the maximum annual use of each coating as applied (coating + thinner) in gallons. In the next column, enter your normal mix ratio in parts paint to parts thinner. And the VOC Content (lb/gal), if known. If you need more space, please continue on a sheet of paper. Provide copies of the Material Safety Data Sheets for these listed coatings and thinners.
	Total maximum usage of all coatings (gal/yr)	Enter the total number of gallons of all paints used in one year in this blank space below as an estimate your maximum annual coating usage. Your permit will be restricted to this level, so you may want to overestimate to allow for some growth.
	Maximum cleanup solvent use (gal/yr)	Estimate the maximum amount of solvent you use to clean your coating equipment. Provide copies of the Material Safety Data Sheets for these listed cleanup solvent.
	Type of cleanup solvent used	Enter the type of cleanup solvent used. Provide copies of the Material Safety Data Sheets for these listed cleanup solvent.

P E R M I T H A N D B O O K

FORM F	Semiconductor Manufacturing Area	This form should be completed for each semiconductor manufacturing operation (one cleanroom environment). Applicant should fill out the name of the person completing this form and date it at the blanks located on the bottom of page 1 of this two-page form.
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1. Complete Lines 1, 2, 3, 5, and 6 of Data Form F.
2. Add Acetone usages indicated in Part A, Section 1 (Solvent Sinks), Section 2 (Solvent Spray Stations), Section 3 (Solvent Vapor Stations), and Section 4 (Wipe Cleaning Operation) together and input that quantity on the Acetone blank on Data Form F.
3. Repeat Step 1 for Butyl Acetate, Chlorofluorocarbons, Ethyl Acetate, Ethylene Glycol, Hexamethyldisilazane, Isopropyl Alcohol (IPA), Methanol, Methyl Ethyl Ketone (MEK), Methylene Chloride, Trichloroethane, Trichloroethylene, Toluene, Xylene, and Phenol.
4. Add the usages of Solvent Mixtures indicated in Part A, Section 1 (Solvent Sinks) and Section 2 (Solvent Spray Stations) together and input that quantity on the Stripper blank on Data Form F (no trade names or material code need be specified).
5. Add the usages of Solvent Mixtures indicated in Part A, Section 3 (Solvent Vapor Stations) and Section 4 (Wipe Cleaning Operations) together and input that quantity on the Other blank on Data Form F (no material code need be specified).
6. Transpose all data from Part B, Section 1 (Coating Operations) to Maskant # 1, 2, and/or 3 blanks on Data Form F. Use the Material Safety Data Sheets to complete the composition blanks of Data Form F.
7. If Solvent-Based Developer usage is indicated, check “negative” for Photoresist Operations in Data Form F.
8. If no Solvent-Based Developer usage is indicated, check “positive” for Photoresist Operations in Data Form F.
9. Transpose all data from Part B, Section 2 (Solvent-Based Developer) to Developer # 1, 2, and/or 3 blanks on Data Form F. Use the Material Safety Data Sheets to complete the composition blanks of Data Form F.
10. Transpose Ammonia usage from Part C, Section 1 (Inorganic Liquids) to Aqueous Ammonia blank in Data Form F.
11. Transpose Hydrochloric Acid usage from Part C, Section 1 (Inorganic Liquids) to Aqueous Hydrochloric blank in Data Form F.
12. Transpose Hydrofluoric Acid usage from Part C, Section 1 (Inorganic Liquids) to Aqueous Hydrofluoric Acid blank in Data Form F.
13. Transpose Nitric Acid usage from Part C, Section 1 (Inorganic Liquids) to Nitric Acid usage blank in Data Form F.
14. Transpose Arsine usage from Part C, Section 2 (Organic and/or Inorganic Gases) to Arsine usage blank in Data Form F.
15. Transpose Phosphine usage from Part C, Section 2 (Organic and/or Inorganic Gases) to Phosphine usage blank in Data Form F.
16. Add remaining gases (other than Arsine and Phosphine) usages indicated in Part C, Section 2 (Organic and/or Inorganic Gases) together and input that quantity on the Other Dopant gases blank in Data Form F.
17. Add all precursor solvents and solvent mixtures indicated in Part B, Section 3 (Other Miscellaneous Solvent Usage) together and input to the Other Organics (precursor) blank on Data Form F.
18. Add all non-precursor solvents and solvent mixtures indicated in Part B, Section 3 (Other Miscellaneous Solvent Usage) together and input to the Other Organics (non-precursor) blank on Data Form F.

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FORM FF	Semiconductor Manufacturing Operations	This form should be completed for each semiconductor manufacturing operation (one cleanroom environment). Applicant should fill out the name of the person completing this form and date it at the blanks located on the bottom of page 1 of this two-page form.
LINE #	DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
	Plant No.	Enter plant number, if known.
	Business Name	Enter name of business.
	Source No.	Enter source number.
	Source Description	Enter source description.
	Initial Date of Operation	Enter date of initial operation of equipment. If source is not yet in operation, indicate desired startup date or "ASAP" (as soon as possible). Only a proper date such as 05/25/2005 can be used. A date such as late 1996 should be changed to 11/1/1996.
Part A – Solvent Cleaning Operations	Solvent Sinks Solvent Spray Stations Solvent Vapor Stations Wipe Cleaning Operations	Maximum annual throughput is the amount of material that will appear as a permit condition limit. The usage limit should be set high enough so that it is not likely to be exceeded while taking into consideration Air District BACT, offset, and toxics requirements. Enter material code for type of solvent, if known. Make sure to include Material Safety Data Sheets for solvent mixtures.
Part B – Coating Operations	Photoresist Solvent-Based Developer Other Miscellaneous Solvent Usage	Maximum annual throughput is the amount of material that will appear as a permit condition limit. The usage limit should be set high enough so that it is not likely to be exceeded while taking into consideration Air District BACT, offset, and toxics requirements. Enter material code for type of solvent, if known. Make sure to include Material Safety Data Sheets for compounds.
Part C – Other Operations Involving Materials That Are Toxic	Inorganic Liquids Organic and/or Inorganic Gases	Maximum annual throughput is the amount of material that will appear as a permit condition limit. The usage limit should be set high enough so that it is not likely to be exceeded while taking into consideration Air District BACT, offset, and toxics requirements. Enter material code for type of solvent, if known.
	Compliance Determination Worksheet	Completion required for those sections that exist in fab area source.

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FORM G	General Air Pollution Source	This form should be completed for each source. Applicant should fill out the name of the person completing this form and date it at the blanks located on the bottom of the page.
LINE #	DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
1	Business Name	Enter name of business.
	Plant No.	Enter plant number, if known.
2	SIC No.	Enter Standard Industrial Code .
	Date of Initial Operation (new)	Enter date of initial operation of equipment. If source is not yet in operation, indicate desired startup date or "ASAP" (as soon as possible).
3	Name or Description	Enter name or description of source.
	Source No.	Enter source number. If this is a new source, the applicant may select a number of their choosing. If this is for a modification of an existing source, write in the assigned source number.
4	Make, Model, and Rated Capacity of Equipment	Enter make, model, and rated capacity of equipment.
5	Process Code	Enter Process Code (see Tables G-1 through G-7).
	Material Code	Enter Material Code .
	Usage Unit	Enter usage unit (see Material Code table for usage unit).
6	Total throughput, last 12 months	Enter MAXIMUM projected, annual total throughput in the usage unit indicated in Line 5.
	Maximum operating rate	Enter the MAXIMUM operating rate per usage unit indicated in Line 5.
7	Typical % of total annual usage (%)	Enter the percentage of usage between December through February, March through May, June through August, and September through November. The range of acceptable percentages is between 0 and 25.
8	Typical operating time	Enter the operating hours per day, days per week, and weeks per year.
9	For batch or cyclic processes	If applicable, enter the minutes per cycle and the minutes between cycles.
10	Exhaust gases from source	If available, enter the exhaust wet gas flowrate in cubic feet per minute and the flowrate temperature.
	Approximate water vapor content	If available, enter the volume % of water vapor content.
	EMISSION FACTORS	If known (by applicant), enter the emission factor and basis codes (see second page of G form for basis codes) for the pollutant, if it is emitted from the source. DO NOT CHECK THE BOX and enter all emission factors prior to any abatement.
11	Particulate	
12	Organics	
13	Nitrogen Oxides (as NO ₂)	
14	Sulfur Dioxide	
15	Carbon Monoxide	
16	Other	If applicable, fill in what Other is.
17	Other	If applicable, fill in what Other is.
18	With regard to air pollutant flow into this source, what source(s), abatement device(s) and/or emission points are immediately downstream?	Enter the source(s), abatement device(s) and/or emission points that are to be vented from this source.

PERMIT HANDBOOK

FORM ICE	Internal Combustion Engines	This form should be completed for each internal combustion engine. Applicant should fill out the name of the person completing this form and date it at the blanks located on the bottom of page 2 of this two-page form.
LINE #	DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
1	SUMMARY	Check the box that applies to the engine: New Construction – engine installed or to be installed on or after September 1, 2001; Modification – changes to engine which already has an Air District permit; Loss of Exemption – engine installed before September 1, 2001.
	Company Name	Enter name of business.
	Plant No.	Enter plant number, if known.
	Source Description	Enter source description.
	Source No.	Enter source number.
	Initial Date of Operation	Enter date of initial operation of equipment. If source is not yet in operation, indicate desired startup date or “ASAP” (as soon as possible). Only a proper date such as 05/25/2005 can be used. A date such as late 1996 should be changed to 11/1/1996.
	Operating Schedule	Should give the total number of hours allowed for testing. For example, 20 hours could be represented as 1 hr per day, 1 day per week, 20 weeks per year.
2	ENGINE INFORMATION	Check the box if the engine is portable as defined by Regulation 2-1-413.
	Engine Type	Check the box that applies. 4 cycle is the same as 4 stroke. Most engines are 4 stroke but there are a small number of 2 stroke in use.
	Engine Manufacturer	Enter the engine manufacturer and not the generator set manufacturer.
	EPA/CARB Engine Family Name	Should be entered for any engine later than the year 2000. Could be found on the ARB website (https://www.arb.ca.gov/msprog/offroad/cert/cert.php).
	Engine Displacement	Enter the engine displacement in cubic inches.
	Maximum rated output (bhp)	Enter the maximum rated output in brake horsepower. The engine displacement in cubic inches is greater than the maximum rated output in bhp.
	Typical load as % of bhp rating	Enter typical load as percentage of brake horsepower.
	Is this an emergency/standby engine?	Check the box that applies.
	Certification	Check the box that applies. If “None” is checked, please further check the box that applies. In general, diesel engines are lean-burn.
	Primary Use	Check the box that applies. If “Other” is checked, please fill out blank with what the “Other” is.
3.	ABATEMENT DEVICE INFORMATION	Complete this section only if the engine exhausts to an add-on abatement device. Check the box if the engine has more than one add-on abatement device and complete a separate Form A for the additional abatement devices.

PERMIT HANDBOOK

FORM ICE	Internal Combustion Engines	This form should be completed for each internal combustion engine. Applicant should fill out the name of the person completing this form and date it at the blanks located on the bottom of page 2 of this two-page form.
	Abatement device number	Enter abatement device number. The applicant may number the abatement device any number of their choosing as long as it is entirely numerical. If this field is left blank, the Air District will assign an abatement device number.
	Device type	Check the box that applies. If “Other” is checked, please fill out blank with what the “Other” is.
	Make, Model, and Rated Capacity	Enter make, model, and rated capacity of abatement device.
	Abatement device control efficiencies at typical operation	Fill in with known data. Use the basis codes listed. In unknown, leave blank.
4	EMISSION POINT/STACK INFORMATION	Check the box if the engine has more than one stack or has a continuous pollutant emission monitor and complete a separate Form P for the additional stacks.
	Emission point number	Enter emission point number, if known. Check box that applies if it is a new or existing emission point. An existing emission point is that which the information is already been processed in a prior permit application.
	Stack outlet height from ground level	Enter outlet height from ground level in feet.
	Diameter of stack outlet or Outlet cross-section area	Enter diameter of stack outlet in feet or outlet cross – section area in square inches.
	Direction of outlet	Check box that applies to indicate whether outlet direction is horizontal or vertical.
	Exhaust rate at typical operation or Exhaust temperature at typical operation	Enter exhaust rate at typical operation in actual cubic feet per minute.
5	RISK ASSESSMENT INFORMATION	Complete this section even if a health risk assessment may not be required.
	Distance from engine to the property line of the nearest residence	Enter distance from engine to the property line of the nearest residence in feet or check box if greater than one mile.
	Distance from engine to the property line of the nearest school	Enter distance from engine to the property line of the nearest school in feet or check box if greater than 1000 feet.
	Describe the nearest non-residential, non-school site	Check box that applies. If “Other”, make sure to explain what “Other” is.
	Distance from engine to the property line of the nearest non-residential, non-school site	Enter distance from engine to the property line of the nearest non-residential non-school site in feet or check box if greater than one mile.
6	FUEL DATA	
	Fuel Code	Enter the fuel code: Diesel Oil (98) Fuel Oil No. 2 (392) Bio Diesel B100 (815) Bio Diesel B20 Blend (816) Gasoline (551) Natural Gas (189) Landfill Gas (511) Digester Gas (493) Liquid Petroleum Gas (LPG) (160)

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FORM ICE	Internal Combustion Engines	This form should be completed for each internal combustion engine. Applicant should fill out the name of the person completing this form and date it at the blanks located on the bottom of page 2 of this two-page form.
	Name	Enter the name of the fuel.
	Maximum Fuel Usage	Enter the maximum fuel usage. Maximum fuel use rate units: gallons/hr for liquid fuels and SCF/hr for gaseous fuel. SCF = standard cubic foot
	Typical Heat Content	Enter heat content and circle the units. If you are using diesel or natural gas, you may skip this entry. Heat content units: BTU/gallon for liquid fuels, BTU/SCF for gaseous fuels.
	Sulfur Content	Enter sulfur content of fuel. If you are using diesel or natural gas, you may skip this entry. Sulfur content units: weight % for liquid fuels, ppmv for gaseous fuels. (ppmv = parts per million by volume)
	Emission Factors	Enter emission factors in grams/brakehp-hr, lb/gal, lb/therm, or lb/SCF.
7	CERTIFICATION	Sign certification after reviewing statement.

PERMIT HANDBOOK

FORM HRA	REQUEST OF INFORMATION Risk Screen Analysis	This form should be completed for each source that emits a Toxic Air Contaminant(s) [or for a group of sources that exhaust through a common volume source). You must provide a plot plan (drawn to scale, if possible) and a local map (aerial photos are recommended, which clearly show the location of your site, the source(s), abatement devices, property lines, and any surrounding buildings within 300 feet of each source or abatement device, facility boundaries, and zoning of the surrounding areas out to 1,500 feet beyond the property line. Have numbers for each building on the map. A good source of free aerial photos can be found at Google Maps [Enter the plant address at the “Search the map” box and click on the “Satellite” box, then press on the [Search Map] button.]
LINE #	DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
	Plant Name	Enter name of business.
	Plant No.	Enter plant number, if known.
	Source Description	Enter description of source.
	Source Number	Enter source number, if known.
	Emission Point	Enter emission point, if known.
SECTION A		
1	Does the source exhaust at clearly defined emission point; i.e., a stack or exhaust pipe?	Answer the questions by checking the appropriate box. If the answer is NO, you have finished Section A (the remaining questions in Section A do not apply), go on to Section B.
2-8		If the answer to Line 1 was YES, answer the remaining questions by checking the appropriate boxes or filling the blanks with the answer requested. After completing Line 8, go on to Section B.
SECTION B		
1	Is the emission source located within a building?	Answer the question by checking the appropriate box. If the answer is NO, you have finished Section B (the remaining questions in Section B do not apply), go on to Section C.
2-3		If the answer to Line 1 was YES, answer the remaining questions by checking the appropriate boxes or filling the blanks with the answer requested. After completing Line 3, go on to Section C.
SECTION C		Provide building dimensions. Use Line B1 only for building with source/stack on the roof or with fugitive emissions inside building. Use Lines B2-B9 for buildings within 300 feet which are surrounding the source location. Distances and direction are optional, IF map and/or aerial photo are adequately labeled with the locations of buildings. Make sure to check which units (in feet or in meters). Provide comments in the blank provided for any details that need additional clarification (i.e., list buildings that are co-occupied by your employees and other workers, residents, students, etc.). After completing this section, go on to Section D.

PERMIT HANDBOOK

FORM HRA	REQUEST OF INFORMATION Risk Screen Analysis	This form should be completed for each source that emits a Toxic Air Contaminant(s) [or for a group of sources that exhaust through a common volume source). You must provide a plot plan (drawn to scale, if possible) and a local map (aerial photos are recommended, which clearly show the location of your site, the source(s), abatement devices, property lines, and any surrounding buildings within 300 feet of each source or abatement device, facility boundaries, and zoning of the surrounding areas out to 1,500 feet beyond the property line. Have numbers for each building on the map. A good source of free aerial photos can be found at Google Maps [Enter the plant address at the “Search the map” box and click on the “Satellite” box, then press on the [Search Map] button.]
LINE #	DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
SECTION D		Answer the remaining questions by checking the appropriate boxes or filling the blanks with the answer requested. Indicate on maps or aerial photos the residential and nonresidential areas surrounding the facility.

PERMIT HANDBOOK

FORM HRA	Health Risk Assessment	This form should be completed for each source that emits a Toxic Air Contaminant(s) [or for a group of sources that exhaust through a common volume source). You must provide a plot plan (drawn to scale, if possible) and a local map (aerial photos are recommended, which clearly show the location of your site, the source(s), abatement devices, property lines, and any surrounding buildings within 300 feet of each source or abatement device, facility boundaries, and zoning of the surrounding areas out to 1,500 feet beyond the property line. Have numbers for each building on the map. A good source of free aerial photos can be found at Google Maps [Enter the plant address at the “Search the map” box and click on the “Satellite” box, then press on the [Search Map] button.]
Section 1	Facility Name	Enter the Name of the Facility
	BAAQMD Facility ID	Leave Blank for a New facility or Enter Facility ID, or Plant Number or Site Number for an existing facility
Section 2	Area Map	Check Yes and attach map or confirm map is being submitted with the application package.
Section 3	Building Information	Confirm measurement units submitted are in either Feet or Meters.
	Building Number	Choose a number to identify a specific building on the Map Submittal. One for each Building within a 1500 Ft radius around the Facility.
	Building Name	Choose a named to identify a specific building on the Map Submittal.
	Height	Enter the Height of the specific building
	Width	Enter the Width of the specific building
	Length	Enter the Length of the specific building
	Type of Occupants	Choose from drop down choices one of the following: Employees, Other Workers, Residents, Students, Mixed Use, or No Occupants
Section 4	BAAQMD Device ID	Enter for an Existing Device or Leave Blank if the Device is New.
	Device Name	Enter the Name of the Device.
	Location	Enter the location of the Device.
	Building #	Enter the Building Number from the map submittal. Leave blank if source is located outside.
Section 5	Confidential Information	Determine if this form contains confidential information and provide and attach a separate statement why this form needs to be confidential.
	Name	Enter Name of Person Providing Form Information
	Title	Enter Title of Certification Contact
	Signature	Sign or electronically sign this document
	Date	Enter Date of Submittal
	Phone	Enter Phone Number of Certification Contact

PERMIT HANDBOOK

FORM P	Emission Point	This form should be completed for each emission point. Applicant should fill out the name of the person completing this form and date it at the blanks located on the bottom of the page of this one-page form.
LINE #	DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
	Business Name	Enter name of business.
	Plant No.	Enter plant number, if known.
	Emission Point No.	Enter emission point number, if known.
	With regard to air pollutant flow into this emission point, what source(s) and/or abatement device(s) are immediately upstream?	Enter the source(s) and/or abatement device(s) that are to be vented to this emission point.
	Exit cross section area	Enter the cross-sectional area in square feet.
	Height above grade.	Enter height above grade in feet.
	Effluent Flow From Stack	
	Actual Wet Gas Flowrate	Enter the actual wet gas flow rate in cubic feet per minute in typical and maximum operating conditions.
	Percent Water Vapor	Enter percent water vapor in typical and maximum operating conditions.
	Temperature	Enter temperature in typical and maximum operating conditions.
	If this stack is equipped to measure (monitor) the emissions of air pollutants	Only answer the next two questions, if the stack is equipped with a monitor to measure the emissions of air pollutants.
	Is monitoring continuous?	Answer yes or no, if monitoring is continuous.
	What pollutants are monitored?	Indicate what pollutants are monitored.

PERMIT HANDBOOK

FORM S	Surface Coating/Solvent Source	This form should be completed for each solvent emitting source. Applicant should fill out the name of the person completing this form and date it at the blanks located on the bottom of page 1 of this two-page form.
LINE #	DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
1	Business Name	Enter name of business.
	Plant No.	Enter plant number, if known.
2	SIC No.	Enter Standard Industrial Code .
	Date of Initial Operation (new)	Enter date of initial operation of equipment. If source is not yet in operation, indicate desired startup date or "ASAP" (as soon as possible).
	Date of start-up (modification)	Enter date of start-up modification.
3	Name or Description	Enter name or description of source.
	Source No.	Enter source number. If this is a new source, the applicant may select a number of their choosing. If this is for a modification of an existing source, write in the assigned source number.
4	Make, Model, and Rated Capacity of Equipment	Enter make, model, and rated capacity of equipment.
5	Operating time	Enter the operating hours per day, days per week, and weeks per year.
6	Typical % of total annual usage (%)	Enter the percentage of usage between December through February, March through May, June through August, and September through November. The range of acceptable percentages is between 0 and 25.
7	Solvent evaporation emissions at this source vented directly to:	Indicate by the checking the applicable box, whether the source is vented to the atmosphere (not through a stack), sources, abatement devices, or emission points.
	Parts A, B, C, D, E, F, G	Indicating by checking ALL applicable box(es) , whether the source is one or more of the following: Part A – coating and graphics art operation; Part B – coating dryer; Part C – solvent cleaner; Part D – graphics art operation; Part E – fiberglass operation; Part F – manufacturer of coatings, solvents, etc; Part G – other solvent uses.
Part A	Surface Coater	The applicant may leave this area blank, as long as they have completed a Form CD and provided the material safety data sheets (MSDS) of the coatings and cleanup solvents indicated in Form CD. The Air District will complete this part for the applicant as long as Form CD and the MSDS's have been provided.
8	Coater type	Indicate by checking applicable type of coater source.
9	If sprayer, check method	Indicate by checking method, the type of sprayer used.
10	Does this coater apply only "complying coatings as defined in BAAQMD Regulation 8?	The applicant may leave this question unanswered because this question is outdated and no longer applies.
11	Of the total solvent in the coating(s), what percent evaporates at this source (applicator)? (%)	Enter the total percentage of total solvent emissions evaporated at this source.

PERMIT HANDBOOK

FORM S	Surface Coating/Solvent Source	This form should be completed for each solvent emitting source. Applicant should fill out the name of the person completing this form and date it at the blanks located on the bottom of page 1 of this two-page form.
LINE #	DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
12	Check box, if after application, heat is used for drying, baking, curing or polymerizing the coating.	Check box, if applicable.
13	Solvent used for cleanup at this source: Total, last 12 months (gal)	Regardless of what the form states, the blank should be filled with the maximum, annual solvent usage quantity that the applicant would be willing to accept as a potential solvent usage limit.
Line 14 through 22	Note specific instructions:	Lines 14 through 22: These are intended to be “as applied”. So the material should include reducers, catalyst or other coating materials mixed to create the coating that comes onto a substrate (i.e., item coated). Note that the elements of line 14 through 22 may not come directly from the Safety Data Sheet of the coating.
14	Material code for coating or ink	Enter material code for type of coating applied at this source.
15	Total coating applied, last 12 months (gal)	Regardless of what the form states, the blank should be filled with the maximum, annual coating usage quantity that the applicant would be willing to accept as a potential coating usage limit.
16	Percent solids, by volume (%)	Enter volume percentage of solids in the coating.
17	Percent organic solvent, by volume (%)	Enter the volume percentage of solvent in the coating. The solvent % by volume should NOT include water. So the sum of % solvent + % solids may not necessary add up to 100% if it's a water-borne coating.
18	Density of organic solvent (lb/gal)	Enter density of solvent in the coating. Note that this is NOT the density of the coating. The VOC Content of the coating as applied is roughly equivalent to the Organic Solvent Content by volume (Line 17) multiplied by the Density of the Organic Solvent (Line 18).
19	Largest component of organic solvent (%)	Enter the percentage of the largest component of organic solvent in the coating. Only component that are organic liquids should be listed.
20	Material code of largest component	Enter material code for largest solvent component.
21	2 nd largest component (%)	Enter the percentage of the 2 nd largest component of organic solvent in the coating. Only component that are organic liquids should be listed
22	Material code of 2 nd largest component	Enter material code for 2 nd largest solvent component. Note that the remainder of the organic components (after the first two components) is given material code 201.
Part B	Coating Dryer	
23	Operation	Indicate by checking box, whether the coating dryer is a hot air/gas dryer, coating oven, curing oven, infrared, or other type. If other type, fill in what type of other it is.
24	Temperature (°F)	Indicate temperature of coating dryer.
	Oxygen present	Indicate whether oxygen is present? Check yes or no box.
	Which coating applicator(s)?	Indicate which coating applicator is drying.

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FORM S	Surface Coating/Solvent Source	This form should be completed for each solvent emitting source. Applicant should fill out the name of the person completing this form and date it at the blanks located on the bottom of page 1 of this two-page form.
LINE #	DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
Part C	Solvent Cleaner	
25	Operation	Indicate by checking the box, whether the solvent cleaner is one of the following: Degreaser – cold cleaner, vapor or conveyorized degreaser; Dry Cleaning – used for dry cleaning; OR Other – used for wipe cleaning and other operations. Make sure to fill out blank to indicate what the other operation is.
26	Net solvent usage, total last 12 months (gal)	Regardless of what the form states, the blank should be filled with the maximum, annual solvent usage quantity that the applicant would be willing to accept as a potential solvent usage limit.
27	Is all solvent used in this source “complying” as defined in BAAQMD Regulation 8?	The applicant may leave this question unanswered because this question is outdated and no longer applies.
28	Solvent used most:	
	Material Code	Enter material code for solvent used most.
	Density (lb/gal)	Enter density for solvent used most.
	Percent of Total Used (%)	Enter percentage of solvent that this solvent represents in the total of all solvents used.
29	Solvent used 2 nd most	
	Material Code	Enter material code for solvent used 2 nd most.
	Density (lb/gal)	Enter density for solvent used 2 nd most.
	Percent of Total Used (%)	Enter percentage of solvent that this solvent represents in the total of all solvents used.
Part D	Printing Press	
30	Type	Indicate by checking the box whether the printing press is a flexographic, rotogravure, letterpress, lithographic, silk screen, or other. If other, fill out the blank to indicate what other is.
31	Total ink used, last 12 months (in lb or gal or tons)	Regardless of what the form states, the blank should be filled with the maximum, annual ink usage quantity that the applicant would be willing to accept as a potential ink usage limit.
32	Total solvent used for cleanup, etc., last 12 months (gal)	Regardless of what the form states, the blank should be filled with the maximum, annual cleanup solvent usage quantity that the applicant would be willing to accept as a potential solvent usage limit.
	Material Code	Enter material code for solvent used.
Part E	Fiberglass Operation	
33	Operation	Check the box to indicate whether it is a fiberglass dip, layup, molding, spray (chopper gun), spray (other), or other type of operation. If other, fill out the blank to indicate what other is.
34	Specify resin used	Enter the resin name.
	Total volume used, last 12 months (gal)	Regardless of what the form states, the blank should be filled with the maximum, annual resin usage quantity that the applicant would be willing to accept as a potential resin usage limit.
	Volume percent styrene (%)	Enter the percent styrene in the resin.

PERMIT HANDBOOK

FORM S	Surface Coating/Solvent Source	This form should be completed for each solvent emitting source. Applicant should fill out the name of the person completing this form and date it at the blanks located on the bottom of page 1 of this two-page form.
LINE #	DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
	Volume percent other volatile organics (%)	Enter the percent other volatile organics in the resin.
35	Specify Catalyst used	Enter the catalyst name.
	Total volume used, last 12 months (gal)	Regardless of what the form states, the blank should be filled with the maximum, annual catalyst usage quantity that the applicant would be willing to accept as a potential catalyst usage limit.
36	Total solvent used for cleanup, etc., last 12 months (gal)	Regardless of what the form states, the blank should be filled with the maximum, annual cleanup solvent usage quantity that the applicant would be willing to accept as a potential solvent usage limit.
	Material Code	Enter material code for solvent used.
Part F	Manufacturer of Coatings, Solvents, etc.	
37	Solvent used for cleanup at this source: Total, last 12 months (gal)	Regardless of what the form states, the blank should be filled with the maximum, annual cleanup solvent usage quantity that the applicant would be willing to accept as a potential solvent usage limit.
	Material Code	Enter material code for solvent used for cleanup.
38	Material manufactured (Material Code)	Enter material code for the material that is manufactured for Highest Production, 2 nd Highest Production, and All Remaining Production.
39	Quantity manufactured, last 12 months (1,000 gal)	Regardless of what the form states, the blank should be filled with the maximum, annual quantity of material manufactured that the applicant would be willing to accept as a potential throughput limit manufactured for Highest Production, 2 nd Highest Production, and All Remaining Production. Make sure that quantity is indicated per 1,000 gallon.
40	Solvent used (Material Code)	Enter material code for solvent used manufactured for Highest Production, 2 nd Highest Production, and All Remaining Production.
41	Solvent evaporated during manufacturing, as volume % of material produced	Enter volume percentage of solvent evaporated during manufacturing compared to the material produced manufactured for Highest Production, 2 nd Highest Production, and All Remaining Production.
Part G	Other Solvent Use	
42	Solvent evaporated most at this source	
	Material Code	Enter material code for solvent evaporated most.
	Total evaporated, last 12 mo. (gal)	Regardless of what the form states, the blank should be filled with the maximum, annual quantity of solvent evaporated most that the applicant would be willing to accept as a potential limit.
43	Solvent evaporated 2 nd most at this source	
	Material Code	Enter material code for solvent evaporated 2 nd most.
	Total evaporated, last 12 mo. (gal)	Regardless of what the form states, the blank should be filled with the maximum, annual quantity of solvent evaporated 2 nd most that the applicant would be willing to accept as a potential limit.

PERMIT HANDBOOK

FORM SC	Solvent Cleaning Operation	This form should be completed for each solvent cleaning operation source. Applicant should fill out the name of the person completing this form and date it at the blanks located on the bottom of page 1.
LINE #	DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
	SIC Number	Enter Standard Industrial Code .
	Plant No.	Enter plant number, if known.
1	Business Name	Enter name of business.
2	Date of Initial Operation (new)	Enter date of initial operation of equipment. If source is not yet in operation, indicate desired startup date or "ASAP" (as soon as possible).
	Source No.	Enter source number. If this is a new source, the applicant may select a number of their choosing. If this is for a modification of an existing source, write in the assigned source number.
3	Make, Model, and Rated Capacity of Equipment	Enter make, model, and rated capacity of equipment.
4	Operating time	Enter the operating hours per day, days per week, and weeks per year.
5	Typical % of total annual usage (%)	Enter the percentage of usage between December through February, March through May, June through August, and September through November. The range of acceptable percentages is between 0 and 25.
6	Solvent evaporation emissions at this source vented directly to:	Indicate by the checking the applicable box, whether the source is vented to the atmosphere (not through a stack), sources, abatement devices, or emission points.
7	Net solvent usage for 12-month period (gals)	Enter the maximum, annual net solvent usage that the applicant would be willing to accept as a usage limit.
8	Solvent used most: Trade name	Enter the name of the solvent, which is used most.
	% of total used	Enter percentage of solvent in the total.
9	Solvent used 2 nd most: Trade name	Enter the name of the solvent, which is used 2 nd most.
	% of total 2 nd used	Enter percentage of solvent in the total.
8a	Material Code	Enter material code for solvent most. Air District use only.
	Density (lb/gal)	Enter density of solvent used most. Air District use only.
9a	Material Code	Enter material code for solvent used 2 nd most. Air District use only.
	Density (lb/gal)	Enter density of solvent used 2 nd most. Air District use only.
10	If this is a wipe cleaning operation, check box.	Check box, if it is a wipe cleaning operation and stop. The form is now complete, if this is a wipe cleaning operation.
11.	Container	
	Length (in)	Enter length of container.
	Width (in)	Enter width of container.
	Liquid volume (gal)	Enter liquid volume.
	Freeboard height (in)	Enter freeboard height. Of open-top vapor degreasing tanks, the distance from the solvent vapor-air interface to the top of the degreaser tank. Of conveyorized degreasing tanks, the distance from the top of the solvent or solvent vapor-air interface to the bottom of the lowest opening in the degreaser tank. Of cold cleaning tanks, the distance from the top of the solvent or solvent drain to the top of the tank.
12	Freeboard ratio	Enter freeboard ratio = freeboard height/shorter of length or width

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P E R M I T H A N D B O O K

FORM SC	Solvent Cleaning Operation	This form should be completed for each solvent cleaning operation source. Applicant should fill out the name of the person completing this form and date it at the blanks located on the bottom of page 1.
LINE #	DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
13	General information	Check either yes or no
14	Equipment type	Check box to indicate source type and go to the section that is indicated: Vapor Degreaser – go to Part A Conveyorized Degreaser – go to Part B Cold Cleaner – go to Part C
Part A Lines 15 through 19		Check either yes or no to the questions that apply.
Part B Lines 20 through 26		Check either yes or no to the questions that apply.
Part C Lines 27 through 29		Check either yes or no to the questions that apply.

PERMIT HANDBOOK

FORM SS	PRINTER MATERIAL USAGE INFORMATION	This form should be completed for each printing source or grouping of printing sources. Applicant should fill out the name of the person completing this form and date it at the blanks located on the bottom of page.
DATA FORM FIELD		SPECIFIC LINE INSTRUCTIONS
TABLE		Complete the table to provide annual usage information on a facility-wide basis for each different type of materials used at the facility. Indicate whether ink and varnish usages are given in gallons or pounds. Submit a copy of the Material Safety Data Sheet (MSDS) for each material identified below. Be advised that these usage values will be included as material usage limits in permit conditions issued with your permit to operate. So, be sure that annual usage values include allowances for reasonable growth over the next few years.
Mixed fountain solution formulation		Enter the mixed foundation solution formulations for water: IPA: and fountain concentrate.

PERMIT HANDBOOK

FORM T	ORGANIC LIQUID EVAPORATION	This form should be completed for each organic liquid storage tank. Applicant should fill out the name of the person completing this form and date it at the blanks located on the bottom of this form.
LINE #	DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
1	Business Name	Enter name of business.
	Plant No.	Enter plant number, if known.
2	SIC No.	Enter Standard Industrial Code .
	Source No.	Enter source number. If this is a new source, the applicant may select a number of their choosing. If this is for a modification of an existing source, write in the assigned source number.
	Date of start-up (modification)	Enter date of start-up modification.
3	Name or Description	Enter name or description of source.
4	Code materials* in order of highest throughput	*See Material Code Reference List
5	Total throughput (all materials), last 12 months:	Enter the MAXIMUM total throughput proposed for this source tank.
6	Typical % of total annual usage (%)	Enter the percentage of usage between December through February, March through May, June through August, and September through November. The range of acceptable percentages is between 0 and 25.
7	Usage type	Indicate by checking the applicable box, whether the tank is used for a bulk plant (truck/rail car), bulk plant (marine), vehicle service station, aircraft/marine servicing, or other. If other, explain what "other" is.
8	How many nozzles/loading arms?	If applicable, indicate the number of nozzles/loading arms.
9	Make and model of nozzles/loading arms.	If applicable, indicate the make and model of the nozzles/loading arms.
10	Nozzle/arm loads tank by	If applicable, indicate by checking the applicable box, whether the nozzle/arms load the tank by splash fill, submerged fill, part splash, or part submerged.
11	Upon loading, vapor space in tank(s) is	Indicate by checking the applicable box, whether the vapor space in the tank is vented to the atmosphere or collected by nozzle/arm and sent to an abatement device. If sent to an abatement device, indicate the Abatement Device number.
12	Annual Average	Indicate the storage vapor pressure in psia or tank temperature in °F and Reid Vapor Pressure (psia).
13	Highest v.p. of all materials stored	Indicate highest vapor pressure in psia or high tank temperature in °F and Reid Vapor Pressure (psia).
14	Highest °API of all materials stored	Indicate highest °API of all materials stored.
15	Tank Type	Indicate by checking the applicable box, whether the tank is an underground, fixed roof, internal floating roof, floating roof, pressure, or other type. If other is checked, indicate what that other is.
16	Tank Volume	Indicate the volume of the tank in thousand gallons or thousand barrels (1 barrel = 42 gallons).
17	Tank Diameter	Indicate the tank diameter in feet.
	Height or length	Indicate the tank height or length in feet.
	FIXED ROOF TANKS ONLY	Fill this section out only if the tank is a fixed roof tank..
18	Maximum fill rate	Indicate the maximum fill rate in gallons per hour or barrels per hour (1 barrel = 42 gallons).

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FORM T	ORGANIC LIQUID EVAPORATION	This form should be completed for each organic liquid storage tank. Applicant should fill out the name of the person completing this form and date it at the blanks located on the bottom of this form.
LINE #	DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
19	Average height or vapor space	Indicate the average height or vapor space in feet.
	Highest head space reactivity	Indicate the highest head space reactivity.
20	Emissions vent to what source(s) and/or abatement devices(s)	If applicable, Indicate whether the emissions from the tank vent to another source or abatement device.
21	Do all gauging/sampling devices have gas-tight covers?	Indicate yes or no to this question.
22	Paint color	Indicate by checking the box, what color the tank is.
23	Paint condition	Indicate by checking the box, what condition the paint is in.
	FLOATING ROOF TANKS ONLY	Fill this section out only if the tank is a floating roof tank.
24	Shell Type	Indicate by checking, what the tank shell type is.
25	Seal Type	Indicate by checking, what the seal type is.
26	Maximum withdrawn rate	Indicate the maximum withdrawal rate in gallons per hour or barrels per hour (1 barrel = 42 gallons).
27	Do all gauging/sampling devices enter below liquid level and have gas-tight covers?	Indicate yes or no to this question.
28	Roof type	Indicate by checking, what the roof type of the tank is.
	Is emergency roof drain at least 90% covered?	Indicate yes or no to this question.

PERMIT HANDBOOK

Appendix H	ENVIRONMENTAL INFORMATION FORM	This form should be completed for a permit application which is non-ministerial, categorically exempt, or having a potentially significant impact. Person completing the form should complete the certification at the end of this form.
LINE #	DATA FORM FIELD	SPECIFIC LINE INSTRUCTIONS
	Date Filed	Date completing this form.
1-7	General Information	Fill in the general information requested, unless it is not applicable. Provide as much detail as possible..
8-20	Project Description	Provide information requested, unless it is not applicable. Provide as much detail as possible. Provide attachments, if needed.
21-32	Project Description	Please check “Yes” or “No”. Provide a detailed written explanation for any item(s) checked “Yes”. Provide attachments, if needed.
33-34	Environmental Setting	Provide information requested. Provide as much detail as possible. Provide attachments, if needed.

C. FEE CALCULATION GUIDANCE

February 29, 2024

State law authorizes the Air District to assess fees to generate revenue to cover regulatory program activity costs (i.e., the Air District's direct and indirect expenditures for personnel, services and supplies, and capital outlay, related to implementing and enforcing air quality programs affecting stationary sources of air pollution). The largest portion of fees is collected, per Health and Safety Code Section 42311(a) and (f), which allows the Air District to impose permit fees sufficient to cover the full costs of programs, related to permitted sources. The Air District's Regulation 3 contains the fee schedule for new and renewed permits.

Typically, the permit fees for a new/modified source include a filing fee (defined in Regulation 3-203), initial fee (defined in Regulation 3-204), and annual permit to operate (PO) fee (defined in Regulation 3-207) for the source to be permitted/modified (per Regulation 3-302). However, additional fees are required if the source triggers a health risk assessment (per Regulation 3-329), school public notice (per Regulation 3-318), and/or if the source has been constructed or modified without a permit (per Regulation 3-310) such that late (per Regulation 3-310) and back fees (per Regulation 3-303) may apply. In addition, fees are also required for abatement devices, which are, permitted alone (per Regulation 3-302.3), alterations of a source (per Regulation 3-304), changes of conditions (per Regulation 3-306), loss of exemption (per Regulation 3-310.2), and banking of emissions reduction credit (per Regulation 3-311). In specific cases, a toxic inventory fee (per Regulation 3-320) may apply. For those applicants that qualify, a small business (defined in Regulation 3-209) discount may apply. In short, calculating permit fees accurately can be challenging. A [permit fee calculation decision tree](#) has been developed to assist in determining the types of fees required for various permit scenarios.

After determining the types of fees required (see [permit fee calculation decision tree](#)), use the table below to determine the applicable fee schedule to calculate the fees for Initial, PO (permit to operate), RAF (risk assessment fee), toxic surcharge and/or TIF (toxic inventory fee), if applicable. Once the Initial and PO (w/toxic surcharges and inventory, if applicable) fees are calculated, the Late and Back fees can be determined. The Late fees are equal in amount to the Initial fees; and the Back fees are PO fees with toxic surcharges and inventory fees prorated from the effective date of the permit requirements, not to exceed 5 years.

Permit Handbook Chapter #	Permit Handbook Source Category	Applicable Regulation 3 Fee Schedule	Notes of Interest
2	Combustion Equipment		
2.1	Boilers, Steam Generators & Process Heaters	B – Combustion of Fuel	Fees are based on maximum gross combustion capacity (MMBT/hr).
2.2	(deleted)		
2.3	Internal Combustion Engines		
2.3.1	Stationary Diesel Engines	B – Combustion of Fuel	Fees are based on maximum gross combustion capacity (MMBT/hr).
2.3.2	Stationary Natural Gas Engines	B – Combustion of Fuel	Fees are based on maximum gross combustion capacity (MMBT/hr).
2.3.3	Portable Diesel Engines	B – Combustion of Fuel	Fees are based on maximum gross combustion capacity (MMBT/hr).
2.3.4	Biogas Engines	B – Combustion of Fuel	Fees are based on maximum gross combustion capacity (MMBT/hr).
3	Petroleum Industry		
3.1	Bulk Loading Facilities	D – Gasoline Transfer at Gasoline Dispensing	Fees are based on the number of single and multi-product arms.

PERMIT HANDBOOK

Permit Handbook Chapter #	Permit Handbook Source Category	Applicable Regulation 3 Fee Schedule	Notes of Interest
		Facilities, Bulk Plants and Terminals	
3.2	Gasoline Dispensing Facilities	D – Gasoline Transfer at Gasoline Dispensing Facilities, Bulk Plants and Terminals	Note that this source is NOT eligible for Small Business Discount, per 3-302.1. Fees are based on the number of single and multi-product nozzles.
3.3	Oil Water Separators	G-1, excluding oil-water separators at petroleum refineries; G-2 for petroleum refineries	See Schedule F for fees. Note that this source is NOT eligible for Small Business Discount, per 3-302.1.
3.4	Petroleum Refinery Fugitive Emissions	G-3	See Schedule F for fees. Note that this source is NOT eligible for Small Business Discount, per 3-302.1.
3.5	Natural Gas Facilities	B – Combustion of Fuel for compressor engines; C – Stationary Containers for the Storage of Organic Liquid for condensate tanks; and F – Miscellaneous Sources for dehydrators	Fees are based on maximum gross combustion capacity (MMBT/hr). Fees are based on container volume. See Schedule F for fees.
4.	Organic Liquid Storage Tanks	C – Stationary Containers for the Storage of Organic Liquid	Fees are based on container volume.
5	Coating Operations		
5.1	Spray Booths & Spray Guns	E – Solvent Evaporating Source	Fees are based on net maximum amount of organic solvent processed through sources on an annual basis.
5.2	Coating and Ink Manufacturing	E – Solvent Evaporating Source	Fees are based on net maximum amount of organic solvent processed through sources on an annual basis.
5.3	Graphic Arts Printing and Coating Operations	E – Solvent Evaporating Source	Fees are based on net maximum amount of organic solvent processed through sources on an annual basis.
6	Solvent Cleaning Operations	E – Solvent Evaporating Source	Fees are based on net maximum amount of organic solvent processed through sources on an annual basis.
6.1	Cold Solvent Cleaning	E – Solvent Evaporating Source	Fees are based on net maximum amount of organic solvent processed through sources on an annual basis.
6.2	Vapor and Conveyorized Solvent Cleaning	E – Solvent Evaporating Source	Fees are based on net maximum amount of organic solvent processed through sources on an annual basis.
6.3	Wipe Cleaning Operations	E – Solvent Evaporating Source	Fees are based on net maximum amount of organic solvent processed through sources on an annual basis.

PERMIT HANDBOOK

Permit Handbook Chapter #	Permit Handbook Source Category	Applicable Regulation 3 Fee Schedule	Notes of Interest
7	Electronic & Semiconductor Industry		
7.2	Electronic Assembly & Wave Soldering	E – Solvent Evaporating Source	Fees are based on net maximum amount of organic solvent processed through sources on an annual basis.
7.3	Flexible and Rigid Disk Manufacturing	E – Solvent Evaporating Source	Fees are based on net maximum amount of organic solvent processed through sources on an annual basis.
7.4	Semiconductor Manufacturing Operation	H – Semiconductor and Related Operations	Fees are based on net maximum amount of organic solvent processed through solvent cleaning and coating operations.
8	Waste Processing Industry		
8.2	Wastewater Treatment Facilities	G-1	See Schedule F for fees. Note that this source is NOT eligible for Small Business Discount, per 3-302.1.
9	Soil/Water Remediation		
9.1	Airstripping	G-1; Schedule F for Sub-Slab Depressurization	See Schedule F for fees. Note that this source is NOT eligible for Small Business Discount, per 3-302.1.
9.2	Soil Vapor Extraction – gasoline	G-1	See Schedule F for fees. Note that this source is NOT eligible for Small Business Discount, per 3-302.1.
9.3	Sub-Slab Depressurization	Schedule F for Sub-Slab Depressurization	See Schedule F for fees.
10	Toxic Emitting Operations		
10.1	Chrome Plating	G-1	See Schedule F for fees. Note that this source is NOT eligible for Small Business Discount, per 3-302.1.
10.2	Ethylene Oxide Sterilizers	G-1	See Schedule F for fees. Note that this source is NOT eligible for Small Business Discount, per 3-302.1.
10.4	Non-Halogenated Solvent Dry Cleaning	I – Dry Cleaners May also be subject to Schedule N – Toxic Inventory Fees	The TIF are based on total facility toxic emissions. TIF would only apply if adding unpermitted source would increase fees.
10.5	Synthetic Solvent Dry Cleaning	I – Dry Cleaners May also be subject to Schedule N – Toxic Inventory Fees	The TIF are based on total facility toxic emissions. TIF would only apply if adding unpermitted source would increase fees.
11	Miscellaneous Operations		
11.1	Abrasive Blasting	F – Miscellaneous Sources	See Schedule F for fees.
11.2	Asphalt Facilities	G-2	See Schedule F for fees. Note that this source is NOT eligible for Small Business Discount, per 3-302.1.
11.3	Coffee Roasting Operations	F – Miscellaneous Sources	See Schedule F for fees.

PERMIT HANDBOOK

Permit Handbook Chapter #	Permit Handbook Source Category	Applicable Regulation 3 Fee Schedule	Notes of Interest
11.4	Cooling Towers	F – Miscellaneous Sources	See Schedule F for fees.
11.5	Concrete Batch Plants	G-1 for Crushers or Grinders; G-2 for Concrete or Cement Batching Operations – Mixers; F for other sources	There is a specific policy for the grouping of sources and the calculation of fees at concrete batch plants and quarrying/crushing operations. See Schedule F for fees. Note that this source is NOT eligible for Small Business Discount, per 3-302.1.
11.6	Crematories	G-1	See Schedule F for fees. Note that this source is NOT eligible for Small Business Discount, per 3-302.1.
11.7	Crushing and Grinding	G-1 for Crushers or Grinders; G-2 for Concrete or Cement Batching Operations – Mixers; F for other sources	There is a specific policy for the grouping of sources and the calculation of fees at concrete batch plants and quarrying/crushing operations. See Schedule F for fees. Note that this source is NOT eligible for Small Business Discount, per 3-302.1.
11.8	11.8.1 Methyl Bromide Fumigation 11.8.2 Phosphine Fumigation	F – Miscellaneous Sources	See Schedule F for fees.
11.9	Misc. Organic Operations	E – Solvent Evaporating Source	Fees are based on net maximum amount of organic solvent processed through solvent cleaning and coating operations.
11.10	Portable Equipment	Same as that for source type if equipment was stationary	Same as that for source type if equipment was stationary
11.11	Polyester Resin Manufacturing	F – Miscellaneous Sources	See Schedule F for fees.
11.12	Polyester Resin Operations	E – Solvent Evaporating Source	Fees are based on net maximum amount of organic solvent processed through sources on an annual basis.
11.13	Tub Grinders	F – Miscellaneous Sources	See Schedule F for fees.
11.14	Landfill Gas Flares	K - Flares	See Schedule K for fees.
11.15	Material Recovery Operations	F – Miscellaneous Sources	See Schedule F for fees.
11.16	Composting Operation	G1 for Composting Operations	See Schedule F for fees.
12.1	Banking	See Notes of Interest	Review the facility's prior renewal invoice to verify the correct Schedule in Regulation 3 to use to calculate the applicable initial fees for the source(s) in the banking application.

D. COMPLETENESS DETERMINATION CHECKLIST

June 1, 2024

**A COMPLETE permit application shall typically include the following items:
(Basis: Regulation 2-1-202 and 2-1-402)**

1. All required data forms/worksheets completed – See Data Form Guidance.
2. All required fees paid – See Fee Calculation Guidance.
3. A cover letter, which includes a background description of the proposed project. If the project involves an assembly line process or other complicated process, a flow diagram of the process should also be included with the background description.
4. Sufficient information to calculate emissions, including toxics, from the proposed source(s).
5. Any information requested by the Air District to determine the air quality impact from sources that are the subject of the application.
6. If a Health Risk Assessment is triggered, a completed Health Risk Screen Analysis (HRA) form – See Data Form Guidance unless the HRA information is collected in an alternate data form, such as Form ICE.
7. If the proposed source(s) is located within 1000 feet of a school or within an Overburdened Community and subject to public notice per 2-1-412:
 - a. A certification stating whether the source(s) trigger the requirements of Section 2-1-412.
 - b. The required public notification fee paid in Regulation 3-318.1– See Fee Calculation Guidance
 - c. Identification of all schools within 0.25 mi. of the source(s).
 - d. Satellite map showing the sources and school boundaries.
8. California Environmental Quality Act (CEQA)-related information that satisfies the requirements of Section 2-1-426
 - a. Unless the project approval is a ministerial action or is for emissions banking, applicants shall provide, as part of a complete application, the following CEQA-related information:
 - i. A completed Environmental Information Form in Appendix H of the State CEQA Guidelines or an equivalent format specified by the APCO. (see also Appendix G, Significant Effects.); or
 - ii. When an agency other than the District is to be the Lead Agency under CEQA, either:
 1. A Draft or Final Environmental Impact Report prepared by or under the supervision of the Lead Agency; or
 2. A contract for the preparation of a Draft Environmental Impact Report executed by the Lead Agency together with the Initial Study prepared by the Lead Agency; or
 3. A Negative Declaration prepared by the Lead Agency; or
 4. A Notice of Preparation of a Draft EIR prepared by the Lead Agency;
 5. A copy of the Initial Study prepared by the Lead Agency, or
 6. A commitment in writing from another agency indicating that it has assumed the role of Lead Agency for the project in question.
9. If the application is subject to the New Source Review requirements of Regulation 2, Rule 2, all information required under Section 2-2-401.
 - a. A detailed description of the proposed new source(s) or modification(s) for which the authority to construct is sought, including at a minimum (i) a description of the nature, location, design capacity, and typical operating schedule of the source(s) or modification(s), including specifications and drawings showing its design and plant layout, and (ii) a detailed schedule for construction of the source(s) or modification(s).

- b. All information necessary for the APCO to calculate emissions to determine whether the application triggers BACT and/or PSD applicability per Rule 2-2., Note: The actual BACT determination and PSD analysis/demonstration may be started during the Completeness phase, but are done during the Evaluation phase of the application review process, including but not limited to (i) a demonstration of how the application satisfies applicable BACT standards under Sections 2-2-301 and 2-2-304, and (ii) the PSD analyses and demonstrations required under Sections 2-2-305 and 2-2-306, if applicable.
 - c. CEQA-related information required under Section 2-1-426; and for a new major facility, and for a modification to a major facility that will increase emissions by more than 100 tons per year of carbon monoxide, 40 tons per year of precursor organic compounds, nitrogen oxides, or sulfur dioxide, or 10 tons per year of PM_{2.5}, an analysis of alternative sites, sizes, production processes, and environmental control techniques for such proposed source that demonstrates that benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction or modification.
 - d. If the application is for (i) a new major facility or a major modification of major facility for NO_x, VOC, SO₂ or PM_{2.5} or (ii) a PSD Project, and the project may have an impact on air quality related values (including visibility) within any Class I area(s), the application shall include an analysis of potential impacts to air quality related values (including visibility) in such Class I area(s) for review and consideration by the Federal Land Manager of such Class I Bay Area Air Quality Management District December 6, 2017 2-2-16 area(s). The determination of whether a project may have an impact on air quality related values (including visibility) within a Class I Area shall be made according to the guidelines adopted by the Federal Land Managers' Air Quality Related Values Work Group in its Phase I Report—Revised (2010), Natural Resource Report NPS/NRPC/NRR—2010/232.
 - e. Any other information requested by the APCO.
10. If any or all part of the application has been claimed as trade secret:
- a. A public copy of application with trade secret information redacted; and
 - b. A trade secret copy with trade secret items clearly marked, for each section of the application that was claimed trade secret with a statement signed by the applicant identifying the portion of the Government Code Section 6254.7 (d) upon which the assertion is based and a statement setting forth the basis for this assertion.

Additional item(s) may be required to COMPLETE a permit application: (OPTIONAL)

- Information regarding compliance status of proposed source with applicable requirements.
- Supplemental emissions information requested by the District to help determine whether the source triggers existing Reasonably Available Control Technology/Best Available Retrofit Technology (RACT/BARCT) requirements. Note: Actual RACT/BARCT determinations are conducted during the Evaluation phase of the application review process.
- If offsets are triggered per Regulation 2-2-302 and/or 2-2-303, information regarding source of offsets or banking certificate to be used.

E. EVALUATION REPORT TEMPLATE GUIDANCE

July 6, 2022

Start with the [Evaluation Report Shell](#) and then insert the applicable source category's Emission Calculations and Permit Conditions into it (use Copy and Paste in MS Word) and fill in all the blanks of the template. Reference the applicable chapter to ensure a thorough evaluation of the permit application.

Permit Handbook Chapter #	Permit Handbook Source Category	<u>Source Category Emission Calculations</u>	Source Category Permit Conditions
2	Combustion Equipment		
2.1	Boilers, Steam Generators & Process Heaters	spreadsheet	Conditions for Natural Gas Combustion Conditions for Natural Gas w/Diesel Fuel Backup Combustion Conditions for Other Gaseous Fuel Combustion Conditions for Diesel Fuel Combustion
2.2	(deleted)		
2.3	Internal Combustion Engines		
2.3.1	Stationary Diesel Engines	spreadsheet	Conditions for Stationary Diesel Engines Conditions for > 1000 BHP Stationary Diesel Engines
2.3.2	Stationary Natural Gas Engines	spreadsheet	Emergency Stationary Natural Gas Engines
2.3.3	Portable Diesel Engines	spreadsheet	Conditions for Portable Diesel Engine
2.3.4	Biogas Engines	spreadsheet	Conditions for Biogas Engines
3	Petroleum Industry		
3.1	Bulk Loading Facilities		Conditions for General Bulk Loading Conditions for Marine Loading
3.2	Gasoline Dispensing Facilities	spreadsheet	
3.3	Oil Water Separators		Conditions for Oil-Water Separators
3.4	Petroleum Refinery Fugitive Emissions		Conditions for Petroleum Refinery Fugitive Emissions
3.5	Natural Gas Facilities (review Organic Liquid Storage Tanks and Oil-Water Separators if these sources are part of facility)	Use GRI-GLYCalc Program for dehydrator.	Conditions for Natural Gas Facility Conditions for Dehydrator Conditions for Injection Wells Conditions for Natural Gas Fired Engine Conditions for Facility-Wide Conditions for Storage Tanks - General Conditions Conditions for Oil- Water Separators
4.	Organic Liquid Storage Tanks	Use TANKS4 program. Print a detailed Summary Report of the results and attach it to the Evaluation Report. Make sure to include a reference to this detailed Summary	General Conditions Add if applicable the following conditions and renumber accordingly: Additional for Internal or External Floating Roofs Additional for Fixed Roof w/Vapor Recovery System

PERMIT HANDBOOK

Permit Handbook Chapter #	Permit Handbook Source Category	<u>Source Category Emission Calculations</u>	Source Category Permit Conditions
		Report in the Evaluation Report.	
5	Coating Operations		
5.1	Spray Booths & Spray Guns	spreadsheet	Conditions for All Types of Coating Operations Additional for carbon abatement Additional for thermal oxidation Additional for Thermal Oxidizer RACT Additional for source testing Additional for allowable temperature excursion
5.2	Coating and Ink Manufacturing		Conditions for Mixing Vat of Coating and Ink Manufacturing Conditions for Screening Mill of Coating and Ink Manufacturing
5.3	Graphic Arts Printing and Coating Operations	spreadsheet	Conditions for All Types of Coating Operations Additional for carbon abatement Additional for thermal oxidation Additional for Thermal Oxidizer RACT Additional for source testing Additional for allowable temperature excursion
6	Solvent Cleaning Operations		
6.1	Cold Solvent Cleaning	See new prototype all-inclusive chapter in Appendix G .	See new prototype all-inclusive chapter in Appendix G Conditions for Cold Solvent Cleaning
6.2	Vapor and Conveyorized Solvent Cleaning	spreadsheet	Conditions for All Types of Solvent Cleaning
6.3	Wipe Cleaning Operations	spreadsheet	Conditions for All Types of Solvent Cleaning
7	Electronic & Semiconductor Industry		
7.2	Electronic Assembly & Wave Soldering		Conditions for Flux Bath
7.3	Flexible and Rigid Disk Manufacturing	spreadsheet	Conditions for Flexible and Rigid Disc Manufacturing
7.4	Semiconductor Manufacturing Operation REVISION 2	spreadsheet	Conditions for FABS Add if applicable the following conditions and renumber accordingly: Additional for carbon abatement Additional for thermal oxidation Additional for Thermal Oxidizer RACT Additional for source testing Additional for allowable temperature excursion
8	Waste Processing Industry		
8.2	Wastewater Treatment Facilities		Conditions for Wastewater Treatment Facilities Conditions for Anaerobic Digester Flares Conditions for POTW Flares Conditions for High Strength Waste

PERMIT HANDBOOK

Permit Handbook Chapter #	Permit Handbook Source Category	Source Category Emission Calculations	Source Category Permit Conditions
			Conditions for Carbon Abatement for H2S at Wastewater Treatment Facilities
9	Soil/Water Remediation		
9.1	Airstripping		Conditions Using Carbon Adsorption Conditions Using Thermal Oxidation Conditions for Portable Using Carbon Adsorption
9.2	Soil Vapor Extraction – gasoline		Conditions Using Carbon Adsorption Conditions Using Thermal Oxidation Conditions for Portable Using Carbon Adsorption
9.3	(deleted)		
10	Toxic Emitting Operations		
10.1	Chrome Plating		Conditions for Decorative Chrome Plating Conditions for Hard Chrome Plating Conditions for Trivalent Chrome Plating
10.2	Ethylene Oxide Sterilizers		Conditions for Ethylene Oxide Sterilizer w/Catalytic Oxidizer Additional for Thermal Oxidizer RACT Additional for allowable temperature excursion
10.3	(deleted)		
10.4	Non-Halogenated Solvent Dry Cleaning		Conditions for Non-Halogenated Solvent Dry Cleaning
10.5	Synthetic Solvent Dry Cleaning		Conditions for Perchloroethylene Dry Cleaning
11	Miscellaneous Operations		
11.1	Abrasive Blasting		Conditions for Abrasive Blasting (non-BACT with no abatement) Conditions for Abrasive Blasting (non-BACT with abatement) Conditions for Abrasive Blasting (BACT with abatement)
11.2	Asphalt Facilities	spreadsheet for Batch Mix ; spreadsheet for Drum Mix	Conditions for Asphalt Drum Mixer Conditions for Portable Asphalt Rubber Blending Plant
11.3	Coffee Roasting Operations		Conditions for Coffee Roasting Operations
11.4	Cooling Towers	spreadsheet	Conditions for Cooling Towers
11.5	Concrete Batch Plants	spreadsheet	Conditions for Concrete Batch Plants
11.6	Crematories	spreadsheet	Conditions for Human Crematories Conditions for Animal Crematories
11.7	Crushing and Grinding	spreadsheet	Conditions for Crushing and Grinding Operations
11.8	11.8.1 Methyl Bromide Fumigation 11.8.2 Phosphine Fumigation		Conditions for Methyl Bromide Fumigation Conditions for Phosphine Fumigation
11.9	Misc. Organic Operations		Conditions for Miscellaneous Organic Operations
11.10	Portable Equipment		Conditions for Portable Equipment
11.11	Polyester Resin Manufacturing		Conditions for Polyester Resin Manufacturing
11.12	Polyester Resin Operations		Conditions for Gel Coat and Resin Operations

PERMIT HANDBOOK

Permit Handbook Chapter #	Permit Handbook Source Category	<u>Source Category</u> <u>Emission</u> <u>Calculations</u>	Source Category Permit Conditions
11.13	Tub Grinders		Conditions for Tub Grinders (powered by electricity) Conditions for Tub Grinder w/Diesel Engine (Stationary) Conditions for Portable Tub Grinders w/Diesel Engine
11.14	Landfill Gas Flares		Conditions for Landfill Gas Flares
11.15	Material Recovery Operations		Conditions for Material Recovery Operations
11.16	Composting Operations	spreadsheet spreadsheet	Condition for Composting Operations
12.1	Banking		Conditions for Banking

PERMIT HANDBOOK

Evaluation Report Shell

EVALUATION REPORT

1. Background:

The Applicant has submitted an application for an Authority to Construct and/or Permit to Operate for the following:

S- {insert source description, make, model number}

{enter details of requested permit here}

☐ This facility is a Title V Major Facility and the sources/changes associated with this application will be incorporated as part of the Title V permit application (Application Number).

2. Emission Calculations:

{insert emission calculations here}

Cumulative Increase/Offsets Summary

Pollutant	Pre-Existing Cumulative Increase (TPY)	Application Emissions Increase (TPY)	Onsite Emissions Reductions Credit (TPY)	Final Cumulative Increase (TPY)	Actual or Potential Emissions > 35 TPY (Yes/No)	Offset Ratio	Offsets Required (TPY)
PM10					Yes	N/A	
NOx					Yes	N/A	
CO					Yes	N/A	N/A
POC					Yes	N/A	
NPOC					Yes	N/A	N/A
SO2					Yes	N/A	

3. Toxics Screening

Based on the identified toxic constituents in the solvent(s) requested by the applicant, the estimated total POC/NPOC emissions were compared to the respective trigger level(s) of the identified toxic constituents.

Toxic Pollutant Emitted	Hourly Emissions (lb/hr)	Health Risk Assessment Trigger Level from Table 2-5-1 (lb/hr)	Annual Emissions (lb/yr)	Health Risk Assessment Trigger Level from Table 2-5-1 (lb/yr)

PERMIT HANDBOOK

According to the Regulation 2-5, a health risk assessment is required if the worst-case emissions of any toxic pollutant exceeds its respective health risk assessment trigger level. As a result,

- ☐ a health risk assessment was not required.
☐ a health risk assessment was required. See the interoffice memo from the Toxics Section for details. The following is a summary of the health risk assessment results:

Maximally Exposed Receptor	Maximum Cancer Risk	Maximum Chronic Hazard Index
Residential		
Off-site worker		

4. Statement of Compliance:

{Insert Applicable Requirements and BACT for each source for Pollutants Here}

Offsets

In accordance with Regulation 2-2-302, POC and/or NOx offsets are required if facility-wide POC and/or NOx emissions of precursor organic compounds will exceed 10 tons per year.

- ☐ Including the emission increase from this application, facility-wide POC/NOx emissions are below 10 tons per year. Therefore, offsets are not triggered.
☐ Including the emission increase from this application, facility-wide emissions of
☐ POC
☐ NOx
exceed 10 tons per year. Therefore, offsets are triggered. Offsets will be provided from:
☐ the Air District's Small Facility Banking Account [The facility meets the qualifications for a Small Facility.]
☐ Banking Certificate Number
☐ contemporaneous emission reductions from S- [see attached appendix for detailed explanation]
for the following amount:

☐ POC Offsets = TPY
☐ NOx Offsets = TPY

Prevention of Significant Deterioration (PSD)

- ☐ PSD modeling is not triggered.
☐ PSD modeling is triggered, per Regulation 2-2-304, 305, 306, or 308.
{describe in detail the PSD review results}

Risk Management

- ☐ For each pollutant, emissions are less than its trigger level. A health risk assessment is not required.
☐ Emissions exceed at least one toxic trigger level. Therefore, a health risk screen analysis was performed. See the interoffice memo from the Toxics Section for details. In accordance with the Risk Management Policy,
☐ the project is acceptable.
☐ The risk is less than one in a million and the chronic hazard index is less than or equal to 1.0.
☐ The risk is greater than one in a million and less than 10 in a million, and owner/operator complies with TBACT. TBACT is .
☐ the project is unacceptable, because:
☐ the cancer risk is greater than 10 in a million
☐ the cancer risk is greater than 1 in a million and less than 10 in a million, but owner/operator does not comply with TBACT.
☐ the chronic hazard index is greater than 1.0.

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

School Notification

☐ This facility is over 1,000 feet from the nearest school and therefore is not subject to the public notification requirements of Regulation 2-1-412.

☐ This facility is within 1,000 feet of a school, and therefore, triggers the public notification requirements of Regulation 2-1-412. A public notice has been prepared. During the 30-day public comment period, the Air District received comments. Responses to the comments are included in the permit application folder.

New Source Performance Standards (NSPS)

☐ The facility is not subject to Regulation 10 - New Source Performance Standard.

☐ The facility is subject to the following New Source Performance Standard:
{describe in detail the NSPS results}

National Emission Standards for Hazardous Air Pollutants (NESHAP)

☐ The facility is not subject to Regulation 11 – NESHAP.

☐ The facility is subject to the following NESHAP requirements:
{describe in detail the NESHAP compliance results}

5. Conditions

I recommend the following permit conditions:

{insert conditions here}

6. Recommendations:

I recommend an Authority to Construct and/or Permit to Operate be issued to the Applicant for the following:

S- {insert source description, make, model number}

By _____
{name of permit evaluator}
{title of permit evaluator}



F. FREQUENTLY ASKED QUESTIONS – Permitting & Other

July 3, 2023

PERMITTING:

[Who gives you the authority to issue permits to me?](#)

[Do I need a permit?](#)

[When do I need a permit?](#)

[What is the Accelerated Permit Program?](#)

[Do I qualify for an accelerated permit?](#)

[What forms do I need to fill out?](#)

[How do I fill out this form?](#)

[Do I need to send a check with my application?](#)

[What form of payment do you accept if not paid online?](#)

[Can I pay my invoice online?](#)

[Do I pay in advance or wait for an invoice?](#)

[How are permit application fees calculated?](#)

[Can I pay you in installments?](#)

[Where do I send my application?](#)

[Can I fax my permit application or make a payment?](#)

[Can I send my application electronically?](#)

[Can I apply for my permit online?](#)

[Who is not eligible for the online permitting system?](#)

[How do I use the online permitting system?](#)

[How do I know that the Air District received my application?](#)

[How long does it take to get the permit?](#)

[That long? What can I do to expedite it?](#)

[If a piece of equipment or operation does not require a permit, is it still subject to other Air District regulations?](#)

[Do I need to keep records for a piece of equipment or operation, which does not require a permit?](#)

[I bought a business that had Air District permits. Do I need to submit a permit application?](#)

[We just relocated to a new address. Can you transfer our air permit to this new location?](#)

[I plan to shutdown equipment. Do I need to notify the Air District?](#)

[I have a permitted source that no longer operates. Do I need to surrender my permit?](#)

OTHER:

[What is the format of an Air District approved log? Where in the Air District web site can a copy of the log be obtained?](#)

[How do I determine whether a solvent mixture \(water + solvent\) complies with the VOC limit \(0.42 lb/gal\) of Regulation 8-4 and/or 8-16?](#)

[What are the acceptable ways to demonstrate that a school is greater than 1000 from my property?](#)

[Do you have a list of recommended source test companies?](#)

[What do I do if I have a question that is not listed in this document?](#)

PERMITTING:

Who gives you the authority to issue permits to me?

The California Legislature created the Bay Area Air Quality Management District in 1955. We are authorized and established by Section 40200 (Chapter 4, Part 3 of Division 26) of the [Health and Safety Code](#). The Air District's jurisdiction encompasses all of seven counties - Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara and Napa, and portions of two others - southwestern Solano and southern Sonoma.

Do I need a permit?

In general, any equipment or operation that emits pollutants into the atmosphere requires a Permit to Operate from the Air District unless it is excluded from Air District Regulations per Regulation 1 or exempted from Air District permit requirements by a specific section of Regulation 2 Rule 1. Any air pollution control equipment, associated with a source that requires an Air District permit, is also required to have a Permit to Operate from the Air District. Facilities may use the [Permit Exemption Guidance](#) to aid in determining whether a source is required to have a permit or is exempt from permit requirements. If a facility is unsure about whether or not a permit is required, it is advisable to submit a permit application package for the operation; and the Air District will make the final determination.

When do I need a permit?

If a permit is required, you should secure an Authority to Construct or Accelerated Permit to Operate before placing, building or modifying equipment to avoid possible violation of Air District regulations and resulting penalties.

What is the Accelerated Permit Program?

The Accelerated Permit Program allows equipment that meets specific elements to operate before receiving a Permit to operate from the Air District. This permit allows you to operate as soon as your application is submitted.

Do I qualify for an accelerated permit?

If you are seeking to operate your equipment under the Accelerated Permit Program, you must complete the Accelerated Permitting section on the Form P101-B. The applicant must check all the necessary boxes the section. There are seven (7) elements that need to be satisfied to for all equipment.

1. Emissions for a single air pollutant must be less than 10 pounds per highest day. Any control equipment associated with the project does not count towards your calculation. The calculation is for uncontrolled emissions.
2. Emissions from toxic compounds must not exceed the levels listed in Table 2-5-1 of [Regulation 2, Rule 5](#).
3. The source must not be a diesel engine.
4. The project must not trigger public notice requirements. This requirement is trigger if the project emits any compound listed in Table 2-5-1 of [Regulation 2, Rule 5](#) and is within 1,000 feet from the nearest K-12 school.
5. For replacement of abatement equipment, the new equipment must have equal or greater abatement efficiency for all pollutants.
6. For alterations of existing sources, the request change does ot result in an increase in emissions for all pollutants.
7. All fees are paid. The fees are located in Air District Regulation 3.

What forms do I need to fill out?

Every application for an authority to construct or a permit to operate must include applicable Air District forms and contain all of the information required for the APCO to make a decision on the application. Each of the [source-specific chapters](#) has a listing of the Air District forms and additional information required for each of the sources in the various source categories.

How do I fill out this form?

Use the [Data Form Guidance](#) to assist you.

Do I need to send a check with my application?

No, we can bill you for the permit fees that are required. An invoice will be sent, after we received your application and reviewed its contents for completeness. Please note that without the payment of permit fees, your application will not be complete and does not qualify for an “Accelerated Permit” until the fees are received (assuming all data forms and required information are provided).

What form of payment do you accept if not paid online?

Do not send cash. If paying by check, make the check payable to Bay Area Air Quality Management District or BAAQMD. Write the Application and Invoice Numbers on the check, if known. If you received an invoice, please include the payment stub.

Can I pay my invoice online?

Air District invoices can be paid at www.baaqmd.gov/pay using VISA, Mastercard, Discover Card or eCheck. Applicable convenience fees may apply. Paying online is the best way to immediately have your payment applied and to avoid under/overpayment.

Do I pay in advance or wait for an invoice?

If you know the required permit fees, you may pay in advance with your application. Or, we can bill you for the permit fees that are required. An invoice will be sent, after we received your application and reviewed its contents for completeness. Please note that without the payment of permit fees, your application will not be complete and does not qualify for an “Accelerated Permit” until the fees are received (assuming all data forms and required information are provided).

How are permit application fees calculated?

Use this [Fee Calculation Guidance](#) to assist you.

Can I pay you in installments?

No.

Where do I send my application?

All new applications should be sent to:
BAAQMD
Engineering Division
375 Beale Street, Suite 600
San Francisco, CA 94105
Re: Permit Application

If you have dealt with a specific person from the Air District in the past, do NOT address correspondence to that person. Personnel or assignments periodically change. This will minimize your application being lost. Once your application is assigned to specific Air District staff, send subsequent responses directly to that contact.

Can I fax my permit application or make a payment?

No.

Can I send my application electronically?

Yes. Please send your application to permits@baaqmd.gov. Please DO NOT send both an electronic copy and hard copy by US mail.

Can I apply for my permit online?

Owners or operators of the following types of equipment may be eligible to register new equipment or renew existing permits through the new Online Permitting System:

- [Stationary Agricultural Diesel Engines](#)
- [Boilers, Steam Generators, and Process Heaters \(< 10 MM Btu/hr\)](#)
- [Charbroilers at Commercial Cooking Operations](#)
- [Dry Cleaners \(non-halogenated solvents\)](#)
- [Graphic Arts Operations](#)
- [Mobile Refinishing \(Coating\) Operations](#)

The online permitting system can handle the follow devices/operations alone or in combination with registrations:

- Auto body shops
- Dry cleaning facilities
- Gas dispensing facilities (gas stations)
- Emergency standby engines
- Remediation sites
- Solvent cleaning only facilities

Note that the online permitting system is currently only available to those facilities who only have devices that are part of the online permitting system.

Who is not eligible for the online permitting system?

Here are some common reasons why you may not be eligible:

- You have at least one device/operation that is not supported by the new online permitting system. You will continue to do business as usual until we make additional improvements.
- You have in-progress business with the Air District such as a permit application or a renewal that needs to be completed before we move you to the new system.

Whether you are eligible or not, you can still apply by emailing your permit application to permits@baaqmd.gov. If you are want to know if you are eligible or not, you may email permits@baaqmd.gov to inquire.

How do I use the online permitting system?

First, you must make sure you are eligible to use the online permitting system. Its best to contact the Air District first (email permits@baaqmd.gov) to inquire whether you are eligible or not. Once you have determined that you are eligible, you can follow the instructions on the [online permitting system](#) page.

How do I know that the Air District received my application?

If your application was submitted by email, you will receive an automatic message that the Air District received it. If your application was submitted via the Online Permitting System, your application is received once it is submitted.

After the completeness review, your assigned permit evaluator will contact you if your application does not meet the Completeness standard. If you have not received this letter in ten (10) business days, please call the Engineering Division at (415) 749-4990 or email permits@baaqmd.gov.

In addition, after your application is logged into our system, the status of your application can be viewed on our [Permit Application Received webpage](#) with the exception of banking, permit exemptions, registration, and Title V. Eligible customers with facilities in the Online Permitting system can access application status by logging into their account.

How long does it take to get the permit?

Typically, the Air District must review and determine whether an application is complete within 15 working days of receipt of the application. The APCO may cancel an application if the applicant fails to furnish the requested information or pay all appropriate fees during the requested time frame. In general, the APCO notifies the applicant in writing of the approval or denial of their application within 35 working days of receipt of a completed application.

However, the deadlines are different for certain special permit types:

Deposit Emission Reduction Credits;
Major Facility Review (Title V);
Prevention of Significant Deterioration (PSD);
Projects within 1000 feet of a school boundary;
Projects that require CEQA environmental review and documentation;
Projects that trigger publication, and public comment requirements of Regulation 2-2-404, 2-4-405, or 2-9-405.

In addition, the deadlines may be extended upon mutual consent of the applicant and the APCO.

That long? What can I do to expedite my permit?

If you qualify you may apply for an Accelerated Permit to Operate. Otherwise, we recommend that you submit your application and respond to our information requests and fee invoice as quickly as possible.

If a piece of equipment or operation does not require a permit, is it still subject to other Air District regulations?

Unless your source is excluded from all Air District requirements, you may be required to follow other requirements. The Air District has many rules and regulations covering a wide range of industries and activities such as painting, cleaning with solvents, using stationary combustion equipment, and creating visible emissions. Being exempt from permit requirements does not exempt you from these other regulations. Each of the [source-specific chapters](#) has a listing of applicable regulations.

Do I need to keep records for a piece of equipment or operation, which does not require a permit?

Yes, per Regulation 2-1-502, any person asserting a source to be exempt, upon request by the Air District shall provide substantial credible evidence proving that the source meets all requirements necessary to keep the exemption.

I bought a business that had Air District permits. Do I need to submit a permit application?

If the previous owner had Air District permits, the Air District requires written communication from the previous owner of the change of ownership either by letter or a copy of the agreement to transfer Air District/Environmental permits. The permits must be in good standing (current and valid) to avoid having the new owner re-permit the equipment. If the previous owner let his/her Air District permits expire, then you would need to re-permit the equipment before you operate.

We just relocated to a new address. Can you transfer our air permit to this new location?

No. All permits are site-specific. If you move to a new location, you must reapply for a new permit for that new location.

I plan to shutdown equipment. Do I need to notify the Air District?

If you want the source removed from your permit, you must send the Air District written documentation for that change. Once the source is removed, you would need to re-permit the source if you choose to operate the source again.

I have a permitted source that no longer operates. Do I need to surrender my permit?

No. As long as you continue to comply with all requirements (e.g. keeping of records, permit renewal fees) during non-operation, you may keep your permit. This allows you flexibility to avoid the permit application process should you choose to operate the equipment again. In addition, your permits can be transferred to a subsequent owner, if non-operation was due to selling of your business.

OTHER:

What is the format of an Air District approved log? Where in the Air District web site can a copy of the log be obtained?

An Air District-approved log can be of any format, which meets the recordkeeping requirements of the applicable permit conditions or regulations. If you are unsure whether your log would meet with Air District approval, please submit a copy of it to your Air District Air Quality Inspector for review and approval.

How do I determine whether a solvent mixture (water + solvent) complies with the VOC limit (0.42 lb/gal) of Regulation 8-4 and/or 8-16?

An example calculation is provided below:

Assume the solution is made up of 5% by wt. Isopropanol (IPA). Therefore, 100 lbs of solution (mixture of IPA and DI water) will contain 5 lbs IPA and 95 lbs DI water. Assuming that the volumes stay constant when IPA and DI water are mixed (this is true at standard conditions), the volumes of the above liquids in the final mixture can be derived by dividing by their respective densities:

$(5 \text{ lbs IPA}) / (6.53 \text{ lbs IPA/gal IPA}) = 0.76 \text{ gal IPA}$; and

$(95 \text{ lbs H}_2\text{O}) / (8.34 \text{ lbs H}_2\text{O/gal H}_2\text{O}) = 11.39 \text{ gal H}_2\text{O}$

Total solvent mixture = $0.76 + 11.39 = 12.15 \text{ gal solution}$

Therefore, the VOC content of the above mixture is equal to

$= (5 \text{ lbs IPA}) / (12.15 \text{ gal solution}) = 0.41 \text{ lbs VOC/gal}$

What are the acceptable ways to demonstrate that a school is greater than 1000 from my property?

AB 3205 ([H&S Code Section, 42301.6 through 42301.9](#)) addresses sources of hazardous air pollutants near schools. It requires new or modified sources of hazardous air emissions located within 1000 feet of the outer boundary of a school to give public notice to the parents or guardians of children enrolled in any school located within one-quarter mile of the source and to each address within a 1000-foot radius.

As a result, any new or modified source located within 1000 feet of the outer boundary of a school and which results in the increase of any substance into the ambient air, which has been identified as a toxic air contaminant, triggers the public notice requirement of Regulation 2-1-412. A school is defined as any public or private school of more than 12 children in kindergarten or any grades 1 to 12, excluding private schools in which education is primarily conducted in private homes. The California Air Resources Board (CARB) or the APCO identifies the toxic air contaminant or a hazardous air contaminant or it is from the list which is required to be prepared pursuant to subdivision (a) of Section 25532 or Section 44321 subsections (a) to (f) inclusive of the Health and Safety Code.

Applicants may use the following web sites to check the facility location and the location of the nearest schools: [MapQuest](#) and [GreatSchools.net](#).] Once one school is identified within 1000 feet, the search radius must be enlarged to 0.25 mile (1320 feet) to determine whether there are more schools within this new search radius.

Do you have a list of recommended source test companies?

The Air District does not recommend any specific source test company. However, the CARB has an [Independent Contractor Program](#). The Independent Contractor program was designed to approve private independent testing contractors for sources who may choose to have the contractors conduct compliance testing instead of the Air Resources Board (ARB) for ARB required testing. ARB does not require that testing contractors be approved prior to conducting testing in California. Approval under this program is only required by ARB if the contractor wishes to conduct compliance testing instead of ARB. Please check with the local Air District where the test will be performed to find out about their source test requirements.

PERMIT HANDBOOK

What do I do if I have a question that is not listed in this document?

Air District staff is available to help fill out forms and provide technical assistance. Your primary contact for submitted applications is your assigned Air District Engineering contact. For general questions, call the Engineering Division at (415) 749-4990. In addition, the Engineering Division has assigned several technical contacts to help answer your questions for specific subjects and industries.

G. APPENDIX G – Cold Solvent Cleaning

APPENDIX G

NEW PROTOTYPE ALL-INCLUSIVE SOURCE CATEGORY PERMIT HANDBOOK CHAPTERS

G.1 COLD SOLVENT CLEANING

COLD SOLVENT CLEANING
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COLD SOLVENT CLEANING (August 9, 2021)

I. PROCESS DESCRIPTION

Solvent cleaning (or solvent degreasing) is the physical process of using organic solvents to remove grease, fats, oil, wax, soil, or other materials from various substrates (e.g., metal, glass, plastic, etc.) [1]. Solvent cleaning equipment/operations of interest include cold cleaners (chapter 6.1), vapor solvent and conveyorized cleaners (chapter 6.2), and wipe cleaning operations (chapter 6.3).

A Cold (non-boiling) Cleaner is defined in Regulation 8-16-204 as any solvent cleaner, excluding conveyorized solvent cleaners and vapor solvent cleaners, including, but not limited to, spray sinks, spray booths, spray gun cleaners and batch-loaded dip tanks. South Coast AQMD Rule 1122 defines a batch-loaded cold cleaner as a batch-operated degreaser that is designed to contain liquid solvent, has an air-solvent interface, and is always operated at a temperature below the solvent's boiling point. Spray gun cleaners that are associated with coating sources (i.e., cleaning of coating application equipment) are to be permitted as part of a coating operation (see [chapter 5.1](#)).

Cold cleaning processes essentially consist of spraying, brushing, flushing, and immersion. A basic design of cold cleaners includes a spray sink and/or a dip tank. A dip tank can be typically agitated to improve cleaning effectiveness. Cold cleaners may be equipped with recirculating pumps and filters to aid in extending solvent life and decrease solvent waste. After cleaning, the parts are either suspended over the tank to drain or are placed on external drying racks that drains the solvent back into the cold cleaner.

A. Source/Methods

Solvent degreasing is widely used in many industries.

Emissions from cold cleaners occur through: (1) waste solvent evaporation, (2) solvent carryout (evaporation from wet parts), (3) solvent bath evaporation, (4) spray evaporation, and (5) agitation. Per [EPA's AP-42 Chapter 4.6](#) for solvent degreasing, waste solvent evaporation is generally the main source of a cold cleaner's emissions which are categorized as volatile organic compound (VOC) as defined in [Regulation 8-16-229](#).

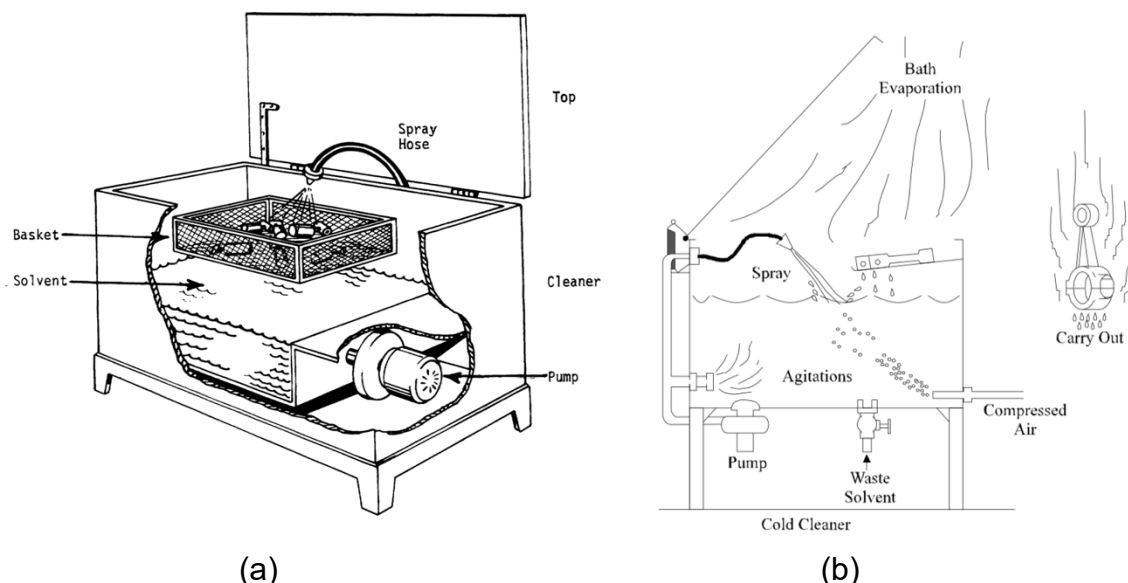


Figure 1: (a) Typical schematic of cold cleaner [2] and (b) its emission points [1]

Additional background information on the source's operation is available from [Chapter 4.6. Solvent Degreasing of EPA's AP-42 \(Fifth Edition, Volume 1\)](#).

B. Materials

The solvents used in cold cleaners are not heated to boiling. Some common solvents used in cold cleaners are acetone, mineral spirits, Stoddard solvents, and alcohols. Any solvent lost via evaporation is counted towards total emissions and is subject to the Air District's regulations.

C. Air Pollutant Control Device (Abatement Device)

Some common emissions controls for cold cleaners include:

- Drainage facility
 - o A place for draining excess solvent to minimize evaporation.
- Water cover
 - o A layer of water on top of solvent bath to reduce evaporation (if the solvent used is insoluble in and heavier than water)
- Increase freeboard height
 - o Freeboard height: vertical distance from the top of evaporative area to the top of cold cleaner ([Regulation 8-16-211](#))
- Freeboard chiller
 - o Freeboard chiller: condenser mounted in the freeboard area which provides a chilled air blanket above the solvent to reduce emissions ([Regulation 8-16-210](#))
- An apparatus or cover to reduce solvent evaporation when equipment not in use.

- An approved emission control device for reducing emission of VOC is required to meet requirements set forth in Regulation 8-16-201:
 - o The device meets required efficiency at all times during normal operation
 - o The device has a collection system with a ventilation rate of 15-20 m³/min per m² (49.2-65.6 ft³/min per ft²) of solvent cleaner opening
 - o The collection system shall be designed and operated in accordance with good engineering practice for maximum collection of emissions.
- Carbon absorber

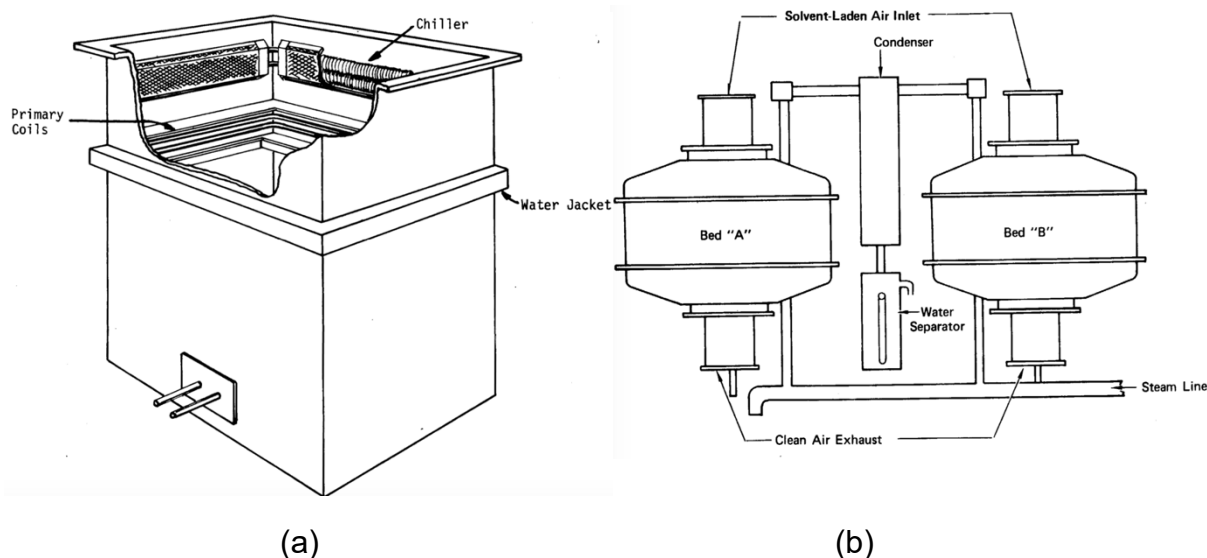


Figure 2: cold cleaner abatement devices (a) freeboard chiller and (b) carbon absorber [2]

II. PERMIT REQUIREMENT

Any cold cleaner that does not meet any of the permit exemptions specified in Regulation 2-1-118 requires an Authority to Construct and Permit to Operate.

A. Exemption (Regulation 2-1)

Cold cleaners may be exempt from Air District permitting requirements per the following sections, if applicable. These exemptions, however, will not apply if the source is subject to requirements of Section 2-1-316, 317, or 318 or the emission rate of any regulated air pollutant (except greenhouse gases) from the source is greater than 5 tons per year after abatement (basis: Regulation 2-1-319).

Note: The following table is for general guidance purposes only. Always refer to the current version of the regulations posted on the Air District website.

P E R M I T H A N D B O O K

The following equipment is exempt from requirements of Sections 2-1-301 (Authority to Construct) and 302 (Permit to Operate), provided that the source does not require permitting pursuant to Section 2-1-319		
2-1-118	Surface preparation and cleaning equipment.	
	118.4	Cold cleaners using unheated solvent mixture with a VOC content less than or equal to 50 g/l (0.42 lb/gal)
	118.5	Cold cleaners using heated solvent mixture with a VOC content less than 2.5 weight percent and any combustion sources used are exempted under Section 2-1-114
	118.6	Equipment which use unheated solvent and contain less than 1 gallon of solvent or have a liquid surface area of less than 1ft ²
	118.8	Batch solvent recycling equipment where all of the following apply: (8.1) More than 50 percent by volume of recovered solvent is used on site (8.2) Maximum heat input is less than 1 MMBTU per hour (8.3) Batch capacity is less than 150 gallons
	118.10	Any solvent cleaning or surface preparation source which employs only non-refillable handheld aerosol cans
	118.11	Spray gun cleaning performed in compliance with Regulation 8, provided that the cleaning is associated with a source subjecting to the requirement of Section 2-1-301 and 302
2-1-128	Miscellaneous equipment	
	128.19	Any source or operation deemed by the APCO to be equivalent to a source or operation which is expressly exempted by Sections 2-1-113 through 128 <i>For internal use only: permit evaluator shall refer to this memo for procedures to report equivalency determination</i>

B. Registration

Not applicable for cold solvent cleaners at this time.

C. Applicable Regulations (BAAQMD, State, Federal)

Air District Rules

All facilities that use cold cleaners for repair and maintenance operations are subject to Regulation 8-16-303.5, unless exempted per Regulation 8-16-123. These cleaners shall comply with one of the following requirements:

- VOC content of the cleaning solution shall not exceed 50 g/l (0.42 lb/gal)
- Cleaning solution shall be branched, cyclic, or linear completely methylated siloxanes (VMS – volatile methylated siloxanes)
- The portion of the cleaning solution that is not VMS shall not exceed a VOC content of 50 g/l
- Have an approved emission control device with a control efficiency of 90 percent or more on a mass basis

P E R M I T H A N D B O O K

In general, cold cleaners are subject to, **but not limited to**, the applicable standards of [Regulation 8-16-303](#).

Note: The following table is for general guidance purposes only. Always refer to the current version of the regulations posted on the Air District website.

Applicable Requirement	Regulation Title or Description of Requirement
Regulation 8, Rule 16	Organic Compounds – Solvent Cleaning Operations (10/16/2002)
8-16-303	Cold Cleaner Requirements
8-16-303.1	General Operating Requirements
8-16-303.1.1	Operate and Maintain in Proper Working Order
8-16-303.1.2	Leak Repair Requirement
8-16-303.1.3	Solvent Storage or Disposal – Evaporation Prevention
8-16-303.1.4	Waste Solvent Disposal
8-16-303.1.4(a)	Covered Containers for Waste Solvent Awaiting Pick-up
8-16-303.1.4(b)	On-site Waste Treatment
8-16-303.1.5	Solvent Evaporation Minimization Devices shall not be Removed
8-16-303.1.6	Solvent Spray Requirements
8-16-303.2	Cold Cleaner Operating Requirements
8-16-303.2.1	Solvent shall be Drained from Cleaned Parts
8-16-303.2.2	No Solvent Agitation by Air
8-16-303.2.3	Solvent Cleaning of Porous or Absorbent Materials is Prohibited
8-16-303.3	Cold Cleaner General Equipment Requirements
8-16-303.3.1	Container
8-16-303.3.2	Solvent Evaporation Reduction for Idle Equipment
8-16-303.3.3	Used Solvent Returned to Container
8-16-303.3.4	Label Stating Operating Requirements
8-16-303.4	Control Device (one of the following, except as provided in 8-16-303.5)
8-16-303.4.1	Freeboard Ratio* > 0.75
8-16-303.4.2	Water cover
8-16-303.4.3	Freeboard Chiller

8-16-303.4.4	Control devices with >90% efficiency on a mass basis
8-16-303.4.5	Enclosed Design
8-16-303.5	Repair and Maintenance Cleaner Requirements
8-16-303.5.1	VOC Content Limitation
8-16-303.5.2	VMS solvent allowance
8-16-303.5.3	VOC Content Limitation plus VMS solvent allowance
8-16-303.5.4	Source complies with 8-16-303.4.4
8-16-500	Monitoring and Records
Regulation 7	Odorous Substances (3/17/1982)

**Freeboard Ratio: freeboard height divided by the smaller of the length or width of the solvent cleaner evaporative area (Regulation 8-16-212)*

Exemption and Limited exemption from Regulation 8 Rule 16:

The following cold cleaners are partially exempted from Regulation 8 Rule 16:

- (8-16-112) The requirements of this Rule shall not apply to solvent sinks with less than 10 gallons of capacity or enclosed solvent cleaners at semiconductor manufacturing operations (subject to Rule 8-30).
- (8-16-115) Cold cleaners that contain less than 1 gallon of unheated solvent, including volume in any remote reservoir, or have an evaporative area of less than 1 cubic feet are exempted from Regulation 8-16 except for subsections 8-16.303.1, 303.3.1, and 303.3.2.
- (8-16-118) Cold cleaners using solvent with low volatility, as defined in regulation 8-16-205, are exempted from the requirement for control devices in 8-16-303.4.
- (8-16-123) Section 8-16-303.5 shall not apply to (i) the cleaning of aerospace components, electrical and electronic components, precision optics, medical devices, or cleaning of resin, coating, ink and adhesive mixing, molding and application equipment; or (ii) cleaning associated with research and development operations; performance testing to determine coating, adhesive or ink performance; or testing for quality control or quality assurance purposes.
- (8-16-124) The recordkeeping requirements of Section 8-16-501 shall not apply to any cold cleaners that comply with Section 8-16-303.5.1. However, they are subject to Section 8-16-502.

School Notification ([Regulation 2-1-412](#))

The [California Health and Safety Code Section 42301.6 through 42301.9](#) requires new or modified sources of hazardous air emissions located within 1000 feet of outer boundary of a school to give public notice to the parents or guardians of

children enrolled in any school located within one-quarter mile of the source and to each address within a 1000-foot radius. This regulation applies to any sources that result in an increase in emission, regardless of the amount, of any substance into the ambient air which has been identified by the California Air Resources Board or the Air District as a hazardous air pollutant or toxic air contaminant.

For internal use only: permit evaluator: refer to [this document](#) for procedures for School Notification

Offsets

Per Regulation 2-2-302, offsets must be provided for any new or modified source at a facility that has the potential to emit more than 10 tons/yr of POC. The determination of offset requirements is based on the calculation of the cumulative increase emissions of a new or modified source.

Health Risk Assessment (HRA)

Sources that equal or exceed an emission threshold for any of the toxic air contaminants (TACs) as listed in Table 2-5-1 of [Regulation 2 Rule 5](#) will trigger health risk assessment.

Overburdened Communities

Permit applications for projects located within an overburdened community (OBC), as defined in Regulation 2-1-243, are subject to additional permitting requirements including: additional fees (pending citation: Regulation 3-302.7), more stringent cancer risk limitations (Regulation 2-5-302.1), and public notification requirements (Regulation 2-1-412). The Air District is developing an interactive mapping tool that will enable staff, facilities, and the public to easily identify if a project location is within an OBC by entering an address, intersection, or latitude/longitude location in the mapping tool. Shaded areas and color-coded location pins will identify if the location is within an OBC. Links to the OBC mapping tool will be added here as soon as they are available.

Overburdened Community Notification

Any project that includes new or modified sources that are located within an overburdened community and that triggers a health risk assessment for that project is required to undergo public notification pursuant to Regulation 2-1-412. A notification shall be prepared that fully describes the project, proposed emissions, and health risks determined pursuant to [Regulation 2, Rule 5](#). The notification shall be distributed to each address located within 1000 feet of any source within the project. The APCO shall review and consider all comments received during the 30 days after the notice is distributed and shall include a written response to the comments in the permit application file prior to taking final action on the application.

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the General Evaluation Guidance, which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

New Source Performance Standards (NSPS)

Cold cleaning may be subject to the EPA's New Source Performance Standards. Check this link (<https://www.epa.gov/stationary-sources-air-pollution/new-source-performance-standards>) to determine applicability.

Prevention of Significant Deterioration (PSD)

PSD applies to new major sources or major modifications at existing sources for pollutants where the area the source is located is in attainment or unclassifiable with the National Ambient Air Quality Standards. Cold solvent cleaning usually does not result in attainment pollutant emissions, so PSD does not typically apply.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

NESHAP may apply and would impose additional requirements for those cold cleaners using any combination of the following six halogenated solvents at a total concentration of 5 percent or more by weight: methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride and chloroform ([EPA 40 CFR 63 subpart T](#)).

D. Policies & Procedures (ex: combined sources, fees policy, BACT, NOE, etc..)

Under Regulation 2, Rule 2, any new source which results in an increase of equal to or more than 10 lbs per highest day of any criteria pollutant must adhere to BACT control technologies. BACT for Cold Cleaners is specified in the Air District's [BACT/TBACT Workbook](#).

Excerpt from BAAQMD BACT/TBACT Workbook (revised 3/10/1995)

1. BACT technologically feasible/Cost effective: Compliance with Regulation 8-16 for all solvents, and equipped with cover, freeboard ratio ≥ 1 , and either: a) water layer (1 inch); or b) covering while in use
2. Achieved in Practice: Compliance with Regulation 8-16 for all solvents, and equipped with cover and freeboard ratio ≥ 0.75

Public Participation

The Air District provides a 10-day public participation period during the review process for all new or modified permit applications. The permit evaluator shall not issue an Authority to Construct/Permit to Operate for a permit application covered by Regulation 2, Rule 1, unless the application has been designated as complete (completeness designation date) for at least 10 full calendar days. Exceptions to this policy include applications for Certificate of Registration, Certificate of Permit

Exemption, Banking, and Accelerated Permit to Operate. Information on how to make public comments can be found on the [BAAQMD website](#).

III. AIR EMISSION

A. Emission Calculations

Net organic solvents used in cold cleaners are assumed to be 100 percent volatile and emitted into the atmosphere. Any recovered solvents are subtracted from the emissions. Actual emissions are calculated by multiplying the annual net volumetric solvent usage by the density of the organic solvent used. Non-volatile components (e.g., water) of the solvent shall not be included as part of the solvent when calculating VOC emissions.

For determining if BACT requirements are triggered, permit evaluators should calculate the maximum daily emissions to discern if the Regulation 2, Rule 2 BACT trigger level has been exceeded. For determining if an HRA is required, permit evaluators should calculate the maximum hourly and maximum annual emissions to discern if the acute or chronic trigger levels of [Regulation 2, Rule 5](#), Table 2-5-1 are reached.

For determining Offsets required, permit evaluators should calculate the “cumulative increase” emissions. Per Regulation 2-2-208, cumulative increase means “The increase in the potential to emit a pollutant authorized by an authority to construct or permit to operate measured against prior actual or potential emissions, less any contemporaneous onsite emission reduction credits credited to the authority to construct or permit to operate, calculated in accordance with the procedures set forth in Section 2-2-607.”

B. Abatement Equipment

EPA’s AP-42 Fifth Edition, Volume 1, Chapter 4.6. Solvent Degreasing provides some information on control devices and operating procedures that may reduce emissions for cold cleaners. These are illustrative only. For any application review, the permit evaluator should contact the abatement equipment vendors to determine an appropriate abatement efficiency to use for the emission calculations based on best engineering judgement.

IV. APPLICATION PROCEDURES

A. Information per Regulation 2-1-402

Every application for an authority to construct or a permit to operate shall be submitted to the APCO on the forms specified, and shall contain all of the following information:

- 402.1 Sufficient information for the APCO to determine the emissions from the sources that are the subject of the application, and to quantify emissions from the sources of any emission reduction credits that will be relied upon as part of the application.

- 402.2 Any information requested by the APCO in order to determine the air quality impact from sources that are the subject of the application.
- 402.3 All applicable fees, as described in Regulation 3.
- 402.4 If the application is subject to the New Source Review requirements of Regulation 2, Rule 2, all information required under Section 2-2-401.
- 402.5 CEQA-related information that satisfies the requirements of Section 2-1-426.
- 402.6 A certification stating whether the source triggers the requirements of Section 2-1-412.
- 402.7 A specific designation of any information contained in the application that the applicant asserts is trade secret pursuant to Section 6254.7 of the Government Code. The applicant shall submit two copies of each page containing trade secret information. One copy shall be clearly labeled "Trade Secret," and each trade secret item shall be clearly marked. The second copy shall be clearly labeled "Public Copy," and each trade secret item shall be redacted. The applicant shall include, for each item which it asserts to be a trade secret, a statement signed by a responsible representative of the applicant identifying that portion of Government Code Section 6254.7(d) upon which the assertion is based and a brief statement setting forth the basis for this assertion.
- 402.8 Any other information requested by the APCO as necessary to determine whether the new, modified or altered source will comply with applicable regulatory requirements.

The application must contain sufficient information to enable the APCO to make a decision or a preliminary decision on the application and/or on any exemptions authorized by this Regulation. The APCO may consult with appropriate local and regional agencies to determine whether the application conforms with adopted plans and with local permit requirements..

B. Forms –link to form and example

- [Form P101-B](#) (one for facility)
- [Form S](#) (one per source)
- [Form SC](#) (one per source)
- Material Safety Data Sheet for each solvent used
- [Form A](#) if cold cleaner exhausts into add-on abatement device (one per device)
- [Form HRA](#) if Health Risk Assessment is triggered (one per source) per [Regulation 2, Rule 5](#) or Regulation 2-1-316

C. Fees – link to Regulation 3 and example

Fees for New and Modified Sources are calculated based on the standards contained in BAAQMD [Regulation 3](#), including, but not limited to:

- 3-302 Fees for New and Modified Sources
 - Filing fee
 - Fee Schedule E (Solvent Evaporating sources)
- 3-303 Back Fees, if applicable
- 3-304 Alteration, if applicable
- 3-305 Cancellation or Withdrawal, if applicable
- 3-306 Change in Conditions, if applicable
- 3-310 Fee for Constructing Without a Permit, if applicable
- 3-318 Public Notice Fee, Schools, if applicable
- 3-329 Fees for New Source Review Health Risk Assessment, if applicable
- 3-330, Fee for Renewing an Authority to Construct, if applicable
- 3-337, Exemption Fees, if applicable
 - Fee Schedule E (Solvent Evaporating Sources)

Discounts are also given to qualified small businesses and green businesses. Definitions for small and green business can be found in Regulation 3-209 and 241 respectively. If a business is identified as both small and green business, only small business discount shall apply:

- 3-302.1 Small Business Discount: 50% discount for filing fee, initial fee, and risk assessment fee
- 3-302.6 Green Business Discount: 10% discount for filing fee, initial fee, and risk assessment fee

For internal use only: permit evaluator should refer to [VO](#) for updated policies and regulations regarding application fee

D. Completeness - checklist

- ☐ All required data Forms/worksheets completed
- ☐ All required fees paid
- ☐ A cover letter, if necessary, which includes a background description of the proposed project. If the project involves an assembly line process or other complicated process, diagrams of the process should also be included with the background description.
- ☐ Sufficient information needed to calculate emissions, including toxics, from the proposed source(s).
- ☐ If a Health Risk Assessment is triggered, a completed Form HRA
- ☐ If the proposed source(s) is located within 1,000 feet of a school:
 - a. The required public notification fee paid and
 - b. Identification of all schools within 0.25 mi. of the source(s).
 - c. Satellite map showing the sources and school boundaries.
- ☐ If the permit is not ministerial as set forth in Regulation 2-1-427:
 - a. A completed CEQA Appendix H Form and

- b. if the Air District is not the lead agency, any one of the following prepared by or under the supervision of the lead agency:
 - i. A Draft or Final Environmental Impact Report (EIR); or
 - ii. A contract for the preparation of a draft EIR; or
 - iii. A Negative Declaration; or
 - iv. A Notice of Preparation of a draft EIR; or
 - v. A copy of the Initial Study; or
 - vi. A commitment in writing indicating lead agency role.
- ☐ For any part of the application that has been claimed as trade secret:
 - a. A public copy of application with trade secret information redacted; and
 - b. For each section of the application that was claimed trade secret, a statement signed by the applicant identifying the portion of the Government Code Section 6254.7 (d) upon which the assertion is based and a statement setting forth the basis for this assertion.
- ☐ For new facilities and for modifications to existing facilities which will increase emissions more than 100 tons per year of carbon monoxide or 40 tons per year of either precursor organic compounds or nitrogen oxides, an analysis of alternative sites, sizes, production processes, and environmental control techniques for such proposed source which demonstrate that benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction, or modification.
- ☐ Green Business certification, if applicable
- ☐ Small Business certification, if applicable

Additional information is required if it is an application which triggers Regulation 2-2 (New Source Review) requirements:

- ☐ CEQA-related information required under Section 2-1-416 for a new major facility, and for a modification to a major facility that will increase emissions more than 100 tons per year of carbon monoxide, 40 tons per year of either precursor organic compounds, sulfur dioxide, or nitrogen oxides, or 10 tons per year of PM_{2.5}, an analysis of alternative sites, sizes, production processes, and environmental control techniques for such proposed source that demonstrates that benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction or modification.
- ☐

Additional item(s) may be required to COMPLETE a permit application

- ☐ Information regarding compliance status of proposed source with applicable requirements.

Additional item(s) may be required for the Air District's EVALUATION of a permit application

- ☐ If BACT is triggered per Regulation 2-2-301, information regarding compliance status with applicable BACT.
- ☐ If offsets are triggered per Regulation 2-2-302 and/or 2-2-303, information regarding source of offsets or banking certificate to be used.

V. ENGINEERING EVALUATION EXAMPLE

EVALUATION REPORT

Plant A100 Plant A WayA Town, CA 90000

Application #[insert facility #] - Plant #[insert plant #]

I. BACKGROUND

Plant A has applied for a Permit to Operate for the following equipment:

S-318 Solvent Cleaner, Inland Technology, Model IT48WC, 48 Gallon Capacity

Plant A replaced a permitted System One Model 570 cold cleaner (S-305) in June of 2008 and recently discovered that the Air District had not been notified of the change. The facility has been using the same solvent permitted for S-305 and operating S-318 under Permit Condition #20866. As part of this application, S-305 will be removed and the replacement cold cleaner will be permitted as a new source number (S-318).

S-318 is used in the Continuous Annealing Line Maintenance Shop for maintenance and repair activities. As such, S-318 is subject to Regulation 8-16.303.5 and the facility complies with Regulation 8-16-303.5.2 by using branched, cyclic, or linear completely methylated siloxane (VMS), which is a Non-Precursor Organic Compound (NPOC), as the cleaning solution. In addition, S-318 meets the limited exemption criteria per Regulation 8-16-118, "Limited Exemption, Compounds with Low Volatility," and is exempt from Regulation 8-16-303.4.

Plant A submitted a minor revision to the Title V permit for this change under Application #29785 along with this New Source Review (NSR) application. The Statement of Basis is included as part of the New Source Review evaluation.

II. EMISSION CALCULATIONS

Table 1. Annual and Daily NPOC Emissions for S-318

Solvent	Max Annual Throughput (gal/yr)	Density (lb/gal)	VOC Content (lb/gal)	Annual Emissions (lb/yr)	Annual Emissions (tons/yr)	Highest Daily Emissions (lb/day)
Methylated Siloxane	40	7.9	7.9	316	0.158	1.74

Basis: - Operating Schedule: 8 hours/day; 7 days/week; 52 weeks/year.
 - Organic solvents are assumed to be 100% volatile and emitted into the atmosphere.
 - Maximum day 16 hours/day

Condition #20866 covers 10 cold cleaners using methylated siloxanes, each limited to 40 gallons per consecutive 12-month periods for a combined emissions limit of 3,160 lbs NPOC per year (316 lbs/year/cleaner x 10 cleaners). On October 24, 2018, prior to the submittal of this application, the facility and Air District inspector verified the removal of sources S-190, S-195, S-206, S-210, S-215, S-308, S-309, and S-317.

III. CUMULATIVE INCREASE

Table 2 summarizes the cumulative increase in criteria pollutant emissions that will result from this application.

Table 2. Cumulative Emissions Increase, Post 4/5/91

Pollutant	Existing Emissions Post 4/5/91 (tons/yr)	Application Emissions (tons/yr)	Cumulative Emissions (tons/yr)
NPOC	0.000	0.158	0.158

IV. TOXIC SCREENING ANALYSIS

A Health Risk Assessment (HRA) is required when the emissions of toxic air contaminants (TACs) are at or exceed the trigger levels outlined in Regulation 2, Rule 5, Table 2-5-1. There are no TACs listed in Table 2-5-1 associated with this source.

V. BEST AVAILABLE CONTROL TECHNOLOGY

In accordance with Regulation 2-2-301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NO_x, CO, SO₂, or PM₁₀.

At a maximum daily rate of 1.74 lbs of NPOC per day, BACT is not triggered.

VI. OFFSETS

NPOC emissions are not subject to offset requirements; therefore, offsets are not required.

VII. STATEMENT OF COMPLIANCE

Air District Rules

S-318 is subject to and expected to comply with general operating requirements of Regulation 8-16-303 (Cold Cleaner Requirements) including the requirements that the equipment shall be operated and maintained in proper working order, that liquid solvent leaks shall be repaired immediately, that solvent shall not stored or disposed of in a manner that will cause or allow evaporation into the atmosphere, and that waste solvent residues are disposed by the methods allowed in Section 8-16-303 and the cold cleaner meets the operating and general equipment requirements contained in Sections 8-16-303.2 and 303.3 and 303.5 (if the cold cleaner is used for repair and maintenance cleaning); and the recordkeeping requirements of Regulation 8-16-501 (Solvent Records). In addition, S-318 meets the limited exemption criteria per Regulation 8-16-118, "Limited Exemption, Compounds with Low Volatility," and is exempt from Regulation 8-16-303.4. As such, S-18 is subject to and expected to comply with Regulation 8-16-502 (Burden of Proof) to demonstrate eligibility for the exemption.

California Environmental Quality Act (CEQA)

Permit applications may be statutorily and/or categorically exempt from CEQA or subject to CEQA review. Please see the [General Evaluation Guidance](#), which contains a further discussion of CEQA requirements and steps for permit evaluators to document this in Engineering Evaluation reports.

New Source Performance Standards (NSPS)

NSPS is not triggered.

National Emissions Standards for Hazardous Air Pollutants (NESHAP)

This source does not use any halogenated solvents listed in Regulation 8-16-216 (Halogenated Solvent Cleaners); therefore, NESHAP is not triggered.

Prevention of Significant Deterioration (PSD)

PSD is not triggered.

School Notification (Regulation 2-1-412)

This project is over 1,000 feet from the nearest K-12 school, and is therefore not subject to the public notification requirements.

VIII. PERMIT CONDITIONS

Permit Condition #

For S202 - Cold Cleaner

S318, Cold Cleaner, Inland Technology, Model IT48WC, 48 Gal

1. The Owner/Operator of Cold Cleaners S202 and S318 shall not exceed the following usage limit for each cleaner during any consecutive twelve-month period:

Methylated Siloxane 40 gallons/year/cleaner
(Basis: Cumulative Increase)

2. The Owner/Operator of sources S202 and S318 may use solvent other than the material specified in Part 1 above, and/or usages in excess of those specified in Part 1 above, provided that the Owner Operator can demonstrate that all of the following are satisfied:
 - a. S202 and S318 Cold Cleaners comply with Regulation 8-16-303.5;
 - b. The total NPOC combined emissions from S202 and S318 do not exceed 632 pounds in any consecutive twelve-month period; and
 - c. The use of these alternate materials does not increase toxic air contaminant (TAC) emissions above any acute and/or chronic TAC health risk assessment trigger level in Table 2-5-1 of Regulation 2, Rule 5. The owner/operator shall maintain records of any TAC component contents of each alternate material used and supporting mass emission calculations demonstrating TAC emissions do not exceed the acute and/or chronic TAC trigger levels in Table 2-5-1 of Regulation 2, Rule 5 by calculating TAC emissions on a pound per hour and pound per year basis, respectively..
(Basis: Cumulative Increase)

3. To determine compliance with the above conditions, the Owner/Operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions, including the following information:
 - a. Quantities of solvent used at each source on a monthly basis.
 - b. If a material other than that specified in Part 1 above is used, NPOC and toxic component contents of each alternate material used; and mass emission calculations to demonstrate compliance with Part 2.b. on a monthly basis and 2.c. on a daily basis
 - c. Monthly usage and/or daily emission calculations shall be totaled for each consecutive twelve-month period.
(Basis: Cumulative Increase)

End of Conditions

IX. RECOMMENDATION

I recommend that the Air District waive the Authority to Construct and issue a Permit to Operate for the following:

S-318 Solvent Cleaner, Inland Technology, Model IT48WC, 48 Gallon Capacity

By: _____

Date: _____

VI. APPENDIX

A. Fees Calculation Example:

Applicant: a family-owned metal cleaning service is applying for a permit to operate a new cold cleaner. The applicant estimates a net solvent usage of 100 gallons of 100 percent methylated siloxane annually. The business operates with only 7 employees and has a gross annual income of \$400,000, so it qualifies as a Small Business. It is also certified as a green business under the Bay Area Green Business Program. The facility has not constructed nor operated the cold cleaner and is therefore not subject to Regulation 3-310 fees (Fees for Constructing Without a Permit).

Fee calculation*:

Filing Fee (per 3-302) \$593

Initial Fee (per 3-302 and Schedule E) \$1083

(100 gals) x (\$1,892/1,000 gals) = \$189**

< minimum fee per source of \$942

Risk Assessment Fee \$0

Methylated siloxane is not a TAC

Permit to Operate Fee \$781

(100 gals) x (\$942/1,000 gals)** = \$94

< minimum fee per source of \$679

total fees before discount \$2,457

Small Business Discount - (50%)(\$593+\$1083) = \$838

Green Business Discount \$ 0

Only Small Business Discount applies

for a qualified small and green business

Total application fee \$1,619

* Fee calculation example is based on fee policies as of July 1, 2022, and Regulation 3 adopted June 15, 2022.

**Fee calculation is rounded to the nearest dollar

B. References

- [1] United States Environmental Protection Agency, *Compilation of Air Pollutant Emission Factors (AP-42)*, 5th ed., vol.1, Ch. 4.6. Available: <https://www3.epa.gov/ttn/chief/ap42/ch04/final/c4s06.pdf>. [Accessed: July. 12, 2019]
- [2] OAQPS Guidelines, *Control of Volatile Organic Emissions from Solvent Metal Cleaning*. Available: https://www3.epa.gov/airquality/ctg_act/197711_voc_epa450_2-77-022_solvent_metal_cleaning.pdf. [Accessed: July.12, 2019]

C. Version History

- Version 1 – 4/29/2020
 - Drafted by Chloe Dieu – Air Quality Engineering Intern
 - Reviewed by Mark Gage – Air Quality Engineer
- Version 2 – 12/15/2023
 - Updated by Carol Lee – Supervising Air Quality Engineer

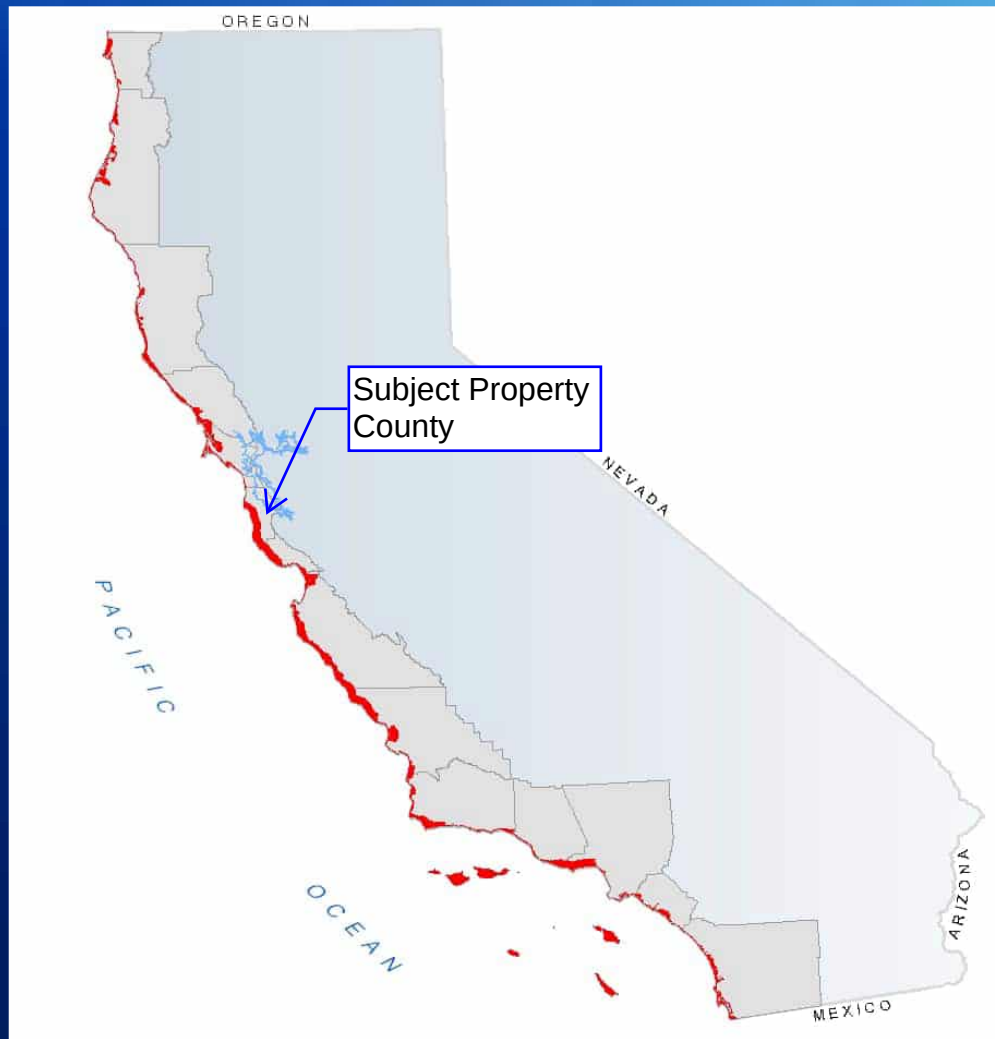
#	State	Area	NAAQS Standard	Requirements	Status	Designation Date	2021 Area Populat	2020 Area Populat	Design Value	24 Hr Design Value	Design Value Unit	(Design Value Years)	Meets NAAQS?
1	CA	Amador and Calaveras Cos. (Central Mountain Cos.)	8-Hour Ozone (1997 Standard)	https://edap.epa.g	Nonattainment (NAAQS revoked)	6/15/2004	88,607	85,766	.068	-	ppm	2020-2022	Yes
2	CA	Amador County	8-Hour Ozone (2015 Standard)	https://edap.epa.g	Nonattainment	8/3/2018	40,358	40,474	.066	-	ppm	2020-2022	Yes
3	CA	Bakersfield Area	Carbon Monoxide (1971 Standard)	https://edap.epa.g	Maintenance	11/15/1990	424,454	435,860	1.100	-	ppm	2021-2022	Yes
4	CA	Butte County	8-Hour Ozone (2015 Standard)	https://edap.epa.g	Nonattainment	8/3/2018	205,957	211,632	.071	-	ppm	2020-2022	No
5	CA	Calaveras County	8-Hour Ozone (2008 Standard)	https://edap.epa.g	Nonattainment	7/20/2012	48,249	45,292	.068	-	ppm	2020-2022	Yes
6	CA	Calaveras County	8-Hour Ozone (2015 Standard)	https://edap.epa.g	Nonattainment	8/3/2018	48,249	45,292	.068	-	ppm	2020-2022	Yes
7	CA	Chico	8-Hour Ozone (1997 Standard)	https://edap.epa.g	Nonattainment (NAAQS revoked)	6/15/2004	205,962	211,632	.071	-	ppm	2020-2022	Yes
8	CA	Chico	PM-2.5 (2006 Standard)	https://edap.epa.g	Maintenance	12/14/2009	202,970	207,373	57.000	-	µg/m³	2020-2022	No
9	CA	Chico (Butte County)	8-Hour Ozone (2008 Standard)	https://edap.epa.g	Nonattainment	7/20/2012	205,962	211,632	.071	-	ppm	2020-2022	Yes
10	CA	Chico Area	1-Hour Ozone (1979 Standard)	https://edap.epa.g	Nonattainment (NAAQS revoked)	11/15/1990	205,962	211,632	.085	-	ppm	2020-2022	Yes
11	CA	Chico Area	Carbon Monoxide (1971 Standard)	https://edap.epa.g	Maintenance	11/15/1990	93,862	99,546	1.300	-	ppm	2021-2022	Yes
12	CA	Coso Junction	PM-10 (1987 Standard)	https://edap.epa.g	Maintenance	11/15/1990	91	70	1.700	-	est. exc.	2020-2022	No
13	CA	East Kern County Area	1-Hour Ozone (1979 Standard)	https://edap.epa.g	Maintenance (NAAQS revoked)	12/10/2001	34,493	34,815	.100	-	ppm	2020-2022	Yes
14	CA	East Kern County Area	PM-10 (1987 Standard)	https://edap.epa.g	Nonattainment	11/15/1990	32,130	29,443	-	-	est. exc.	2020-2022	Incomplete
15	CA	Fresno Area	Carbon Monoxide (1971 Standard)	https://edap.epa.g	Maintenance	11/15/1990	616,504	618,518	2.100	-	ppm	2021-2022	Yes
16	CA	Imperial County	8-Hour Ozone (2008 Standard)	https://edap.epa.g	Nonattainment	7/20/2012	176,462	179,702	.077	-	ppm	2020-2022	No
17	CA	Imperial County	8-Hour Ozone (2015 Standard)	https://edap.epa.g	Nonattainment	8/3/2018	176,449	179,697	.077	-	ppm	2020-2022	No
18	CA	Imperial County	PM-2.5 (2006 Standard)	https://edap.epa.g	Nonattainment	12/14/2009	156,828	159,700	32.000	-	µg/m³	2020-2022	Yes
19	CA	Imperial County	PM-2.5 (2012 Standard)	https://edap.epa.g	Nonattainment	4/15/2015	156,828	159,700	11.100	-	µg/m³	2020-2022	Yes
20	CA	Imperial County Area	1-Hour Ozone (1979 Standard)	https://edap.epa.g	Nonattainment (NAAQS revoked)	11/15/1990	176,507	179,810	.106	-	ppm	2020-2022	Yes
21	CA	Imperial County Area	8-Hour Ozone (1997 Standard)	https://edap.epa.g	Nonattainment (NAAQS revoked)	6/15/2004	176,462	179,702	.077	-	ppm	2020-2022	Yes
22	CA	Imperial County; Imperial Valley planning area	PM-10 (1987 Standard)	https://edap.epa.g	Maintenance	11/15/1990	173,549	176,795	8.100	-	8.1 est. exc.	2020-2022	No
23	CA	Indian Wells	PM-10 (1987 Standard)	https://edap.epa.g	Maintenance	11/15/1990	34,493	34,815	2.000	-	2.0 est. exc.	2020-2022	No
24	CA	Inyo County; Owens Valley planning area	PM-10 (1987 Standard)	https://edap.epa.g	Nonattainment	6/15/1990	3,089	3,000	8.100	-	8.1 est. exc.	2020-2022	No
25	CA	Kern County (Eastern Kern)	8-Hour Ozone (1997 Standard)	https://edap.epa.g	Nonattainment (NAAQS revoked)	6/15/2004	98,361	98,312	.081	-	ppm	2020-2022	Yes
26	CA	Kern County (Eastern Kern)	8-Hour Ozone (2008 Standard)	https://edap.epa.g	Nonattainment	7/20/2012	98,361	98,312	.081	-	ppm	2020-2022	No
27	CA	Kern County (Eastern Kern)	8-Hour Ozone (2015 Standard)	https://edap.epa.g	Nonattainment	8/3/2018	98,361	98,312	.081	-	ppm	2020-2022	No
28	CA	Lake Tahoe North Shore Area	Carbon Monoxide (1971 Standard)	https://edap.epa.g	Maintenance	11/15/1990	12,075	10,764	-	-	ppm	2021-2022	No Data
29	CA	Lake Tahoe South Shore Area	Carbon Monoxide (1971 Standard)	https://edap.epa.g	Maintenance	11/15/1990	32,875	30,319	-	-	ppm	2021-2022	No Data
30	CA	Los Angeles and San Bernardino Counties (Western Mojave Desert)	8-Hour Ozone (1997 Standard)	https://edap.epa.g	Nonattainment (NAAQS revoked)	6/15/2004	918,694	948,087	.090	-	ppm	2020-2022	No
31	CA	Los Angeles County-South Coast Air Basin	Lead (2008 Standard)	https://edap.epa.g	Nonattainment	12/31/2010	9,700,931	9,589,364	.060	-	µg/m³	2020-2022	Yes
32	CA	Los Angeles-San Bernardino Counties (West Mojave Desert)	8-Hour Ozone (2008 Standard)	https://edap.epa.g	Nonattainment	7/20/2012	918,738	948,110	.090	-	ppm	2020-2022	No
33	CA	Los Angeles-San Bernardino Counties (West Mojave Desert)	8-Hour Ozone (2015 Standard)	https://edap.epa.g	Nonattainment	8/3/2018	918,707	948,087	.090	-	ppm	2020-2022	No
34	CA	Los Angeles-South Coast Air Basin	8-Hour Ozone (2008 Standard)	https://edap.epa.g	Nonattainment	7/20/2012	16,519,685	16,365,747	.113	-	ppm	2020-2022	No
35	CA	Los Angeles-South Coast Air Basin	8-Hour Ozone (2015 Standard)	https://edap.epa.g	Nonattainment	8/3/2018	16,507,487	16,352,012	.113	-	ppm	2020-2022	No
36	CA	Los Angeles-South Coast Air Basin	PM-2.5 (1997 Standard)	https://edap.epa.g	Nonattainment	4/5/2005	16,514,234	16,360,399	14.000	-	µg/m³	2020-2022	Yes
37	CA	Los Angeles-South Coast Air Basin	PM-2.5 (2006 Standard)	https://edap.epa.g	Nonattainment	12/14/2009	16,514,160	16,360,268	41.000	-	41.0 µg/m³	2020-2022	No
38	CA	Los Angeles-South Coast Air Basin	PM-2.5 (2012 Standard)	https://edap.epa.g	Nonattainment	4/15/2015	16,514,160	16,360,268	14.000	-	µg/m³	2020-2022	No
39	CA	Los Angeles-South Coast Air Basin Area	1-Hour Ozone (1979 Standard)	https://edap.epa.g	Nonattainment (NAAQS revoked)	11/15/1990	16,513,420	16,359,071	.167	-	ppm	2020-2022	No
40	CA	Los Angeles-South Coast Air Basin Area	8-Hour Ozone (1997 Standard)	https://edap.epa.g	Nonattainment (NAAQS revoked)	6/15/2004	16,519,799	16,366,090	.113	-	ppm	2020-2022	No
41	CA	Los Angeles-South Coast Air Basin Area	Carbon Monoxide (1971 Standard)	https://edap.epa.g	Maintenance	11/15/1990	16,511,015	16,356,974	3.400	-	ppm	2021-2022	Yes
42	CA	Los Angeles-South Coast Air Basin Area	Nitrogen Dioxide (1971 Standard)	https://edap.epa.g	Maintenance	11/15/1990	16,509,293	16,354,274	29.000	-	ppb	2022	Yes
43	CA	Mariposa and Tulumne Cos. (Southern Mountain Counties)	8-Hour Ozone (1997 Standard)	https://edap.epa.g	Nonattainment (NAAQS revoked)	6/15/2004	73,553	72,751	.084	-	ppm	2020-2022	Yes
44	CA	Mariposa County	8-Hour Ozone (2008 Standard)	https://edap.epa.g	Nonattainment	7/20/2012	17,961	17,087	.084	-	ppm	2020-2022	No
45	CA	Mariposa County	8-Hour Ozone (2015 Standard)	https://edap.epa.g	Nonattainment	8/3/2018	17,921	17,046	.083	-	ppm	2020-2022	No
46	CA	Modesto Area	Carbon Monoxide (1971 Standard)	https://edap.epa.g	Maintenance	11/15/1990	272,504	276,596	1.400	-	ppm	2021-2022	Yes
47	CA	Mono County; Mammoth Lake planning area	PM-10 (1987 Standard)	https://edap.epa.g	Maintenance	11/15/1990	8,211	7,183	13.000	-	13.0 est. exc.	2020-2022	No
48	CA	Mono County; Mono Basin	PM-10 (1987 Standard)	https://edap.epa.g	Nonattainment	12/29/1993	1,060	1,111	17.200	-	17.2 est. exc.	2020-2022	No
49	CA	Monterey Bay Area	1-Hour Ozone (1979 Standard)	https://edap.epa.g	Nonattainment (NAAQS revoked)	11/15/1990	760,458	774,084	.080	-	ppm	2020-2022	Yes
50	CA	Morongo Band of Mission Indians	1-Hour Ozone (1979 Standard)	https://edap.epa.g	Nonattainment (NAAQS revoked)	11/15/1990	1,125	1,243	.124	-	ppm	2020-2022	Yes
51	CA	Morongo Band of Mission Indians	8-Hour Ozone (1997 Standard)	https://edap.epa.g	Nonattainment (NAAQS revoked)	6/15/2004	1,125	1,243	.095	-	ppm	2020-2022	No
52	CA	Morongo Band of Mission Indians	8-Hour Ozone (2008 Standard)	https://edap.epa.g	Nonattainment	7/20/2012	1,125	1,243	.095	-	ppm	2020-2022	No
53	CA	Morongo Band of Mission Indians	8-Hour Ozone (2015 Standard)	https://edap.epa.g	Nonattainment	8/3/2018	1,155	1,267	.095	-	ppm	2020-2022	No
54	CA	Nevada County (Western part)	8-Hour Ozone (1997 Standard)	https://edap.epa.g	Nonattainment (NAAQS revoked)	6/15/2004	83,522	84,933	.081	-	ppm	2020-2022	Yes
55	CA	Nevada County (Western part)	8-Hour Ozone (2008 Standard)	https://edap.epa.g	Nonattainment	7/20/2012	83,522	84,933	.081	-	ppm	2020-2022	No
56	CA	Nevada County (Western part)	8-Hour Ozone (2015 Standard)	https://edap.epa.g	Nonattainment	8/3/2018	83,661	84,963	.081	-	ppm	2020-2022	No
57	CA	Pechanga Band of Luiseno Mission Indians of the Pechanga Reservation	8-Hour Ozone (1997 Standard)	https://edap.epa.g	Maintenance (NAAQS revoked)	6/15/2004	563	1,108	.073	-	ppm	2020-2022	Yes
58	CA	Pechanga Band of Luiseno Mission Indians of the Pechanga Reservation	8-Hour Ozone (2008 Standard)	https://edap.epa.g	Nonattainment	7/20/2012	563	1,108	.073	-	ppm	2020-2022	Yes
59	CA	Pechanga Band of Luiseno Mission Indians of the Pechanga Reservation	8-Hour Ozone (2015 Standard)	https://edap.epa.g	Nonattainment	8/3/2018	650	995	.073	-	ppm	2020-2022	No
60	CA	Plumas County	PM-2.5 (2012 Standard)	https://edap.epa.g	Nonattainment	4/15/2015	5,424	5,862	17.000	-	µg/m³	2020-2022	No
61	CA	Riverside County (Coachella Valley)	8-Hour Ozone (2008 Standard)	https://edap.epa.g	Nonattainment	7/20/2012	462,767	445,312	.087	-	ppm	2020-2022	No
62	CA	Riverside County (Coachella Valley)	8-Hour Ozone (2015 Standard)	https://edap.epa.g	Nonattainment	8/3/2018	462,767	445,312	.087	-	ppm	2020-2022	No
63	CA	Riverside County (Coachella Valley) Area	8-Hour Ozone (1997 Standard)	https://edap.epa.g	Nonattainment (NAAQS revoked)	6/15/2004	462,692	445,181	.087	-	ppm	2020-2022	No
64	CA	Riverside County; Coachella Valley planning area	PM-10 (1987 Standard)	https://edap.epa.g	Nonattainment	11/15/1990	554,492	537,073	8.000	-	8.0 est. exc.	2020-2022	No
65	CA	Riverside, Los Angeles, Orange, and San Bernardino Counties; South Coast Air Basin	PM-10 (1987 Standard)	https://edap.epa.g	Maintenance	11/15/1990	16,429,498	16,276,234	1.400	-	1.4 est. exc.	2020-2022	No
66	CA	Sacramento	PM-2.5 (2006 Standard)	https://edap.epa.g	Nonattainment	12/14/2009	2,424,458	2,462,896	65.000	-	65.0 µg/m³	2020-2022	No
67	CA	Sacramento Area	Carbon Monoxide (1971 Standard)	https://edap.epa.g	Maintenance	11/15/1990	1,604,782	1,640,278	1.500	-	ppm	2021-2022	Yes
68	CA	Sacramento County	PM-10 (1987 Standard)	https://edap.epa.g	Maintenance	1/20/1994	1,545,550	1,584,591	2.600	-	2.6 est. exc.	2020-2022	No
69	CA	Sacramento Metro	8-Hour Ozone (2008 Standard)	https://edap.epa.g	Nonattainment	7/20/2012	2,467,715	2,502,901	.081	-	ppm	2020-2022	No
70	CA	Sacramento Metro	8-Hour Ozone (2015 Standard)	https://edap.epa.g	Nonattainment	8/3/2018	2,467,568	2,502,878	.081	-	ppm	2020-2022	No
71	CA	Sacramento Metro Area	1-Hour Ozone (1979 Standard)	https://edap.epa.g	Nonattainment (NAAQS revoked)	11/15/1990	2,466,962	2,502,543	.105	-	ppm	2020-2022	Yes
72	CA	Sacramento Metro Area	8-Hour Ozone (1997 Standard)	https://edap.epa.g	Nonattainment (NAAQS revoked)	6/15/2004	2,467,545	2,502,754	.081	-	ppm	2020-2022	Yes
73	CA	San Bernardino County (part); excluding Searles Valley Planning area and South Coast Air Basin	PM-10 (1987 Standard)	https://edap.epa.g	Nonattainment	1/20/1994	539,340	551,329	2.800	-	2.8 est. exc.	2020-2022	No
74	CA	San Diego	8-Hour Ozone (1997 Standard)	https://edap.epa.g	Maintenance (NAAQS revoked)	6/15/2004	3,286,460	3,297,875	.079	-	ppm	2020-2022	Yes
75	CA	San Diego Area	1-Hour Ozone (1979 Standard)	https://edap.epa.g	Maintenance (NAAQS revoked)	11/15/1990	3,286,445	3,297,855	.100	-	ppm	2020-2022	Yes
76	CA	San Diego Area	Carbon Monoxide (1971 Standard)	https://edap.epa.g	Maintenance	11/15/1990	3,269,285	3,288,789	1.300	-	ppm	2021-2022	Yes
77	CA	San Diego County	8-Hour Ozone (2008 Standard)	https://edap.epa.g	Nonattainment	7/20/2012	3,286,986	3,298,412	.079	-	ppm	2020-2022	No
78	CA	San Diego County	8-Hour Ozone (2015 Standard)	https://edap.epa.g	Nonattainment	8/3/2018	3,268,102	3,287,324	.079	-	ppm	2020-2022	No
79	CA	San Francisco Bay Area	8-Hour Ozone (1997 Standard)	https://edap.epa.g	Nonattainment (NAAQS revoked)	6/15/2004	7,445,254	7,571,695	.069	-	ppm	2020-2022	Yes
80	CA	San Francisco Bay Area	8-Hour Ozone (2008 Standard)	https://edap.epa.g	Nonattainment	7/20/2012	7,445,498	7,571,714	.069	-	ppm	2020-2022	Yes
81	CA	San Francisco Bay Area	8-Hour Ozone (2015 Standard)	https://edap.epa.g	Nonattainment	8/3/2018	7,433,460	7,557,765	.069	-	ppm	2020-2022	Yes
82	CA	San Francisco Bay Area	PM-2.5 (2006 Standard)	https://edap.epa.g	Nonattainment	12/14/2009	7,446,210	7,574,494	36.000	-	36.0 µg/m³	2020-2022	No
83	CA	San Francisco Bay Area	1-Hour Ozone (1979 Standard)	https://edap.epa.g	Nonattainment (NAAQS revoked)	7/10/1998	7,446,210	7,574,494	.101	-	ppm	2020-2022	Yes
84	CA	San Francisco-Oakland-San Jose Area	Carbon Monoxide (1971 Standard)	https://edap.epa.g	Maintenance	11/15/1990	6,981,347	7,097,005	1.700	-	ppm	2021-2022	Yes</

89	CA	San Joaquin Valley 1997 PM2.5 24-Hour	PM-2.5 (1997 Standard)	https://edap.epa.gov/Nonattainment	4/5/2005	0	0	17.800	-	µg/m³	2019-2021	No
90	CA	San Joaquin Valley 1997 PM2.5 Annual	PM-2.5 (1997 Standard)	https://edap.epa.gov/Nonattainment	4/5/2005	4,176,385	4,178,077	18.800	-	µg/m³	2020-2022	No
91	CA	San Joaquin Valley Air Basin; Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, Tulare Counties	PM-10 (1987 Standard)	https://edap.epa.gov/Maintenance	11/15/1990	4,176,773	4,179,932	16.400	-	16.4 est. exc.	2020-2022	No
92	CA	San Joaquin Valley Area	1-Hour Ozone (1979 Standard)	https://edap.epa.gov/Nonattainment (NAAQS revoked)	11/15/1990	4,176,488	4,178,285	.122	-	ppm	2020-2022	Yes
93	CA	San Joaquin Valley Area	8-Hour Ozone (1997 Standard)	https://edap.epa.gov/Nonattainment (NAAQS revoked)	6/15/2004	4,176,773	4,179,932	.094	-	ppm	2020-2022	No
94	CA	San Luis Obispo (Eastern part)	8-Hour Ozone (2015 Standard)	https://edap.epa.gov/Nonattainment	8/3/2018	1,380	1,353	.071	-	ppm	2020-2022	No
95	CA	San Luis Obispo (Eastern San Luis Obispo)	8-Hour Ozone (2008 Standard)	https://edap.epa.gov/Nonattainment	7/20/2012	1,380	1,353	.072	-	ppm	2020-2022	Yes
96	CA	Santa Barbara-Santa Maria-Lompoc Area	1-Hour Ozone (1979 Standard)	https://edap.epa.gov/Maintenance (NAAQS revoked)	11/15/1990	442,308	448,219	.082	-	ppm	2020-2022	Yes
97	CA	Southeast Desert Modified AQMA Area	1-Hour Ozone (1979 Standard)	https://edap.epa.gov/Nonattainment (NAAQS revoked)	11/15/1990	1,381,404	1,393,283	.126	-	ppm	2020-2022	No
98	CA	Stockton Area	Carbon Monoxide (1971 Standard)	https://edap.epa.gov/Maintenance	11/15/1990	342,409	346,585	1.700	-	ppm	2021-2022	Yes
99	CA	Sutter Buttes	8-Hour Ozone (2015 Standard)	https://edap.epa.gov/Nonattainment	8/3/2018	0	0	.073	-	ppm	2020-2022	No
100	CA	Sutter County (part) (Sutter Buttes)	8-Hour Ozone (1997 Standard)	https://edap.epa.gov/Nonattainment (NAAQS revoked)	6/15/2004	0	0	.073	-	ppm	2020-2022	Yes
101	CA	Trona	PM-10 (1987 Standard)	https://edap.epa.gov/Nonattainment	11/15/1990	1,788	1,835	1.900	-	1.9 est. exc.	2020-2022	No
102	CA	Tuolumne County	8-Hour Ozone (2015 Standard)	https://edap.epa.gov/Nonattainment	8/3/2018	55,590	55,656	.066	-	ppm	2020-2022	Yes
103	CA	Tuscan Buttes	8-Hour Ozone (2008 Standard)	https://edap.epa.gov/Nonattainment	7/20/2012	0	0	.074	-	ppm	2020-2022	Yes
104	CA	Tuscan Buttes	8-Hour Ozone (2015 Standard)	https://edap.epa.gov/Nonattainment	8/3/2018	0	0	.073	-	ppm	2020-2022	No
105	CA	Ventura County	8-Hour Ozone (2008 Standard)	https://edap.epa.gov/Nonattainment	7/20/2012	847,412	843,845	.076	-	ppm	2020-2022	No
106	CA	Ventura County	8-Hour Ozone (2015 Standard)	https://edap.epa.gov/Nonattainment	8/3/2018	845,673	841,527	.076	-	ppm	2020-2022	No
107	CA	Ventura County (part) Area	8-Hour Ozone (1997 Standard)	https://edap.epa.gov/Nonattainment (NAAQS revoked)	6/15/2004	847,412	843,845	.076	-	ppm	2020-2022	Yes
108	CA	Ventura County Area	1-Hour Ozone (1979 Standard)	https://edap.epa.gov/Nonattainment (NAAQS revoked)	11/15/1990	847,471	843,845	.092	-	ppm	2020-2022	Yes
109	CA	Yuba City Area	1-Hour Ozone (1979 Standard)	https://edap.epa.gov/Nonattainment (NAAQS revoked)	11/15/1990	175,406	177,987	.089	-	ppm	2020-2022	Yes
110	CA	Yuba City-Marysville	PM-2.5 (2006 Standard)	https://edap.epa.gov/Maintenance	12/14/2009	175,534	178,431	55.000	-	55.0 µg/m³	2020-2022	No

APPENDIX E: COASTAL ZONE MANAGEMENT

Land Portion of Coastal Zone Statewide

Land
portion of
Coastal
Zone
shown in
red in the
15 coastal
counties



Coastal Counties

Del Norte

Humboldt

Mendocino

Sonoma

Marin

City/Co of San Francisco

San Mateo

Santa Cruz

Monterey

San Luis Obispo

Santa Barbara

Ventura

Los Angeles

Orange

San Diego



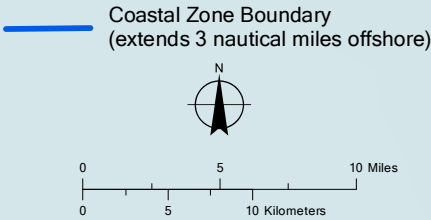
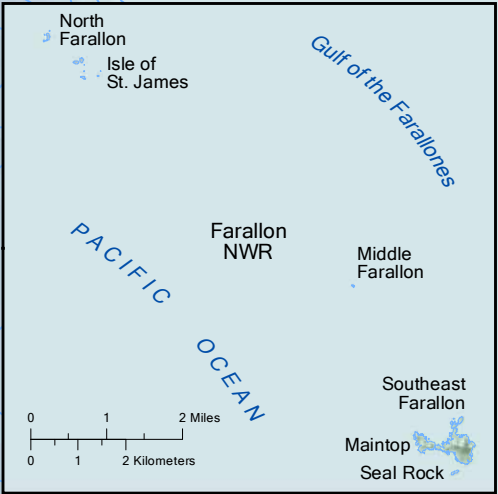
CALIFORNIA COASTAL COMMISSION
STATEWIDE PLANNING UNIT



Approximate location
of Subject Property

Farallon
Islands
(S.F. Co.)

See Inset Below



APPENDIX F: CONTAMINATION AND TOXIC SUBSTANCES



ASBESTOS-CONTAINING MATERIAL OPERATIONS & MAINTENANCE PLAN

Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, California 94080

Report Date
November 24, 2025

Partner Project No.
25-551454.1

Prepared for:
HumanGood Affordable Housing and Rotary
Plaza, Inc.
1900 Huntington Drive
Duarte, California 91010

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APPENDICES

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1.0 INTRODUCTION

This Operations and Maintenance (O&M) Plan addresses activities that may involve or disturb asbestos-containing materials (ACM) at 500 Linden Avenue, located in South San Francisco, California. An O&M Plan minimizes the potential for facility/maintenance personnel, tenants, contractors/vendors, and the general public to be exposed to ACM and/or airborne asbestos fibers. Asbestos is a naturally occurring mineral silicate whose fiber-like particles are known to cause mesothelioma, asbestosis, and lung cancer. Through the development and implementation of a procedural manual for company associates outlining the necessary procedures for emergency situations, associate training, periodic inspections, testing, and record keeping, an O&M Plan can meet the needs of the facility in the management of ACM.

The objectives of the O&M Plan are to clean up existing contamination, minimize future fiber release by controlling access to ACM, and maintain ACM until it is eventually removed. Intentional disruption of ACM should be limited to repair or removal of small areas of significantly damaged ACM, or small areas where removal is necessary to facilitate maintenance/renovation activities. Large abatement projects that require extensive planning and technical expertise are beyond the scope of this O&M Plan.

It is important to note that this O&M Plan is based on the original date of construction and/or provided information indicating the presence or potential presence of ACM. Partner completed a Pre-Renovation Asbestos Survey, report dated August 23, 2022. The Pre-Renovation Asbestos Survey was conducted in general accordance with the United States National Emission Standards for Hazardous Air Pollutants (NESHAPs) regulations and ASTM Standard Practice for Comprehensive Asbestos Building Surveys (ASTM E2356-18). Building materials sampled during Partner's inspection that are classified as ACM are listed below.

- Tan 12"x12" Speckle & Rock Pebble Pattern Floor Tile & Black Mastic – 1st Floor Vault, Teller, Banking Customer Service
- Tan 12"x12" Floor Tile & Tan Mastic – 1st Floor Conference Room
- Brown Floor Joint Vinyl & Black Adhesive – 1st Floor Teller Area and Electrical Control Room
- Black/Gray Roof Penetration Mastic – Main Roof
- White/Gray Roof Penetration Mastic – Main Roof

Partner recommends that identified ACMs be handled according to local, state and federal regulations. If additional suspect ACMs not characterized in this report are encountered during demolition activities, all work that could potentially disturb such material(s) must stop, pending the completion of additional sampling and laboratory analysis.

2.0 OCCUPANT NOTIFICATION

It is the obligation of the property owner to notify appropriate persons as required by law, to take necessary steps to minimize the potential for asbestos exposure.

It is the obligation of the property owner that only trained and qualified individuals are authorized to disturb or remove any ACM.

It is the obligation of the property owner that maintenance/custodial staff receive appropriate O&M training, as deemed necessary by the owner.

In California, Assembly Bill 3713, also known as the Connelly Bill, (Health and Safety Code, Section 25915), requires building owners to disclose to employees the presence of any known asbestos-containing materials (ACM).

Action for Owners

Building owners, in addition to informing building workers as required by the Occupational Safety and Health Administration (OSHA), should also inform occupants and tenants about the location and physical condition of the ACM, and stress the need to avoid disturbing the material.



Building owners should inform occupants about the presence of ACM by distributing written notices, posting signs or labels in a central location where affected occupants can see them, and holding awareness or information sessions. Some states and localities have “right-to-know” laws that may require that all occupants, workers, and visitors in buildings with ACM be informed that asbestos is present. OSHA also requires warning signs to be displayed at each regulated area so that an employee may read the signs and take necessary protective steps before entering the area.

Building owners should inform new employees about the presence of ACM before they begin work. OSHA requires this notification for employees who will perform housekeeping activities where ACM may be disturbed. Additional steps may be needed for illiterate or non-English speaking workers and other occupants who may encounter language difficulties. For example, owners should consider providing information sessions in languages other than English where workers, occupants, or visitors do not speak English. Furthermore, OSHA regulations require that employers ensure employees can comprehend the warning signs posted. Owners may wish to consider developing a warning label system for illiterate workers showing them pictures about potential hazards of disturbing ACM and showing them where ACM is located. Translations of the warning labels should be provided by the owner for non-English speaking personnel.

O&M workers should receive the training necessary for them to perform their tasks safely.

Information for Occupants (workers, tenants, and others)

Occupants should be notified for two reasons: (1) There may be a potential hazard in their vicinity; and (2) informed persons are less likely to disturb the material and cause fibers to be released into the air. All employees and tenants or tenant representatives likely to disturb ACM should be included in the notification program on a continuing basis. The specific information given to types of building occupants will vary. For example, because building maintenance and service workers conduct certain tasks that office workers or tenants do not perform, they should receive additional information. Most important, operations and maintenance workers should receive the training they need to perform their tasks safely. For information on training requirements, see the OSHA regulations at [29 CFR § 1910.1001\(j\)\(7\) \(PDF\)](#) (53 pp, 408K, [about PDF](#)).

Whatever its form, the information given to building occupants and workers should address the following points to the extent they reflect building conditions:

- ACM has been found in the building and is located in areas where the material could be disturbed.
- The condition of the ACM, and the response that is appropriate for that condition.
- Asbestos only presents a health risk when fibers become airborne and are inhaled. The mere presence of intact ACM may not represent a health risk.
- Do not disturb the ACM.
- Report any evidence of disturbance or damage of ACM to the O&M Plan Manager.
- Report any dust or debris that might come from the ACM or suspect ACM, any change in the condition of the ACM, or any improper action (relative to ACM) of building personnel to the O&M Plan Manager.
- Cleaning and maintenance personnel are taking special precautions during their work to clean up any asbestos debris and to avoid disturbing ACM.
- All ACM is inspected periodically, and additional measures will be taken if needed to protect the health of building occupants.

3.0 TRAINING

In order to ensure that all ACM are managed properly, this facility has created a collateral position entitled O&M Plan Manager, to be assigned by the Owner. All activities related to the handling of ACM are to be coordinated through this individual or management company.

3.1 Training Program

A key element in initiating and conducting this Asbestos O&M Plan is a trained building maintenance staff. This group is responsible for daily awareness/inspection of ACM as they perform their tasks. The maintenance staff will report any indication of potential problems resulting from changes of ACM condition, area use, or maintenance practices. The maintenance staff will receive the 2-hour General Asbestos Awareness training. The operations staff which will be working in direct contact with asbestos materials for repair operations will receive the 16-hour operations and maintenance training.

The following elements should be presented in the Asbestos training programs:

Building Maintenance Staff Training

Asbestos Awareness Training

- a. Introduction - General background on asbestos, common uses of asbestos in building materials, explanation of the Asbestos O&M Plan, and abatement activities to date.
- b. Medical/Mechanisms for Exposure - Condensed version of medical review from the 16-hour "Operations and Maintenance" training, along with similar mechanisms for exposure, with emphasis on fiber entrainment mechanisms.
- c. Use of High-Efficiency Particulate Air (HEPA) Technology – Discussion and use of HEPA filtration, vacuums, and filter changes.
- d. Cleaning Techniques – Implementation of specialized cleaning methods, dusting techniques, wet cleaning methods, and proper disposal.
- e. Daily Awareness/Inspection - Training to focus an awareness of the indications of potential problems, chain of command and notification, and general techniques to avoid exposure.
- f. Mechanisms to Reduce Exposure
 - Proper use of mechanical engineering control systems
 - Protection or removal of exposed material in high traffic areas
 - Construction of temporary barriers
 - Minimization of air circulation
 - Use of water during maintenance
 - Use of specialized equipment: HEPA - vacuum filtration
 - Others
- g. Coordination with O&M Plan Manager - Schedules for cleaning, mopping, stripping, buffing.
- h. Continued Employee Education - Periodic training sessions, discussion of issues arisen between sessions, required attendance of senior maintenance staff.

3.2 O&M Plan Manager Responsibilities

The O&M Plan Manager shall be responsible for the following tasks:

- Implement and monitor the asbestos control program.
- Coordinate all activities with licensed asbestos consultants/contractors.
- Review specifications for services or work; retain consultant and evaluate bids and proposals; and monitor contractor's performance of asbestos-related work.
- Provide access to training and technical assistance to construction and property managers to ensure asbestos control.
- Keep adequate records of asbestos exposure assessments, medical exam records (if required), abatement plans and actions, and ensure regional compliance with 29 CFR 1910.1001(m)(3), 29 CFR 1910.20, and 1926.1101
- Ensure that all personnel tasked to manage asbestos are qualified and certified in accordance with applicable federal, state, and local standards.
- Incorporate, schedule, monitor, and maintain records of the periodic ACM inspection program.
- Review all planned construction and maintenance activities in areas known to have asbestos-containing materials to prevent unnecessary damage to the material, occupant exposure, and contamination of the building.
- Monitor the above work while it is in progress to ensure that it complies with contract specifications.
- Ensure that a record is kept, and that the property owner is informed of all applicable incidents, situations, or accidents involving asbestos-containing material.

<i>Owner Designated O&M Plan Manager:</i>	
O&M Plan Manager	
Address:	
Telephone:	

The Management Company (if no management company is assigned, the following duties shall remain the responsibility of the O&M Plan Manager) shall be responsible for the following tasks:

- Ensure that only authorized persons repair, replace, or handle ACM.
- Maintain an on-site record of O&M Plan inspection reports as received.
- Report all damaged suspect or known ACM immediately to the O&M Plan Manager.
- Direct all unauthorized personnel to remain clear of asbestos-containing materials.
- Review all planned construction and maintenance activities in areas known to have ACM to prevent unnecessary damage to the material, occupant exposure and contamination of the building.
- Monitor the above work while it is in progress to ensure that it complies with contract specifications.
- Report and coordinate all asbestos-related issues through the O&M Plan Manager.
- Coordinate the response to all inquiries relative to asbestos through the O&M Plan Manager.
- Ensure that a record is kept, and that the property owner is informed of all applicable incidents, situations or accidents involving asbestos-containing materials.

<i>Owner Designated Management Company:</i>	
Company Name:	
Contact Person:	
Address:	
Telephone:	

SUGGESTED TRAINING COURSES FOR EMPLOYEES INVOLVED IN THE O&M PLAN

Custodial & Maintenance	General Awareness	2 hours
Maintenance Supervisor /Installation Head	O & M (includes direct training)	16 hours
Maintenance Supervisor /Installation Head	Inspector	3 days
Asbestos O&M Plan Manager	Project Designer	3 days

CLASSIFICATION OF ASBESTOS WORK PRACTICES BY OSHA AND ASSOCIATED TRAINING

The following work practice classifications are appropriate for maintenance personnel under this O&M Plan.

- Class III Repair and Maintenance activities where ACM or Presumed ACM (PACM) is disturbed, does not include activities designed to remove ACM.
- a. Requires an EPA 16-hour Operations and Maintenance course, which is inclusive of the 2-hour General Awareness course.
 - b. May require participation in a Respiratory Protection Program
 - c. May require participation in a Medical Surveillance Program
- Class IV Maintenance and Custodial work where employees contact, but do not disturb ACM and PACM, including activities which include cleanup of ACM and PACM waste and debris.
- a. Requires two-hour General Awareness training.
 - b. May require participation in a Respiratory Protection program.
 - c. May require participation in a Medical Surveillance program.

4.0 APPROPRIATE WORK PRACTICES

The following work practices are included for general information, as these materials may or may not be present in the facility. An EPA General Safety brochure is provided in Appendix A. Additional ACM may be located in your facility which is not outlined below. An ACM Inspection Form has been provided in Appendix B. All building materials must be evaluated prior to disturbance. As a general rule, maintenance personnel working on Class III Repair and Maintenance activities under the O&M Plan are limited up to three square feet or three linear feet (the contents of one glove bag) of ACM. Larger quantities of ACM should be addressed by a certified abatement contractor.

The following forms have been appended to this O&M Plan:

- A Job Request Form is provided in Appendix D.
- A Maintenance Work Authorization Form is provided in Appendix E.
- An Evaluation of Work Affecting ACM is provided in Appendix F.
- A hyperlink for asbestos regulations covering various work practices is included in Section 10.0 References.

4.1 Routine Maintenance or Repair Activities in Asbestos-Containing Environments

Maintenance or repair activities in the local of asbestos-containing resilient floor tiles or sheet flooring should not disturb ACM. Where maintenance activities cannot be avoided, special procedures must be introduced to limit the potential for damage and contamination of the surrounding areas. Work practices include, but are not limited, to the following:

- Use of wet methods.
- Use of HEPA vacuums.
- Prompt action to clean up ACM/PACM debris.
- Following OSHA respirator requirements.
- Assume waste and debris in areas with accessible (friable) TSI and surfacing materials contains asbestos. A Waste Tracking Form has been provided in Appendix C.

4.1.1 *Preparation Prior to Renovation or Maintenance Activities & Emergency Response to Damaged Asbestos Containing Acoustical Ceiling Materials*

- Notify supervisor and cordon off area using appropriate signage (per 29 CFR 1910.1001(j)(3)).
- O&M Plan Manager will contract a licensed asbestos abatement contractor to remove ACM.
- O&M Plan Manager will contract a licensed asbestos consultant to perform ambient air sampling upon completion of response action.
- Waste material should be properly manifested and disposed.

4.2 Asbestos Containing Building Materials

The following asbestos containing building materials (ACMs) are suggested materials that are typically encountered in buildings. The list should not be construed as being representative of all materials that may be present in a building or property. Therefore, if a prior or subsequent survey is performed, the identified ACMs should be incorporated for the purposes of this Operations & Maintenance Plan.

Plaster and Spray-Applied Acoustical Texture or Fireproofing

- Asbestos-containing plaster is considered to be friable if it is damaged or disturbed. Plaster is often applied to interior ceilings and walls and over irregularities, such as nail penetrations, to provide a textured, acoustically absorbent finish to the ceiling. It can be rough or smooth to the touch. It is not possible by sight or by touch to determine if plaster is asbestos-containing.
- Spray-applied acoustical ceiling texture is considered to be friable and could present a potential health hazard if disturbed. Acoustical ceiling plaster usually has a rough (popcorn like) finish and can be soft or hard to the touch. It is usually spray-applied; however, trowel-applied material is also observed.
- Asbestos-containing spray-applied fireproofing is considered to be friable and present a potential health hazard if it is disturbed. Fireproofing is often applied to steel structural members, and to the interior of elevator shafts. Spray-applied fireproofing is rough in appearance and can be “cottage-cheese” like or firm and cement like in texture.

These materials are susceptible to water damage and are evident via discoloration. If water damage continues, delaminating will occur, resulting in an increased potential for asbestos fiber exposure. All potential sources of water leakage should be immediately addressed to prevent further water damage to the ACM.

Vinyl Composite Floor Tiles (VFT), Sheet Flooring (VSF), and Mastics

Vinyl floor tiles, sheet flooring, and associated mastics are considered to be non-friable materials, provided that they remain undisturbed on floor surfaces. It is not possible by sight or touch to determine if floor coverings are asbestos containing. Sheet flooring is typically composed of two layers, a top protective layer, and a bottom paper-like insulating layer. A mastic material, often asbestos containing, adheres the floor tile or sheet flooring to the substrate.

Drywall and Drywall Joint Compound (DWJC)

Drywall and drywall joint compound are considered to be friable materials if damaged or disturbed. DWJC is applied to interior drywall seams and over irregularities, such as nail penetrations, to provide a smooth finish to the wall system prior to painting. Because of the absence of rough edges and the typically painted surfaces, this material has a low propensity for disturbance under normal use and wear. It is usually hard to the touch. It is not possible by sight or by touch to determine if DWJC is asbestos-containing.

Thermal System / Transite Pipe Insulation

Asbestos-containing transite vent pipes are commonly used as exhaust flues for heaters, water heaters, and boilers. These materials are unlikely to pose a health threat if left undisturbed and should be monitored for damage.

Asbestos-containing thermal and transite pipe insulation is commonly applied to heating vessels such as boilers, hot water tanks, and the associated piping. Thermal insulation is considered to be friable, although it is commonly enclosed in a canvas jacket. It is particularly important the jacket material remain free from tears or rips that can expose the underlying ACM. Other types of thermal insulation in use include a paper-type insulation. These materials are unlikely to pose a health threat if left undisturbed and should be monitored for damage. Often, the hard, mudded elbows and hanger supports used with fiberglass pipe

insulation contains asbestos. Thermal insulation is particularly susceptible to water damage. Plumbing and roof leaks should be immediately repaired when determined to have caused water damage to ACM.

“Stucco”

Asbestos-containing “stucco” is commonly used as an exterior finish. “Stucco” is considered to be non-friable. These materials are unlikely to pose a health threat if left undisturbed and should be monitored for damage.

Black Roof Seal/Mastic and Roofing Materials (Shingles, Asphaltic Roofing)

Asbestos-containing roof seal/mastics are still in use today. The material is considered to be non-friable, and the fibers are unlikely to be released from the asphaltic matrix. These materials are unlikely to pose a health threat if left undisturbed and should be monitored for damage.

Under normal conditions of use, asbestos fibers are bound into the matrix of the previously discussed materials as well as roof shingles and asphaltic roofing and may pose a hazard to building occupants should the material become friable (pulverized or airborne). Mechanical disturbance of these materials should be avoided as activities such as cutting, drilling, grinding, sanding, or hammering may cause damage and lead to airborne fiber release.

5.0 INSPECTION PROGRAM

5.1 Responsibilities

In order to maintain that the facility is in the best possible condition, the following tasks must be performed:

5.2 Semiannual Inspection

The O&M Plan Manager will coordinate the inspection process, analyze and consolidate results, and report any problems or necessary corrective recommendations to the proper authority. Each facility containing friable asbestos must have a semiannual physical "walkthrough" by a qualified inspector (using the original survey report and subsequent re-inspection reports as a guideline) to confirm that all ACM in the facility is intact and manageable. If new damage is identified, it must be noted so that remedial action can be arranged.

Posting of warning signs and labels in areas with known ACM should be performed upon confirmation of the presence of ACM in the building (29 CFR 1926.1101). Labeling is intended to prevent damage or disturbance of ACM by unprotected individuals and to prevent such persons from entering areas where there is potential exposure from ACM.

5.3 Air Monitoring

Upon disturbance of confirmed or suspected ACM and/ or if required by law, air sampling must be conducted by qualified professionals to determine the airborne fiber concentration in the area.

5.4 Training

The reverse side of the inspection form is to document the initial training and annual re-training of all personnel who are exposed to ACM as part of their job tasks. If applicable this group would typically include persons specifically trained in emergency clean-up techniques, building maintenance/engineering/trades personnel.

Other persons (including contractor personnel) who may work in or around ACM environments (but not manage or maintain ACM) should receive the appropriate training under the guidelines delineated in the applicable regulations.

All training programs must inform employees about the following:

- Methods of recognizing asbestos.
- Health hazards of asbestos exposure.
- Relationship between asbestos and smoking in producing lung cancer.
- Operations that could result in asbestos exposure.
- Importance of necessary protective controls to minimize exposure including, as applicable, engineering controls, work practices, respirators, housekeeping procedures, emergency procedures, and waste disposal procedures.
- Purpose, proper use, and limitations of respirators.
- The medical surveillance program.
- A complete review of the OSHA standard(s) including appendices.

6.0 EMPLOYEE PROTECTION

It is the express policy of the property owner that ACM present in this facility shall be maintained in such a way as to preclude the necessity of using personal protection equipment (PPE). No employees or tenants of the subject site or outside contractor employee shall disturb any ACM without proper training. Anyone working in the vicinity of identified ACM shall receive the proper training consisting of the two-hour Asbestos Awareness Class.

Any asbestos-related abatement/removal/cleanup conducted at the subject site will be performed by a licensed contractor.

At a minimum, the following elements should be included in the employer's worker protection program:

- Hazard determination, including exposure assessment.
- Engineering and work practice controls.
- Respiratory protection.
- Protective clothing and equipment.
- Housekeeping.
- Hygiene facilities and practices.
- Medical surveillance and provisions for medical removal.
- Training.
- Signs.
- Recordkeeping.

To implement the worker protection program properly, the employer needs to designate a competent person (i.e., one who is capable of identifying existing and predictable hazards or working conditions which are hazardous or dangerous to employees) in accordance with the general safety and health provisions of OSHA standards. The competent person must have the authorization to take prompt corrective measures to eliminate such problems. Qualified medical personnel must be available to advise the employer and employees on the health effects of employee asbestos exposure and supervise the medical surveillance program.

7.0 RECORDKEEPING

All the building asbestos management documents should be stored in permanent files, including:

- Inspection and assessment reports
- The O&M Plan
- Work practices and procedures.
- Respirator use procedures.
- Fiber release reports
- Application for maintenance work and work approval forms
- Evaluations of work affecting ACM
- Reinspection/surveillance of ACM

EPA recommends that building owners make available all written elements of the O&M Plan to the building's O&M staff as well as to tenants and other building occupants, if applicable. Building owners are also encouraged to consult with their legal counsel concerning appropriate recordkeeping strategies as a standard part of their O&M programs.

Occupational Safety and Health Administration (OSHA) standards require that employers with employees engaged in asbestos-related work retain the following records:

- Personal air sampling records, for at least 30 years; personal air samples are those collected in the worker's breathing zone during performance of work involving asbestos exposures.
- The data used to qualify for exemptions from OSHA's initial monitoring requirements for the duration of the exemption.
- Medical records for each employee subject to the medical surveillance program for the duration of their employment plus 30 years.
- All employee training records for one year beyond the last date of each worker's employment.

Additional OSHA recordkeeping requirements are listed below for reference:

- Access to employee exposure and medical records ([29 CFR 1910.1020](#))
- Hazard Communication ([29 CFR 1910.1200](#)).
- Also see the OSHA Construction Rule ([29 CFR 1926.1101](#)) or the EPA Worker Protection Rule ([40 CFR 763 Subpart G](#)) which incorporates the OSHA regulations by reference for certain state and local employees) for more details of recordkeeping requirements.

8.0 RESPIRATOR PROGRAM

No site employees, occupants, or outside contractors shall be authorized to disturb ACM with the exception of maintenance and custodial workers. Custodial and maintenance workers will receive the appropriate training according to daily activities. Any asbestos-related abatement/removal conducted at the subject site will be performed by a licensed contractor.

An employer must provide respirators and ensure they are used during all Class III and IV work within a regulated area where other employees are required to wear respirators, during all work where exposures exceed OSHA permissible exposure limits, and in emergencies. Medical clearance is required to wear a respirator.

Respirators must be selected according to the provisions of Title 42, CFR Part 84, and CCR 8.1529 Table 1 (California).

9.0 DEFINITIONS

Accessible Material - any material access to which can be gained by any means other than significant destruction of building components, or, for the purposes of describing building occupant activities, a material subject to disturbance by routine use or maintenance activities.

Asbestos - the general name given to a number of naturally occurring hydrated mineral silicates each of which possesses a specific crystalline structure, is incombustible in air, and is separable into fibers; asbestos includes the asbestiform varieties of Chrysotile (serpentine), Crocidolite (riebeckite), Amosite (cummingtonite-grunerite), Anthophyllite, and Actinolite.

Asbestos Containing Material (ACM) - may be defined, as by the EPA, as any friable material or product containing greater than one percent asbestos or, by convention, as any material or product which contains >1% asbestos.

Asbestos Debris - pieces of material that can be identified by color, texture, or composition as being traceable to a known asbestos containing application; may mean dust, if the dust is determined by analysis to be ACM.

Bulk Samples - samples of bulk material; in the case of asbestos, suspect asbestos containing material; Chain-of-Custody (COC) - formal procedures for tracking samples and ensuring their integrity.

Encapsulation - treatment of ACM with a material that surrounds or embeds asbestos fibers in an adhesive or cementitious matrix to inhibit the release of fibers; the encapsulant creates a membrane over the surface of the material (bridging encapsulant) or penetrates the material or binds its components together (penetrating encapsulant).

Enclosure - an airtight, impermeable, permanent barrier around ACM to prevent the release of asbestos fibers into the air.

EPA - United States Environmental Protection Agency

Fair - as used to describe material condition, damage is more prevalent or severe than on materials rated as good.

Fiber Release Episode - any uncontrolled or unintentional disturbance of ACM resulting in airborne asbestos fiber emission.

Friability - the physical characteristic of any solid that describes its ability to be broken down to a powder or dust; a highly friable material is one that can be easily crumbled by hand pressure; a moderately friable material is one that can be crumbled with some difficulty by hand pressure or by mechanical means; a low friability material is one that may require mechanical means to crumble; while the condition of a material does not constitute a measure of its friability, weathering and deterioration can increase the friability of a material

Glovebag - a plastic enclosure with built-in gloves which is placed with an airtight seal around asbestos containing pipe lagging or other materials such that they may be removed or repaired without generating airborne fibers.

Good - as used in the context of material condition, integrity of the material is complete, with possible small areas of delamination or indications of limited contact or water damage; the mechanism to retain the insulation in its original position (e.g., cloth wrapping over pipe insulation) is still present.

Heating Ventilation and Air Conditioning (HVAC) system - the system of pipes, ducts, and equipment, (air conditioners, chillers, heaters, boilers, pumps, fans) used to heat, cool and filter air and move it through a building; the HVAC system is one of several mechanical systems found in most buildings

High Efficiency Particulate Air (HEPA) Filter - a filtering system capable of trapping and retaining at least 99.97 percent of all particles 0.3 micrometers in diameter or larger.

Homogeneous Application - an application of surfacing material, thermal system insulation material, or miscellaneous material that is uniform in color, texture, and vintage of application.

Lock-down - application of a sealing material to ensure that any residual microscopic fibers remaining following asbestos removal are prevented from becoming airborne.

Mechanical System - a building component system: can include the plumbing system, elevator system, and others (see Heating Ventilation and Air Conditioning system (HVAC))

NIOSH - United States National Institute of Occupational Safety and Health

Operations and Maintenance (O&M) Plan - a program of work practices and training and management procedures designed to maintain ACM in good condition; an O&M Plan ensures clean-up of asbestos fibers previously released and prevention of further release by minimizing and controlling ACM disturbance or damage; an O&M Plan should be implemented at all buildings with ACM

Optical Microscope - a microscope that uses the transmission of light through lenses to magnify a specimen for examination; capable of resolution of fibers or other materials down to approximately 0.25 micrometers in diameter.

OSHA - United States Occupational Safety and Health Administration

Permissible Exposure Limits (PELs)

1. Time-weighted average limit (TWA). The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter of air as an eight (8) hour time-weighted average (TWA), as determined by PCM, or by an equivalent method.
2. Excursion limit. The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes, as determined by PCM, or by an equivalent method.

Phase Contrast Microscopy (PCM) - an optical microscopic technique used for counting fibers in air samples; PCM does not distinguish between asbestos and non-asbestos fiber types; the PCM method currently recognized is referred to as NIOSH 7400

Physical Assessment - evaluating asbestos containing material to determine its current condition and potential for future disturbance.

Plenum - a space in a building, other than a duct or shaft, designed to transport air; plenums are commonly the space between a suspended ceiling and the floor above.

Polarized Light Microscopy (PLM) - an optical microscopic method for the identification of asbestos in bulk samples in which the sample is illuminated with polarized light.

Poor - as used in the context of material condition, material is obviously damaged with evidence of delamination or inadequate adhesion of the material to its substrate.

Presumed Asbestos Containing Material (PACM) - Presumed Asbestos Containing Material means thermal system insulation and surfacing material found in buildings constructed no later than 1980; the designation of a material as "PACM" may be rebutted pursuant to paragraph (k)(5) of 29 CFR 1926.1101

Quality Assurance (QA) - a process designed to provide confidence that the quality control program is being applied effectively; the process includes an auditing procedure designed to evaluate all known policies and procedures that affect the quality of results.

Quality Control (QC) - a program comprised of the operational procedures to ensure that data are of known and acceptable precision and accuracy.

Regulated Area – an area established by the employer to demarcate areas where airborne concentrations of asbestos exceed (or there is a reasonable possibility they may exceed) the permissible exposure limits.

Response Action - any method, including removal, encapsulation, enclosure, repair, or Operations and Maintenance Program that minimizes harm to human health and the environment from the hazards and effects of ACM.

Specifications - a written set of standards, procedures, and materials for the abatement of asbestos; includes contract documents detailing the Scope of Work of the project and defining Contractor, Building Owner, and Consultant responsibilities.

Transite - a trade name for asbestos cement wallboard or pipe

Transmission Electron Microscopy (TEM) - State-of-the-art analytical method for air and bulk sample analysis; uses high magnification (typically 15,000x) to identify asbestos fibers; may utilize Energy Dispersive Spectroscopy (EDS) and/or Selected Area Electron Diffraction (SAED) to confirm asbestos and to identify the type of asbestos present; recommended for final clearance air samples and for bulk analysis of samples with difficult-to-analyze matrices (e.g., plaster, vinyl tile); provides the most definitive analysis of asbestos currently available.

10.0 REFERENCES

10.1 Asbestos Regulations

In the case of conflict between federal and state regulations, the more stringent regulations apply.

OSHA

29 CFR 1910.1001 Occupational Exposure to Asbestos; General Industry

29 CFR 1926.1101 Occupational Exposure to Asbestos; Construction Industry

USEPA (United States Environmental Protection Agency)

40 CFR 61, Subpart M

National Emission Standard for Hazardous Air Pollutants (NESHAP); Asbestos Regulations

40 CFR 763, Appendix C to Subpart E

Asbestos School Hazard Abatement Reauthorization Act (ASHARA) / Asbestos Model Accreditation Plan

10.2 Guidance Documents

USEPA Guidance for Controlling Asbestos Containing Materials in Buildings (“Purple Book”)

USEPA Managing Asbestos in Place: A Building Owner’s Guide to Operations and Maintenance Programs (“Green Book”)

APPENDIX A: GENERAL SAFETY CONSIDERATIONS

General Safety Considerations

(This section is reprinted from Appendix D of the EPA's White Book for use by personnel performing O & M activities, and is supplied for informational purposes only)

Ronald L. Stanevich

NIOSH Division of Safety Research

This guide was primarily developed to provide recommendations concerning worker respiratory protection within the asbestos abatement industry. However, employers must not lose sight of the safety hazards their employees are exposed to in performance of their work. Asbestos abatement operations can take place in a variety of industrial, commercial, and public settings. Each has unique potential safety hazards that the employer must control. However, all abatement operations have common safety hazards. With proper job planning and supervision, the employer can control both the health hazards and the safety hazards faced by their workers. The more common safety hazards associated with abatement operations and general recommendations to control them are discussed below. Sources for more specific safety information are listed to supplement and support the applicable OSHA regulatory standards.

I. ELEVATED WORK SURFACES

The nature of asbestos abatement tasks usually requires workers to work from ladders, scaffolds, lifts, or other elevated surfaces, which creates the potential for fall injuries. Slips and falls from ladders, scaffolds, and other elevated surfaces result in a major portion of the construction industry injuries. Implementing control measures can reduce these accidents:

A. General

1. Avoid use of makeshift work platforms by providing portable ladders and scaffolds.
2. Ensure that job built elevated work surfaces are inspected by a competent person other than the individual who erects it.
3. Avoid working from elevated surfaces where possible. Consider use of wands for spraying amended water or scrapers with extended handles.

B. Ladders

Eighty percent of ladder related accidents result from improper use or application:

1. Workers should face the ladder when climbing up, down, or working from it.
2. Workers should not carry objects in their hands while ascending or descending ladders. While working from a ladder they should hold on with at least one hand.
3. Ladders should not be used as a substitute for planks, runways, or walk boards.
4. Ladders should be maintained in good condition. Defective ladders should be destroyed so that no one uses them by mistake.
5. Ladders should have safety feet in good condition to keep the ladder from slipping and cutting through floor covers.
6. Ladder rungs/steps should be kept free of contaminants such as amended water and buildup of asbestos waste.
7. Employees should work no higher than the fourth step/rung from the top of the ladder.

8. Employees should not attempt to "reach" distant objects from a ladder; other platforms should be used.
9. Wood or fiberglass ladders should be provided to help control exposure to electrical hazards.
10. Employees should not straddle the space between a ladder and another object.
11. Employees should make a visual inspection of ladders before each shift.

Additional information sources:

Ladders -- publication no. ISBN 0-919465-05-6

Construction Safety Association of Ontario, 74 Victoria Street, Toronto. Ontario Canada M5C 2A5

Safety Requirements for Portable Wood Ladders -- ANSI A14.1 - 1982

Safety Requirements for Job Made Ladders -- ANSI A14.4 - 1979

Safety Requirements for Portable Reinforced Plastic Ladders -- ANSI A14.5 - 1982

American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018

Portable Ladders -- Industrial Safety Data Sheet #665, National Safety Council, 444 North Michigan Avenue, Chicago Illinois 60611

C. Scaffolds

Falls from scaffolds result in about 2,000 injuries per month in the United States. These can be reduced by:

1. providing guardrails around the perimeter of the work surface regardless of scaffold height
2. securing scaffold decks against slippage
3. keeping scaffold uprights vertical and pinned together when stacked.
4. ensuring vertical members are braced to keep the scaffold plumb and level.
5. decking the entire top portion of the work surface in lieu of using minimum planking dimensions
6. extending planks at least 6" (150 mm) over their support and securing them from movement
7. ensuring that manufacturer built in ladders are in good condition.
8. maintaining mobile scaffold casters in good condition with position locking devices secured when employees are working from the scaffold.
9. keeping mobile scaffolding height less than four times the minimum base dimension and with adequate cross bracing
10. never interchanging scaffolding pans from different units
11. never using defective scaffolding
12. designating only "competent" persons to perform scaffolding repairs.

Additional information sources:

Manually Propelled Mobile Ladder Stands and Scaffolds -- ANSI A92.1 - 1977

Manually Propelled Elevating Work Platforms -- ANSI A92.3 - 1980

Self-propelled Elevating Work Platforms -- ANSI A92.6, American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018

II. ELECTRICAL HAZARDS

Asbestos abatement is often related to renovation or remodeling activities. Normally the equipment, machinery, overhead lighting fixtures, and auxiliary furnishings are removed to facilitate the abatement work. However, it is becoming more common that industrial and commercial buildings remain partially occupied while abatement operations are performed. In either situation, the abatement operator must take positive actions to protect employees from accidentally coming into contact with energized electrical circuits.

A. General

1. Perform an initial walk-through of the abatement area to look for pre-existing electrical hazards involved with the work.
2. De-energize circuits.
3. Verify that the circuits have been de-energized with a "Field Current Sensing Device" circuit tester. Either lock out/tag out all de-energized circuits to prevent them from accidentally being energized.
4. Use non-conductive tools such as scrapers and vacuum attachments made of wood, plastic, or rubber.
5. Provide workers with non-conductive rubber boots and/or gloves when work must be done around energized wiring or equipment.
6. Prohibit accumulation of puddles of water on the floor. Workers should be trained in the intelligent use of amended water. No water should be used around energized circuits.

B. Permanent Building Circuitry

1. Ensure that all permanent circuits are provided with a grounding system. This can be determined with a portable ground tester.
2. Ensure that electrical outlets are tightly sealed and taped to avoid water spray.
3. Determine what equipment must remain energized during the abatement process.
4. Insulate or guard energized equipment and wiring from employee contact and other conductive objects.
5. Avoid damaging permanent building wiring during the work.
6. Consider dry removal methods in the vicinity of electrical equipment which must remain energized.

C. Temporary Power

1. All temporary circuits provided by the abatement operator must be provided with a grounding system and protected by ground fault circuit interrupters.
2. Avoid stringing temporary wiring across floors.
3. Elevated wiring should not be fastened with staples, nails, or wire.
4. Use care, not to damage the wiring insulation during installation or abatement work.

D. Electrical Cords and Tools

1. Provide extension cords which have a ground conductor.

2. Ensure that cords are not damaged, contain no splices, and that the grounding lug on the male plug is intact.
3. Position extension cords to eliminate stumbling/tripping hazards and to protect them from damage by moving scaffolds.
4. Provide electrical tools which are either grounded or of the double insulated type.
5. Use shatterproof, guarded bulbs and heavy duty wiring for temporary lighting.
6. Where plugs enter receptacles, ensure that the connection is protected by use of duct tape or by other means.

Additional information sources:

National Electrical Safety Code -- ANSI C2-1984

National Electrical Code -- ANSI/NFPA 70-1984, American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018

Temporary Electric Wiring for Construction Sites -- Industrial Safety Data Sheet #515, National Safety Council, 444 North Michigan Avenue, Chicago, Illinois 60611

APPENDIX B: ACM INSPECTION FORM

ANNUAL INSPECTION FORM						
DATE						
ROOM						
INSPECTOR						
ASBESTOS MATERIALS	STATUS OF MATERIAL					
	UNCHANGED		CONTACT DAMAGE		WATER DAMAGE	
	YES	NO	YES	NO	YES	NO
COMMENTS:						
ACTION TAKEN:						
ACTION APPROVED BY:						
DATE:						

APPENDIX C: WASTE TRACKING FORM

WASTE TRACKING FORM		
PART 1 – TO BE COMPLETED BY WORKERS		
Maintenance Work Authorization No.		
Work Location:	Building:	Room # or Area:
Type of ACM Removed:	Quantity of Waste Generated:	
No. of Bags:	Other Containers:	
Waste Transported To:		
Transported By:	Tracking Form Given to:	
PART 2 – TO BE COMPLETED BY ASBESTOS O&M PLAN MANAGER		
Waste Properly Packaged & Labeled: ☐ Yes ☐ No		
Exceptions:		
Waste Storage Location:	Waste Disposal Location	
Waste Shipment Records Received	Date:	
Signed: (O&M Plan Manager)	Date:	

APPENDIX D: JOB REQUEST FORM (MAINTENANCE WORK)

JOB REQUEST FORM FOR MAINTENANCE WORK		
Name	Date	
Telephone No.	Job Request No.	
Requested Starting Date:	Anticipated Finish Date	
Address, Building, & Room Number(s) (or description of area) where work is to be performed		
Description of Work:		
Description of any asbestos-containing material (ACM) that might be affected, if known (include location and type)		
Name of Requestor	Telephone No of Requestor	
Name of Supervisor	Telephone No. of Supervisor	
SUBMIT THIS APPLICATION TO THE ASBESTOS O&M PLAN MANAGER NOTE: An application must be submitted for all maintenance work whether or not ACM might be affected. An authorization must be received before any work can proceed.		
☐ Granted ☐ With Conditions ☐ Denied	Job Request No.	
	Conditions	
O&M Plan Manager:	Signature	Date

APPENDIX E: MAINTENANCE WORK AUTHORIZATION FORM

MAINTENANCE WORK AUTHORIZATION FORM		Authorization No.
AUTHORIZATION IS GIVEN TO PROCEED WITH THE FOLLOWING MAINTENANCE WORK		
PRESENCE OF SUSPECT ACM, PRESUMED ACM (PACM) AND/OR ASBESTOS CONTAINING MATERIAL (ACM) ☐ Suspect ACM or PACM, and/or ACM is NOT present in the vicinity of the maintenance work. ☐ Suspect ACM or PACM, and/or ACM is present, but its disturbance is not anticipated; however, if conditions change the Asbestos Plan Manager will re-evaluate the work request prior to proceeding. ☐ Suspect ACM or PACM, and/or ACM is present and may be disturbed.		
WORK PRACTICE IS SUSPECT ACM, PACM AND/OR ASBESTOS –CONTAINING MATERIALS ARE PRESENT The following work practices shall be employed to avoid or minimize disturbing asbestos:		
PERSONAL PROTECTION IF ASBESTOS-CONTAINING MATERIALS ARE PRESENT. The following equipment/clothes shall be used/worn during the work to protect workers		
SPECIAL PRACTICES AND/OR EQUIPMENT REQUIRED		
O&M Plan Manager	Signature	Date

APPENDIX F: EVALUATION OF WORK AFFECTING ACM

EVALUATION OF WORK AFFECTING PACM, SUSPECT AND/OR ASBESTOS CONTAINING MATERIALS		
This evaluation covers the following maintenance work:		
Location of work (address, building, room number(s), or general description)		
Date(s) of work	Description of work	Work Approval Form #
Evaluation of work practices employed to minimize disturbance of asbestos		
Evaluation of work practices employed to contain released fibers and to clean up to the work area		
Evaluation of equipment and procedures used to protect workers		
Personal air monitoring results (licensed asbestos contractor to supply)		
Worker Name	Results	
Worker Name	Results	
O&M Plan Manager	Signature	Date

APPENDIX G: PREVIOUS SURVEYS

NOT APPLICABLE FOR THIS REPORT

CALIFORNIA - EPA Map of Radon Zones

<http://www.epa.gov/radon/zonemap.html>

The purpose of this map is to assist National, State and local organizations to target their resources and to implement radon-resistant building codes.

This map is not intended to determine if a home in a given zone should be tested for radon. Homes with elevated levels of radon have been found in all three zones.

All homes should be tested, regardless of zone designation.

IMPORTANT: Consult the publication entitled "Preliminary Geologic Radon Potential Assessment of California" (USGS Open-file Report 93-292-1) before using this map. See <http://energy.cr.usgs.gov/radon/grpinfo.html>. This document contains information on radon potential variations within counties. EPA also recommends that this map be supplemented with any available local data in order to further understand and predict the radon potential of a specific area.

Subject Property
County



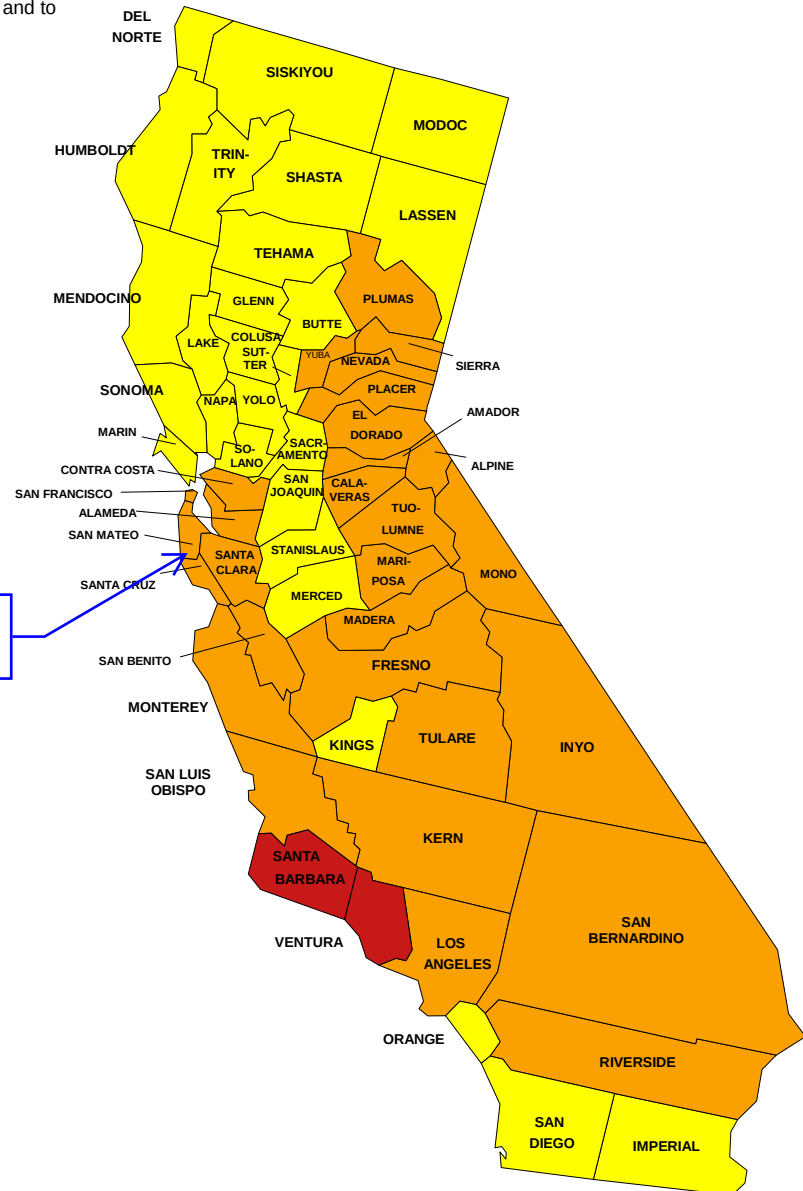
Zone 1



Zone 2

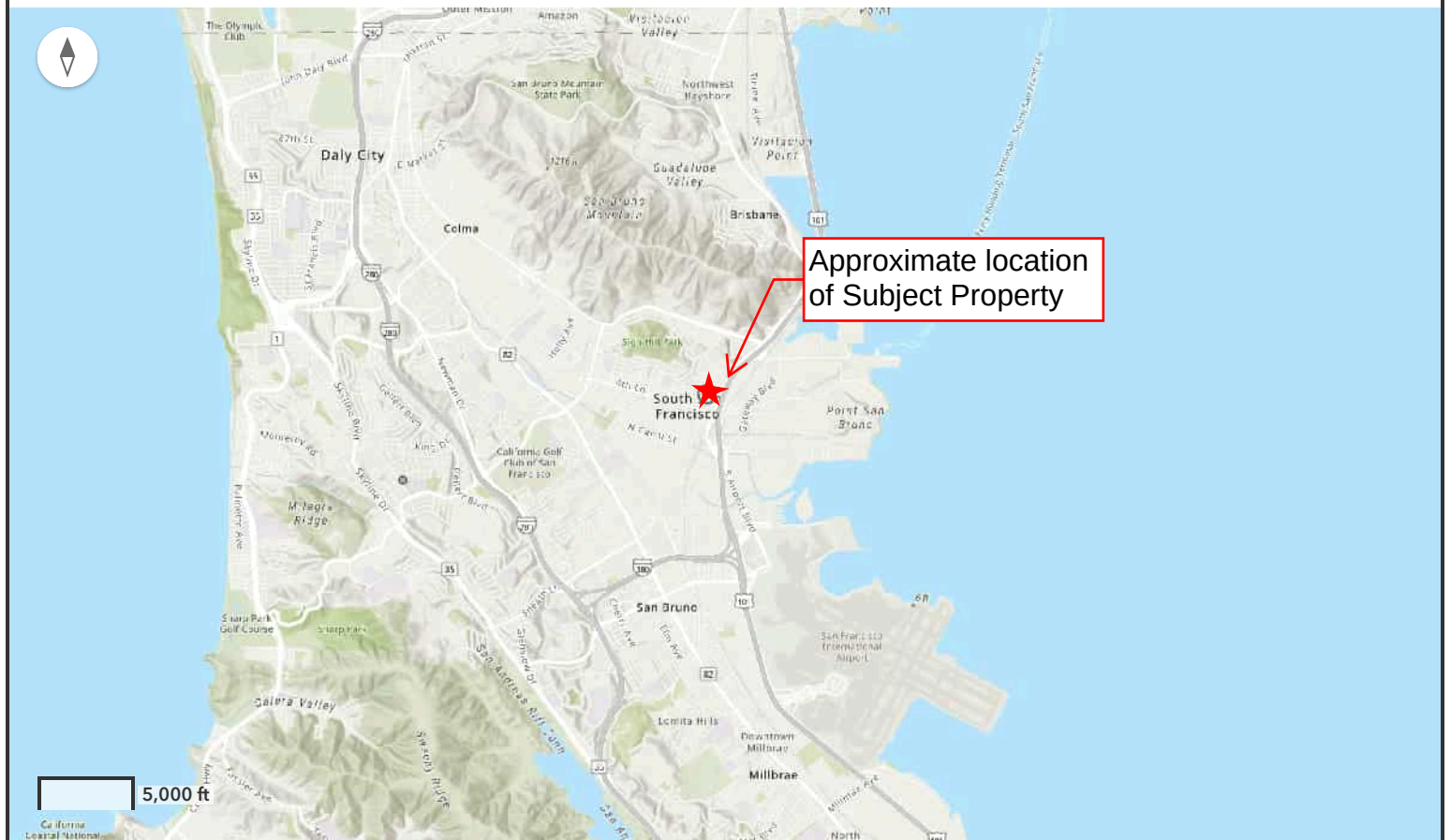


Zone 3





Oil and Gas Wells in California 2025



Esri, NASA, NGA, USGS, FEMA | California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS

Wells

well category

- Injection / Storage / Service
- Orphaned / Abandoned / Unverified Plug
- Production Well
- Other / Unknown
- Plugged
- Not Drilled

Search result

500 Linden Ave, South San Francisco, California, 94080





PRE-DEMOLITION ASBESTOS SURVEY REPORT

Liberty Bank aka Rotary Gardens

500 Linden Avenue
South San Francisco, California 94080

Report Date

November 24, 2025

Partner Project No.

25-551454.1

Prepared for:

HumanGood Affordable Housing
and Rotary Plaza, Inc.
Duarte, California 91010



Building
Science



Environmental
Consulting



Construction &
Development



Energy &
Sustainability



November 24, 2025

HumanGood Affordable Housing and Rotary Plaza, Inc.
1900 Huntington Drive
Duarte, California 91010

Subject: Pre-Demolition Asbestos Survey Report
Liberty Bank aka Rotary Gardens
500 Linden Avenue
South San Francisco, California 94080
Partner Project No. 25-551454.1

To Whom It May Concern:

Partner Engineering and Science, Inc. (Partner) is pleased to provide the Pre-Demolition Asbestos Survey Report of the abovementioned address (the "subject property"). This survey included a site reconnaissance to locate, identify, assess, and quantify suspect asbestos containing materials (ACMs). This survey was performed in general conformance with the United States National Emission Standards for Hazardous Air Pollutants (NESHAPs) regulations and ASTM E2356-18, as well as the scope and limitations as detailed in our fee proposal.

The purpose of this survey was to determine the asbestos content and condition of suspect ACMs associated with the site building. This assessment was performed utilizing methods and procedures consistent with good commercial or customary practices designed to conform to acceptable industry standards. The independent conclusions presented herein are based upon existing conditions and the information and data available to us during the course of this assignment.

We appreciate the opportunity to provide industrial hygiene services to HumanGood Affordable Housing and Rotary Plaza, Inc.. If you have any questions concerning this report, or if we can assist you in any other matter, please contact me at (310) 774-3165, or via email at dmccreery@partneresi.com.

Sincerely,

Drew McCreery
Managing Director, Multifamily

EXECUTIVE SUMMARY

Partner Engineering and Science, Inc. (Partner) completed a Pre-Demolition Asbestos Survey of the Former Liberty Bank located at 500 Linden Avenue, South San Francisco, California 94080. The survey was conducted pursuant to the United States National Emission Standards for Hazardous Air Pollutants (NESHAPs) regulations and ASTM Standard Practice for Comprehensive Asbestos Building Surveys (ASTM E2356-18).

Federal and State of California regulations define asbestos-containing material (ACM) as any material containing more than one percent (1%) asbestos. California Occupational Safety and Health regulations define asbestos-containing construction material (ACCM) as any material which contains greater than one-tenth of one percent (0.1%) asbestos. Building materials sampled during Partner's inspection that are classified as ACM are listed below.

- Tan 12"x12" Speckle & Rock Pebble Pattern Floor Tile & Black Mastic – 1st Floor Vault, Teller, Banking Customer Service
- Tan 12"x12" Floor Tile & Tan Mastic – 1st Floor Conference Room
- Brown Floor Joint Vinyl & Black Adhesive – 1st Floor Teller Area and Electrical Control Room
- Black/Gray Roof Penetration Mastic – Main Roof
- White/Gray Roof Penetration Mastic – Main Roof

Partner recommends that identified ACMs be handled according to local, state and federal regulations. If additional suspect ACMs not characterized in this report are encountered during demolition activities, all work that could potentially disturb such material(s) must stop, pending the completion of additional sampling and laboratory analysis.

Partner did not suspect that the following building materials contain asbestos; therefore, the materials were not sampled: plastic, rubber, fiberglass or foam insulation, wood, glass, or metal.

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1.0 INTRODUCTION

1.1 Subject Property Description

Property Name:	Liberty Bank aka Rotary Gardens
Address:	500 Linden Avenue, South San Francisco, California 94080
Nature of Use:	Commercial
Number of Buildings:	One (1)
Number of Floors:	Two (2)
Construction Date:	1971
Gross Building Area (SF):	11,095 SF
Surveyed By / License Number:	Rodrigo Amador Jr., Inspector, License/Certification Number 12-4893, expiration date: 5/15/2026
Assessment Date:	October 21, 2025

1.2 Purpose and Scope

The survey was conducted at the subject property due to planned demolition of the structure. Pursuant to USEPA regulation 40 CFR 61, Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP), the release of asbestos fibers and other hazardous air pollutants to the atmosphere during renovation or demolition activities is prohibited. Asbestos NESHAP requires the identification, classification, and quantification of potentially regulated asbestos-containing materials (ACM) prior to planned disturbances or demolition activities. The survey was conducted in accordance with NESHAPs regulations and ASTM Standard Practice for Comprehensive Asbestos Building Surveys (ASTM E2356-18).

The purpose of this survey was to assess the condition of accessible suspect asbestos materials associated with the building that will be impacted by scheduled demolition. Sampling conducted was intended as indicative of the materials tested and was not intended to conclusively determine the absence of ACMs. Asbestos may be present in materials not sampled, and additional sampling will be warranted in the event of future disturbance of suspect materials not identified within this report.

Additional services, such as the interview of property management, maintenance personnel, or tenants, review of prior reports or regulatory records, evaluation of compliance, risk assessment, and/or the development of abatement specifications, are excluded from the scope of services, along with all other activities not expressly identified herein.

2.0 METHODOLOGY

Provided below is a summary of the methodologies used during the Pre-Demolition Asbestos Survey performed at the subject property. The methodology is in general conformance with USEPA Asbestos Hazard Emergency Response Act (AHERA), 40 CFR Part 763.

2.1 Visual Evaluation

Building materials were observed to identify, classify and evaluate the condition of homogenous areas of suspect ACM. The exterior finish is plaster/stucco and masonry brick. The roof was observed to consist of rolled roofing membrane over asphalt rolled roofing. The interior finishes include drywall walls, vinyl, carpet, and ceramic tile flooring, and laid in ceiling tiles/panels ceiling. The building is heated and cooled by roof-mounted package units.

2.2 Classification

ACM is typically classified as surfacing, thermal systems insulation, or miscellaneous, as defined below:

Surfacing - Material that is sprayed-on, troweled-on or otherwise applied to surfaces. Examples include acoustical plaster on ceilings, fireproofing on structural members, or similar applications for acoustical, fireproofing, and other purposes.

Thermal Systems Insulation – Materials applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

Miscellaneous – All other building materials, including flooring, mastics, caulking, etc.

2.3 Evaluation of Condition

An assessment of the condition of ACM can be useful in prioritizing management of those materials. ACM most likely to release asbestos fibers are those which are in a friable state. The definition of friable is any material, when dry, that is capable of being crumbled, pulverized or reduced to powder by hand pressure (40 CFR 763). Non-friable sources of asbestos are materials containing cement or asphaltic binder that may become friable and release fibers if the sources are exposed to actions such as abrasion, drilling, cutting, fracturing or hammering. Non-friable sources of asbestos do not typically pose a significant exposure risk if they remain in good condition and are not disturbed. During renovation or demolition activities or when subject to abrasive action, non-friable sources may become friable and thus may pose an exposure risk.

EPA protocols were used in the evaluation of the condition of observed materials as listed below:

- Good condition = 1% or less damage for both distributed and localized damage.
- Damaged = >1% to 10% damage if distributed or >1% to 25% damage if localized.
- Significantly Damaged= >10% damage if distributed or >25% damage if localized.

2.4 Homogenous Areas

The US EPA defines a homogeneous area (HA) as *"an area of surfacing material, thermal system insulation material, or miscellaneous material that is uniform in color and texture"* (40 CFR 763). If ACM is identified in any samples from a homogeneous area, then the entire homogeneous area is considered to be ACM. The

numbers of samples required per HA to classify an HA as ACM is outlined in 40 CFR §763.86 *Sampling*. The collection of a minimum of three representative samples from each HA of miscellaneous materials is required as outlined in ASTM E 2356-18 for compliance with HUD regulations.

2.5 NESHAP Categories

If a sampled material is confirmed to be ACM or is assumed to be ACM by the accredited inspector, then that material will be categorized according to whether its disturbance is regulated. The Asbestos NESHAP (40 CFR 61, Subpart M) defines ACMs into the following categories.

- Regulated ACM (RACM) - Friable ACM; Category I non-friable ACM that has become friable; Category I ACM that will be or has been subjected to sanding, grinding, cutting or abrading; or Category II non-friable that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition operations regulated by the Asbestos NESHAP regulation.
- Category I Non-Friable - ACM packings, gaskets, resilient floor covering and asphalt roofing.
- Category II Non-Friable - Any other non-friable ACM material that is Category I Non-Friable that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure (example: transite).

3.0 SAMPLING AND LABORATORY ANALYSIS

On October 21, 2025, a total of 149 samples of suspect ACMs were collected and submitted to EMSL Analytical, Inc. (EMSL) for analysis. EMSL is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). Bulk samples were analyzed by Polarized Light Microscopy (PLM) in accordance with EPA Method 600/R-93/116, Method for the Determination of Asbestos in Bulk Building Materials.

Federal and State of California regulations define ACM as any material containing more than one percent (1%) asbestos. The California Occupational Safety and Health regulations define asbestos-containing construction material (ACCM) as any material which contains greater than one-tenth of one percent (0.1%) asbestos. Materials containing "trace" amounts of asbestos are reported by the laboratory as <1% which could qualify as ACCM in the State of California.

4.0 LIMITING CONDITIONS

The performance of this survey was limited by the following conditions:

- The survey was limited to areas which were considered reasonably accessible. No disassembly of equipment or accessing pipe chases (if any), wall cavities or other inaccessible areas were conducted.
- Laboratory analysis was limited to evaluation of asbestos content by PLM, with a detection limit of 1%. Additional analysis, by point count or Transmission Electron Microscopy (TEM), may be required to meet state or local requirements.
- Additional ACM may be located within areas that were not accessed.

Partner assessed the following areas during the Pre-Demolition Survey:

First Floor

- Lobby
- Teller/Customer Banking Operations
- Entrances
- Vault Room
- Conference Room
- All Office Areas
- Restrooms
- Electrical Room
- Stairways

Second Floor

- Electrical Server Area
- Restrooms
- Office Areas
- Kitchenette/Lounge
- Storage Rooms
- Stairways

Roof/Exteriors

- Exterior Walls
- Throughout Roofing Areas
- Foundation/Walkways
- Other Concrete Improvements

5.0 ANALYTICAL RESULTS

A total of 325 sample layers were analyzed by EMSL. Asbestos was detected in the materials sampled. ACM identified by PLM analysis, including the condition and quantity of each material, are summarized in **Table 1** below. The analytical results are summarized in **Table 2** in **Appendix A**. The laboratory results and chain of custody documentation are provided in **Appendix B**. Sample locations are depicted on the diagram(s) attached in **Appendix C**.

Table 1: Identified and Assumed ACM					
HA	Locations	Description	Condition	Asbestos Content	Quantity
10	1 st Floor Vault, Teller, Banking Customer Service	Tan 12"x12" Speckle & Rock Pebble Pattern Floor Tile & Black Mastic	Non-Friable, Good Condition	Tile: <1% Chrysotile Mastic: 3% Chrysotile	3,000 SF
12	1 st Floor Conference Room	Tan 12"x12" Floor Tile & Tan Mastic	Non-Friable, Good Condition	Floor Tile: 2% Chrysotile	150 SF
14	1 st Floor Teller Area and Electrical Control Room	Brown Floor Joint Vinyl & Black Adhesive	Non-Friable, Good Condition	Adhesive: 2% Chrysotile	50 LF
41	Main Roof	Black/Gray Roof Penetration Mastic	Non-Friable, Good Condition	3% Chrysotile	100 SF
42	Main Roof	White/Gray Roof Penetration Mastic	Non-Friable, Good Condition	2% Chrysotile	100 SF

Notes: HA denotes homogeneous area; SF denotes square feet; LF = linear feet

Documentation of the laboratory results should be retained as a reference for any future disturbance to the suspect ACMs identified within this report.

The following observed building materials are not suspected to contain asbestos: fiberglass insulation, components comprised of plastic, rubber, fiberglass or foam insulation, wood, glass, or metal .

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusions

Based on the conditions set forth in this report, the following ACMs were confirmed:

- 1) **Tan 12"x12" Speckle & Rock Pebble Pattern Floor Tile & Black Mastic:** The VFT and black flooring mastic were confirmed ACMs. The NESHAP Category I non-friable materials at the subject property were noted to be in good condition. Flooring layers cannot reasonable be separated from asbestos containing mastics; therefore, the flooring system is considered ACM.
- 2) **Tan 12"x12" Floor Tile & Tan Mastic:** The VFT was confirmed ACM. The NESHAP Category I non-friable materials at the subject property were noted to be in good condition.
- 3) **Brown Floor Joint Vinyl & Black Adhesive:** The black adhesive was confirmed ACM. The NESHAP Category I non-friable materials at the subject property were noted to be in good condition. Flooring layers cannot reasonable be separated from asbestos containing mastics; therefore, the flooring system is considered ACM.
- 4) **Black/Gray Roof Penetration Mastic:** The penetration mastic was confirmed ACM. The NESHAP Category I non-friable materials at the subject property were noted to be in good condition.
- 5) **White/Gray Roof Penetration Mastic:** The penetration mastic was confirmed ACM. The NESHAP Category I non-friable materials at the subject property were noted to be in good condition.

6.2 Recommendations

Based on the observations made, the noted limitations, and the analytical results, Partner recommends the following:

- It is Partner's understanding that the building is planned for demolition. Prior to disturbance, the identified ACMs and assumed ACMs require removal by a licensed abatement contractor in accordance with State of California and federal regulations.

This effort may include, but is not limited to:

- Regulatory notifications
- Specialized removal techniques to prevent worker, public and environmental exposures
- Specialized clean-up procedures
- Specialized waste storage and disposal

Actions taken with regard to the ACM should be in compliance with any applicable federal, state, and local regulations or codes that may apply to handling, disposal, and contracting. Presently, general demolition and disposal operations at both publicly and privately owned and operated facilities are regulated by the federal NESHAP Asbestos Standard (40 CFR 61, Subpart M). Employees and contractors are subject to the jurisdiction of the Occupational Safety and Health Administration (OSHA) asbestos regulations (29 CFR 1910.1001 and 29 CFR 1926.1101 for the general and construction industries, respectively), which regulates workplace disturbance of building materials with any concentration of asbestiform components including those that contain less than 1% asbestos as determined by a validated sampling and analytical method.

If any suspect ACMs not characterized in this report are encountered during demolition activities, which may disturb those materials, all work that could potentially disturb the materials must stop. Uncharacterized

suspect ACM must be assumed to be ACM and handled accordingly, pending the completion of additional sampling and laboratory analysis.

7.0 LIMITATIONS

This report summarizes the potential presence and estimated quantities of visually observed ACM. Additional sampling may be required if demolition activities reveal any materials not previously tested. The professional opinions and recommendations made herein are in accordance with generally accepted engineering principles and practices.

Partner subcontracted with EMSL Analytical, Inc. to perform the asbestos analysis. No warranties, expressed or implied, are made by Partner or its subcontractor or their employees as to the use of any information, apparatus, product or process disclosed in this report. Partner and its subcontractor and their employees/representatives bear no responsibility for the actual condition of the structure or safety of this site pertaining to asbestos and/or asbestos contamination, regardless of the actions taken by the survey team or others.

This work is not intended as a specification for asbestos abatement or to otherwise support bidding for or completion of maintenance, abatement, removal or replacement activities. Exact quantification of materials is beyond the scope of this survey. Any quantities of ACM listed are estimates only and should be confirmed by the user. Every reasonable effort has been made to assure correctness. If an asbestos abatement contractor or other demolition/construction contractor is employed, such contractor should bring any discrepancies found in this report as it relates to current site conditions or newly discovered site conditions to the immediate attention of Partner.

8.0 SIGNATURES OF PROFESSIONALS

Partner has performed a pre-demolition asbestos survey at the property at 500 Linden Avenue, South San Francisco, California, in general conformance with the scope and limitations of the protocol and the limitations stated earlier in this report. Exceptions to or deletions from this protocol are discussed earlier in this report.

Prepared By:



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Asbestos Inspector
CAC Certification Number: 19-6472

Reviewed By:



Kevin Siggins
Senior Author



Audre A. Puskorius
Project Manager

APPENDIX A: ANALYTICAL RESULTS TABLE

HA	Sample ID	Material Description	Sample Location	Results	Quantity
1	1-01	White Drywall & Joint Compound	1st Floor North Entrance Wall	Drywall: ND Joint Compound: ND	10,000 SF
	1-02		1st Floor Conference Room Wall	Drywall: ND Joint Compound: ND	
	1-03		1st Floor Electrical Room Ceiling	Drywall: ND Joint Compound 1: ND Joint Compound 2: ND	
	1-04		1st Floor SW Lower Stair Landing Wall	Drywall: ND Joint Compound 1: ND Joint Compound 2: ND	
	1-05		2nd Floor Kitchenette Wall	Drywall: ND Joint Compound: ND	
	1-06		2nd Floor Electrical Server Room Wall	Drywall: ND Joint Compound: Not Present	
	1-07		2nd Floor Office Cubical Area Wall	Drywall: ND Joint Compound: ND	
2	2-08	White 2"x2' Laid Ceiling Tile	1st Floor Lobby Dropped Ceiling	ND	9,000 SF
	2-09		2nd Floor Teller Dropped Ceiling	ND	
	2-10		2nd Floor Office Cubical Area Ceiling	ND	
3	3-11	White 12"x12" Laid Ceiling Tile	1st Floor South Entrance, S. end Ceiling	ND	120 SF
	3-12		1st Floor South Entrance, Center at Ceiling	ND	
	3-13		1st Floor South Entrance, NW end Ceiling	ND	
4	4-14	Creamish White Wallpaper Mastic	1st Floor Teller Areas N. Partition Wall	Wallpaper: ND Mastic: ND	1,500 SF
	4-15		1st Floor Teller Areas E. Wall	Wallpaper: ND Mastic: ND	
	4-16		1st Floor Teller Areas S. Partition Wall	Wallpaper: ND Mastic: ND Joint Compound: ND	
5	5-17	Dark Gray Floor Grout	1st Floor North Entrance, Floor	ND	250 SF
	5-18		1st Floor North Entrance, Floor	ND	
	5-19		1st Floor North Entrance, Floor	ND	
6	6-20	Light Gray Tile Bed	1st Floor North Entrance Floor Under Ceramic Tile Flooring	ND	250 SF
	6-21		1st Floor North Entrance Floor Under Ceramic Tile Flooring	ND	
	6-22		1st Floor North Entrance Floor Under Ceramic Tile Flooring	ND	
7	7-23	Black Floor Joint Caulking	1st Floor North Entrance Transition Floor Tile to Carpet	Cement: ND Caulk: ND	100 LF
	7-24		1st Floor North Entrance Transition Floor Tile to Carpet	Cement: ND Caulk: ND	
	7-25		1st Floor North Entrance Transition Floor Tile to Carpet	Cement: ND Caulk: ND	
8	8-26	Tan Carpet Floor Mastic	1st Floor Lobby Floor	Tan Mastic: ND	8,000 SF
	8-27		1st Floor East Office Area Floor	Tan Mastic 1: ND Green Mastic 2: ND	
	8-28		2nd Floor Office Cubical Area Floor	Tan Mastic: ND	
9	9-29	White 12"x12" Speckle & Rock Pebble Pattern Floor Tile & Black Mastic	Teller Area Floor, NW End	Floor Tile: ND Mastic: ND	900 SF
	9-30		Teller Area Floor, West End	Floor Tile: ND Mastic: ND	
	9-31		Teller Area Floor, SW End	Floor Tile 1: ND Black Mastic: ND Leveler: ND Floor Tile 2: ND	
10	10-32	Tan 12"x12" Speckle & Rock Pebble Pattern Floor Tile & Black Mastic	1st Floor Vault Room Floor	Floor Tile: <1% Chrysotile Mastic 1 (Black): 3% Chrysotile Mastic 2 (Tan): ND Cement: ND	3,000 SF
	10-33		1st Floor Teller Area, N. End	Floor Tile: <1% Chrysotile Mastic 1 (Black): 3% Chrysotile Mastic 2 (Tan): ND Cement: ND	
	10-34		1st Floor Teller Area, S. End	Floor Tile: <1% Chrysotile Mastic 1 (Black): 3% Chrysotile Mastic 2 (Tan): ND	

HA	Sample ID	Material Description	Sample Location	Results	Quantity
11	11-35	Light Blue 12"x12" Floor Tile & Tan Mastic Over Beige Floor Tile & Black Mastic	1st Floor East Office, at W. End	Floor Tile 1: ND Mastic 1 (Tan): ND Floor Tile 2: ND Mastic 2 (Black): ND Leveler: ND	750 SF
	11-36		1st Floor East Office, at Center	Floor Tile 1: ND Mastic 1 (Tan): ND Floor Tile 2: ND Mastic 2 (Black): ND Leveler: ND	
	11-37		1st Floor East Office, at SE End	Floor Tile 1: ND Mastic 1 (Tan): ND Floor Tile 2: ND	
12	12-38	Tan 12"x12" Floor Tile & Tan Mastic	1st Floor Conference Room, SW end	Floor Tile: 2% Chrysotile Mastic 1 (Tan): ND Mastic 2 (Yellow): ND	150 SF
	12-39		1st Floor Conference Room, S. End	Floor Tile: 2% Chrysotile Mastic 1 (Tan): ND	
	12-40		1st Floor Conference Room, SE End	Floor Tile: 2% Chrysotile Mastic 2 (Yellow): ND	
13	13-41	Dark Gray Caulking (Money Safe)	1st Floor Conference Room Closet	ND	10 LF
	13-42		1st Floor Conference Room Closet	ND	
	13-43		1st Floor Conference Room Closet	ND	
14	14-44	Brown Floor Joint Vinyl & Black Adhesive	1st Floor Teller Area, N. End	Vinyl: ND Adhesive (Black): 2% Chrysotile	50 LF
	14-45		1st Floor Teller Area, S. End	Vinyl: ND Adhesive (Black): 2% Chrysotile	
	14-46		1st Floor Electrical Control Room Floor	Vinyl: ND Adhesive (Black): <1% Chrysotile	
15	15-47	Tan 4" Cove Base & Beige/Brown Mastic	Teller Area Wall, SW End	Cove Base:ND Mastic: ND	100 LF
	15-48		Teller Area Wall, SW End	Cove Base:ND Mastic: ND	
	15-49		Teller Area Wall, West End	Cove Base:ND Mastic: ND	
16	16-50	Teal 4" Cove Base & Beige/Brown Mastic	Teller Area, South End	Cove Base:ND Mastic 1 (Beige): ND Mastic 2 (Brown): ND	350 LF
	16-51		Teller Area, South End	Cove Base:ND Mastic 1 (Beige): ND Mastic 2 (Brown): ND	
	16-52		Teller Area, South End	Cove Base:ND Mastic 1 (Beige): ND Mastic 2 (Brown): ND	
17	17-53	Gray 4" Cove Base & Beige Mastic	1st Floor East Office Area, N. End Wall	Cove Base: ND Mastic: ND Compound: ND	50 LF
	17-54		1st Floor East Office Area, E. End Wall	Cove Base: ND Mastic: ND Compound: ND	
	17-55		1st Floor East Office Area, S. End Wall	Cove Base:ND Mastic: ND	
18	18-56	White 2" Cove Base & Brown Mastic	1st Floor Conference Room Wall	Cove Base:ND Mastic 1 (Beige): ND Mastic 2 (Brown): ND Drywall: ND	500 LF
	18-57		1st Floor Teller Area Wall	Cove Base:ND Mastic 1 (Beige): ND Mastic 2 (Brown): ND	
	18-58		2nd Floor Office Cubical Area Wall	Cove Base:ND Mastic 1 (White): ND Mastic 2 (Brown): ND	
19	19-59	Black Coin Pattern Grip Vinyl Stair Tread	NE Staircase at Lower Stair Landing	Stair Tread: ND Mastic: ND	300 SF
	19-60		NE Staircase at Center Stair Landing	Stair Tread: ND Mastic: ND	
	19-61		NE Staircase at Upper Stair Landing	Stair Tread: ND Mastic: ND	

HA	Sample ID	Material Description	Sample Location	Results	Quantity
20	20-62	Black 6" Cove Base & Beige/Brown Mastic	NE Staircase at Lower Stair Landing	Cove Base:ND Mastic 1 (Beige): ND Mastic 2 (Brown): ND	50 LF
	20-63		NE Staircase at Center Stair Landing	Cove Base:ND Mastic 1 (Beige): ND Mastic 2 (Brown): ND	
	20-64		NE Staircase at 1st Floor Stair Landing	Cove Base:ND Mastic 1 (White): ND Mastic 2 (Brown): ND	
21	21-65	Black Floor Joint Vinyl Strip & Black Adhesive	1st Floor Electrical Room, Between Floor Tiles	Vinyl: ND Adhesive: ND	50 LF
	21-66		1st Floor Electrical Room, Between Floor Tiles	Vinyl: ND Adhesive: ND	
	21-67		1st Floor Electrical Room, Between Floor Tiles	Vinyl: ND Adhesive: ND	
22	22-68	White 2'x4' Laid Ceiling Tile	1st Floor Men's Restroom Ceiling	ND	150 SF
	22-69		1st Floor Men's Restroom Ceiling	ND	
	22-70		1st Floor Women's Restroom Ceiling	ND	
23	23-71	Tan Mastic (for Fiberglass Reinforced Plastic Panels)	1st Floor Men's Restroom Wall	Paneling: ND Mastic: ND	100 SF
	23-72		1st Floor Men's Restroom Wall	Paneling: ND Mastic: ND	
	23-73		1st Floor Men's Restroom Wall	Paneling: ND Mastic: ND	
24	24-74	Gray 1'x2' Vinyl Floor Tile & Black Mastic	1st Floor Men's Restroom Floor	Floor Tile: ND Mastic 1 (Beige/Clear): ND Leveler 1: ND Mastic 2 (Yellow): ND Leveler 2 (White): ND Mastic 3 (Black): ND Cement: ND	150 SF
	24-75		1st Floor Men's Restroom Floor	Floor Tile: ND Mastic 1 (Beige/Clear): ND Leveler 1: ND Mastic 2 (Yellow): ND Leveler 2 (White): ND Mastic 3 (Black): ND	
	24-76		1st Floor Women's Restroom Floor	Floor Tile: ND Mastic 1 (Beige/Clear): ND Leveler 1: ND Mastic 2 (Yellow): ND Leveler 2 (White): ND Mastic 3 (Black): ND	
25	25-77	Black 4" Cove Base & Beige/Brown Mastic	1st Floor Men's Restroom Wall	Cove Base:ND Mastic 1 (Beige): ND Mastic 2 (Brown): ND	150 LF
	25-78		1st Floor Women's Restroom Wall	Cove Base:ND Mastic 1 (Beige): ND Mastic 2 (Brown): ND	
	25-79		1st Floor Restroom Corridor Wall	Cove Base:ND Mastic 1 (Beige): ND Mastic 2 (Brown): ND	
26	26-80	Gray/White Tile Bed & Gray Grout	2nd Floor Men's Restroom Floor Under Ceramic Tile Flooring	Tile Bed: ND Grout: ND Mortar: ND	350 SF
	26-81		2nd Floor Men's Restroom Floor Under Ceramic Tile Flooring	Tile Bed: ND Grout: ND Mortar: ND	
	26-82		2nd Floor Women's Restroom Floor Under Ceramic Tile Flooring	Tile Bed: ND Grout: ND Mortar: ND	
27	27-83	Gray Marble Floor Mortar	2nd Floor Entry to Men's Restroom	Mortar 1: ND Mortar 2: ND	10 SF
	27-84		2nd Floor Entry to Men's Restroom	Mortar 1: ND Mortar 2: ND	
	27-85		2nd Floor Entry to Women's Restroom	Mortar 1: ND Mortar 2: ND	

HA	Sample ID	Material Description	Sample Location	Results	Quantity
28	28-86	White Wall Tile Mortar & Gray Grout	2nd Floor Men's Restroom Wall	Mortar: ND Mastic: ND Grout: ND	100 SF
	28-87		2nd Floor Men's Restroom Wall	Mortar: ND Mastic: ND Grout: ND	
	28-88		2nd Floor Women's Restroom Wall	Mortar: ND Mastic: ND Grout: Not Present	
29	29-89	Gray 16"x16" Floor Tile & Tan Mastic	2nd Floor Lounge, N. End	Floor Tile: ND Mastic: ND Leveler: ND	900 SF
	29-90		2nd Floor Lounge, SE End	Floor Tile: ND Mastic: ND Leveler: ND	
	29-91		2nd Floor Kitchenette Floor	Floor Tile: ND Mastic: ND Leveler: ND	
30	30-92	Gray 9"x9" Floor tile & Grayish Black/ Tan Mastic	2nd Floor Electrical Server Room Floor, N. End	Floor Tile: ND Mastic: ND	1,000 SF
	30-93		2nd Floor Electrical Server Room Floor, Center	Floor Tile: ND Mastic: ND	
	30-94		2nd Floor Electrical Server Room Floor, S. End	Floor Tile: ND Mastic: ND	
31	31-95	Black Interior Weather Window Strip	1st Floor, W. Office Window	ND	1,000 LF
	31-96		1st Floor, S. Entrance Window	ND	
	31-97		2nd Floor Office Cubical Window	ND	
32	32-98	Black Interior Window Caulking	1st Floor, W. Office Window	ND	1,000 LF
	32-99		1st Floor, S. Entrance Window	ND	
	32-100		2nd Floor Office Cubical Window	ND	
33	33-101	White Plumbers Caulking	1st Floor Men's Restroom Sink	ND	100 LF
	33-102		2nd Floor, Kitchenette Sink	ND	
	33-103		2nd Floor, Women's Restroom Toilet	ND	
34	34-104	Gray Exterior Stucco	Building Exterior Wall, NE End	ND	2,000 SF
	34-105		Building Exterior Wall, East End	ND	
	34-106		Building Exterior Wall, SE End	ND	
35	35-107	Gray Brick & Mortar	Building Exterior Wall, NE End	Brick: ND Mortar: ND	3,000 SF
	35-108		Building Exterior Wall, West End	Brick: ND Mortar: ND	
	35-109		Building Exterior Wall, South End	Brick: ND Mortar: ND	
36	36-110	Gray Concrete	Floor/Slab Foundation at S. Entrance	ND	10,000 SF
	36-111		North Exterior Walkway	ND	
	36-112		NE Exterior Stem Wall/Walkway	ND	
37	37-113	Dark Gray Wall Seam & Floor Joint Caulking	Building Exterior Wall Seam, NE	ND	500 LF
	37-114		Building Exterior, East Side Floor/Stucco Joint	ND	
	37-115		Building Exterior, South Side Floor/Stucco Joint	ND	

HA	Sample ID	Material Description	Sample Location	Results	Quantity
38	38-116	Black/Gray Rolled Roofing (Core)	Main Roof, SW End	Shingle: ND Felt 1: ND Felt 2: ND Insulation: ND Paper: ND	8,500 SF
	38-117		Main Roof, South End	Shingle: ND Felt 1: ND Felt 2: ND Insulation: ND Paper: ND	
	38-118		Main Roof, SE End	Shingle: ND Felt 1: ND Felt 2: ND Insulation: ND	
	38-119		Main Roof, South-Center End	Shingle: ND Felt 1: ND Felt 2: ND Insulation: ND	
	38-120		Main Roof, North-Center end	Shingle: ND Felt: ND	
	38-121		Main Roof, NW End	Shingle: ND Felt: ND	
	38-122		Main Roof, NE End	Shingle: ND Felt: ND	
39	39-123	Black/Gray Roof Parapet (Core)	Main Roof, S. End	Membrane: ND Shingle: ND Felt: ND Insulation: ND	1,000 SF
	39-124		Main Roof, Center End	Shingle: ND Felt: ND Insulation: ND	
	39-125		Main Roof, N. End	Shingle 1: ND Shingle 2: ND Felt: ND Mastic: ND	
40	40-126	White Roof Patch	Main Roof, S. End	ND	100 SF
	40-127		Main Roof, Center End	ND	
	40-128		Main Roof, N. End	Mastic: ND Membrane: ND	
41	41-129	Black/Gray Roof Penetration Mastic	Main Roof, S. End	Mastic 1 (Black): ND Mastic 2 (Black): 3% Chrysotile Membrane: ND	100 SF
	41-130		Main Roof, Center End	Mastic 1 (Black): ND Mastic 2 (Black): 3% Chrysotile Membrane: ND	
	41-131		Main Roof, N. End	Mastic (Black): 3% Chrysotile Membrane: ND	
42	42-132	White/Gray Roof Penetration Mastic	Main Roof, S. End	Mastic 1 (Black): ND Mastic 2 (Black): 2% Chrysotile Membrane: ND	100 SF
	42-133		Main Roof, Center End	Mastic: ND Membrane: ND	
	42-134		Main Roof, N. End	Mastic 1 (Black): ND Mastic 2 (Black): 2% Chrysotile Membrane: ND	
43	43-135	White HVAC Junction Tape	Main Roof, Center End	ND	50 LF
	43-136		Main Roof, Center End	Tape: ND Mastic: ND	
	43-137		Main Roof, Center End	ND	
44	44-138	Gray Flashing Caulk	North End of Roof	ND	100 LF
	44-139		Center End of Roof	ND	
	44-140		South End of Roof	ND	
45	45-141	Aggregate Composite Black Rolled Roofing (Core)	East Smaller Roof, W. End	Roofing: ND Foam: ND Insulation: ND	400 SF
	45-142		East Smaller Roof, S. End	Roofing: ND Foam: ND Insulation: ND	
	45-143		East Smaller Roof, NE End	Roofing: ND Foam: ND Insulation: ND	

HA	Sample ID	Material Description	Sample Location	Results	Quantity
46	46-144	Teal/Black Wall Seam Caulking	NE End Exterior Upper Wall	Caulk 1 (Brown): ND Caulk 2 (White): ND	100 SF
	46-145		East End Exterior Upper Wall	Caulk 1 (Brown): ND Caulk 2 (White): ND	
	46-146		SE End Exterior Upper Wall	Caulk 1 (Brown/White): ND Caulk 2 (Gray): ND	
47	47-147	Beige/Gray Door & Window Caulking	East Exterior Window	ND	500 LF
	47-148		East Emergency Exit Door	ND	
	47-149		South Exterior Window	ND	

APPENDIX B: LABORATORY ANALYSIS & CHAIN OF CUSTODY



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Customer ID: 32PRTN78

Customer PO: 25551454.1

Project ID:

Attention: A. Puskorius

Partner Engineering and Science, Inc.

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Phone: (310) 615-4500

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Received Date: 10/28/2025 9:15 AM

Analysis Date: 10/28/2025 - 10/29/2025

Collected Date:

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1-01-Drywall 092512820-0001	(WHITE DRYWALL & JOINT COMPOUND) - 1ST FLOOR - NORTH ENTRANCE WALL	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
1-01-Joint Compound 092512820-0001A	(WHITE DRYWALL & JOINT COMPOUND) - 1ST FLOOR - NORTH ENTRANCE WALL	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
1-02-Drywall 092512820-0002	(WHITE DRYWALL & JOINT COMPOUND) - 1ST FLOOR - CONFERENCE ROOM WALL	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
1-02-Joint Compound 092512820-0002A	(WHITE DRYWALL & JOINT COMPOUND) - 1ST FLOOR - CONFERENCE ROOM WALL	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
1-03-Drywall 092512820-0003	(WHITE DRYWALL & JOINT COMPOUND) - 1ST FLOOR - ELECTRICAL ROOM CEILING	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
1-03-Joint Compound 1 092512820-0003A	(WHITE DRYWALL & JOINT COMPOUND) - 1ST FLOOR - ELECTRICAL ROOM CEILING	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
1-03-Joint Compound 2 092512820-0003B	(WHITE DRYWALL & JOINT COMPOUND) - 1ST FLOOR - ELECTRICAL ROOM CEILING	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
1-04-Drywall 092512820-0004	(WHITE DRYWALL & JOINT COMPOUND) - 1ST FLOOR - SOUTHEAST LOWER STAIR LANDING WALL	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
1-04-Joint Compound 1 092512820-0004A	(WHITE DRYWALL & JOINT COMPOUND) - 1ST FLOOR - SOUTHEAST LOWER STAIR LANDING WALL	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1-04-Joint Compound 2 092512820-0004B	(WHITE DRYWALL & JOINT COMPOUND) - 1ST FLOOR - SOUTHEAST LOWER STAIR LANDING WALL	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
1-05-Drywall 092512820-0005	(WHITE DRYWALL & JOINT COMPOUND) - 2ND FLOOR - KITCHENETTE WALL	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
1-05-Joint Compound 092512820-0005A	(WHITE DRYWALL & JOINT COMPOUND) - 2ND FLOOR - KITCHENETTE WALL	White Non-Fibrous Homogeneous		40% Ca Carbonate 40% Gypsum 20% Non-fibrous (Other)	None Detected
1-06-Drywall 092512820-0006	(WHITE DRYWALL & JOINT COMPOUND) - 2ND FLOOR - ELECTRICAL SERVER ROOM WALL	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
1-06-Joint Compound 092512820-0006A	(WHITE DRYWALL & JOINT COMPOUND) - 2ND FLOOR - ELECTRICAL SERVER ROOM WALL				Layer Not Present
1-07-Drywall 092512820-0007	(WHITE DRYWALL & JOINT COMPOUND) - 2ND FLOOR - OFFICE CUBICAL AREA WALL	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
1-07-Joint Compound 092512820-0007A	(WHITE DRYWALL & JOINT COMPOUND) - 2ND FLOOR - OFFICE CUBICAL AREA WALL	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
2-08 092512820-0008	WHITE 2' X 2' LAID CEILING TILE - 1ST FLOOR LOBBY DROPPED CEILING	Beige Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Non-fibrous (Other)	None Detected
2-09 092512820-0009	(WHITE 2' X 2' LAID CEILING TILE) - 1ST FLOOR TELLER DROPPED CEILING	Beige Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Non-fibrous (Other)	None Detected
2-10 092512820-0010	(WHITE 2' X 2' LAID CEILING TILE) - 2ND FLOOR OFFICE CUBICAL AREA DROPPED CEILING	Beige Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Non-fibrous (Other)	None Detected
3-11 092512820-0011	WHITE 12" X 12" LAID CEILING TILE - SOUTH ENTRANCE DROPPED CEILING - SOUTH END	Beige Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
3-12 092512820-0012	WHITE 12" X 12" LAID CEILING TILE - 1ST FLOOR SOUTH ENTRANCE DROPPED CEILING - CENTER	Beige Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Non-fibrous (Other)	None Detected
3-13 092512820-0013	WHITE 12" X 12" LAID CEILING TILE - SOUTH ENTRANCE DROPPED CEILING - NW END	Gray Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Non-fibrous (Other)	None Detected
4-14-Wallpaper 092512820-0014	CREAMISH WHITE WALLPAPER MASTIC - TELLER AREA - NORTH PARTITION WALL	White/Peach Fibrous Homogeneous	40% Synthetic	40% Matrix 20% Non-fibrous (Other)	None Detected
4-14-Mastic 092512820-0014A	CREAMISH WHITE WALLPAPER MASTIC - TELLER AREA - NORTH PARTITION WALL	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
4-15-Wallpaper 092512820-0015	CREAMISH WHITE WALLPAPER MASTIC (MULTI COLOR WALLS) - TELLER AREA - EAST WALL	White/Blue Fibrous Homogeneous	40% Synthetic	40% Matrix 20% Non-fibrous (Other)	None Detected
4-15-Mastic 092512820-0015A	CREAMISH WHITE WALLPAPER MASTIC (MULTI COLOR WALLS) - TELLER AREA - EAST WALL	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
4-16-Wallpaper 092512820-0016	CREAMISH WHITE WALLPAPER MASTIC - TELLER AREA - SOUTH PARTITION WALL	White Fibrous Homogeneous	40% Synthetic	40% Matrix 20% Non-fibrous (Other)	None Detected
4-16-Mastic 092512820-0016A	CREAMISH WHITE WALLPAPER MASTIC - TELLER AREA - SOUTH PARTITION WALL	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
4-16-Compound 092512820-0016B	CREAMISH WHITE WALLPAPER MASTIC - TELLER AREA - SOUTH PARTITION WALL	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
5-17 092512820-0017	DARK GRAY FLOOR GROUT - NORTH ENTRANCE FLOOR *1ST FLOOR	Gray Non-Fibrous Homogeneous		50% Quartz 30% Ca Carbonate 20% Non-fibrous (Other)	None Detected
5-18 092512820-0018	DARK GRAY FLOOR GROUT - NORTH ENTRANCE FLOOR *1ST FLOOR	Gray Non-Fibrous Homogeneous		50% Quartz 30% Ca Carbonate 20% Non-fibrous (Other)	None Detected
5-19 092512820-0019	DARK GRAY FLOOR GROUT - NORTH ENTRANCE FLOOR *1ST FLOOR	Gray Non-Fibrous Homogeneous		50% Quartz 30% Ca Carbonate 20% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
6-20 <i>092512820-0020</i>	(LIGHT GRAY TILE BED) - NORTH ENTRANCE FLOOR, UNDERNEATH THE CERAMIC TILE FLOORING	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
6-21 <i>092512820-0021</i>	(LIGHT GRAY TILE BED) - NORTH ENTRANCE FLOOR, UNDERNEATH THE CERAMIC TILE FLOORING	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
6-22 <i>092512820-0022</i>	(LIGHT GRAY TILE BED) - NORTH ENTRANCE FLOOR, UNDERNEATH THE CERAMIC TILE FLOORING	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
7-23-Caulk <i>092512820-0023</i>	(BLACK FLOOR JOINT CAULKING) - NORTH ENTRANCE (1ST FLOOR) BETWEEN FLOOR TILE/CARPET	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
7-23-Cementitious Material <i>092512820-0023A</i>	(BLACK FLOOR JOINT CAULKING) - NORTH ENTRANCE (1ST FLOOR) BETWEEN FLOOR TILE/CARPET	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
7-24-Caulk <i>092512820-0024</i>	(BLACK FLOOR JOINT CAULKING) - CENTER NE STAIRWELL FLOOR (COIN GRIP TREAD)	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
7-24-Cementitious Material <i>092512820-0024A</i>	(BLACK FLOOR JOINT CAULKING) - CENTER NE STAIRWELL FLOOR (COIN GRIP TREAD)	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
7-25-Caulk <i>092512820-0025</i>	(BLACK FLOOR JOINT CAULKING) - 2ND FLOOR LOUNGE BETWEEN FLOOR TILE & CARPET FLOORING	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
7-25-Cementitious Material <i>092512820-0025A</i>	(BLACK FLOOR JOINT CAULKING) - 2ND FLOOR LOUNGE BETWEEN FLOOR TILE & CARPET FLOORING	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
8-26 <i>092512820-0026</i>	(TAN CARPET FLOOR MASTIC/GLUE) - 1ST FLOOR LOBBY FLOOR	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
Result includes a small amount of inseparable attached material					

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
8-27-Mastic 1 092512820-0027	(TAN CARPET FLOOR MASTIC/GLUE) - 1ST FLOOR EAST OFFICE AREA FLOOR	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
Result includes a small amount of inseparable attached material					
8-27-Mastic 2 092512820-0027A	(TAN CARPET FLOOR MASTIC/GLUE) - 1ST FLOOR EAST OFFICE AREA FLOOR	Green Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
8-28 092512820-0028	(TAN CARPET FLOOR MASTIC/GLUE) - 2ND FLOOR OFFICE CUBICAL AREA FLOOR	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
9-29-Floor Tile 092512820-0029	(WHITE 12" X 12" SPECKLE & ROCK PEBBLE PATTERN FLOOR TILE & BLACK FLOOR MASTIC) - TELLER AREA FLOOR - NW END	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
9-29-Mastic 092512820-0029A	(WHITE 12" X 12" SPECKLE & ROCK PEBBLE PATTERN FLOOR TILE & BLACK FLOOR MASTIC) - TELLER AREA FLOOR - NW END	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
9-30-Floor Tile 092512820-0030	(WHITE 12" X 12" SPECKLE & ROCK PEBBLE PATTERN FLOOR TILE & BLACK FLOOR MASTIC) - TELLER AREA FLOOR - WEST END	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
9-30-Mastic 092512820-0030A	(WHITE 12" X 12" SPECKLE & ROCK PEBBLE PATTERN FLOOR TILE & BLACK FLOOR MASTIC) - TELLER AREA FLOOR - WEST END	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
9-31-Floor Tile 1 092512820-0031	(WHITE 12" X 12" SPECKLE & ROCK PEBBLE PATTERN FLOOR TILE & BLACK FLOOR MASTIC) - TELLER AREA FLOOR - SW END	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
9-31-Mastic 092512820-0031A	(WHITE 12" X 12" SPECKLE & ROCK PEBBLE PATTERN FLOOR TILE & BLACK FLOOR MASTIC) - TELLER AREA FLOOR - SW END	Black Non-Fibrous Homogeneous	10% Cellulose	70% Matrix 20% Non-fibrous (Other)	None Detected
9-31-Leveler 092512820-0031B	(WHITE 12" X 12" SPECKLE & ROCK PEBBLE PATTERN FLOOR TILE & BLACK FLOOR MASTIC) - TELLER AREA FLOOR - SW END	Beige Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
9-31-Floor Tile 2 092512820-0031C	(WHITE 12" X 12" SPECKLE & ROCK PEBBLE PATTERN FLOOR TILE & BLACK FLOOR MASTIC) - TELLER AREA FLOOR - SW END	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
10-32-Floor Tile 092512820-0032	(TAN 12" X 12" SPECKLE & ROCK PEBBLE PATTERN FLOOR TILE & BLACK FLOOR MASTIC) - 1ST FLOOR - VAULT ROOM FLOOR	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	<1% Chrysotile
10-32-Mastic 1 092512820-0032A	(TAN 12" X 12" SPECKLE & ROCK PEBBLE PATTERN FLOOR TILE & BLACK FLOOR MASTIC) - 1ST FLOOR - VAULT ROOM FLOOR	Black Non-Fibrous Homogeneous		80% Matrix 17% Non-fibrous (Other)	3% Chrysotile
10-32-Mastic 2 092512820-0032B	(TAN 12" X 12" SPECKLE & ROCK PEBBLE PATTERN FLOOR TILE & BLACK FLOOR MASTIC) - 1ST FLOOR - VAULT ROOM FLOOR	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
10-32-Cementitious Material 092512820-0032C	(TAN 12" X 12" SPECKLE & ROCK PEBBLE PATTERN FLOOR TILE & BLACK FLOOR MASTIC) - 1ST FLOOR - VAULT ROOM FLOOR	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
10-33-Floor Tile 092512820-0033	(TAN 12" X 12" SPECKLE & ROCK PEBBLE PATTERN FLOOR TILE & BLACK FLOOR MASTIC) - 1ST FLOOR - TELLER N. END	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	<1% Chrysotile
10-33-Mastic 1 092512820-0033A	(TAN 12" X 12" SPECKLE & ROCK PEBBLE PATTERN FLOOR TILE & BLACK FLOOR MASTIC) - 1ST FLOOR - TELLER N. END	Black Non-Fibrous Homogeneous		80% Matrix 17% Non-fibrous (Other)	3% Chrysotile
10-33-Mastic 2 092512820-0033B	(TAN 12" X 12" SPECKLE & ROCK PEBBLE PATTERN FLOOR TILE & BLACK FLOOR MASTIC) - 1ST FLOOR - TELLER N. END	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
10-33-Cementitious Material 092512820-0033C	(TAN 12" X 12" SPECKLE & ROCK PEBBLE PATTERN FLOOR TILE & BLACK FLOOR MASTIC) - 1ST FLOOR - TELLER N. END	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
10-34-Floor Tile 092512820-0034	TAN 12" X 12" SPECKLE & ROCK PEBBLE PATTERN FLOOR TILE & BLACK FLOOR MASTIC - TELLER S. END	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	<1% Chrysotile
10-34-Mastic 1 092512820-0034A	TAN 12" X 12" SPECKLE & ROCK PEBBLE PATTERN FLOOR TILE & BLACK FLOOR MASTIC - TELLER S. END	Black Non-Fibrous Homogeneous		80% Matrix 17% Non-fibrous (Other)	3% Chrysotile
10-34-Mastic 2 092512820-0034B	TAN 12" X 12" SPECKLE & ROCK PEBBLE PATTERN FLOOR TILE & BLACK FLOOR MASTIC - TELLER S. END	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected



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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
11-35-Floor Tile 1 092512820-0035	(LIGHT BABY BLUE 12" X 12" FLOOR TILE/TAN MASTIC OVER-BEIGE FLOOR TILE & BLACK/GRAY MASTIC) - 1ST FLOOR EAST OFFICE - WEST END	Blue Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
11-35-Mastic 1 092512820-0035A	(LIGHT BABY BLUE 12" X 12" FLOOR TILE/TAN MASTIC OVER-BEIGE FLOOR TILE & BLACK/GRAY MASTIC) - 1ST FLOOR EAST OFFICE - WEST END	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
11-35-Floor Tile 2 092512820-0035B	(LIGHT BABY BLUE 12" X 12" FLOOR TILE/TAN MASTIC OVER-BEIGE FLOOR TILE & BLACK/GRAY MASTIC) - 1ST FLOOR EAST OFFICE - WEST END	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
11-35-Mastic 2 092512820-0035C	(LIGHT BABY BLUE 12" X 12" FLOOR TILE/TAN MASTIC OVER-BEIGE FLOOR TILE & BLACK/GRAY MASTIC) - 1ST FLOOR EAST OFFICE - WEST END	Yellow/Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
11-35- Leveler 092512820-0035D	(LIGHT BABY BLUE 12" X 12" FLOOR TILE/TAN MASTIC OVER-BEIGE FLOOR TILE & BLACK/GRAY MASTIC) - 1ST FLOOR EAST OFFICE - WEST END	Gray Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
Result includes a small amount of inseparable attached material					
11-36-Floor Tile 1 092512820-0036	(LIGHT BABY BLUE 12" X 12" FLOOR TILE/TAN MASTIC OVER-BEIGE FLOOR TILE & BLACK/GRAY MASTIC) - FLOOR - CENTER	Blue Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
11-36-Mastic 1 092512820-0036A	(LIGHT BABY BLUE 12" X 12" FLOOR TILE/TAN MASTIC OVER-BEIGE FLOOR TILE & BLACK/GRAY MASTIC) - FLOOR - CENTER	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
11-36-Floor Tile 2 092512820-0036B	(LIGHT BABY BLUE 12" X 12" FLOOR TILE/TAN MASTIC OVER-BEIGE FLOOR TILE & BLACK/GRAY MASTIC) - FLOOR - CENTER	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
11-36-Mastic 2 092512820-0036C	(LIGHT BABY BLUE 12" X 12" FLOOR TILE/TAN MASTIC OVER-BEIGE FLOOR TILE & BLACK/GRAY MASTIC) - FLOOR - CENTER	Yellow/Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
11-36-Leveler 092512820-0036D	(LIGHT BABY BLUE 12" X 12" FLOOR TILE/TAN MASTIC OVER-BEIGE FLOOR TILE & BLACK/GRAY MASTIC) - FLOOR - CENTER	Gray Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
<i>Result includes a small amount of inseparable attached material</i>					
11-37-Floor Tile 1 092512820-0037	(LIGHT BABY BLUE 12" X 12" FLOOR TILE/TAN MASTIC OVER-BEIGE FLOOR TILE & BLACK/GRAY MASTIC) - 1ST FLOOR - SOUTHEAST END	Blue Non-Fibrous Homogeneous		60% Matrix 40% Non-fibrous (Other)	None Detected
11-37-Mastic 092512820-0037A	(LIGHT BABY BLUE 12" X 12" FLOOR TILE/TAN MASTIC OVER-BEIGE FLOOR TILE & BLACK/GRAY MASTIC) - 1ST FLOOR - SOUTHEAST END	Brown/Gray/Yellow Non-Fibrous Homogeneous	3% Cellulose	20% Ca Carbonate 60% Matrix 17% Non-fibrous (Other)	None Detected
<i>This is a composite result of inseparable mastics and leveler.</i>					
11-37-Floor Tile 2 092512820-0037B	(LIGHT BABY BLUE 12" X 12" FLOOR TILE/TAN MASTIC OVER-BEIGE FLOOR TILE & BLACK/GRAY MASTIC) - 1ST FLOOR - SOUTHEAST END	Beige Non-Fibrous Homogeneous		70% Gypsum 30% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
12-38-Floor Tile 092512820-0038	TAN 12" X 12" FLOOR TILE & TAN MASTIC - CONFERENCE ROOM FLOOR - SW END	Tan Non-Fibrous Homogeneous		80% Matrix 18% Non-fibrous (Other)	2% Chrysotile
12-38-Mastic 1 092512820-0038A	TAN 12" X 12" FLOOR TILE & TAN MASTIC - CONFERENCE ROOM FLOOR - SW END	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
12-38-Mastic 2 092512820-0038B	TAN 12" X 12" FLOOR TILE & TAN MASTIC - CONFERENCE ROOM FLOOR - SW END	Yellow Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
12-39-Floor Tile 092512820-0039	TAN 12" X 12" FLOOR TILE & TAN MASTIC - CONFERENCE ROOM FLOOR - SOUTH END	Tan Non-Fibrous Homogeneous		80% Matrix 18% Non-fibrous (Other)	2% Chrysotile
12-39-Mastic 092512820-0039A	TAN 12" X 12" FLOOR TILE & TAN MASTIC - CONFERENCE ROOM FLOOR - SOUTH END	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
12-40-Floor Tile 092512820-0040	TAN 12" X 12" FLOOR TILE & TAN MASTIC - CONFERENCE ROOM FLOOR - SE END	Tan Non-Fibrous Homogeneous		60% Matrix 38% Non-fibrous (Other)	2% Chrysotile
12-40-Mastic 092512820-0040A	TAN 12" X 12" FLOOR TILE & TAN MASTIC - CONFERENCE ROOM FLOOR - SE END	Yellow Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
13-41 092512820-0041	DARK GRAY MONEY SAFE SEAM CAULKING - CONFERENCE ROOM CLOSET *1ST FLOOR	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
13-42 092512820-0042	DARK GRAY MONEY SAFE SEAM CAULKING - CONFERENCE ROOM CLOSET *1ST FLOOR	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
13-43 092512820-0043	DARK GRAY MONEY SAFE SEAM CAULKING - CONFERENCE ROOM CLOSET 1ST FLOOR	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
14-44-Vinyl <i>092512820-0044</i>	BROWN FLOOR JOINT VINYL & BLACK ADHESIVE (BETWEEN FLOOR TILES) - TELLER AREA FLOOR - NORTH END	Brown Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
14-44-Adhesive <i>092512820-0044A</i>	BROWN FLOOR JOINT VINYL & BLACK ADHESIVE (BETWEEN FLOOR TILES) - TELLER AREA FLOOR - NORTH END	Black Non-Fibrous Homogeneous		80% Matrix 18% Non-fibrous (Other)	2% Chrysotile
14-45-Vinyl <i>092512820-0045</i>	BROWN FLOOR JOINT VINYL & BLACK ADHESIVE (BETWEEN FLOOR TILES) - 1ST FLOOR - SOUTH END	Brown Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
14-45-Adhesive <i>092512820-0045A</i>	BROWN FLOOR JOINT VINYL & BLACK ADHESIVE (BETWEEN FLOOR TILES) - 1ST FLOOR - SOUTH END	Black Non-Fibrous Homogeneous		80% Matrix 18% Non-fibrous (Other)	2% Chrysotile
14-46-Vinyl <i>092512820-0046</i>	BROWN FLOOR JOINT VINYL & BLACK ADHESIVE (BETWEEN FLOOR TILES) - ELECTRICAL ROOM FLOOR	Brown Non-Fibrous Homogeneous		70% Matrix 30% Non-fibrous (Other)	None Detected
14-46-Adhesive <i>092512820-0046A</i>	BROWN FLOOR JOINT VINYL & BLACK ADHESIVE (BETWEEN FLOOR TILES) - ELECTRICAL ROOM FLOOR	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	<1% Chrysotile
<i>Result includes a small amount of inseparable attached material</i>					
15-47-Cove Base <i>092512820-0047</i>	TAN 4" COVE BASE & BROWN WALL MASTIC - TELLER AREA - SW END	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
15-47-Mastic <i>092512820-0047A</i>	TAN 4" COVE BASE & BROWN WALL MASTIC - TELLER AREA - SW END	Brown Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
15-48-Cove Base <i>092512820-0048</i>	TAN 4" COVE BASE & BROWN WALL MASTIC - TELLER AREA - (*1ST FLOOR) - TELLER AREA WALL	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
15-48-Mastic <i>092512820-0048A</i>	TAN 4" COVE BASE & BROWN WALL MASTIC - TELLER AREA - (*1ST FLOOR) - TELLER AREA WALL	Brown Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
15-49-Cove Base 092512820-0049	TAN 4" COVE BASE & BROWN WALL MASTIC - TELLER AREA - TELLER AREA WALL - W, END	Gray Non-Fibrous Homogeneous		70% Matrix 30% Non-fibrous (Other)	None Detected
15-49-Mastic 092512820-0049A	TAN 4" COVE BASE & BROWN WALL MASTIC - TELLER AREA - TELLER AREA WALL - W, END	Brown Non-Fibrous Homogeneous	5% Wollastonite	80% Matrix 15% Non-fibrous (Other)	None Detected
16-50-Cove Base 092512820-0050	TEAL 4" COVE BASE & BEIGE/BROWN WALL MASTIC - TELLER AREA - SOUTH END	Blue Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
16-50-Mastic 1 092512820-0050A	TEAL 4" COVE BASE & BEIGE/BROWN WALL MASTIC - TELLER AREA - SOUTH END	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
16-50-Mastic 2 092512820-0050B	TEAL 4" COVE BASE & BEIGE/BROWN WALL MASTIC - TELLER AREA - SOUTH END	Brown Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
16-51-Cove Base 092512820-0051	TEAL 4" COVE BASE & BEIGE/BROWN WALL MASTIC - TELLER AREA - SOUTH END	Blue Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
16-51-Mastic 1 092512820-0051A	TEAL 4" COVE BASE & BEIGE/BROWN WALL MASTIC - TELLER AREA - SOUTH END	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
16-51-Mastic 2 092512820-0051B	TEAL 4" COVE BASE & BEIGE/BROWN WALL MASTIC - TELLER AREA - SOUTH END	Brown Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
16-52-Cove Base 092512820-0052	TEAL 4" COVE BASE & BEIGE/BROWN WALL MASTIC - TELLER AREA - SOUTH END	Black Non-Fibrous Homogeneous		70% Matrix 30% Non-fibrous (Other)	None Detected
16-52-Mastic 1 092512820-0052A	TEAL 4" COVE BASE & BEIGE/BROWN WALL MASTIC - TELLER AREA - SOUTH END	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
16-52-Mastic 2 092512820-0052B	TEAL 4" COVE BASE & BEIGE/BROWN WALL MASTIC - TELLER AREA - SOUTH END	Brown Non-Fibrous Homogeneous	5% Wollastonite	80% Matrix 15% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
17-53-Cove Base 092512820-0053	GRAY 4" COVE BASE & BEIGE WALL MASTIC - EAST OFFICE AREA WALL - N. END	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
17-53-Mastic 092512820-0053A	GRAY 4" COVE BASE & BEIGE WALL MASTIC - EAST OFFICE AREA WALL - N. END	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
17-53-Compound 092512820-0053B	GRAY 4" COVE BASE & BEIGE WALL MASTIC - EAST OFFICE AREA WALL - N. END	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
17-54-Cove Base 092512820-0054	GRAY 4" COVE BASE & BEIGE WALL MASTIC - EAST OFFICE AREA WALL *1ST FLOOR - EAST END	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
17-54-Mastic 092512820-0054A	GRAY 4" COVE BASE & BEIGE WALL MASTIC - EAST OFFICE AREA WALL *1ST FLOOR - EAST END	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
17-54-Compound 092512820-0054B	GRAY 4" COVE BASE & BEIGE WALL MASTIC - EAST OFFICE AREA WALL *1ST FLOOR - EAST END	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
17-55-Cove Base 092512820-0055	GRAY 4" COVE BASE & BEIGE WALL MASTIC - EAST OFFICE AREA WALL *1ST FLOOR - SOUTH END (NOT FLOOR)	Gray Non-Fibrous Homogeneous		70% Matrix 30% Non-fibrous (Other)	None Detected
17-55-Mastic 092512820-0055A	GRAY 4" COVE BASE & BEIGE WALL MASTIC - EAST OFFICE AREA WALL *1ST FLOOR - SOUTH END (NOT FLOOR)	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
18-56-Cove Base 092512820-0056	WHITE 2" COVE BASE & BROWN WALL MASTIC - CONFERENCE ROOM WALL	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
18-56-Mastic 1 092512820-0056A	WHITE 2" COVE BASE & BROWN WALL MASTIC - CONFERENCE ROOM WALL	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected



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			% Fibrous	% Non-Fibrous	% Type
18-56-Mastic 2 092512820-0056B	WHITE 2" COVE BASE & BROWN WALL MASTIC - CONFERENCE ROOM WALL	Brown Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
18-56-Drywall 092512820-0056C	WHITE 2" COVE BASE & BROWN WALL MASTIC - CONFERENCE ROOM WALL	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
18-57-Cove Base 092512820-0057	WHITE 2" COVE BASE & BROWN WALL MASTIC - TELLER AREA WALL *1ST FLOOR	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
18-57-Mastic 1 092512820-0057A	WHITE 2" COVE BASE & BROWN WALL MASTIC - TELLER AREA WALL *1ST FLOOR	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
18-57-Mastic 2 092512820-0057B	WHITE 2" COVE BASE & BROWN WALL MASTIC - TELLER AREA WALL *1ST FLOOR	Brown Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
18-58-Cove Base 092512820-0058	WHITE 2" COVE BASE & BROWN WALL MASTIC - AND FLOOR OFFICE CUBICAL WALL	White Non-Fibrous Homogeneous		70% Matrix 30% Non-fibrous (Other)	None Detected
18-58-Mastic 1 092512820-0058A	WHITE 2" COVE BASE & BROWN WALL MASTIC - AND FLOOR OFFICE CUBICAL WALL	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
18-58-Mastic 2 092512820-0058B	WHITE 2" COVE BASE & BROWN WALL MASTIC - AND FLOOR OFFICE CUBICAL WALL	Brown Non-Fibrous Homogeneous	5% Wollastonite	80% Matrix 15% Non-fibrous (Other)	None Detected
19-59-Stair Tread 092512820-0059	(BLACK COIN PATTERN GRIP VINYL STAIR STEP TREAD) - NE STAIRCASE - LOWER STAIR LANDING	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
19-59-Mastic 092512820-0059A	(BLACK COIN PATTERN GRIP VINYL STAIR STEP TREAD) - NE STAIRCASE - LOWER STAIR LANDING	Brown/Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected

Result includes a small amount of inseparable attached material



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			% Fibrous	% Non-Fibrous	% Type
19-60-Stair Tread 092512820-0060	(BLACK COIN PATTERN GRIP VINYL STAIR STEP TREAD) - NE STAIRCASE - CENTER STAIR LANDING	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
19-60-Mastic 092512820-0060A	(BLACK COIN PATTERN GRIP VINYL STAIR STEP TREAD) - NE STAIRCASE - CENTER STAIR LANDING	Brown/Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
Result includes a small amount of inseparable attached material					
19-61-Stair Tread 092512820-0061	(BLACK COIN PATTERN GRIP VINYL STAIR STEP TREAD) - NE STAIRCASE - TOP STAIR LANDING	Black Non-Fibrous Homogeneous		70% Matrix 30% Non-fibrous (Other)	None Detected
19-61-Mastic 092512820-0061A	(BLACK COIN PATTERN GRIP VINYL STAIR STEP TREAD) - NE STAIRCASE - TOP STAIR LANDING	Brown/White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
Result includes a small amount of inseparable attached material					
20-62-Cove Base 092512820-0062	(BLACK 6" COVE BASE & BEIGE/BROWN WALL MASTIC &NE STAIRCASE) - LOWER STAIR LANDING	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
20-62-Mastic 1 092512820-0062A	(BLACK 6" COVE BASE & BEIGE/BROWN WALL MASTIC &NE STAIRCASE) - LOWER STAIR LANDING	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
20-62-Mastic 2 092512820-0062B	(BLACK 6" COVE BASE & BEIGE/BROWN WALL MASTIC &NE STAIRCASE) - LOWER STAIR LANDING	Brown Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
20-63-Cove Base 092512820-0063	(BLACK 6" COVE BASE & BEIGE/BROWN WALL MASTIC &NE STAIRCASE) - CENTER STAIR LANDING	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected



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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
20-63-Mastic 1 092512820-0063A	(BLACK 6" COVE BASE & BEIGE/BROWN WALL MASTIC &NE STAIRCASE) - CENTER STAIR LANDING	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
20-63-Mastic 2 092512820-0063B	(BLACK 6" COVE BASE & BEIGE/BROWN WALL MASTIC &NE STAIRCASE) - CENTER STAIR LANDING	Brown Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
20-64-Cove Base 092512820-0064	(BLACK 6" COVE BASE & BEIGE/BROWN WALL MASTIC &NE STAIRCASE) - TOP STAIR LANDING 1ST FLOOR	Black Non-Fibrous Homogeneous		70% Matrix 30% Non-fibrous (Other)	None Detected
20-64-Mastic 1 092512820-0064A	(BLACK 6" COVE BASE & BEIGE/BROWN WALL MASTIC &NE STAIRCASE) - TOP STAIR LANDING 1ST FLOOR	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
20-64-Mastic 2 092512820-0064B	(BLACK 6" COVE BASE & BEIGE/BROWN WALL MASTIC &NE STAIRCASE) - TOP STAIR LANDING 1ST FLOOR	Brown Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
21-65-Vinyl 092512820-0065	(BLACK FLOOR JOINT VINYL STRIP & BLACK ADHESIVE) - ELECTRICAL ROOM FLOOR BETWEEN FLOOR TILES (1ST FLOOR)	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
21-65-Adhesive 092512820-0065A	(BLACK FLOOR JOINT VINYL STRIP & BLACK ADHESIVE) - ELECTRICAL ROOM FLOOR BETWEEN FLOOR TILES (1ST FLOOR)	Clear Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
21-66-Vinyl 092512820-0066	(BLACK FLOOR JOINT VINYL STRIP & BLACK ADHESIVE) - ELECTRICAL ROOM FLOOR BETWEEN FLOOR TILES (1ST FLOOR)	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected

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			% Fibrous	% Non-Fibrous	% Type
21-66-Adhesive 092512820-0066A	(BLACK FLOOR JOINT VINYL STRIP & BLACK ADHESIVE) - ELECTRICAL ROOM FLOOR BETWEEN FLOOR TILES (1ST FLOOR)	Clear Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
21-67-Vinyl 092512820-0067	(BLACK FLOOR JOINT VINYL STRIP & BLACK ADHESIVE) - ELECTRICAL ROOM FLOOR BETWEEN FLOOR TILES (1ST FLOOR)	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
21-67-Adhesive 092512820-0067A	(BLACK FLOOR JOINT VINYL STRIP & BLACK ADHESIVE) - ELECTRICAL ROOM FLOOR BETWEEN FLOOR TILES (1ST FLOOR)	Clear Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
22-68 092512820-0068	WHITE 6' X 2' LAID CEILING TILE - 1ST FLOOR MENS RESTROOM DROP CEILING	Beige Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Non-fibrous (Other)	None Detected
22-69 092512820-0069	WHITE 6' X 2' LAID CEILING TILE - 1ST FLOOR MENS RESTROOM DROP CEILING	Beige Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Non-fibrous (Other)	None Detected
22-70 092512820-0070	WHITE 6' X 2' LAID CEILING TILE - 1ST FLOOR WOMENS RESTROOM DROP CEILING	Beige Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Non-fibrous (Other)	None Detected
23-71-Paneling 092512820-0071	TAN FIBERGLASS REINFORCED PLASTIC PANELING MASTIC - 1ST FLOOR MENS RESTROOM WALL	Gray Fibrous Homogeneous	40% Glass	40% Matrix 20% Non-fibrous (Other)	None Detected
23-71-Mastic 092512820-0071A	TAN FIBERGLASS REINFORCED PLASTIC PANELING MASTIC - 1ST FLOOR MENS RESTROOM WALL	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
23-72-Paneling 092512820-0072	TAN FIBERGLASS REINFORCED PLASTIC PANELING MASTIC - 1ST FLOOR MENS RESTROOM WALL	Gray Fibrous Homogeneous	40% Glass	40% Matrix 20% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
23-72-Mastic 092512820-0072A	TAN FIBERGLASS REINFORCED PLASTIC PANELING MASTIC - 1ST FLOOR MENS RESTROOM WALL	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
23-73-Paneling 092512820-0073	TAN FIBERGLASS REINFORCED PLASTIC PANELING MASTIC - 1ST FLOOR MENS RESTROOM WALL	Gray Fibrous Homogeneous	40% Glass	40% Matrix 20% Non-fibrous (Other)	None Detected
23-73-Mastic 092512820-0073A	TAN FIBERGLASS REINFORCED PLASTIC PANELING MASTIC - 1ST FLOOR MENS RESTROOM WALL	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
24-74-Floor Tile 092512820-0074	GRAY 2' X 1' VINYL FLOOR TILE & BLACK MASTIC - 1ST FLOOR MENS RESTROOM FLOOR	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
24-74-Mastic 1 092512820-0074A	GRAY 2' X 1' VINYL FLOOR TILE & BLACK MASTIC - 1ST FLOOR MENS RESTROOM FLOOR	Beige/Clear Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
Result includes a small amount of inseparable attached material					
24-74-Leveler 1 092512820-0074B	GRAY 2' X 1' VINYL FLOOR TILE & BLACK MASTIC - 1ST FLOOR MENS RESTROOM FLOOR	Gray Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
24-74-Mastic 2 092512820-0074C	GRAY 2' X 1' VINYL FLOOR TILE & BLACK MASTIC - 1ST FLOOR MENS RESTROOM FLOOR	Yellow Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
Result includes a small amount of inseparable attached material					
24-74-Leveler 2 092512820-0074D	GRAY 2' X 1' VINYL FLOOR TILE & BLACK MASTIC - 1ST FLOOR MENS RESTROOM FLOOR	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
24-74-Mastic 3 092512820-0074E	GRAY 2' X 1' VINYL FLOOR TILE & BLACK MASTIC - 1ST FLOOR MENS RESTROOM FLOOR	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
24-74-Cementitious Material 092512820-0074F	GRAY 2' X 1' VINYL FLOOR TILE & BLACK MASTIC - 1ST FLOOR MENS RESTROOM FLOOR	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
24-75-Floor Tile 092512820-0075	GRAY 2' X 1' VINYL FLOOR TILE & BLACK MASTIC - 1ST FLOOR MENS RESTROOM FLOOR	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
24-75-Mastic 1 092512820-0075A	GRAY 2' X 1' VINYL FLOOR TILE & BLACK MASTIC - 1ST FLOOR MENS RESTROOM FLOOR	Beige/Clear Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
Result includes a small amount of inseparable attached material					
24-75-Leveler 1 092512820-0075B	GRAY 2' X 1' VINYL FLOOR TILE & BLACK MASTIC - 1ST FLOOR MENS RESTROOM FLOOR	Gray Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
24-75-Mastic 2 092512820-0075C	GRAY 2' X 1' VINYL FLOOR TILE & BLACK MASTIC - 1ST FLOOR MENS RESTROOM FLOOR	Yellow Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
Result includes a small amount of inseparable attached material					
24-75-Leveler 2 092512820-0075D	GRAY 2' X 1' VINYL FLOOR TILE & BLACK MASTIC - 1ST FLOOR MENS RESTROOM FLOOR	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
24-75-Mastic 3 092512820-0075E	GRAY 2' X 1' VINYL FLOOR TILE & BLACK MASTIC - 1ST FLOOR MENS RESTROOM FLOOR	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
24-76-Vinyl Floor Tile 092512820-0076	GRAY 2' X 1' VINYL FLOOR TILE & BLACK MASTIC - 1ST FLOOR WOMENS RESTROOM FLOOR	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
24-76-Mastic 1 092512820-0076A	GRAY 2' X 1' VINYL FLOOR TILE & BLACK MASTIC - 1ST FLOOR WOMENS RESTROOM FLOOR	Beige/Clear Non-Fibrous Homogeneous	5% Cellulose	80% Matrix 15% Non-fibrous (Other)	None Detected
Result includes a small amount of inseparable attached material					
24-76-Leveler 1 092512820-0076B	GRAY 2' X 1' VINYL FLOOR TILE & BLACK MASTIC - 1ST FLOOR WOMENS RESTROOM FLOOR	Gray Non-Fibrous Homogeneous	10% Cellulose	70% Ca Carbonate 20% Non-fibrous (Other)	None Detected
24-76-Mastic 2 092512820-0076C	GRAY 2' X 1' VINYL FLOOR TILE & BLACK MASTIC - 1ST FLOOR WOMENS RESTROOM FLOOR	Yellow Non-Fibrous Homogeneous	5% Cellulose	80% Matrix 15% Non-fibrous (Other)	None Detected
Result includes a small amount of inseparable attached material					
24-76-Leveler 2 092512820-0076D	GRAY 2' X 1' VINYL FLOOR TILE & BLACK MASTIC - 1ST FLOOR WOMENS RESTROOM FLOOR	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
24-76-Mastic 3 092512820-0076E	GRAY 2' X 1' VINYL FLOOR TILE & BLACK MASTIC - 1ST FLOOR WOMENS RESTROOM FLOOR	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
25-77-Cove Base 092512820-0077	BLACK 4" COVE BASE & BEIGE/BLACK WALL MASTIC (*1ST FLOOR) - MENS RESTROOM WALL	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
25-77-Mastic 1 092512820-0077A	BLACK 4" COVE BASE & BEIGE/BLACK WALL MASTIC (*1ST FLOOR) - MENS RESTROOM WALL	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
25-77-Mastic 2 092512820-0077B	BLACK 4" COVE BASE & BEIGE/BLACK WALL MASTIC (*1ST FLOOR) - MENS RESTROOM WALL	Brown Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
25-78-Cove Base 092512820-0078	BLACK 4" COVE BASE & BEIGE/BLACK WALL MASTIC (*1ST FLOOR) - WOMENS RESTROOM WALL	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
25-78-Mastic 1 092512820-0078A	BLACK 4" COVE BASE & BEIGE/BLACK WALL MASTIC (*1ST FLOOR) - WOMENS RESTROOM WALL	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
25-78-Mastic 2 092512820-0078B	BLACK 4" COVE BASE & BEIGE/BLACK WALL MASTIC (*1ST FLOOR) - WOMENS RESTROOM WALL	Brown Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
25-79-Cove Base 092512820-0079	BLACK 4" COVE BASE & BEIGE/BLACK WALL MASTIC (*1ST FLOOR) - 1ST FLOOR RESTROOM CORRIDOR WALL	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
25-79-Mastic 1 092512820-0079A	BLACK 4" COVE BASE & BEIGE/BLACK WALL MASTIC (*1ST FLOOR) - 1ST FLOOR RESTROOM CORRIDOR WALL	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
25-79-Mastic 2 092512820-0079B	BLACK 4" COVE BASE & BEIGE/BLACK WALL MASTIC (*1ST FLOOR) - 1ST FLOOR RESTROOM CORRIDOR WALL	Brown Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
26-80-Tile Bed 092512820-0080	GRAY/WHITE TILE BED & GRAY GROUT - 2ND FLOOR MENS RESTROOM FLOOR - UNDERNEATH CERAMIC TILE FLOORING	Gray/Black Fibrous Homogeneous	10% Glass	40% Quartz 30% Matrix 20% Non-fibrous (Other)	None Detected
26-80-Grout 092512820-0080A	GRAY/WHITE TILE BED & GRAY GROUT - 2ND FLOOR MENS RESTROOM FLOOR - UNDERNEATH CERAMIC TILE FLOORING	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
26-80-Mortar 092512820-0080B	GRAY/WHITE TILE BED & GRAY GROUT - 2ND FLOOR MENS RESTROOM FLOOR - UNDERNEATH CERAMIC TILE FLOORING	White Non-Fibrous Homogeneous		40% Quartz 20% Ca Carbonate 20% Gypsum 20% Non-fibrous (Other)	None Detected
26-81-Tile Bed 092512820-0081	GRAY/WHITE TILE BED & GRAY GROUT - 2ND FLOOR MENS RESTROOM FLOOR - UNDERNEATH CERAMIC TILE FLOORING	Gray/Black Fibrous Homogeneous	10% Glass	40% Quartz 30% Matrix 20% Non-fibrous (Other)	None Detected
26-81-Grout 092512820-0081A	GRAY/WHITE TILE BED & GRAY GROUT - 2ND FLOOR MENS RESTROOM FLOOR - UNDERNEATH CERAMIC TILE FLOORING	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
26-81-Mortar 092512820-0081B	GRAY/WHITE TILE BED & GRAY GROUT - 2ND FLOOR MENS RESTROOM FLOOR - UNDERNEATH CERAMIC TILE FLOORING	White Non-Fibrous Homogeneous		40% Quartz 20% Ca Carbonate 20% Gypsum 20% Non-fibrous (Other)	None Detected
26-82-Tile Bed 092512820-0082	GRAY/WHITE TILE BED & GRAY GROUT - 2ND FLOOR WOMENS RESTROOM FLOOR, UNDER CERAMIC TILE FLOORING	Gray Fibrous Homogeneous	10% Glass	40% Quartz 30% Matrix 20% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
26-82-Grout 092512820-0082A	GRAY/WHITE TILE BED & GRAY GROUT - 2ND FLOOR WOMENS RESTROOM FLOOR, UNDER CERAMIC TILE FLOORING	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
26-82-Mortar 092512820-0082B	GRAY/WHITE TILE BED & GRAY GROUT - 2ND FLOOR WOMENS RESTROOM FLOOR, UNDER CERAMIC TILE FLOORING	White Non-Fibrous Homogeneous		40% Quartz 20% Ca Carbonate 20% Gypsum 20% Non-fibrous (Other)	None Detected
27-83-Mortar 1 092512820-0083	GRAY MARBLE FLOOR MORTAR - 2ND FLOOR MENS RESTROOM ENTRY FLOOR	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
27-83-Mortar 2 092512820-0083A	GRAY MARBLE FLOOR MORTAR - 2ND FLOOR MENS RESTROOM ENTRY FLOOR	Beige Non-Fibrous Homogeneous		50% Quartz 30% Ca Carbonate 20% Non-fibrous (Other)	None Detected
27-84-Mortar 1 092512820-0084	GRAY MABLE FLOOR MORTAR - 2ND FLOOR MENS RESTROOM ENTRY FLOOR	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
27-84-Mortar 2 092512820-0084A	GRAY MABLE FLOOR MORTAR - 2ND FLOOR MENS RESTROOM ENTRY FLOOR	Beige Non-Fibrous Homogeneous		50% Quartz 30% Ca Carbonate 20% Non-fibrous (Other)	None Detected
27-85-Mortar 1 092512820-0085	GRAY MABLE FLOOR MORTAR - 2ND FLOOR WOMENS RESTROOM ENTRY FLOOR	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
27-85-Mortar 2 092512820-0085A	GRAY MABLE FLOOR MORTAR - 2ND FLOOR WOMENS RESTROOM ENTRY FLOOR	Beige Non-Fibrous Homogeneous		50% Quartz 30% Ca Carbonate 20% Non-fibrous (Other)	None Detected
28-86-Mortar 092512820-0086	(WHITE WALL TILE MORTAR & GRAY GROUT) - 2ND FLOOR MENS RESTROOM WALL	Beige Non-Fibrous Homogeneous		20% Quartz 60% Ca Carbonate 20% Non-fibrous (Other)	None Detected
28-86-Mastic 092512820-0086A	(WHITE WALL TILE MORTAR & GRAY GROUT) - 2ND FLOOR MENS RESTROOM WALL	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected

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			% Fibrous	% Non-Fibrous	% Type
28-86-Grout 092512820-0086B	(WHITE WALL TILE MORTAR & GRAY GROUT) - 2ND FLOOR MENS RESTROOM WALL	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
28-87-Mortar 092512820-0087	(WHITE WALL TILE MORTAR & GRAY GROUT) - 2ND FLOOR MENS RESTROOM WALL	Beige Non-Fibrous Homogeneous		20% Quartz 60% Ca Carbonate 20% Non-fibrous (Other)	None Detected
28-87-Mastic 092512820-0087A	(WHITE WALL TILE MORTAR & GRAY GROUT) - 2ND FLOOR MENS RESTROOM WALL	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
28-87-Grout 092512820-0087B	(WHITE WALL TILE MORTAR & GRAY GROUT) - 2ND FLOOR MENS RESTROOM WALL	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
28-88-Mortar 092512820-0088	(WHITE WALL TILE MORTAR & GRAY GROUT) - 2ND FLOOR WOMENS RESTROOM WALL	Beige Non-Fibrous Homogeneous		20% Quartz 60% Ca Carbonate 20% Non-fibrous (Other)	None Detected
28-88-Mastic 092512820-0088A	(WHITE WALL TILE MORTAR & GRAY GROUT) - 2ND FLOOR WOMENS RESTROOM WALL	Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
28-88-Grout 092512820-0088B	(WHITE WALL TILE MORTAR & GRAY GROUT) - 2ND FLOOR WOMENS RESTROOM WALL				Layer Not Present
29-89-Floor Tile 092512820-0089	(GRAY 16" X 16" FLOOR TILE & TAN MASTIC) - 2ND FLOOR LOUNGE - NORTH END	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
29-89-Mastic 092512820-0089A	(GRAY 16" X 16" FLOOR TILE & TAN MASTIC) - 2ND FLOOR LOUNGE - NORTH END	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
29-89-Leveler 092512820-0089B	(GRAY 16" X 16" FLOOR TILE & TAN MASTIC) - 2ND FLOOR LOUNGE - NORTH END	Gray Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
29-90-Floor Tile 092512820-0090	(GRAY 16" X 16" FLOOR TILE & TAN MASTIC) - 2ND FLOOR LOUNGE - SE END	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
29-90-Mastic 092512820-0090A	(GRAY 16" X 16" FLOOR TILE & TAN MASTIC) - 2ND FLOOR LOUNGE - SE END	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
29-90-Leveler <i>092512820-0090B</i>	(GRAY 16" X 16" FLOOR TILE & TAN MASTIC) - 2ND FLOOR LOUNGE - SE END	Gray Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
29-91-Floor Tile <i>092512820-0091</i>	(GRAY 16" X 16" FLOOR TILE & TAN MASTIC) - 2ND FLOOR KITCHENETTE FLOOR	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
29-91-Mastic <i>092512820-0091A</i>	(GRAY 16" X 16" FLOOR TILE & TAN MASTIC) - 2ND FLOOR KITCHENETTE FLOOR	Tan Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
29-91-Leveler <i>092512820-0091B</i>	(GRAY 16" X 16" FLOOR TILE & TAN MASTIC) - 2ND FLOOR KITCHENETTE FLOOR	Gray Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
30-92-Floor Tile <i>092512820-0092</i>	(GRAY 9" X 9" FLOOR TILE & GRAYISH BLACK/TAN MASTIC) - 2ND FLOOR ELECTRICAL SERVER ROOM - N. END	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
30-92-Mastic <i>092512820-0092A</i>	(GRAY 9" X 9" FLOOR TILE & GRAYISH BLACK/TAN MASTIC) - 2ND FLOOR ELECTRICAL SERVER ROOM - N. END	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
30-93-Floor Tile <i>092512820-0093</i>	(GRAY 9" X 9" FLOOR TILE & GRAYISH BLACK/TAN MASTIC) - SERVER ROOM - CENTER	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
30-93-Mastic <i>092512820-0093A</i>	(GRAY 9" X 9" FLOOR TILE & GRAYISH BLACK/TAN MASTIC) - SERVER ROOM - CENTER	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
30-94-Floor Tile <i>092512820-0094</i>	(GRAY 9" X 9" FLOOR TILE & GRAYISH BLACK/TAN MASTIC) - S. END	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
30-94-Mastic <i>092512820-0094A</i>	(GRAY 9" X 9" FLOOR TILE & GRAYISH BLACK/TAN MASTIC) - S. END	Black Non-Fibrous Homogeneous	5% Cellulose	80% Matrix 15% Non-fibrous (Other)	None Detected

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			Non-Asbestos	Asbestos	
Sample	Description	Appearance	% Fibrous	% Non-Fibrous	% Type
Result includes a small amount of inseparable attached material					
31-95 092512820-0095	(BLACK INTERIOR WINDOW WEATHER STRIP) - 1ST FLOOR - W. OFFICE WINDOW	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
31-96 092512820-0096	(BLACK INTERIOR WINDOW WEATHER STRIP) - 1ST FLOOR - SOUTH ENTRANCE WINDOWS	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
31-97 092512820-0097	(BLACK INTERIOR WINDOW WEATHER STRIP) - 2ND FLOOR OFFICE CUBICAL WINDOW	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
32-98 092512820-0098	(BLACK INTERIOR WINDOW CAULKING) - 1ST FLOOR - W. OFFICE WINDOW	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
32-99 092512820-0099	(BLACK INTERIOR WINDOW CAULKING) - 1ST FLOOR - SOUTH ENTRANCE WINDOW	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
32-100 092512820-0100	(BLACK INTERIOR WINDOW CAULKING) - 2ND FLOOR OFFICE CUBICAL WINDOW	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
33-101 092512820-0101	(WHITE PLUMBERS CAULKING) - 1ST FLOOR MENS RESTROOM SINK	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
33-102 092512820-0102	(WHITE PLUMBERS CAULKING) - 2ND FLOOR KITCHENETTE SINK	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
33-103 092512820-0103	(WHITE PLUMBERS CAULKING) - 2ND FLOOR WOMENS RESTROOM TOILET	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
34-104 092512820-0104	(GRAY EXTERIOR STUCCO) - BUILDING EXTERIOR WALL - NE END	White Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
34-105 092512820-0105	(GRAY EXTERIOR STUCCO) - BUILDING EXTERIOR WALL - EAST END	White Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
34-106 092512820-0106	(GRAY EXTERIOR STUCCO) - BUILDING EXTERIOR WALL - SE END	White Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
35-107-Brick <i>092512820-0107</i>	(GRAY BRICK & MORTAR) - BUILDING EXTERIOR WALL - NE END	Red Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
35-107-Mortar <i>092512820-0107A</i>	(GRAY BRICK & MORTAR) - BUILDING EXTERIOR WALL - NE END	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
35-108-Brick <i>092512820-0108</i>	(GRAY BRICK & MORTAR) - BUILDING EXTERIOR WALL - WEST END	Red Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
35-108-Mortar <i>092512820-0108A</i>	(GRAY BRICK & MORTAR) - BUILDING EXTERIOR WALL - WEST END	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
35-109-Brick <i>092512820-0109</i>	GRAY BRICK & MORTAR - BUILDING EXTERIOR WALL - SOUTH END	Red Non-Fibrous Homogeneous		70% Ca Carbonate 30% Non-fibrous (Other)	None Detected
35-109-Mortar <i>092512820-0109A</i>	GRAY BRICK & MORTAR - BUILDING EXTERIOR WALL - SOUTH END	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
36-110 <i>092512820-0110</i>	(GRAY CONCRETE) - SOUTH ENTRANCE FLOOR/SLAB FOUNDATION	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
36-111 <i>092512820-0111</i>	(GRAY CONCRETE) - NORTH EXTERIOR BREEZE - WALKWAY	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
36-112 <i>092512820-0112</i>	(GRAY CONCRETE) - NORTHEAST EXTERIOR STEM WALL (BREEZE - WALKWAY)	Gray Non-Fibrous Homogeneous		40% Quartz 40% Ca Carbonate 20% Non-fibrous (Other)	None Detected
37-113 <i>092512820-0113</i>	(DARK GRAY WALL SEAM & FLOOR JOINT CAULKING) - BUILDING EXTERIOR - NE WALL SEAM	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
37-114 <i>092512820-0114</i>	(DARK GRAY WALL SEAM & FLOOR JOINT CAULKING) - BUILDING EXTERIOR - (BETWEEN STUCCO/CONCRETE FLOOR) - EAST FLOOR JOINT	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
37-115 092512820-0115	(DARK GRAY WALL SEAM & FLOOR JOINT CAULKING) - BUILDING EXTERIOR - (BETWEEN STUCCO/CONCRETE FLOOR) - SOUTH WALL SEAM	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
38-116-Shingle 092512820-0116	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - SW END	Black Fibrous Homogeneous	10% Glass	10% Quartz 60% Matrix 20% Non-fibrous (Other)	None Detected
38-116-Felt 1 092512820-0116A	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - SW END	Black Fibrous Homogeneous	40% Glass	40% Matrix 20% Non-fibrous (Other)	None Detected
38-116-Felt 2 092512820-0116B	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - SW END	Black Fibrous Homogeneous	60% Cellulose	20% Matrix 20% Non-fibrous (Other)	None Detected
38-116-Insulation 092512820-0116C	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - SW END	Yellow Fibrous Homogeneous	80% Min. Wool	20% Non-fibrous (Other)	None Detected
38-116-Paper 092512820-0116D	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - SW END	Pink Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
38-117-Shingle 092512820-0117	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - SOUTH END	Black Fibrous Homogeneous	10% Glass	10% Quartz 60% Matrix 20% Non-fibrous (Other)	None Detected
38-117-Felt 1 092512820-0117A	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - SOUTH END	Black Fibrous Homogeneous	40% Glass	40% Matrix 20% Non-fibrous (Other)	None Detected
38-117-Felt 2 092512820-0117B	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - SOUTH END	Black Fibrous Homogeneous	60% Cellulose	20% Matrix 20% Non-fibrous (Other)	None Detected
38-117-Insulation 092512820-0117C	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - SOUTH END	Yellow Fibrous Homogeneous	80% Min. Wool	20% Non-fibrous (Other)	None Detected
38-117-Paper 092512820-0117D	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - SOUTH END	Pink Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
38-118-Shingle 092512820-0118	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - SE END	Black Fibrous Homogeneous	10% Synthetic	10% Quartz 60% Matrix 20% Non-fibrous (Other)	None Detected
38-118-Felt 1 092512820-0118A	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - SE END	Black Fibrous Homogeneous	40% Glass	40% Matrix 20% Non-fibrous (Other)	None Detected
38-118-Felt 2 092512820-0118B	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - SE END	Black Fibrous Homogeneous	60% Cellulose	20% Matrix 20% Non-fibrous (Other)	None Detected
38-118-Insulation 092512820-0118C	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - SE END	Yellow Fibrous Homogeneous	80% Min. Wool	20% Non-fibrous (Other)	None Detected
38-119-Shingle 092512820-0119	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - SOUTH CENTER END	Black Fibrous Homogeneous	10% Glass	10% Quartz 60% Matrix 20% Non-fibrous (Other)	None Detected
38-119-Felt 1 092512820-0119A	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - SOUTH CENTER END	Black Fibrous Homogeneous	40% Glass	40% Matrix 20% Non-fibrous (Other)	None Detected
38-119-Felt 2 092512820-0119B	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - SOUTH CENTER END	Black Fibrous Homogeneous	60% Cellulose	20% Matrix 20% Non-fibrous (Other)	None Detected
38-119-Insulation 092512820-0119C	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - SOUTH CENTER END	Yellow Fibrous Homogeneous	80% Min. Wool	20% Non-fibrous (Other)	None Detected
38-120-Shingle 092512820-0120	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - NORTH CENTER END	Black Fibrous Homogeneous	10% Glass	10% Quartz 60% Matrix 20% Non-fibrous (Other)	None Detected
38-120-Felt 092512820-0120A	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - NORTH CENTER END	Black Fibrous Homogeneous	40% Glass	40% Matrix 20% Non-fibrous (Other)	None Detected
38-121-Shingle 092512820-0121	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - NW. END	Black Fibrous Homogeneous	10% Glass	5% Quartz 60% Matrix 25% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
38-121-Felt <i>092512820-0121A</i>	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - NW. END	Black Fibrous Homogeneous	40% Glass	40% Matrix 20% Non-fibrous (Other)	None Detected
38-122-Shingle <i>092512820-0122</i>	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - NE. END	Black Fibrous Homogeneous	10% Glass	5% Quartz 60% Matrix 25% Non-fibrous (Other)	None Detected
38-122-Felt <i>092512820-0122A</i>	(BLACK/GRAY ROLLED ROOFING - ROOF MEMBRANE CORE) - MAIN ROOF - NE. END	Black Fibrous Homogeneous	40% Glass	40% Matrix 20% Non-fibrous (Other)	None Detected
39-123-Membrane <i>092512820-0123</i>	(BLACK/GRAY - ROOF PARAPET) *MAIN ROOF - SOUTH END	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
39-123-Shingle <i>092512820-0123A</i>	(BLACK/GRAY - ROOF PARAPET) *MAIN ROOF - SOUTH END	Gray/Black Fibrous Homogeneous	10% Glass	50% Matrix 40% Non-fibrous (Other)	None Detected
39-123-Felt <i>092512820-0123B</i>	(BLACK/GRAY - ROOF PARAPET) *MAIN ROOF - SOUTH END	Black Fibrous Homogeneous	60% Glass	40% Non-fibrous (Other)	None Detected
39-123-Insulation <i>092512820-0123C</i>	(BLACK/GRAY - ROOF PARAPET) *MAIN ROOF - SOUTH END	Brown Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
39-124-Shingle <i>092512820-0124</i>	(BLACK/GRAY - ROOF PARAPET) *MAIN ROOF - CENTER END	Gray/Black Fibrous Homogeneous	10% Glass	50% Matrix 40% Non-fibrous (Other)	None Detected
39-124-Felt <i>092512820-0124A</i>	(BLACK/GRAY - ROOF PARAPET) *MAIN ROOF - CENTER END	Black Fibrous Homogeneous	60% Glass	40% Non-fibrous (Other)	None Detected
39-124-Insulation <i>092512820-0124B</i>	(BLACK/GRAY - ROOF PARAPET) *MAIN ROOF - CENTER END	Brown Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
39-125-Shingle 1 <i>092512820-0125</i>	(BLACK/GRAY - ROOF PARAPET) *MAIN ROOF - NORTH END	Black Fibrous Homogeneous	10% Glass	5% Quartz 60% Matrix 25% Non-fibrous (Other)	None Detected
39-125-Shingle 2 <i>092512820-0125A</i>	(BLACK/GRAY - ROOF PARAPET) *MAIN ROOF - NORTH END	Black Fibrous Homogeneous	20% Synthetic	5% Quartz 60% Matrix 15% Non-fibrous (Other)	None Detected
39-125-Felt <i>092512820-0125B</i>	(BLACK/GRAY - ROOF PARAPET) *MAIN ROOF - NORTH END	Black Fibrous Homogeneous	40% Glass	40% Matrix 20% Non-fibrous (Other)	None Detected
39-125-Mastic <i>092512820-0125C</i>	(BLACK/GRAY - ROOF PARAPET) *MAIN ROOF - NORTH END	Black Non-Fibrous Homogeneous	4% Cellulose	80% Matrix 16% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
40-126 <i>092512820-0126</i> <i>Result includes a small amount of inseparable attached material</i>	(WHITE ROOF PATCH) *MAIN ROOF - SOUTH END	White/Black Non-Fibrous Homogeneous	2% Glass	80% Matrix 18% Non-fibrous (Other)	None Detected
40-127 <i>092512820-0127</i> <i>Result includes a small amount of inseparable attached material</i>	(WHITE ROOF PATCH) *MAIN ROOF - CENTER END	White/Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
40-128-Mastic <i>092512820-0128</i>	(WHITE ROOF PATCH) *MAIN ROOF - NORTH END	Black Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
40-128-Membrane <i>092512820-0128A</i>	(WHITE ROOF PATCH) *MAIN ROOF - NORTH END	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
41-129-Mastic 1 <i>092512820-0129</i>	BLACK/GRAY ROOF PENETRATION MASTIC *MAIN ROOF - SOUTH END	Black Non-Fibrous Homogeneous	5% Cellulose	80% Matrix 15% Non-fibrous (Other)	None Detected
41-129-Mastic 2 <i>092512820-0129A</i>	BLACK/GRAY ROOF PENETRATION MASTIC *MAIN ROOF - SOUTH END	Black Non-Fibrous Homogeneous		80% Matrix 17% Non-fibrous (Other)	3% Chrysotile
41-129-Membrane <i>092512820-0129B</i>	BLACK/GRAY ROOF PENETRATION MASTIC *MAIN ROOF - SOUTH END	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
41-130-Mastic 1 <i>092512820-0130</i>	BLACK/GRAY ROOF PENETRATION MASTIC *MAIN ROOF - CENTER END	Black Non-Fibrous Homogeneous	5% Cellulose	80% Matrix 15% Non-fibrous (Other)	None Detected
41-130-Mastic 2 <i>092512820-0130A</i>	BLACK/GRAY ROOF PENETRATION MASTIC *MAIN ROOF - CENTER END	Black Non-Fibrous Homogeneous		80% Matrix 17% Non-fibrous (Other)	3% Chrysotile
41-130-Membrane <i>092512820-0130B</i>	BLACK/GRAY ROOF PENETRATION MASTIC *MAIN ROOF - CENTER END	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
41-131-Mastic <i>092512820-0131</i>	BLACK/GRAY ROOF PENETRATION MASTIC *MAIN ROOF - NORTH END	Black Non-Fibrous Homogeneous		75% Matrix 22% Non-fibrous (Other)	3% Chrysotile
41-131-Membrane <i>092512820-0131A</i>	BLACK/GRAY ROOF PENETRATION MASTIC *MAIN ROOF - NORTH END	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
42-132-Mastic 1 <i>092512820-0132</i>	WHITE/GRAY ROOF PENETRATION MASTIC *MAIN ROOF - SOUTH END	Black Non-Fibrous Homogeneous	5% Cellulose	80% Matrix 15% Non-fibrous (Other)	None Detected
42-132-Mastic 2 <i>092512820-0132A</i>	WHITE/GRAY ROOF PENETRATION MASTIC *MAIN ROOF - SOUTH END	Black Non-Fibrous Homogeneous		80% Matrix 18% Non-fibrous (Other)	2% Chrysotile

Initial report from: 10/29/2025 18:41:44



EMSL Analytical, Inc.

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EMSL Order: 092512820

Customer ID: 32PRTN78

Customer PO: 25551454.1

Project ID:

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
42-132-Membrane 092512820-0132B	WHITE/GRAY ROOF PENETRATION MASTIC *MAIN ROOF - SOUTH END	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
42-133-Mastic 092512820-0133	WHITE/GRAY ROOF PENETRATION MASTIC *MAIN ROOF - CENTER END	Black Non-Fibrous Homogeneous	5% Cellulose	80% Matrix 15% Non-fibrous (Other)	None Detected
42-133-Membrane 092512820-0133A	WHITE/GRAY ROOF PENETRATION MASTIC *MAIN ROOF - CENTER END	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
42-134-Mastic 1 092512820-0134	WHITE/GRAY ROOF PENETRATION MASTIC *MAIN ROOF - NORTH END	Black Non-Fibrous Homogeneous	5% Cellulose	70% Matrix 25% Non-fibrous (Other)	None Detected
42-134-Mastic 2 092512820-0134A	WHITE/GRAY ROOF PENETRATION MASTIC *MAIN ROOF - NORTH END	Black Non-Fibrous Homogeneous		80% Matrix 18% Non-fibrous (Other)	2% Chrysotile
42-134-Membrane 092512820-0134B	WHITE/GRAY ROOF PENETRATION MASTIC *MAIN ROOF - NORTH END	Gray/White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
43-135 092512820-0135	(WHITE HVAC JUNCTION TAPE *MAIN ROOF - CENTER END	White Fibrous Homogeneous	10% Synthetic	70% Matrix 20% Non-fibrous (Other)	None Detected
43-136-Tape 092512820-0136	(WHITE HVAC JUNCTION TAPE *MAIN ROOF - CENTER END	White Fibrous Homogeneous	10% Synthetic	70% Matrix 20% Non-fibrous (Other)	None Detected
43-136-Mastic 092512820-0136A	(WHITE HVAC JUNCTION TAPE *MAIN ROOF - CENTER END	Clear Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
43-137 092512820-0137	(WHITE HVAC JUNCTION TAPE *MAIN ROOF - CENTER END	White Fibrous Homogeneous	10% Synthetic	70% Matrix 20% Non-fibrous (Other)	None Detected
44-138 092512820-0138	(GRAY FLASHING CAULK) - NORTH END OF ROOF	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
44-139 092512820-0139	(GRAY FLASHING CAULK) - CENTER END OF ROOF	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
44-140 092512820-0140	(GRAY FLASHING CAULK) - SOUTH END OF ROOF	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
45-141-Roofing 092512820-0141	(AGGREGATE COMPOSITE BLACK ROLLED ROOFING (ROOF MEMBRANE CORE)) - EAST SMALLER ROOF - WEST END	Black Fibrous Homogeneous	40% Glass	40% Matrix 20% Non-fibrous (Other)	None Detected

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EMSL Order: 092512820

Customer ID: 32PRTN78

Customer PO: 25551454.1

Project ID:

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
45-141-Foam 092512820-0141A	(AGGREGATE COMPOSITE BLACK ROLLED ROOFING (ROOF MEMBRANE CORE)) - EAST SMALLER ROOF - WEST END	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
45-141-Insulation 092512820-0141B	(AGGREGATE COMPOSITE BLACK ROLLED ROOFING (ROOF MEMBRANE CORE)) - EAST SMALLER ROOF - WEST END	Beige Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
45-142-Roofing 092512820-0142	(AGGREGATE COMPOSITE BLACK ROLLED ROOFING (ROOF MEMBRANE CORE)) - EAST SMALLER ROOF - SOUTH END	Black Fibrous Homogeneous	40% Glass	40% Matrix 20% Non-fibrous (Other)	None Detected
45-142-Foam 092512820-0142A	(AGGREGATE COMPOSITE BLACK ROLLED ROOFING (ROOF MEMBRANE CORE)) - EAST SMALLER ROOF - SOUTH END	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
45-142-Insulation 092512820-0142B	(AGGREGATE COMPOSITE BLACK ROLLED ROOFING (ROOF MEMBRANE CORE)) - EAST SMALLER ROOF - SOUTH END	Beige Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
45-143-Roofing 092512820-0143	(AGGREGATE COMPOSITE BLACK ROLLED ROOFING (ROOF MEMBRANE CORE)) - EAST SMALLER ROOF - NORTHEAST END	Black Fibrous Homogeneous	40% Glass	40% Matrix 20% Non-fibrous (Other)	None Detected
45-143-Foam 092512820-0143A	(AGGREGATE COMPOSITE BLACK ROLLED ROOFING (ROOF MEMBRANE CORE)) - EAST SMALLER ROOF - NORTHEAST END	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
45-143-Insulation 092512820-0143B	(AGGREGATE COMPOSITE BLACK ROLLED ROOFING (ROOF MEMBRANE CORE)) - EAST SMALLER ROOF - NORTHEAST END	Brown/Black Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
46-144-Caulk 1 092512820-0144	(TEAL/BLACK WALL SEAM CAULKING) - NORTH EAST END OF BLDG EXTERIOR (UPPER WALL)	Brown Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected

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EMSL Order: 092512820

Customer ID: 32PRTN78

Customer PO: 25551454.1

Project ID:

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
46-144-Caulk 2 <i>092512820-0144A</i>	(TEAL/BLACK WALL SEAM CAULKING) - NORTH EAST END OF BLDG EXTERIOR (UPPER WALL)	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
46-145-Caulk 1 <i>092512820-0145</i>	(TEAL/BLACK WALL SEAM CAULKING) - EAST END OF BLDG. EXTERIOR - UPPER WALL	Brown Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
46-145-Caulk 2 <i>092512820-0145A</i>	(TEAL/BLACK WALL SEAM CAULKING) - EAST END OF BLDG. EXTERIOR - UPPER WALL	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
46-146-Caulk 1 <i>092512820-0146</i>	(TEAL/BLACK WALL SEAM CAULKING) - SOUTHEAST END OF BLDG. EXTERIOR (UPPER WALL)	Brown/White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
46-146-Caulk 2 <i>092512820-0146A</i>	(TEAL/BLACK WALL SEAM CAULKING) - SOUTHEAST END OF BLDG. EXTERIOR (UPPER WALL)	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
47-147 <i>092512820-0147</i>	(BEIGE/GRAY DOOR & WINDOW CAULKING) - EAST EXTERIOR WINDOW	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
47-148 <i>092512820-0148</i>	(BEIGE/GRAY DOOR & WINDOW CAULKING) - EAST EMERGENCY EXIT EXTERIOR DOOR	Gray Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
47-149 <i>092512820-0149</i>	(BEIGE/GRAY DOOR & WINDOW CAULKING) - SOUTH EXTERIOR WINDOW	Gray/Beige Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected

Analyst(s)

Brian Khoo (64)

Brayant Rodriguez (13)

Damaris Pineda Ayala (168)

Mitchell Morrison (48)

Xeena Paul (32)

Jonathan Nomura, Laboratory Manager
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc San Leandro, CA NVLAP Lab Code 101048-3, WA C884

Initial report from: 10/29/2025 18:41:44



California Customers

EMSL Order Number / Lab Use Only

#092512820

San Leandro, CA 94577
PHONE: (510) 895-3675
EMAIL: sanleandrolab@emsl.ca

If Bill-To is the same as Report-To leave this section blank. Third-party billing requires written authorization.

Customer Information	Customer ID:				Billing Information	Billing ID:								
	Company Name:	Partner Engineering and Science, Inc.				Company Name:	32PRTN78							
	Contact Name:	Audre Puskorius				Billing Contact:	Audre Puskorius							
	Street Address:	2154 Torrance Blvd Suite 200				Street Address:	2154 Torrance Blvd, Suite 200							
	City, State, Zip:	Torrance	CA	90501		Country:	US	City, State, Zip:	Torrance	CA	90501	Country:	US	
	Phone:	6024003009				Phone:	310-615-4500							
Email(s) for Report:						apuskorius@partneresi.com			Email(s) for Invoice:					

Project Information							
Project Name/No:		25-551454.1 Liberty Bank		Purchase Order:			
EMSL LIMS Project ID:		(If applicable, EMSL will provide)		US State where samples collected:		CA	
Sampled By Name:		Rodrigo Amador Jr		Sampled By Signature:			
State of Connecticut (CT) must select project location:		☐ Commercial (Taxable)		☐ Residential (Non-Taxable)		No. of Samples in Shipment	

Turn-Around-Time (TAT)											
☐ 3 Hour	☐ 4-6 Hour	☐ 6 Hour	☐ 24 Hour	☐ 32 Hour	☐ 48 Hour	☒ 72 Hour	☐ 96 Hour	☐ 1 Week	☐ 2 Week		
TEM Air 3-6 Hour, please call ahead to schedule. 32 Hour TAT available for select tests only; samples must be submitted by 11:30 am.											

Test Selection			
PCM Air		TEM - Air	
☐ NIOSH 7400	☐ AHERA 40 CFR, Part 763	☐ Soil - Rock - Vermiculite (reporting limit)*	
☐ NIOSH 7400 w/ 8hr. TWA	☐ CARB Modified AHERA	☐ PLM CARB 435 - Level A (<0.25%)	
☒ PLM - Bulk (reporting limit)	☐ NIOSH 7402	☐ PLM CARB 435 - Level B (<0.1%)	
☐ PLM EPA 600/R-93/116 (<1%)	☐ EPA Level II	☐ TEM CARB 435 - Level B (<0.1%)	
☐ PLM EPA NOB (<1%)	☐ ISO 10312*	☐ TEM CARB 435 - Level C (<0.01%)	
☐ POINT COUNT	TEM - Bulk	☐ CARB Guidance Compliance Prep	
☐ 400 (<0.25%)	☐ TEM EPA NOB	☐ PLM EPA 600/R-93/116 with milling prep (<0.25%)	
☐ 1,000 (<0.1%)	☐ TEM EPA 600/R-93/116 w Milling Prep (0.1%)	☐ PLM EPA 600/R-93/116 with milling prep (<0.1%)	
☐ 1,200 (<0.08%)	TEM - Settled Dust	☐ TEM EPA 600/R-93/116 with milling prep (<0.1%)	
☐ POINT COUNT w/ GRAVIMETRIC	☐ Microvac - ASTM D5755	Other	
☐ 400 (<0.25%)	☐ Wipe - ASTM D6480		
☐ 1,000 (<0.1%)	☐ Qualitative via Filtration Prep		
☐ 1,200 (<0.08%)	☐ Qualitative via Drop Mount Prep		

*Please call with your project-specific requirements.

☐ Positive Stop - Clearly Identified Homogeneous Areas (HA)	Filter Pore Size (Air Samples)	☐ 0.8um	☐ 0.45um
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Sample Number	Sample Location / Description	Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
1-01	White Drywall Joint Compound	1st Floor North Entrance wall ~ 10,000 ft ²	
-02		Conference Room wall	
-03		Electrical Room ceiling	
-04		Southeast Lower stair Landing wall	
-05		2nd Floor Kitchenette wall	
-06		Electrical server Room wall	
V-07		office cubical Area wall	
2-08	White 2'x2' Laid Ceiling Tile / 1st Floor Lobby	Dropped ceiling ~ 9,000 ft ²	

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by:	Date/Time: 10-26-2025 / 1800	Received by:	Date/Time: 10/28/25 9:15 AM
Relinquished by:	Date/Time:	Received by:	Date/Time:

Controlled Document - COC-81 Asbestos CA Clients R3 03/24/2021

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Asbestos Chain of Custody (Air, Bulk, Soil) California Customers

EMSL Analytical, Inc.

EMSL ANALYTICAL, INC.
LABORATORY PRODUCTS TRAINING

EMSL Order Number / Lab Use Only

#092512820

San Leandro, CA 94577

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Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Sample Number	Sample Location / Description	Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
2-09	(white 2'x2' Laid ceiling Tile) 1st Floor Teller Dropped ceiling	~ 9,000 ϕ	
↓ -10	↓ 2nd Floor Office Cubical Area Dropped ceiling ↓		
3-11	white 12"x12" Laid ceiling Tile South Entrance South Dropped ceiling - end	~ 120 ϕ	
-12	↓ 1st Floor - center		
-13	↓ 1st Floor - NW end		
4-14	creamish white wall paper mastic Teller North area - partition wall	~ 1,500 ϕ	
-15	↓ (muff color) walls - East wall		
-16	↓ - South partition wall		
5-17	Dark Gray Floor Grout North Entrance Floor * 1st Floor	~ 250 ϕ	
-18			
-19	↓ * 1st Floor		
6-20	(Light Gray Tile Bed) North Entrance Floor, underneath the	~ 250 ϕ	
-21	↓ Ceramic Tile Flooring		
-22			
7-23	(Black Floor Joint) North Entrance (1st Floor) between Floor Tile & Carpet	~ 100 LF	
-24	↓ Caulking center NE stairwell Floor (Coin Grip Tread)		
-25	↓ 2nd Floor Lounge, between Floor Tile & Carpet Flooring		
8-26	(Tan Carpet Floor mastic) Glue 1st Floor Lobby Floor	~ 8,000 ϕ	
-27	↓ 1st Floor East Office Area Floor		
-28	↓ 2nd Floor Office Cubical Area Floor		
9-29	(white 12"x12" speckle Rock Pebble pattern) Teller Area - NW Floor	~ 900 ϕ	
-30	↓ Floor Tile & Black Floor mastic - West end		
-31	↓ - SW end		
10-32	(Tan 12"x12" speckle Rock Pebble pattern) 1st Floor Vault Room Floor	~ 3,000 ϕ	
-33	↓ Floor Tile & Black Floor mastic ↓ Teller N. end		

Method of Shipment:

Sample Condition Upon Receipt:

Relinquished by: *Raj*

Date/Time: 10-26-2025 / 1800

Received by: *just my EFLD*

Date/Time: 10/28/25 9:15 AM

Relinquished by:

Date/Time:

Received by:

Date/Time:

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Sample Number	Sample Location / Description	Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
10-34	Tan 12"x12" Speckle & Rock pebble Pattern Floor Tile & Black Floor mastic / Teller S. end	~ 3,000 ϕ	
11-35	Light Baby Blue 12"x12" Floor Tile / Tan mastic over Beige Floor Tile & Black/Grey mastic	1st Floor - West East office end ~ 750 ϕ	
-36		Floor - center	
↓-37		1st Floor - Southeast end	
12-38	Tan 12"x12" Floor Tile & Tan mastic	Conference Room SW end ~ 150 ϕ	
-39		Floor South end	
↓-40		SE end	
13-41	Dark Gray money safe seam caulking	Conference Room closet ~ 10 LF	
-42		1st Floor	
↓-43		1st Floor	
14-44	Brown Floor Joint vinyl & Black Adhesive (Between Floor Tiles)	Teller Area North end ~ 50 LF	
-45		1st Floor - South end	
↓-46		Electrical control room Floor	
15-47	Tan 4" Cove Base & Brown wall mastic	Teller Area - SW end ~ 100 LF	
-48		1st Floor	
↓-49		Teller Area - W. wall	
16-50	Teal 4" Cove Base & Beige/Brown wall mastic	Teller Area - South end ~ 350 LF	
-51			
↓-52			
17-53	Gray 4" Cove Base & Beige wall mastic	East Office Area - N. end ~ 50 LF	
-54		* 1st Floor East end	
↓-55		South end	
18-56	White 2" Cove Base & Brown wall mastic	Conference (1st Floor) Room wall ~ 500 LF	
-57		Teller Area wall * 1st Floor	
↓-58		and Floor Office cubical wall	

Method of Shipment:

Sample Condition Upon Receipt:

Relinquished by:

Date/Time: 10-26-2025 / 1800

Received by:

Date/Time

Relinquished by:

Date/Time:

Received by:

Date/Time

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Sample Number	Sample Location / Description	Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
19-59	Black coin pattern grip vinyl stair step tread	NE Lower Staircase - Stair Landing ~ 300 LF	
-60		- center stair Landing	
-61		- Top Stair Landing	
20-62	Black 6" Cove Base of Beige/Brown wall mastic	Lower Stair Landing ~ 50 LF	
-63	*NE Staircase	Center Stair Landing	
-64		Top Stair Landing 1st Floor	
21-65	Black Floor Joint Vinyl Strip & Black Adhesive	Electrical Room Floor, between ~ 50 LF	
-66		Floor Tiles (1st Floor)	
-67			
22-68	White 4'x2' Laid ceiling Tile	1st Floor men's Restroom ~ 150 LF	
-69		Drop ceiling	
-70		1st Floor Women's Restroom Drop ceiling	
23-71	Tan Fiberglass Reinforced plastic paneling mastic	1st Floor men's Restroom ~ 100 LF	
-72		wall	
-73		1st Floor	
24-74	Gray 2'x1' Vinyl Floor Tile & Black mastic	men's Restroom Floor ~ 150 LF	
-75			
-76		1st Floor - Women's Restroom Floor	
25-77	Black 4" Cove Base of Beige/Black wall mastic	men's Restroom Wall ~ 150 LF	
-78	(*1st Floor)	Women's Restroom Wall	
-79		1st Floor Restroom corridor wall	
26-80	Gray/white Tile Bed of Gray Grout	2nd Floor men's Restroom Floor ~ 350 LF	
-81		underneath ceramic Tile Flooring	
-82		2nd Floor Women's Restroom Floor, under ceramic Tile Flooring	
27-83	Gray Marble Floor Mortar	2nd Floor men's Restroom Entry Floor 10 LF	

Method of Shipment:

Sample Condition Upon Receipt:

Relinquished by: *Raj*

Date/Time: 10-26-2025 / 1800

Received by: *Just m/*

EFC

Date/Time 10/28/25

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Date/Time:

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Date/Time

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Sample Number	Sample Location / Description	Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
27-84	Gray marble / 2nd Floor mens Restroom Entry Floor	~ 100 lb	
↓ -85	↓ / 2nd Floor womens Restroom Entry Floor	↓	
28-86	White wall Tile / 2nd Floor mens Restroom wall	~ 100 lb	
↓ -87	Mortar & Gray GROUT	↓	
↓ -88	↓ / 2nd Floor womens Restroom wall	↓	
29-89	Gray 16"x16" Floor Tile & Tan Mastic	~ 900 lb	
↓ -90	↓ / 2nd Floor North end	↓	
↓ -91	↓ / 2nd Floor Kitchenette Floor	↓	
30-92	Gray 9"x9" Floor Tile & Grayish Black/Tan Mastic	~ 1,000 lb	
↓ -93	↓ / 2nd Floor Electrical Server Room Center	↓	
↓ -94	↓ / S. end	↓	
31-95	Black Interior window weather strip	1st Floor W. office window ~ 1,000 LF	
↓ -96	↓ / South Entrance window	↓	
↓ -97	↓ / 2nd Floor office cubical window	↓	
32-98	Black Interior window Caulking	1st Floor W. office window ~ 1,000 LF	
↓ -99	↓ / South Entrance window	↓	
↓ -100	↓ / 2nd Floor office cubical window	↓	
33-101	White Plumbers Caulking	1st Floor mens Restroom sink ~ 100 LF	
↓ -102	↓ / 2nd Floor Kitchenette Sink	↓	
↓ -103	↓ / 2nd Floor womens Restroom Toilet	↓	
34-104	Gray Exterior Stucco	Building - NE end ~ 2,000 lb	
↓ -105	↓ / Wall - East end	↓	
↓ -106	↓ / - SE end	↓	
35-107	Gray Brick & Mortar	Building Exterior wall - NE end ~ 3,000 lb	
↓ -108	↓ / - West end	↓	

Method of Shipment:

Sample Condition Upon Receipt:

Relinquished by:

Date/Time: 10-26-2025 / 1800

Received by:

just my EFRD

Date/Time

10/28/25

Relinquished by:

Date/Time:

Received by:

Date/Time

Controlled Document - COC-51 Asbestos CA Clients R3 03/24/2021



AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody (Air, Bulk, Soil) California Customers

EMSL Order Number / Lab Use Only

EMSL Analytical, Inc.

#092512820

San Leandro, CA 94577

PHONE: (510) 895-3675

EMAIL: sanleandrolab@emsl.co

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Sample Number	Sample Location / Description	Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
35-109	Gray Brick / Building Exterior wall - South	~ 3,000 ϕ	
36-110	(Gray concrete) South Entrance Floor/ Slab Foundation	~ 10,000 ϕ	
↓ -111	North Exterior Breeze-walkway		
↓ -112	Northeast Exterior stem wall (Breeze-walkway)		
37-113	(Dark Gray Wall Seam & Floor Joint) Building - NE wall Exterior - Seam	~ 500 LF	
↓ -114	↓	↓	
↓ -115	↓	↓	
38-116	(Black/Gray Rolled Roofing) Main Roof SW end	~ 8,500 ϕ	
↓ -117	↓	↓	
↓ -118	↓	↓	
↓ -119	↓	↓	
↓ -120	↓	↓	
↓ -121	↓	↓	
↓ -122	↓	↓	
39-123	(Black/Gray Roof parapet) South End	~ 1,000 ϕ	
↓ -124	↓	↓	
↓ -125	↓	↓	
40-126	(White Roof patch) South End	~ 100 ϕ	
↓ -127	↓	↓	
↓ -128	↓	↓	
41-129	(Black/Gray Roof penetration) South End	~ 100 ϕ	
↓ -130	↓	↓	
↓ -131	↓	↓	
42-132	(White/Gray Roof penetration) South End	~ 100 ϕ	
↓ -133	↓	↓	

Method of Shipment:

Sample Condition Upon Receipt:

Relinquished by: *Raj*

Date/Time: 10-26-2025 / 1800

Received by: *[Signature]*

Date/Time: 10/28/25 9.15 AM

Relinquished by:

Date/Time:

Received by:

Date/Time:

Controlled Document - COC-51 Asbestos CA Clients R3 03/24/2021



AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

#092512820

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Method of Shipment:

Sample Condition Upon Receipt:

Relinquished by:

Date/Time: 10-26-2025 / 1800

Received by:

Date/Time

Relinquished by:

Date/Time:

Received by:

Date/Time	
-----------	--

Controlled Document - COC-51 Asbestos CA Clients R3 03/24/2021

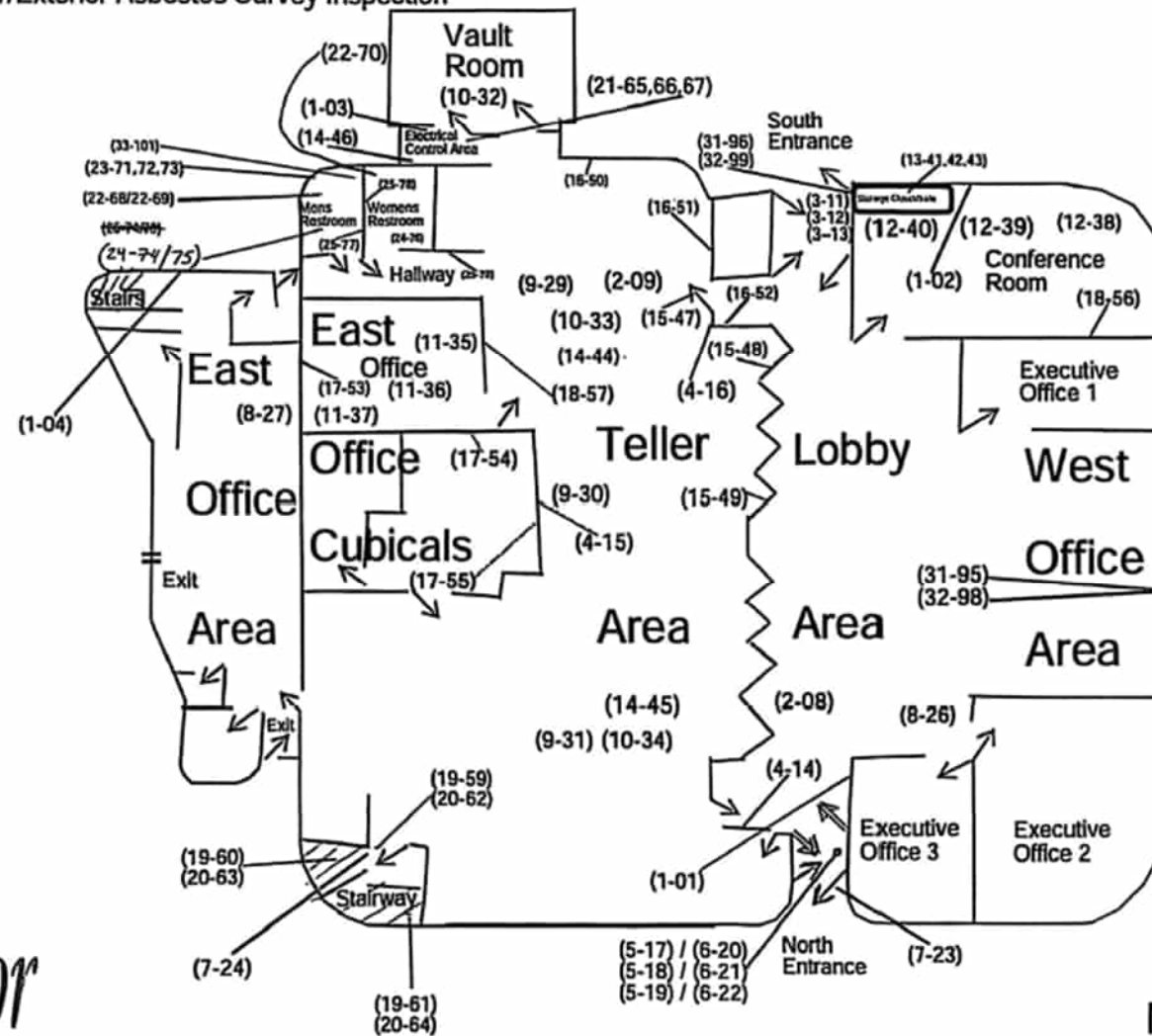
☒

☒ **AGREE TO ELECTRONIC SIGNATURE** (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

APPENDIX C: SAMPLE LOCATION DIAGRAMS

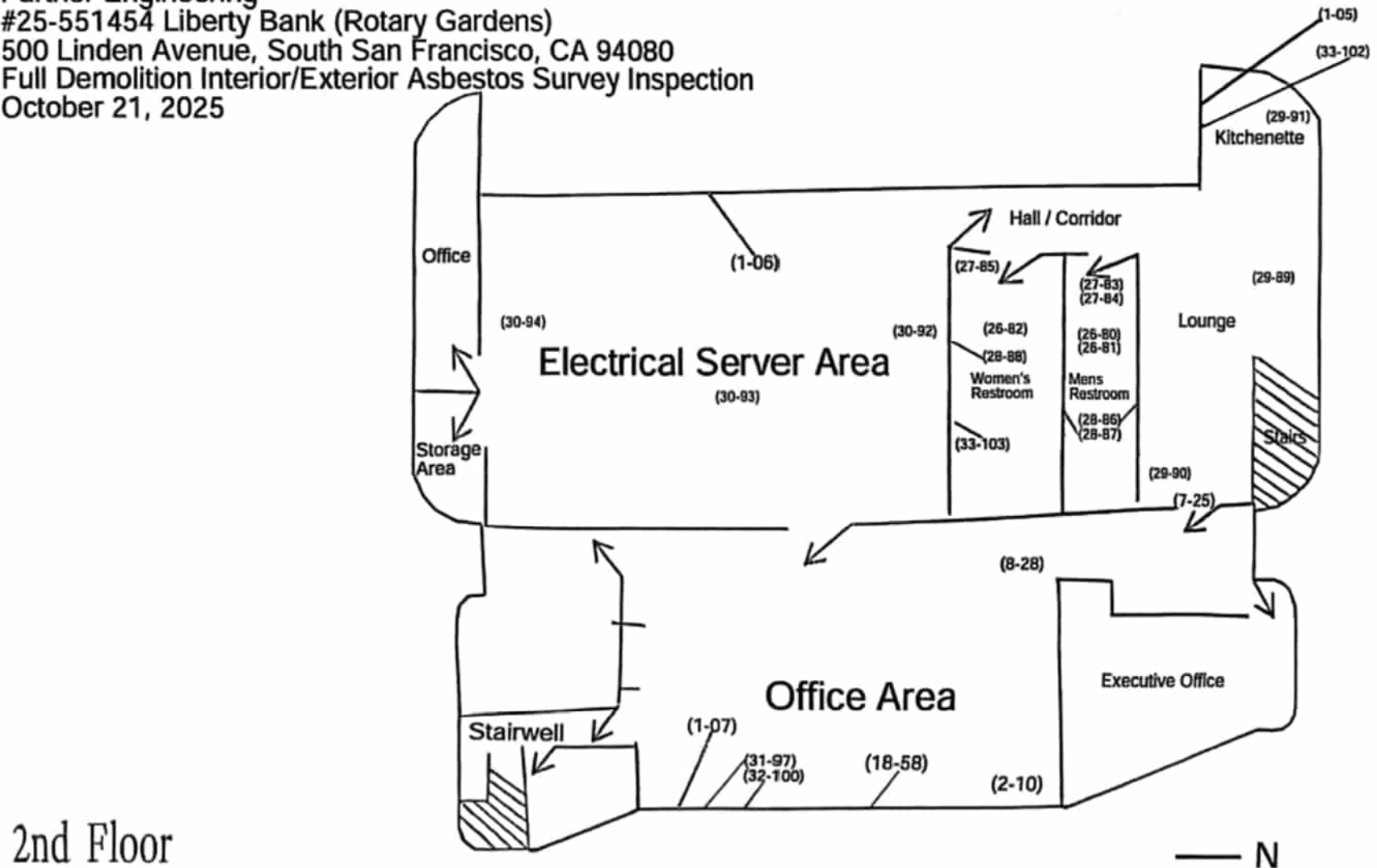
Partner Engineering
#25-551454 Liberty Bank (Rotary Gardens)
500 Linden Avenue, South San Francisco, CA 94080
Full Demolition Interior/Exterior Asbestos Survey Inspection
October 21, 2025



1st Floor

Not To Scale

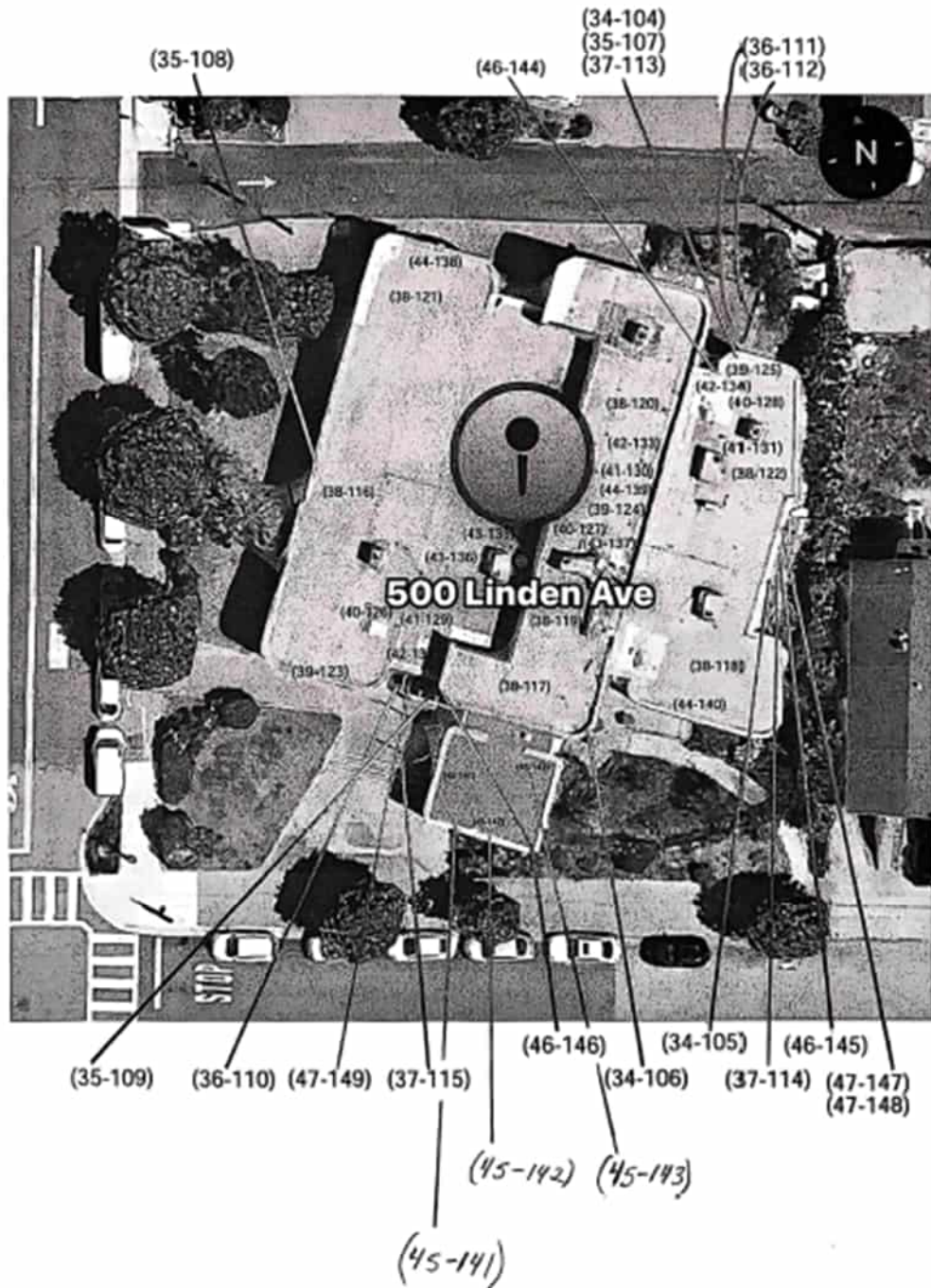
Partner Engineering
#25-551454 Liberty Bank (Rotary Gardens)
500 Linden Avenue, South San Francisco, CA 94080
Full Demolition Interior/Exterior Asbestos Survey Inspection
October 21, 2025



2nd Floor

Not To Scale

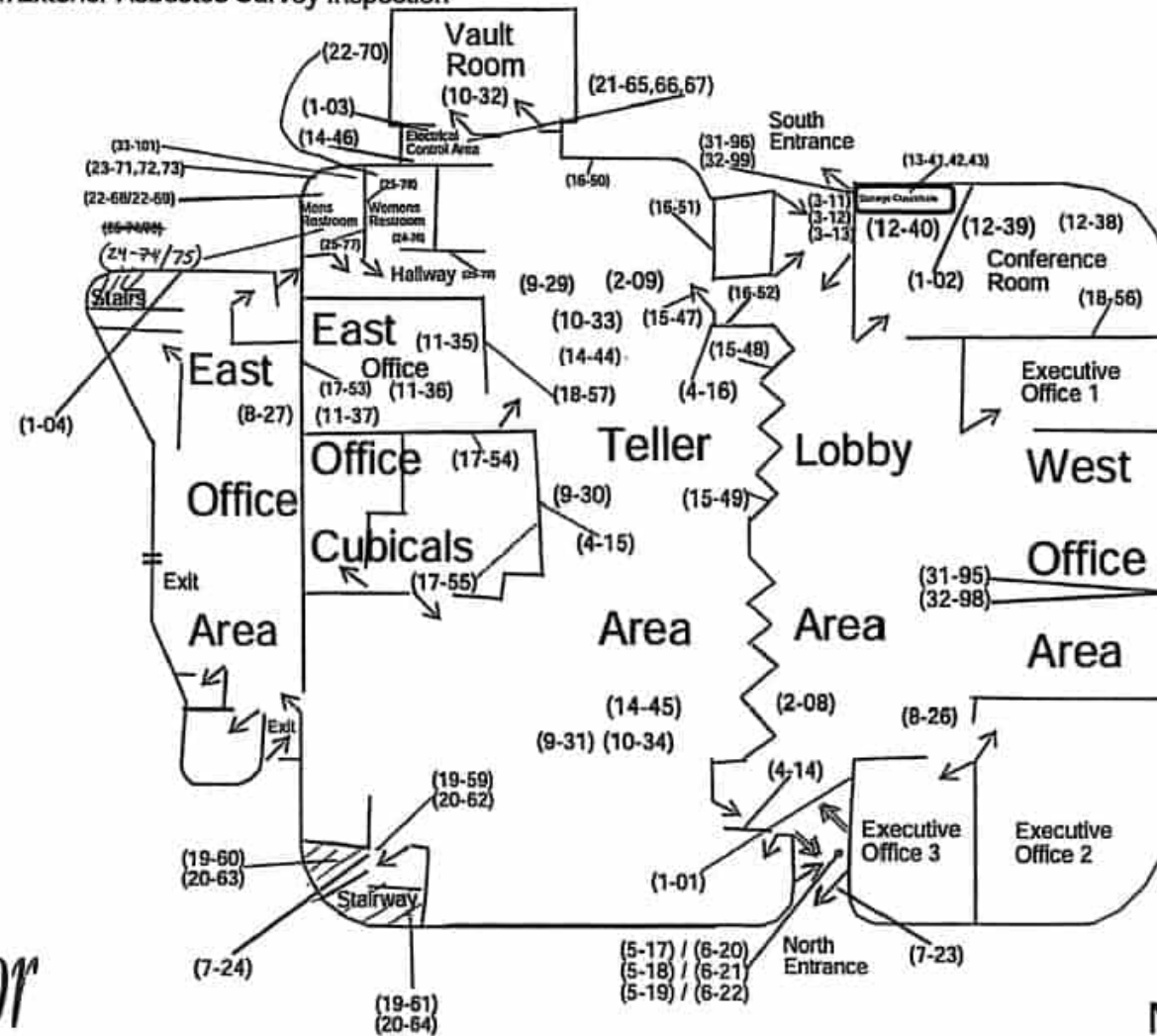
Partner Engineering
 #25-551454 Liberty Bank (Rotary Gardens)
 500 Linden Avenue, South San Francisco, CA 94080
 Full Demolition Interior/Exterior Asbestos Survey Inspection
 October 21, 2025



Not To Scale



Partner Engineering
 #25-551454 Liberty Bank (Rotary Gardens)
 500 Linden Avenue, South San Francisco, CA 94080
 Full Demolition Interior/Exterior Asbestos Survey Inspection
 October 21, 2025



1st Floor

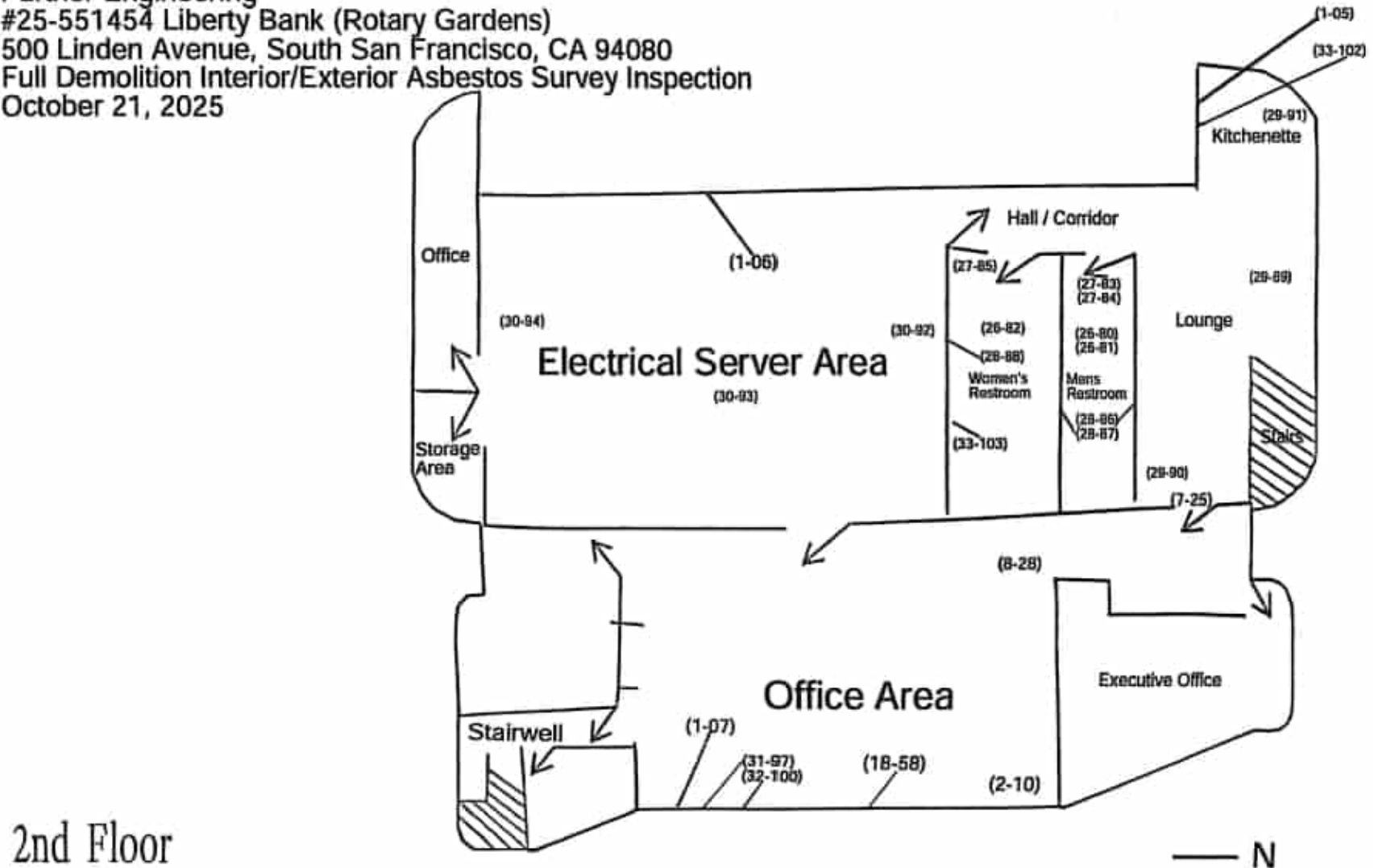
Not To Scale

APPENDIX C: SAMPLE LOCATION DIAGRAM

Project No. 25-551454.1

PARTNER

Partner Engineering
#25-551454 Liberty Bank (Rotary Gardens)
500 Linden Avenue, South San Francisco, CA 94080
Full Demolition Interior/Exterior Asbestos Survey Inspection
October 21, 2025



2nd Floor

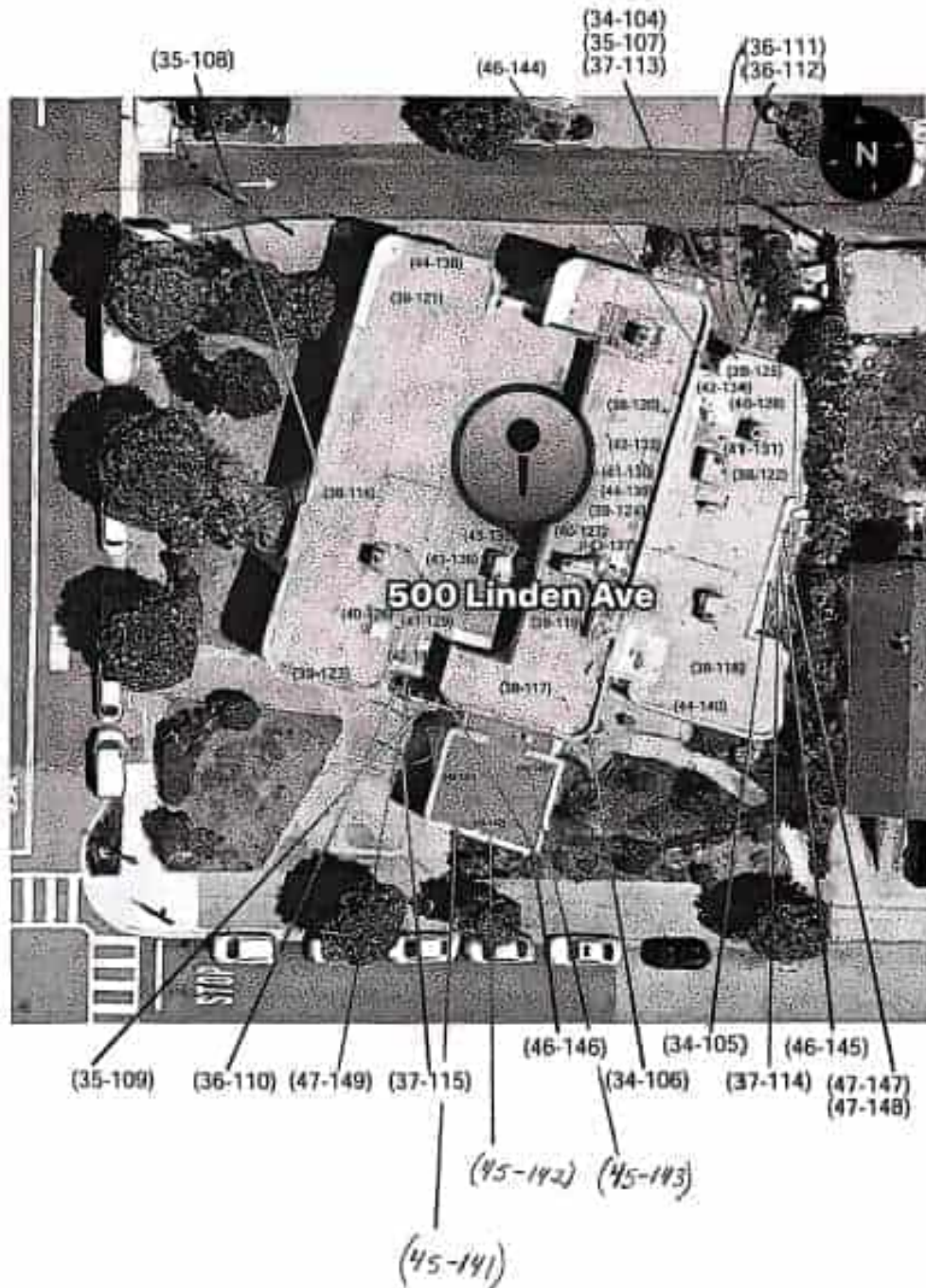
Not To Scale

APPENDIX C: SAMPLE LOCATION DIAGRAM

Project No. 25-551454.1

PARTNER

Partner Engineering
#25-551454 Liberty Bank (Rotary Gardens)
500 Linden Avenue, South San Francisco, CA 94080
Full Demolition Interior/Exterior Asbestos Survey Inspection
October 21, 2025



Not To Scale



APPENDIX C: SAMPLE LOCATION DIAGRAM

Project No. 25-551454.1

APPENDIX D: CERTIFICATIONS/LICENSES

DEPARTMENT OF INDUSTRIAL RELATIONS

Division of Occupational Safety and Health-Asbestos & Carcinogen Unit

1750 Howe Avenue, Suite 460

Sacramento, CA 95825

(916) 574-2993 Office

<http://www.dir.ca.gov/dosh/asbestos.html> actu@dir.ca.gov

903016472C

448

Shane Kristopher Woods
25361 Sage Street
Corona CA 92883

June 03, 2025

Dear Certified Asbestos Consultant or Technician:

Enclosed is your certification card. **To maintain your certification, you must abide by the rules printed on the back of the certification card.**

Your certification is valid for a period of one year. If you wish to renew your certification, you must apply for renewal at least 60 days before the expiration date shown on your card. [8 CCR 341.15(h)(1)].

Please hold and do not send copies of your required AHERA refresher renewal certificates to our office until you apply for renewal of your certification.

Certificates must be kept current if you are actively working as a CAC or CSST. The grace period is only for those who are not actively working as an asbestos consultant or site surveillance technician.

Please contact our office at the above address or email w any changes in your contact/mailling information within 15 days of the change.

Sincerely,

Dean Mochrie, CAC
Senior Safety Engineer

Attachment: Certification Card

cc: File

Renewal - Card Attached (08/24)



State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant
Shane Kristopher Woods

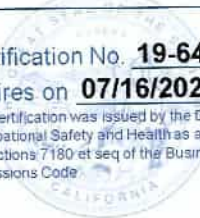
Name



Certification No. **19-6472**

Expires on **07/16/2026**

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq of the Business and Professions Code.



Certificate Of Completion

Asbestos Contractor/Supervisor Refresher Course

DOSH #:CA-015-04

Shane K. Woods

ASR0507250025N44253

Robert Cisneros

Principal Instructor

5/7/2025

Course Start Date

5/7/2025

Course End Date

5/7/2025

Exam Date

5/7/2026

Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California



NATEC International, Inc.

National Association of Training and Environmental Consulting



1100 Technology Circle, Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

CAL-OSHA: Ph# (916) 574-2993
(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax# (909) 396-3342

BAAQMD: Ph# (415) 749-4762

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National Association of Training and Environmental Consulting

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PO Box 8657, Fountain Valley, CA 92728
(714) 678-2750, (800) 969-3228, Fax (714) 678-2757
www.natecintl.com

NATEC International, Inc.

National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Shane K. Woods

Holds Training Certification For
Asbestos Contractor/Supervisor Refresher Course

Expiration: 5/7/2026

Training Date 5/7/2025
Certificate No. ASR0507250025N44253

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Project Designer Refresher Course

DOSH #:CA-015-10
Shane K. Woods

APDR0514250016N44420

Michael Roy

Principal Instructor

5/14/2025

Course Start Date

5/14/2025

Course End Date

5/14/2025

Exam Date

5/14/2026

Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California



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Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax# (909) 396-3342

BAAQMD: Ph# (415) 749-4762

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www.natecintl.com

NATEC International, Inc.

National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Shane K. Woods

Holds Training Certification For
Asbestos Project Designer Refresher Course

Expiration: 5/14/2026

Training Date 5/14/2025
Certificate No. APDR0514250016N44420

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Management Planner Refresher Course

DOSH #:CA-015-08
Shane K. Woods

AMPR0506250008N44370

Robert Cisneros

Principal Instructor

5/6/2025

Course Start Date

5/6/2025

Course End Date

5/6/2025

Exam Date

5/6/2026

Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California



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NATEC International, Inc.

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*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Shane K. Woods

Holds Training Certification For
Asbestos Management Planner Refresher Course

Expiration: 5/6/2026

Training Date 5/6/2025
Certificate No. AMPR0506250008N44370

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06
Shane K. Woods

ABIR0506250030N44318

Robert Cisneros

Principal Instructor

5/6/2025

Course Start Date

5/6/2025

Course End Date

5/6/2025

Exam Date

5/6/2026

Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California



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National Association of Training and Environmental Consulting



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This Card Acknowledges That
Shane K. Woods

Holds Training Certification For
Asbestos Building Inspector Refresher Course

Expiration: 5/6/2026

Training Date 5/6/2025
Certificate No. ABIR0506250030N44318

Michael W. Horner
Training Director

State of California
Division of Occupational Safety and Health
Certified Site Surveillance Technician
Rodrigo Amador, Jr

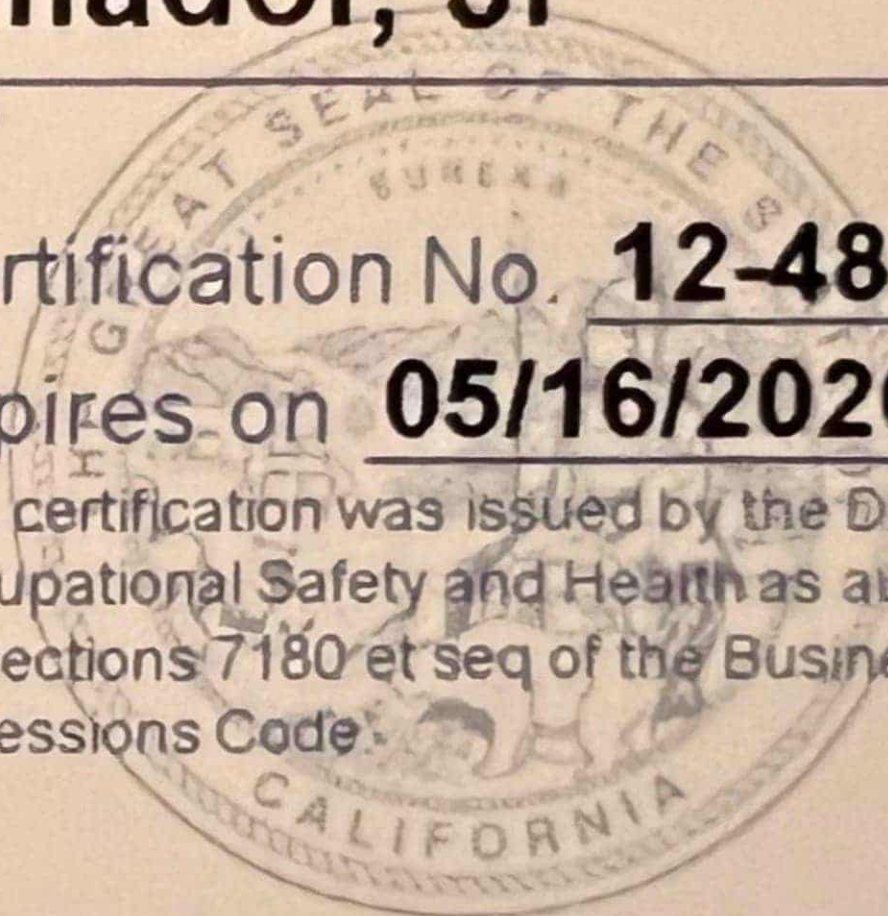


Name

Certification No. **12-4893**

Expires on **05/16/2026**

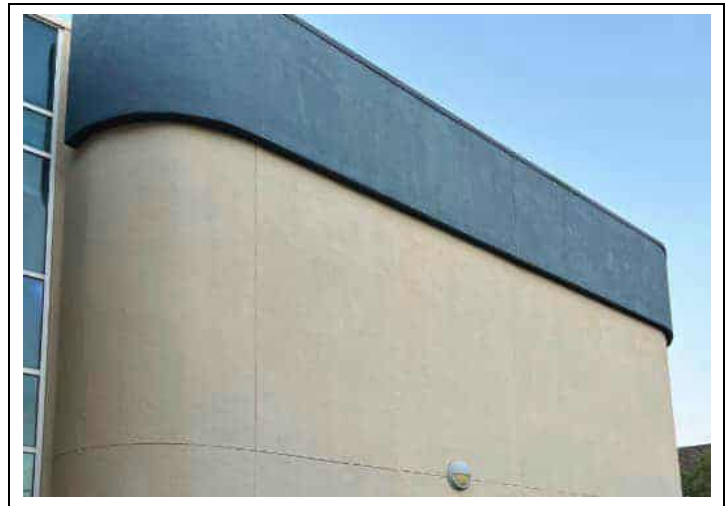
This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq of the Business and Professions Code.



APPENDIX E: PHOTOGRAPHIC DOCUMENTATION



1. View of Liberty Bank Building



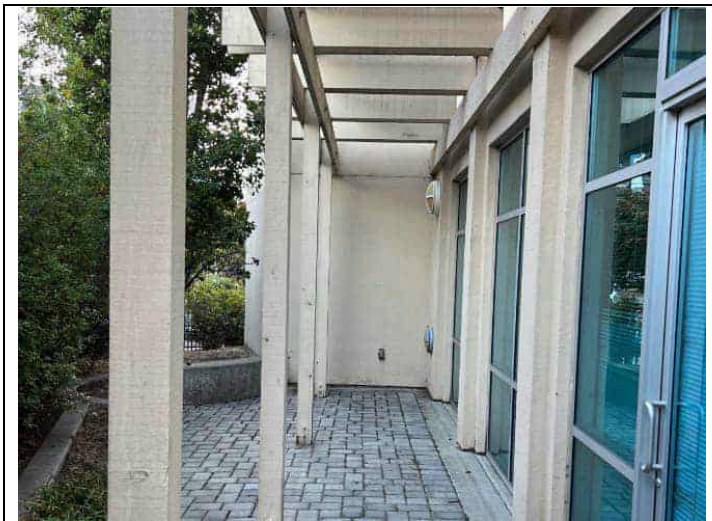
2. View of Stucco Exterior Walls



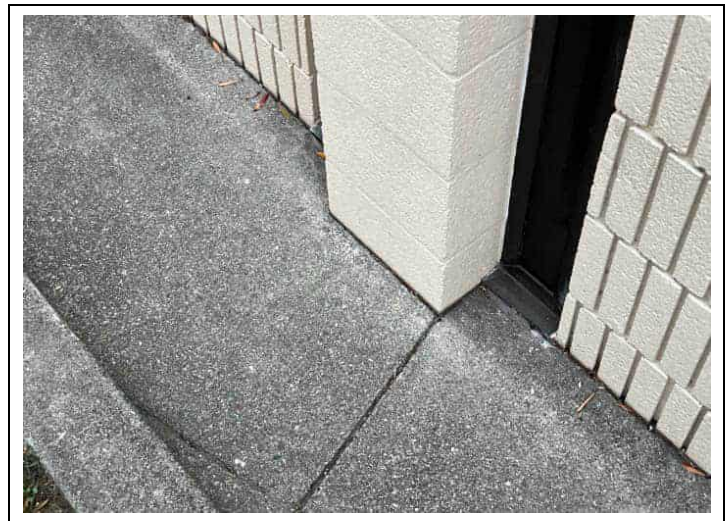
3. View of Masonry Brick Exterior Walls



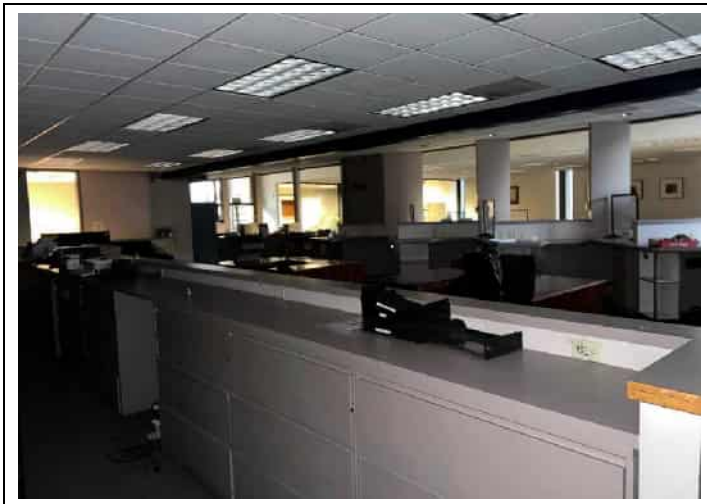
4. View of Typical Window, Exterior Concrete



5. View of Exterior with Window Walls



6. View of Concrete Seam Caulking, Brick and Mortar



7. View of 1st Floor of Bank, Laid In Ceiling Panels



8. View of Entry To Bank



9. View of Carpet Flooring



10. View of Tile, Grout, and Mortar Bed



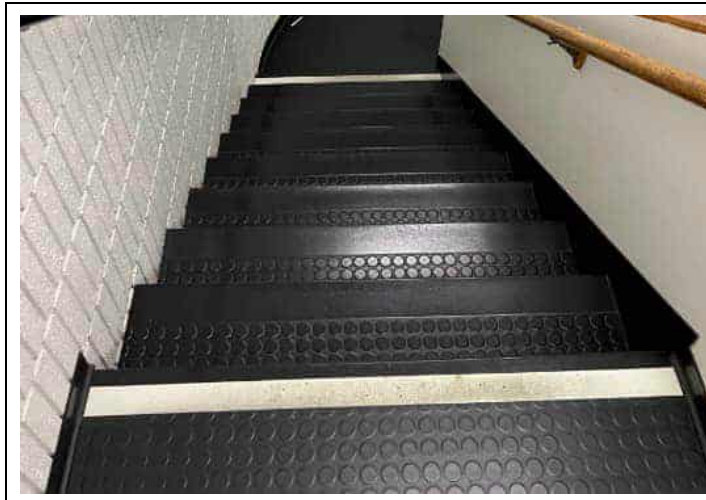
11. View of 2nd Floor Vinyl Floor Tiles and Cove Base



12. View of 2nd Floor Server Room, VCT Flooring



13. View of Carpet on Stairway



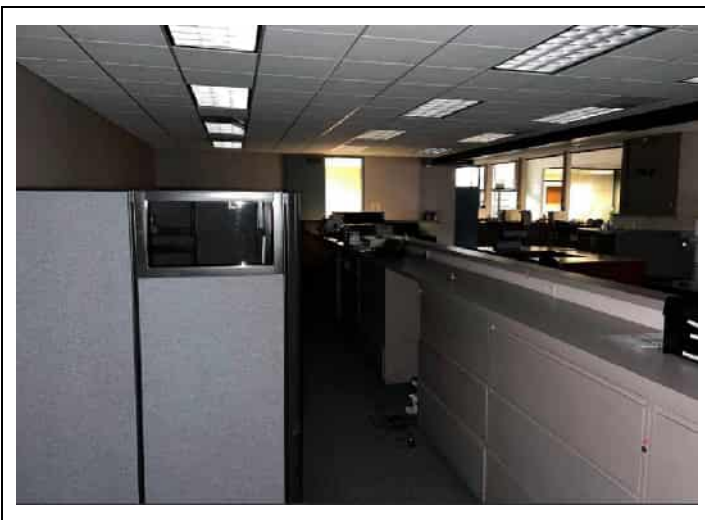
14. View of Stair Tread



15. View of Storage Area VCT and Cove Base



16. View of Teller Area



17. View of Teller Area



18. View of Office Area w/ Drywall, Cove Base & Carpet



19. View of Lower Roof Area



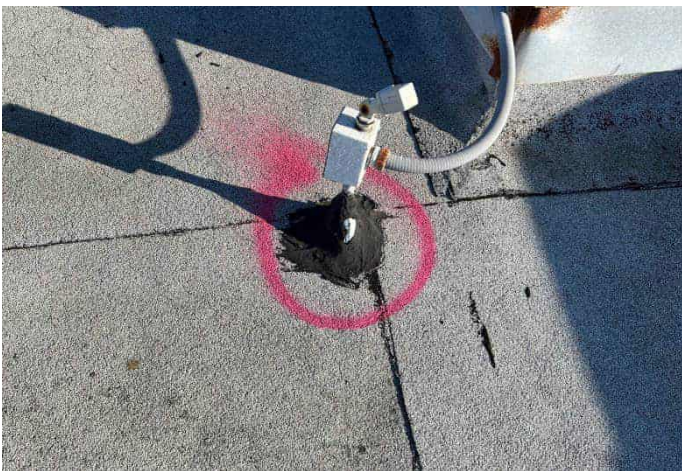
20. View of Main Roof Rolled Roofing



21. View of Parapet and Cap



22. View of Duct Seam Mastic and Tape



23. View of ACM Black/Gray Roof Penetration Mastic



24. View of ACM White/Gray Roof Penetration Mastic



RADON SURVEY REPORT INITIAL TESTING: SHORT TERM

Liberty Bank, aka Rotary Gardens

500 Linden Avenue
South San Francisco, California, 94080

Report Date

December 16, 2025

Partner Project No.

25-551454.1

Prepared for:

Beacon Development Group
Pleasanton, California, 94588



Building
Science



Environmental
Consulting



Construction &
Development



Energy &
Sustainability



December 16, 2025

Mr. Matthew Almonte:
Beacon Development Group
4900 Hopyard Road
Pleasanton, California, 94588

Subject: **Radon Survey – Initial Testing**
Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, California, 94080
Partner Project No. 25-551454.1

Dear Mr. Almonte:

Partner Engineering and Science, Inc. (Partner) is pleased to provide the Radon Survey Report of the abovementioned address (the "subject property").

This survey included a site reconnaissance, radon testing, and laboratory analysis. An assessment was conducted, conclusions were prepared, and recommendations were provided, as necessary.

We appreciate the opportunity to provide environmental services to Beacon Development Group. If you have any questions concerning this report, or if we can assist you in any other matter, please contact me at (310) 774-3165.

Sincerely,

Partner Engineering and Science, Inc.

Drew McCreery
Relationship Manager



EXECUTIVE SUMMARY

Partner is pleased to present this *Radon Survey Report* for the subject property at 500 Linden Avenue in South San Francisco, California. The survey was conducted in general conformance with the scope and limitations of the protocol and the limitations noted in this report. Exceptions to or deletions from this protocol are discussed below in this report.

The testing was conducted in general accordance with the American National Standards Institute and American Association of Radon Scientists and Technologists (ANSI/AARST) Protocol for Conducting Measurements of Radon and Radon Decay Products in Multifamily, School, Commercial and Multi-Use Buildings (MA-MFLB-2023), or successor ANSI/AARST standard and any applicable state requirements.

Although all measured radon concentrations were below EPA action level, testing was not conducted under normal occupied conditions. Thus, the following is recommended:

- **Re-Testing prior to occupancy** – retesting the subject building(s) prior to occupancy.

On-Site Observations (Unoccupied)

At the time of radon testing, the building on the subject property was unoccupied and not operating under normal occupied conditions. The property was observed to be vacant during the testing period, and the HVAC system appeared to be inactive.

Although testing was conducted in general accordance with applicable ANSI/AARST MA-MFLB-2023 protocols, radon concentrations measured under these conditions may not be representative of levels during normal occupancy. Partner was informed that the property is planned for redevelopment into a multi-family residential building. Given the anticipated changes to building use and mechanical systems, radon retesting is recommended following redevelopment and/or prior to occupancy, as outlined in Section 4 of ANSI/AARST, to ensure compliance with current radon measurement standards and public health guidance.

As noted by AARST, MA-MFLB-2023, Protocol for Conducting Measurements of Radon and Radon Decay Products in Multifamily, School, Commercial and Multi-Use Buildings, retesting the subject buildings is recommended to be conducted every five years due to indoor radon concentration changes over time. Of note, post-mitigation testing is recommended every two years in previously tested locations for mitigated areas to ensure that the system(s) remains effective (where applicable). In addition, retesting should be conducted when the following occur:

- A new addition is added,
- Significant changes to the slab or foundation occur such as major cracks or penetrations that occur due to natural settling, water proofing or groundwater control efforts,
- Significant construction blasting or earthquakes occur nearby,
- An installed mitigation system is altered, modified or repaired,



- A ground contact area that was not previously tested is occupied.

Also, AARST recommends that when tests indicate low concentrations, repeat testing should be considered by testing during different seasons and weather conditions to account for possible seasonal variations.

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The following report Appendices are attached at the end of this report.

APPENDICES

- Appendix A:** Laboratory Analytical Report
Appendix B: Sampling Location Map
Appendix C: Notifications
Appendix D: Quality Assurance & Quality Control Documentation
Appendix E: NRPP Radon Certification

1.0 INTRODUCTION

1.1 Property Description

TABLE 1.1 **PROPERTY DESCRIPTION**

Property Name:	Liberty Bank, aka Rotary Gardens
Address:	South San Francisco, California, 94080
County:	San Mateo County
Nature of Use:	Vacant/unoccupied (former usage: commercial bank)
Number of Buildings:	1
Number of Floors:	2
Total Number of Rooms:	14 Rooms
Number of Ground Contact Locations:	12 Non-Residential Locations (Offices, Vault Room, and Teller/Lobby) – 1sts floor 1 Non-Residential Location – 2 nd floor
Surveyed By:	Micaela Rodriguez, Qualified Radon Professional NRSB Certification Number: 24MT026
Testing Device Deployment Date/Time:	December 9, 2025 / 10:00am
Testing Device Retrieval Date/Time:	December 11, 2025 / 10:00am
Short Term Passive Device:	Air Chek Pro Chek
Laboratory:	Air Chek 1936 Butler Bridge Rd Mills River, NC 28759-3892 NRPP ID# : 101138-AL / 109039-RT
Testing Round:	Initial
Weather During Testing:	<u>Average Mean Temperature:</u> 55 degrees Fahrenheit (max) and 45 degrees Fahrenheit (min) <u>Wind:</u> 5 mph, average mean; 10 mph (max), 0 mph (min) / 0 mph (gust, max)

**The subject property was observed with gradient and/or building nomenclature which included locations identified as 2nd Floor which were in fact in contact with the ground. These locations were included in 100% testing of ground contact locations per the ANSI/AARST definition of ground contact. This could also include locations that have floors and/or walls in contact with the ground or which are over a crawlspace, utility tunnels or parking garages.*

1.2 Background

Radon is a colorless, odorless, radioactive gas from the decay of uranium, found in rock, soil, rivers, and oceans. While most radon stays underground, some reaches the surface and can accumulate in buildings, depending on soil uranium content and gas movement through soil. Radon enters buildings through cracks and porous materials due to pressure differences. Indoor radon levels vary by building and geology, and can be measured.

High radon levels increase lung cancer risk as radon decays into particles that damage lung tissue. The EPA states radon is the second leading cause of lung cancer and recommends action if levels exceed 4.0 pCi/L, or even between 2.0 and 4.0 pCi/L. Radon mainly comes from soil gas but can also enter through well water or building materials. Testing and mitigation can reduce risks, especially in homes with smokers.

More information about radon is available by contacting the State's Radon Department or federal guidance at <https://www.epa.gov/radon>.

1.3 Scope

Radon testing at the subject property was conducted by a nationally certified Radon Measurement Professional in general accordance with American National Standards Institute and American Association of Radon Scientists and Technologists (ANSI/AARST) Standard: Protocol for Conducting Measurements of Radon and Radon Decay Products in Multifamily, School, Commercial and Multi-Use Buildings (MA-MFLB-2023) or successor ANSI/AARST standards. Scope language is further discussed below.

1.3.1 State Requirements

1.3.1.1 State Requirements

Radon testing at the subject property was conducted by a nationally certified Radon Measurement Professional in accordance with the California Department of Public Health and California Health and Safety Code Section 106750-106795. Testing must comply with ANSI/AARST MA-MFLB 2023 or successor ANSI/AARST standards.

According to the protocol, initial testing locations included all ground-contact dwellings and non-residential rooms that are regularly occupiable, and 10% of dwellings and non-residential rooms on the upper floors as defined within the MA-MFLB-2023.

1.4 Closed Building Protocol

During radon testing events lasting less than four days, Partner provided the onsite person responsible for building operations the necessary information to sustain the required test conditions. The information included documentation/notification outlining the requirements for maintaining closed-building conditions 12-hours prior to the test and throughout the test period. Closed-building protocol requirements included keeping windows closed and exterior doors closed (except for momentary entry and exit) on all levels of the building including areas not being tested. Additionally, occupied operating conditions with normal temperatures between 65- and 80-degrees Fahrenheit.

On-Site Observations (Unoccupied)

At the time of radon testing, the building on the subject property was unoccupied and not operating under normal occupied conditions. The property was observed to be vacant during the testing period, and the HVAC system appeared to be inactive .

Although testing was conducted in general accordance with applicable ANSI/AARST MA-MFLB-2023 protocols, radon concentrations measured under these conditions may not be representative of levels during normal occupancy. Partner was informed that the property is planned for redevelopment into a multi-family residential building. Given the anticipated changes to building use and mechanical systems, radon retesting is recommended following redevelopment and/or prior to occupancy, as outlined in Section 4 of ANSI/AARST, to ensure compliance with current radon measurement standards and public health guidance.

1.5 Quality Assurance and Quality Control Measurements & Evaluation

Partner's Radon Quality Assurance Plan (QAP) is a quality management and improvement system which includes Quality Control (QC) checks, proper employee training, compliance of chain of custody procedures, data validation, and proper reporting. Partner's current Quality Assurance includes a Plan which is reviewed annually and updated as needed. Additionally, QC measurements are conducted in accordance with MA-MFLB-2023. Refer to Appendix D for Partner's Quality Assurance and Quality Control Documentation.

2.0 RADON SURVEY

2.1 Analytical Results

Short-term radon testing was conducted at the subject property. Sampling activities were initiated and completed by Ms. Micaela Rodriguez, of Partner (NRSB Certification Number: 24MT026) between December 9, 2025 and December 11, 2025.

A total of 17 charcoal radon devices (including QA devices) were deployed throughout the subject property. This included 100% of ground-contact dwellings and non-residential rooms that are regularly occupiable, and 10% of dwellings and non-residential rooms on the upper floors at the subject property. The devices were retrieved and forwarded to AirChek for radon analysis.

The analytical results did not indicate concentrations of radon at or above 4.0 pCi/L. The details of each location as well as the results are included in the laboratory analytical report within Appendix A.

2.2 Missing Data and Invalid Results

All devices were retrieved during this sampling event.

2.3 Additional Information

Radon Mitigation Systems

Partner did not observe any onsite mitigation systems while conducting radon testing at the subject property.

Severe Weather

Short Term tests lasting less than 4 days should not be conducted during unusually severe storms or periods of unusually high winds. Severe weather conditions would be defined as storms with high winds or extreme atmospheric pressure changes. Hurricanes, superstorms, nor 'easterners, blizzards, etc. High winds are defined as 30 MPH of sustained winds. Please note, this does not include gusts of wind.

The weather conditions were not considered severe and do not negate the test results outlined herein.

3.0 CONCLUSION

The testing was conducted in general accordance with American National Standards Institute and American Association of Radon Scientists and Technologists (ANSI/AARST) Protocol for Conducting Measurements of Radon and Radon Decay Products in Multifamily, School, Commercial and Multi-Use Buildings (MA-MFLB-2023) and any applicable state requirements. Scope is discussed in Section 1.3.

According to the analytical data, radon was not detected at or above the US EPA recommended action level of 4.0 pCi/L in any of the sampled locations during the sampling event.

All devices were retrieved during this sampling event.

On-Site Observations (Unoccupied)

At the time of radon testing, the building on the subject property was unoccupied and not operating under normal occupied conditions. The property was observed to be vacant during the testing period, and the HVAC system appeared to be inactive .

Although testing was conducted in general accordance with applicable ANSI/AARST MA-MFLB-2023 protocols, radon concentrations measured under these conditions may not be representative of levels during normal occupancy. Partner was informed that the property is planned for redevelopment into a multi-family residential building. Given the anticipated changes to building use and mechanical systems, radon retesting is recommended following redevelopment and/or prior to occupancy, as outlined in Section 4 of ANSI/AARST, to ensure compliance with current radon measurement standards and public health guidance.

4.0 RECOMMENDATIONS

Although all measured radon concentrations were below EPA action level, testing was not conducted under normal occupied conditions. Thus, the following is recommended:

- **Re-Testing prior to occupancy** – retesting the subject building(s) prior to occupancy.

On-Site Observations (Unoccupied)

At the time of radon testing, the building on the subject property was unoccupied and not operating under normal occupied conditions. The property was observed to be vacant during the testing period, and the HVAC system appeared to be inactive.

Although testing was conducted in general accordance with applicable ANSI/AARST MA-MFLB-2023 protocols, radon concentrations measured under these conditions may not be representative of levels during normal occupancy. Partner was informed that the property is planned for redevelopment into a multi-family residential building. Given the anticipated changes to building use and mechanical systems, radon retesting is recommended following redevelopment and/or prior to occupancy, as outlined in Section 4 of ANSI/AARST, to ensure compliance with current radon measurement standards and public health guidance.

As noted by AARST, MA-MFLB-2023, Protocol for Conducting Measurements of Radon and Radon Decay Products in Multifamily, School, Commercial and Multi-Use Buildings, retesting the subject buildings is recommended to be conducted every five years due to indoor radon concentration changes over time. Of note, post-mitigation testing is recommended every two years in previously tested locations for mitigated areas to ensure that the system(s) remains effective (where applicable). In addition, retesting should be conducted when the following occur:

- A new addition is added,
- Significant changes to the slab or foundation occur such as major cracks or penetrations that occur due to natural settling, water proofing or groundwater control efforts,
- Significant construction blasting or earthquakes occur nearby,
- An installed mitigation system is altered, modified or repaired,
- A ground contact area that was not previously tested is occupied.

Also, AARST recommends that when tests indicate low concentrations, repeat testing should be considered by testing during different seasons and weather conditions to account for possible seasonal variations.

5.0 LIMITATIONS

General limitations:

This report presents a summary of work completed by Partner. The completed work includes observations of site conditions encountered and the analytical results provided by an independent third-party laboratory of samples collected during the course of the project. It cannot be assumed that the limited available data are representative of subsurface conditions in areas not sampled.

Radon Overview:

Radon levels vary in concentration from region to region based upon soil composition, topography, and source. Radon from soil gas is the main cause of radon accumulation inside a structure. However, radon can enter a home through well water. In a small number of homes, the building materials can emit radon, too. Trace amounts of uranium can be present within the natural stones mined for concrete based products. As the uranium within the concrete decomposes, radon gas and radon decay products are released into living spaces to accumulate and may also then be further distributed via the HVAC system. While this phenomenon known as building emanation is rare and generally geographically found in southern Florida, the source of radon could be from the onsite building materials as opposed to the soil, which will contribute to the radon concentration when measured within these types of buildings. Of note, testing protocols within this scope of work were implemented to primarily address sources of radon that originate within the soil; therefore, should elevated levels be identified on upper floors further investigation may be warranted.

The EPA has established an Action Level of 4.0 picoCuries per liter (pCi/L) for radon in residential structures. The EPA recommends taking further action if radon test results are 4.0 pCi/L or greater. Because there is no known safe level of exposure to radon, the EPA also recommends that Americans consider fixing their homes with radon levels between 2.0 pCi/L and 4.0 pCi/L.

Property types addressed within the MA-MFLB-2023:

Radon testing at the subject property was conducted by a nationally certified Radon Measurement Professional in general accordance with MA-MFLB-2023.

MA-MFLB-2023 radon testing protocol addresses the following property types:

Multifamily and other residential occupancies

- Buildings having more than one attached dwelling or other occupied unit under the same ownership or designated maintenance or management authority;
- Buildings or structures, or a portion thereof that are used, for example, as apartment houses, dormitories, military congregate residences, fraternities and sororities, non-transient boarding housing, hotel, convents, monasteries, motels, and live/work units; and
- Multifamily structures that can include those with shared ownership or maintenance such as co-op units, townhouses, condominiums, or vacation timeshare properties.

Schools, commercial buildings and other non-residential occupancies

- Educational occupancies including for religious and educational purposes through the 12th grade and day care facilities;
- Business occupancies including for offices, training and educational facilities to include universities, professional services or service-type transactions;

- Assembly occupancies including for civil social or religious functions;
- Factory occupancies including for fabrication or manufacturing, repair or processing; High-hazard occupancies;
- Instructional occupancies including those where people are cared for or live in a supervised environment such as under restraint or security, detained in a penal institution, or for medical, surgical, psychiatric, nursing and custodial care or for childcare facility purposes; and
- Mercantile occupancies, including for the display and sale of merchandise, goods, wares or merchandise incidental to such purposes and accessible to the public.

Close building conditions:

Occupants were notified at least 24 hours before testing and to maintain closed-building conditions 12 hours pre-test and throughout. Non-compliance or tampering invalidated results, and possibly recommended retesting. Client has agreed to conditions by signing proposal. Some states require non-interference agreements from occupants, but direct correspondence was unfeasible. Client acknowledges test interference will be documented and invalidates results.

Partner met minimum requirements per MA-MFLB-2023. Radon professional isn't responsible for inspecting closed conditions pre-test or between device placement and retrieval. Non-compliant units' results are invalid. Widespread non-compliance may necessitate retesting. If closed conditions pose health risks, reschedule testing, possibly during heating season.

Heating/Cooling Variation:

The radon testing protocol, ASNI/AARST guidelines, is primarily designed for buildings with ducted, constant-volume, forced-air systems with a centralized return. Other types of heating and air-conditioning systems can cause significant room-to-room variations in the radon concentrations and an adjustment to the strategy and the number of rooms tested may vary (ANSI/AARST MA-MFLB-2023).

Normal operating conditions for HVAC systems includes the thermostat turned to on/auto for the duration of the testing period within the unit/building must be maintained within the normal temperature range of 65- and 80-degrees Fahrenheit. HVAC systems can cause pressure differentials within a unit/building when the system is on and running. HVAC systems create areas of negative pressure which can pull air from outside of a unit/area into the building/space as well as areas of positive pressure which can push air out of the unit/area. These pressure differentials can have an effect on the radon concentrations within a unit/building. Systems that temporarily ventilate with outdoor air for temperate seasonal weather conditions or energy savings need to be set at the lowest seasonal ventilation to be considered operating normally. If these conditions are not met retesting is recommended for most accurate results.

Temporary Conditions:

Temporary Conditions such as the building was not operated under occupied operating conditions because it was vacant during the testing period can cause the test to not reflect occupant risk from radon, and retesting of affected locations is recommended.

Data Gaps & Allowances:

For dwellings or non-residential locations where access problems, test conditions, or other reasons or situations prevented achieving a valid test result, follow-up procedures should include all identified

locations that were intended to be tested but did not result in a valid measurement. However, Partner evaluated the number of valid test results and locations to ensure each building was adequately characterized for radon. Any missed locations not included in the recommendations section should be tested during routine EPA recommended testing events, every 5 years or the next time testing is performed at the subject property.

The ANSI/AARST standards aim to standardize recommendations, but some states have yet to adopt the most current version of the standards, which may cause minor variations in missing data but should not significantly affect recommendations.

Radon & Emanation:

Radon levels vary in concentration from region to region based upon soil composition, topography, and source. Trace amounts of uranium are present within the stone Florida's mine for their concrete based products. As the uranium within the concrete decomposes, radon gas and radon decay products are released into living spaces and distributed further via the HVAC system forced air units. Testing protocols within this scope of work were implemented to primarily address sources of radon that originate within the soil; therefore, should elevated levels be identified on upper floors further investigation may be warranted.

Seasonal Variation:

There is an uncertainty with any measurement result due to statistical variations and other factors such as daily and seasonal variations in radon concentrations. Variations may be due to changes in the weather, operation of the dwelling, or possible interference with the necessary test conditions. All conclusions and/or recommendations are based on the observations, laboratory analysis, and the governing regulations. Conclusions and/or recommendations beyond those stated and reported herein should not be inferred from this document.

General Consulting Limitations:

Partner represents that the environmental consulting services contained herein were accomplished in accordance with generally accepted practices in the environmental engineering, geology, and industrial hygiene fields as well as the Citizens Guide to Radon that existed at the time and location of work. No other warranties are implied or expressed.

Follow-up Testing Timeframe & Limitation:

When conducting confirmation testing or follow-up testing, the testing should be conducted under buildings conditions that are representative of the predominant normal occupied building operating condition. Testing shall be initiated within one year subsequent to initial testing, and the evaluations shall be permitted based on data from short-term or long-term test devices or data from evaluations of occupied versus unoccupied radon concentrations.

Long Term testing options are permitted to determine mitigation decisions. When longer test periods are chosen with intent to more closely evaluate the annual average radon concentrations.

According to ANSI/AARST MA-MFLB 2023, when long-term testing is selected to more accurately evaluate the annual average radon concentration before determining the necessity for mitigation, the testing period must encompass heating season conditions. This period should represent no less than the percentage of

the year during which heating systems are actively utilized. However, when not feasible the client is aware that regardless of test duration, any correlation between test results and the annual average radon concentration depends upon building conditions during the test.

All reports, both verbal and written are for the sole use and benefit of Beacon Development Group. This report has no other purpose and may not be relied upon any other person or entity without the written consent of Partner.

6.0 SIGNATURES OF PROFESSIONALS

Partner has provided a *Radon Survey Report* for the property at 500 Linden Avenue, South San Francisco, California, in general conformance with the scope and limitations of the protocol and the limitations stated earlier in this report. Exceptions to or deletions from this protocol are discussed earlier in this report.

Prepared By



Micaela Rodriguez
Qualified Radon Professional
NRSB Certification Number 24MT026

Reviewed By



Phoenix Dorr
Reviewer
NRPP Certification Number 114812-RMP



Melissa Marte
Senior Project Manager
NRPP Certification Number 110751-RMP

7.0 DEFINITIONS

Action Level – A threshold for when mitigation is warranted and recommended to reduce exposure to radon gas.

Active soil depressurization (ASD) - A group of radon mitigation systems involving mechanically driven soil depressurization, including sub-slab depressurization (SSD), sub-membrane depressurization (SMD), block wall depressurization (BWD) and crawl space depressurization (CSD). Also referred to a Radon Mitigation System (RMS) throughout this document.

Blank Measurements - Blanks are detectors deployed to verify and document the absence of effects on the measurement resulting from sources other than the air being tested. Since blanks are not exposed (i.e., not left open to permit radon to enter the detector), their measurement value should be below the minimum detectable concentration of the measurement system.

Building Emanation - Radon levels vary in concentration from region to region based upon soil composition, topography, and source. Trace amounts of uranium can be present within the natural stones mined for concrete based products. As the uranium within the concrete decomposes, radon gas and radon decay products are released into living spaces to accumulate and may also then be further distributed via the HVAC system. While this phenomenon known as building emanation is rare and generally geographically found in southern Florida, the source of radon could be from the onsite building materials as opposed to the soil, which will contribute to the radon concentration when measured within these types of buildings.

Clearance Testing - A test procedure for obtaining evidence that radon concentrations in all dwellings and occupied areas of a building are below the predefined action level. Also, A test procedure to characterize the degree of general effectiveness for mitigation efforts within a specific area of a building.

Closed Building Conditions - the requirements for maintaining closed-building conditions 12-hours prior to the test and throughout the test period. Closed-building protocol requirements included keeping windows closed and exterior doors closed (except for momentary entry and exit) on all levels of the building including areas not being tested. Additionally, occupied operating conditions with normal temperatures between 65- and 80-degrees Fahrenheit.

Collateral mitigation - The ability to mitigate more than one occupied dwelling or unit with a single mitigation system.

Curie (Ci) - A standard measurement for radioactivity, specifically the rate of decay for a gram of radium – 37 billion decays per second. A unit of radioactivity equal to 3.7×10^{10} disintegrations per second.

Depressurization - A negative pressure induced in one area relative to another.

Duplicate Measurements - Collocated, simultaneous measurements conducted with instruments or devices that are identical (including manufacturer, model, and, for continuous monitors, the same most recent calibration facility and schedule) for the purpose of assessing and monitoring the measurement system imprecision.

Follow-up Test Procedures - Procedures for radon measurement events such as confirmation testing to verify initial test results, post-mitigation testing, and other measurements conducted to better evaluate radon hazards.

In Control - A measurement system operating in such a way as to produce repeatable and stable quality control results, including duplicates, spikes, and blanks for passive methods, as well as other method-specific checks. Warning Levels are set at that deviation from ideal performance that would be expected to occur by chance only 5% of the time, and Control Limits are set at that deviation from ideal performance that would be expected to occur by chance only 1% of the time. This standard provides default warning levels based on industry practice that in control operations exhibit a 14% RPD for concentrations greater than or equal to 4 pCi/L, and a 25% RPD for concentrations between 2 and 4 pCi/L.

Long-Term Test Device - A radon measurement device or detector that is capable of producing a time weighted average for radon concentrations for test periods that may extend for weeks, months or a year.

Lower Limit of Detection (LLD) - the smallest net count rate at which there is 95% confidence that a signal above background is detected. For charcoal devices, the net count rate may be divided by factors that take into account such parameters as the adsorbed moisture, the duration of the exposure, the system counting calibration factor, and radioactive decay.

Multifamily Building - Buildings having more than one attached dwelling or other occupied unit under the same ownership or designated maintenance or management authority.

Normal Occupiable Indoor Temperatures - Indoor temperatures between 65° and 80° F (18° - 27° C)

Occupied - Any location within the building that is occupied on a regular basis for more than 4 hours a day.

Operation, Maintenance and Monitoring Plan (OM&M Plan) - A document that includes information on the operation and maintenance of installed, as well as guidance for monitoring the effectiveness of the radon mitigation system in the future.

Pico Curie per liter (pCi/L) - A unit of concentration of radioactivity corresponding to 0.037 decays per second or 2.22 decays per minute in a liter of air or water. 1 pCi/L = 37 becquerels per cubic meter (Bq/m³).

Pressure Field Extension (PFE) - The distance that a pressure change, created by drawing soil-gas through a suction point, extends outward in a sub-slab gas permeable layer, under a membrane, behind a solid wall or in a hollow wall.

Quality Assurance (QA) - A complete program designed to produce results that are valid; scientifically defensible; and of known precision, bias, and accuracy, including planning, documentation, and quality control activities.

Quality Control (QC) - The system of activities to ensure a quality product, including measurements made to ensure and monitor data quality. For radon measurement devices includes calibrations and background, duplicate, blank and spiked measurements; inter-laboratory comparisons; audits; and other control activities. For mitigation professionals, actions to retain evidence of actual operational and installation quality that is compared to intended goals for quality with corrective actions as needed on a jobsite or for improvements to operational procedures.

Qualified Radon Professional - An individual with all applicable state credentialing licenses and/or certifications that has demonstrated a minimum degree of appropriate technical knowledge and skills specific to radon measurement procedures in homes with additional knowledge needed when testing multifamily buildings and schools or other large buildings.

Radon - Radon is a colorless, odorless, naturally occurring, radioactive, inert, gaseous element formed by radioactive decay of radium (Ra) atoms. Radon is measured in picocuries per liter of air (pCi/L). Radon is found in nearly all soils and moves up through the ground to the air above. Radon can enter a house through cracks and other holes in the foundation. Once inside, radon can become trapped within the building and can build up. Although soil is the most common medium for radon to travel, radon can also enter buildings through well water and even some building materials.

Radon Mitigation System (RMS) - A system designed to reduce radon concentrations in the indoor air of a building.

Radon Test Detector - The element of a radon measurement device or system that detects radon. The detector may be a separate component from the analysis equipment such as for many passive radon measurement systems or may be housed within a device that functions as a combined detector and analysis instrument.

Radon Test Device - A radon measurement system regardless of if configured as a combined detector and analysis instrument or as a system where detectors and analysis equipment are separate components.

Relative Percent Error (RPE) - A statistic used to evaluate the difference between a measurement and the conventionally true value, which may be a more recently calibrated CRM or a chamber concentration. The RPE is the degree from which a single measured value (X) deviates from the conventionally true value (T). The RPE is calculated using the following equation and compared against QC limits. Although the equation uses the absolute value of the difference, it is important to note that if one measurement is consistently greater or less than the other, there may be a calibration difference between the two measurement systems that should be identified.

Relative Percent Difference (RPD) - A statistic used to evaluate the difference between two measurements when neither one can be assumed to be more accurate than the other. The RPD compares the difference between two measurements divided by their mean, which in this case is the best estimate of the true concentration. Note that a 14% RPD corresponds to a 10% COV for two measurements. RPD is always positive, as there is no reason to assume that one measurement is more accurate than the other, and RPD is used as an estimate of imprecision.

Severe Weather Conditions - storms with high winds or extreme atmospheric pressure changes. Hurricanes, superstorms, nor'easters, blizzards, etc. High winds are defined as 30 MPH of sustained winds. Please note, this does not include gusts of wind.

Short-Term Test Device - A radon measurement device or detector that is capable of producing a time weighted average for radon concentrations for periods that may extend for multiple days or weeks.

Spiked Measurements - Spikes are detectors that have been exposed in an approved chamber to a known concentration of radon (i.e. "spiked" with radon). Spikes help evaluate the accuracy of a laboratory analysis and/or how accurately detectors supplied by a laboratory measure radon.

Side by Side Testing - Time-Sensitive Situations where mitigation decisions are needed relatively quickly, such as within several days or weeks. Time sensitive measurement strategies entail a single phase of testing with enhanced quality control measures.

Standard – In this report, the term “standard” refers to the American National Standards Institute and American Association of Radon Scientists and Technologists (ANSI/AARST) Protocol for Conducting Measurements of Radon and Radon Decay Products in Multifamily, School, Commercial, and Multi-Use Buildings (MA-MFLB-2023).

Working Level Month (WLM) - A unit of concentration radioactivity corresponding to 1 working level (WL) for 170 hours per month. Although this unit of measurement came from assuming 40-hour work week exposures, it is commonly used to set limits for annual exposure to radon decay product alpha energy.

APPENDIX A: LABORATORY ANALYTICAL REPORT

P8068 / DAVE CONNOR / PARTNER ENGINEERING AND SCIENCE

Kit Number	Start Date	Start Time	End Date	End Time	Temp.	Facility	Building	Room	Project ID	Floor	Result
12227304	2025-12-09	10:00 am	2025-12-11	11:00 am	60		LIBERTY BANK	EXECUTIVE OFFICE 1	25-551454.1	1	1.2
12227305	2025-12-09	10:00 am	2025-12-11	11:00 am	60		LIBERTY BANK	EXECUTIVE OFFICE 1	25-551454.1	1	1.2
12227306	2025-12-09	10:00 am	2025-12-11	11:00 am	60		LIBERTY BANK	EXECUTIVE OFFICE 2	25-551454.1	1	1.2
12227307	2025-12-09	10:00 am	2025-12-11	10:00 am	60		LIBERTY BANK	EXECUTIVE OFFICE 3	25-551454.1	1	1.5
12227308	2025-12-09	10:00 am	2025-12-11	10:00 am	60		LIBERTY BANK	TELLER/LOBBY AREA	25-551454.1	1	1.4
12227309	2025-12-09	10:00 am	2025-12-11	10:00 am	60		LIBERTY BANK	VAULT ROOM	25-551454.1	1	1.5
12227310	2025-12-09	11:00 am	2025-12-11	11:00 am	60		LIBERTY BANK	OFFICE (WEST SIDE IN THE SOUTHEAST	25-551454.1	2	1.1
12227311	2025-12-09	11:00 am	2025-12-11	11:00 am	60		LIBERTY BANK	EXECUTIVE OFFICE	25-551454.1	2	1.1
12227312	2025-12-09	11:00 am	2025-12-11	11:00 am	60		LIBERTY BANK	EXECUTIVE OFFICE	25-551454.1	2	< 0.3
12227314	2025-12-09	10:00 am	2025-12-11	10:00 am	60		LIBERTY BANK	EAST OFFICE 1	25-551454.1	1	1.6
12227315	2025-12-09	10:00 am	2025-12-11	10:00 am	60		LIBERTY BANK	EAST OFFICE 2	25-551454.1	1	1.7
12227316	2025-12-09	10:00 am	2025-12-11	10:00 am	60		LIBERTY BANK	MAIN EAST OFFICE	25-551454.1	1	1.3
12227317	2025-12-09	10:00 am	2025-12-11	10:00 am	60		LIBERTY BANK	MAIN EAST OFFICE	25-551454.1	1	1.3
12227318	2025-12-09	10:00 am	2025-12-11	10:00 am	60		LIBERTY BANK	EAST OFFICE 3	25-551454.1	1	1.1
12227319	2025-12-09	10:00 am	2025-12-11	10:00 am	60		LIBERTY BANK	EAST OFFICE 4	25-551454.1	1	1.2
12227320	2025-12-09	10:00 am	2025-12-11	10:00 am	60		LIBERTY BANK	EAST OFFICE 5	25-551454.1	1	1.2
12227321	2025-12-09	10:00 am	2025-12-11	10:00 am	60		LIBERTY BANK	CONFERENCE ROOM	25-551454.1	1	1.3

APPENDIX B: SAMPLE LOCATION MAP



100% Ground Contact Testing
No Elevations Identified

KEY:
Rooms Tested / 



Upper Floor Testing (2nd Floor)
No Elevations Identified

KEY:
Upper Floor 



APPENDIX C: NOTIFICATION(S)

ADVISORY OF SHORT TERM RADON TESTING



Dear Occupant:

Partner has been contracted to perform short-term radon testing at this property. Your unit has been selected for this testing, which involves a small, non-invasive air quality device. These devices are harmless, odorless, and safe for pets and humans.

Please ensure pets are secured and we have unit access.

GENERAL INFORMATION ON RADON

- Radon is a naturally occurring radioactive gas from the decay of uranium in soil and water.
- It is invisible, odorless, tasteless—detectable only through testing.
- Radon enters buildings through small cracks and openings in the foundation.

ADDITIONAL INFORMATION ONLINE

EPA Website

www.epa.gov



DURING THE TEST PERIOD

- Our Environmental and/or radon professional will deploy and collect the device.
- The radon test is for approximately 48-96 hours.
- Devices will be placed in regularly occupied rooms (e.g., living room or bedroom)
- **Please do not disturb devices.**
- Closed-building conditions are required 12 hours prior and during the test:
 - Keep all exterior windows and doors closed, except for brief entry/exit.
 - Maintain HVAC systems at normal settings (65–80°F).
 - AC window units may run on recirculation.
 - Avoid operating fireplaces, whole-house fans, or heavy exhaust appliances.
 - Normal use of kitchen/bathroom fan is acceptable.

TESTING PERIOD

	Date	Time
Test Begins:	Tuesday, December 9, 2025	10 am - 5 pm



Test Ends:	Thursday, December 11, 2025	10 am - 5 pm
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Please Contact Your Property Manager with Questions or Concerns

Thank you for your cooperation.

Partner Engineering and Science, Inc.

APPENDIX D:
QUALITY ASSURANCE DOCUMENTATION



APPENDIX D1: QUALITY ASSURANCE & QUALITY CONTROL

Quality Assurance and Quality Control Measurements

Partner's Radon Quality Assurance Plan (QAP) is a quality management and improvement system which includes Quality Control (QC) checks, proper employee training, compliance of chain of custody procedures, data validation, and proper reporting. Partner's current Quality Assurance includes a Plan which is reviewed annually and updated as needed.

Additionally, QC measurements are conducted in accordance with MA-MFLB-2023 and include the following:

- *Duplicate* (collocated) measurements are deployed at a rate of no less than ten percent (10%) of the measurement locations.
 - Duplicates shall be distributed as widely as possible across all buildings being tested during the same testing event.
 - The results may not be two or more times greater than the initial (collocated) sample.
- *Blank* measurements, which are not exposed to indoor air, are deployed at a rate of no less than five percent (5%) of the measurement locations.
 - The results may not be above the calculated lower limit of detection (LLD).
 - At a minimum of 50 test devices deployed, the number of blanks is increased to nine to include three lab-transit blanks, three office blanks and three field blanks. If more than 180 test devices are deployed, the blanks were deployed at a standard rate of 5% blanks of the measurement locations.
- *Spike* measurements are required to provide evidence of continued accurate measurement system operations by comparing reported spike analysis results to recognize reference authority for radon concentrations.
 - The number of spiked measurements conducted and analyzed for each detector configuration associated with the testing project(s) shall be not less than 3% of locations and not less than 3% from each lot or batch. Spiked measurement results from detectors and from each lot or batch associated with the testing project that are also associated with other quality control activities shall be acceptable to include for meeting test project reporting requirements.

Evaluation of QC measurements associated with this project is further discussed below.



2.0 QUALITY CONTROL EVALUATION

2.1 Duplicate Measurements

Duplicate measurements were conducted as a means to track precision or agreement of the detectors across time and are set a rate of no less than 10% of total measurements.

TABLE 2.1 DUPLICATE QUALITY CONTROL (< 2.0 pCi/L)

	Test Device ID	Testing Location: Bldg Unit Floor			Radon Concentration pCi/L	Average Radon Concentration pCi/L	Relative Percent Difference	Comments
1	12227304	Liberty Bank	Executive Office 1	1	1.2	1.2	0%	No Control Limits
2	12227305	Liberty Bank	Executive Office 1	1	1.2			
1	12227316	Liberty Bank	Main East Office	1	1.3	1.3	0%	No Control Limits
2	12227317	Liberty Bank	Main East Office	1	1.3			

No Control Limits

Based on the relative percent difference all measurements are considered within the control limits and in compliance with our current Quality Assurance Plan.

2.2 Blank Measurements

Blank measurements were collected as a means to verify and document whether bias was introduced into sampling results due to sample media contamination. These test measurements are set a rate of no less than 5% of total measurements or increased to 9 devices every 50-180 locations. Since blanks are not exposed the measurement values should be below the lower limit of detection.



TABLE 2.2 BLANK QUALITY CONTROL

Blank #	Test Device ID	Radon Concentration pCi/L	Laboratory Limit of Detection (LLD)	Lower Detection	Comments
1	12227312	<0.3	<0.3		In Compliance

LLD = Aircheck = <0.3pCi/L

As reported, the laboratory results were at the lower level of detection, indicating that no biases were introduced in the handling, shipping, or storage of these devices.

2.3 Spike Measurements

Spike measurement help validate the accuracy of a laboratory analysis and/or detectors supplied by a laboratory.

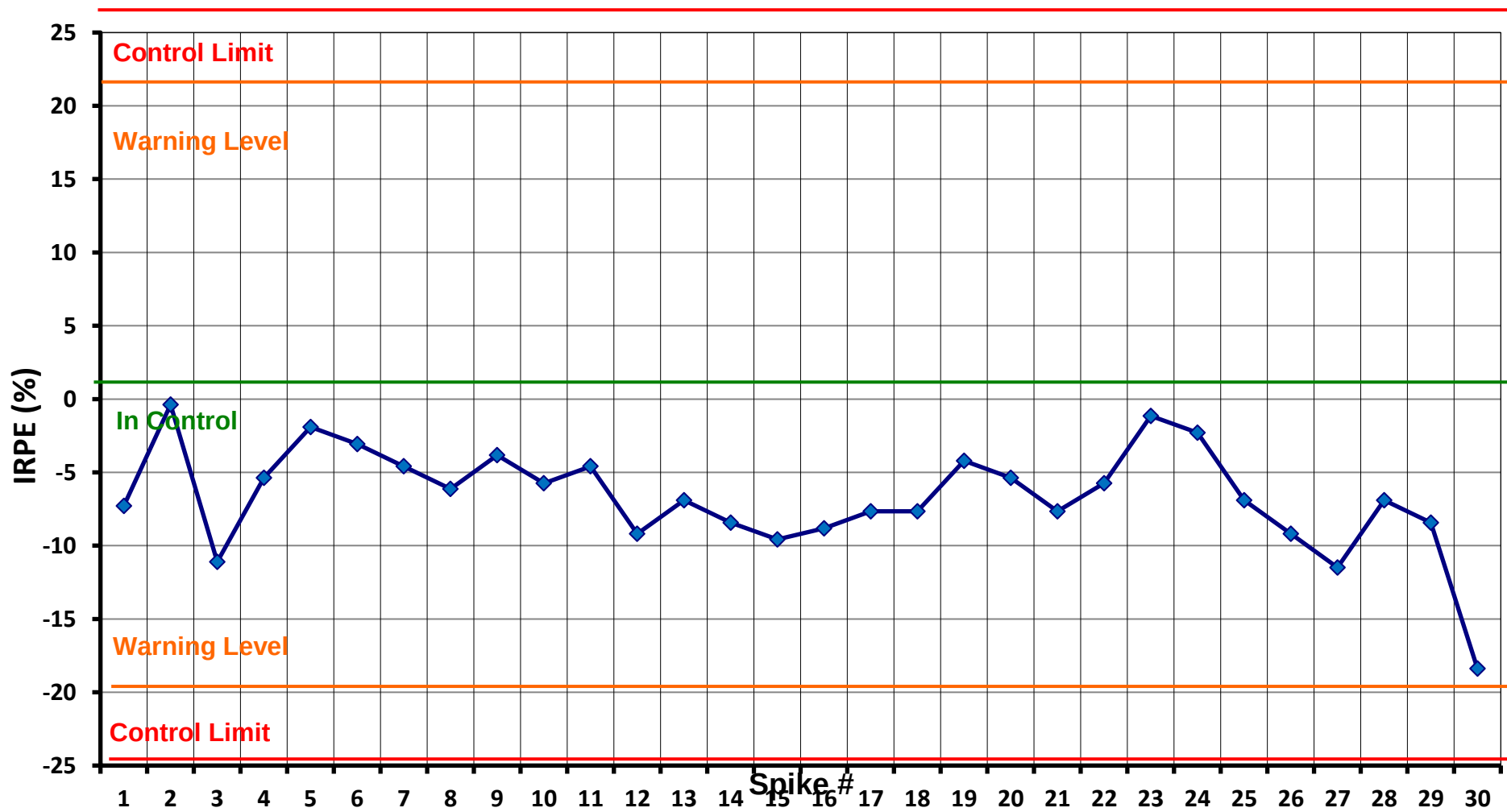
Spike devices were sent to an approved laboratory with a spike chamber for exposure to a known radon concentration. After exposure, the device was submitted as a blind measurement.

Results of spikes are assessed using a relative percent error (RPE), which is the degree from which each single measured value deviates from the chambers average concentration during the exposure period. Spike measurements exhibiting a relative percent error (RPE) or individual percent error (IPE) outside the range of 0 +/- 25% has exceeded the warning limit and any single spike result outside the range of +/- 25% has exceeded the control limit.

All Spike Measurements are within RPE and therefore, considered within normal limits.

Spike Measurement data is attached as Appendix D2.

Control Chart for Spikes



AARST QA PLAN Document, Copyright AARST May 2013, All Rights Reserved

AARST-NRPP Quality Control Data

Over Control Limit =	Over -25% or 25%
Control Limit =	25%
Warning Level =	20%
In-Control Range =	-20 to +20%
Warning Level =	-20%
Control Limit =	-25%

Individual Relative Percent Error (IRPE) = $[(\text{Reported Value} - \text{Target Value}) / \text{Target Value}] \times 100\%$

<u>Date</u>	<u>Batch Total Serial Numbers</u>	<u>Device ID</u>	<u>Spike #</u>	<u>Reported Value (pCi/L)</u>	<u>Target Value (pCi/L)</u>	<u>IRPE (%)</u>
10/24/2025 - 10/27/2025	12226401-12227400	12226401	1	24.2	26.1	-7.3
10/24/2025 - 10/27/2025	12226401-12227400	12226402	2	26.0	26.1	-0.4
10/24/2025 - 10/27/2025	12226401-12227400	12226403	3	23.2	26.1	-11.1
10/24/2025 - 10/27/2025	12226401-12227400	12226501	4	24.7	26.1	-5.4
10/24/2025 - 10/27/2025	12226401-12227400	12226502	5	25.6	26.1	-1.9
10/24/2025 - 10/27/2025	12226401-12227400	12226503	6	25.3	26.1	-3.1
10/24/2025 - 10/27/2025	12226401-12227400	12226601	7	24.9	26.1	-4.6
10/24/2025 - 10/27/2025	12226401-12227400	12226602	8	24.5	26.1	-6.1
10/24/2025 - 10/27/2025	12226401-12227400	12226603	9	25.1	26.1	-3.8
10/24/2025 - 10/27/2025	12226401-12227400	12226701	10	24.6	26.1	-5.7
10/24/2025 - 10/27/2025	12226401-12227400	12226702	11	24.9	26.1	-4.6
10/24/2025 - 10/27/2025	12226401-12227400	12226703	12	23.7	26.1	-9.2
10/24/2025 - 10/27/2025	12226401-12227400	12226801	13	24.3	26.1	-6.9
10/24/2025 - 10/27/2025	12226401-12227400	12226802	14	23.9	26.1	-8.4
10/24/2025 - 10/27/2025	12226401-12227400	12226803	15	23.6	26.1	-9.6
10/24/2025 - 10/27/2025	12226401-12227400	12226901	16	23.8	26.1	-8.8
10/24/2025 - 10/27/2025	12226401-12227400	12226902	17	24.1	26.1	-7.7
10/24/2025 - 10/27/2025	12226401-12227400	12226903	18	24.1	26.1	-7.7

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AARST-NRPP Quality Control Data

Over Control Limit =	Over -25% or 25%
Control Limit =	25%
Warning Level =	20%
In-Control Range =	-20 to +20%
Warning Level =	-20%
Control Limit =	-25%

Individual Relative Percent Error (IRPE) = $[(\text{Reported Value} - \text{Target Value}) / \text{Target Value}] \times 100\%$

<u>Date</u>	<u>Batch Total Serial Numbers</u>	<u>Device ID</u>	<u>Spike #</u>	<u>Reported Value (pCi/L)</u>	<u>Target Value (pCi/L)</u>	<u>IRPE (%)</u>
10/24/2025 - 10/27/2025	12226401-12227400	12227001	19	25.0	26.1	-4.2
10/24/2025 - 10/27/2025	12226401-12227400	12227002	20	24.7	26.1	-5.4
10/24/2025 - 10/27/2025	12226401-12227400	12227003	21	24.1	26.1	-7.7
10/24/2025 - 10/27/2025	12226401-12227400	12227101	22	24.6	26.1	-5.7
10/24/2025 - 10/27/2025	12226401-12227400	12227102	23	25.8	26.1	-1.1
10/24/2025 - 10/27/2025	12226401-12227400	12227103	24	25.5	26.1	-2.3
10/24/2025 - 10/27/2025	12226401-12227400	12227201	25	24.3	26.1	-6.9
10/24/2025 - 10/27/2025	12226401-12227400	12227202	26	23.7	26.1	-9.2
10/24/2025 - 10/27/2025	12226401-12227400	12227203	27	23.1	26.1	-11.5
10/24/2025 - 10/27/2025	12226401-12227400	12227301	28	24.3	26.1	-6.9
10/24/2025 - 10/27/2025	12226401-12227400	12227302	29	23.9	26.1	-8.4
10/24/2025 - 10/27/2025	12226401-12227400	12227303	30	21.3	26.1	-18.4

**APPENDIX E:
NRPP RADON CERTIFICATION**

THE NATIONAL RADON SAFETY BOARD

Certified Radon Professionals

Certifies that

Micaela Rodriguez

Has Successfully Met The Established & Published Requirements for Certification
by The National Radon Safety Board as a

Radon Measurement Technician

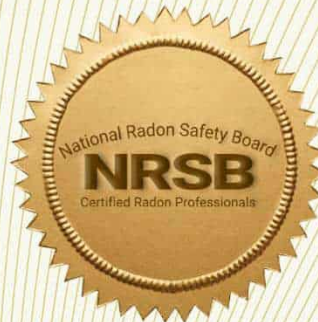
PARTNER ASSESSMENT CORP.: NRSB1296

24MT026

Certification Number

10/30/2026

Expiration Date



This certificate is the property of The National Radon Safety Board



Education

B.A. in Environmental Systems/Policy with a minor in Business from University of California San Diego.

Registrations

NRSB – Radon Measurement Technician Certification #24MT026, October 2024

Highlights

Phase I Environmental Site Assessments
Transaction Screen Assessments
Environmental Desktop Reports
Radon Survey Reports (Initial and Follow-up Testing)

Experience Summary

Ms. Rodriguez currently holds the role of Staff Assessor for Partner Engineering and Science, Inc. (Partner). Her responsibilities include due diligence practices such as environmental desktop reports and Phase I Environmental Site Assessment Reports on property types within the scope of the ASTM E1527-21/AAI Standard.

Ms. Rodriguez is responsible for the duties performed within the scope of a Phase I ESA; including site inspections, historical research, agency file reviews, and interviews. She has worked with a variety of site types such as single and multiple family residences, commercial buildings, gas stations, dry cleaners, industrial facilities, agricultural properties, and vacant properties in the San Francisco Bay, greater Northern California Region, Idaho, Nevada, Alaska, and Canada.

Project Experience

Multi-Tenant Industrial Facilities, San Francisco, California – Ms. Rodriguez performed a Phase I Environmental Site Assessment for two large industrial facilities occupied by various industrial tenants since the 1960s with former tenants and developments included a lumber yard and dry-cleaning operations. Surrounding properties consisted of industrial facilities dating back to the 1930s such as oil and chemical storage facilities, and municipal wastewater treatment and sewer pump stations.

High Rise Office Buildings, San Jose, California – Ms. Rodriguez performed a Phase I Environmental Site Assessment for two high rise office buildings and parking garage formerly occupied by a dry-cleaning facility, a metal shop, car lot, and auto repair shops for over fifty years with former underground storage tanks utilized on the property. The project included the review of third-party Phase I and remediation reports for the closed remedial case at the property.

Truck Maintenance Shop and Industrial Facilities, Kelowna, Canada – Ms. Rodriguez performed a Phase I Environmental Site Assessment for newly constructed industrial facilities for manufacturing and distribution activities, and a truck maintenance operation since the early 2000s utilizing an aboveground storage tank, clarifier, and various hazardous materials.

Micaela Rodriguez

Contact

mrodriguez@partneresi.com



Education

Bachelor of Arts, Environmental Studies Major, Professional Writing Minor, UCSB

Highlights

Radon Site Measurement

Training

Spruce 16 Hour Professional Radon Measurement Course, 2024

Experience Summary

Phoenix Dorr is a new field technician for Partner Engineering and Science, Inc. (Partner). In this role it is required he mobilizes to sites with entry into units for radon testing while ensuring each project timeline is going according to schedule. He collects building information for future mitigation proposals and communicates any progress or issues with project managers. Mr. Dorr takes care to carefully maintain project records for certification compliance and quality control.

While new to Radon Measurement Mr. Dorr has experience ensuring the safety of the public when performing his duties at his previous position as a Park Ranger for the City of Chula Vista. He has extensive experience engaging with the public and recording pertinent information for city records.

Project Experience

Montiavo, 2460 Rubel Way in Santa Maria – Conducted radon testing across a 208 ground floor unit complex in Santa Maria.

Kansas Portfolio- As a part of a 15 building portfolio spanning across the state of Kansas Mr. Dorr conducted radon testing in over 800 nursing home units and offices across the span of 2 and half weeks.

Sunrise villas, 1600 Fontana Road in Paso Robles – Completion of testing for radon in 73 units in a new construction affordable housing project Paso Robles California.

Contact

pdorr@partneresi.com



Education

BS Environmental Science, William Paterson University, 2013

Registrations

New York State Asbestos Inspector

Training

Phase I Environmental Site Assessments
Transaction Screen Assessments
Environmental Desktop Reports

Highlights

Phase I Environmental Site Assessments
Transaction Screen Assessments
Environmental Desktop Reports

Experience Summary

Ms. Marte currently holds the role of a Project Assessor with responsibilities including thorough site assessments and technical report writing for Phase I Environmental Site Assessments in line with the American Society of Testing and Materials (ASTM) standard and US Environmental Protection Agency's All Appropriate Inquiry (AAI) as well as customized client formats. In addition, Ms. Marte is certified to perform limited asbestos surveys as required per scope of work.

Ms. Marte has worked on numerous large scope projects in the northeast region with a focus in the greater New York City with of variable scopes and complexities including vacant lots, apartment buildings, hotels, office buildings, healthcare facilities, automotive service facilities, gasoline stations, dry cleaners, industrial/warehouse facilities, and shopping centers to identify potential environmental concerns on or near a property, such as dry cleaning operations, hazardous material releases, and leaking underground storage tanks. Ms. Marte also conducts assessments on out-of-scope concerns including asbestos containing materials, lead-based paint, radon, and mold.

Contact

mmarte@partneresi.com



Education

Bachelor of Architecture, California State Polytechnic University of Pomona
Minor in Music Performance
Architectural Studies at the National Technical University of Athens, Greece

Registrations

Certification - Mold Assessment and Remediation in Buildings (Certificate with The Environmental Institute)
Certification – HUD Map Training, St. Louis, Missouri
Certification – 2010 ADA Standards for Accessible Design
Certification – Acoustical Building Design
Certification – Wood Destroying Organisms
Certification – Commercial Roofing Systems
AHERA Building Inspector

Training

Commercial Roofing Systems
Below Grade Building Environments
Extensive building system training from various entities
AHERA Building Inspector

Highlights

25+ years' experience in Architectural Due Diligence, Design and Consulting
20+ years performing Property Condition Assessments under ASTM Guidelines along with other Specific Client Scopes
20+ years performing Construction Progress Monitoring
15+ years performing Environmental Phase I's

Experience Summary

Mr. McCreery is the Managing Director, Multifamily in a continually growing division within Partner Engineering and Science, Inc. As Managing Director, he is responsible for understanding and communicating the nuances of agency reporting requirements as well as the unique needs of multifamily assessments to internal relationship managers and staff along with outward communication to various lenders, borrowers and housing agencies. Mr. McCreery's multifamily role incorporates Agency, LIHTC, HUD, and multifamily Debt/Equity associated with all scopes (PCA, ESA, ALTA, Construction, Zoning, and IH) under one umbrella in order to provide a more holistic approach with refined tools and resources to help us cater to our clients and deliver the highest and most consistent quality. Through increased communication and thought leadership to the various entities and institutions including Fannie Mae, Freddie Mac, the Department of Housing and Urban Development, State Housing Authorities, and various multifamily national organizations, Mr. McCreery is instrumental in policy generation and maintaining Partner as an industry leader through collaboration and partnership.

Mr. McCreery is also the Technical Director for Agency services related to Fannie Mae and Freddie Mac. His responsibilities include overseeing all company standards associated with Agency Guidelines related to

Property Condition Assessments (PCAs), Environmental Assessments (Phase I, Phase II, Transaction Screens, etc.), ALTA Site Surveys, Construction, and Seismic Assessments and providing support services and technical guidance to Partner's extensive list of Relationship Managers, Project Managers and Assessment Staff. Mr. McCreery's attention to detail, knowledge, and longevity in the industry is a perfect complement to Partner's consulting service practice as an industry leader.

Mr. McCreery has significant experience in due diligence assessments for a variety of property types and the needs and requirements of varied number of reporting standards, including ASTM standards, CMBS, Fannie Mae, Freddie Mac, HUD – Multifamily Accelerated Processing (MAP), LIHTC, along with client specific requirements in order to facilitate with the Real Estate Loan Transactions. Specifically, Mr. McCreery has performed, coordinated and reviewed thousands of PCAs, Environmental Phase 1 investigations, Small Loan PCAs, Construction Progress Monitoring, Zoning Analysis, Document and Cost reviews, Probable Maximum Loss assessments, and Mold assessments.

Mr. McCreery has also been involved in national training of staff employees and various clients related to the performance of PCAs, ESAs, and Construction loan monitoring throughout the country and has been personally responsible for the quality control of due diligence reports and client relationships for over 100 separate clients including lenders, equity investors, and legal counsel advisory teams.

Project Experience

The list below includes a variety of projects where Mr. McCreery either performed the assessment, reviewed or was involved in.

Office Buildings:

Citicorp Center, Los Angeles, CA - 1,281,800 SF 49-Story Urban Office Tower

AT&T Center, Los Angeles, CA - 1,003,452 SF High Rise Office Complex.

Arco Towers, Los Angeles, CA - 1,000,000+ SF 2 separate 52-Story Office Towers

One Wilshire, Los Angeles, CA - 656,000 SF 30-Story Office/Telecom Building

1000 2nd Avenue, Seattle, WA - 588,000 SF 41-Story High Rise Up-Scale Office Tower

One Bunker Hill, Los Angeles, CA - 285,000 SF 14-Story High Rise Historic Office Bldg.

Retail:

The Village at Orange, Orange, CA - 489,000 SF Regional Retail Mall

Phoenix Spectrum Mall, Phoenix, AZ - 466,000 SF Regional Retail Mall

IntraWest Retail Portfolio, Mammoth Lakes, CA - Squaw Valley, Ca, & Whistler, BC., Ski Resort Retail Complexes

Industrial:

Petsmart Distribution Center, McCarran, NV - 871,866 SF Warehouse/Distribution Building

Reno Industrial Center Portfolio, Reno, NV - 9-Building, 750,000+ SF Industrial Buildings.

Hotels:

Extended Stay Portfolio, Southern California & Chicago, IL,

Four Seasons Hotel, Westlake Village, CA

Four Seasons Hotel, Hualalai, Hawaii

Bacara Resort and Spa, Santa Barbara, CA

[*Kauai Coconut Beach Hotel, Kauai, HI*](#)

[*The Edgewater Hotel, Seattle, WA*](#)

[*Playa Del Sol Los Cabos, Cabo San Lucas, Mexico*](#) - Time Share Ocean Front Resort

Residential and Other Facilities:

[*The Paramount, San Francisco, CA*](#) - 486-Unit 40-Story Mixed-Use – Multi-Family & Retail Tower

[*The Asbury, Los Angeles, CA*](#) - 97-Unit, 12-Story Historic Apartment Building

[*Cathedral Hill Plaza, San Francisco, CA*](#) - 169-Unit, 14-Story Apartment Building

[*700 Broadway, Seattle, WA*](#) - 59-Unit 4-Story Mixed-Use – Multi-Family & Retail Building

[*Courtney Village Apartments, Phoenix, AZ*](#) - 368-Unit, 34-Apartment Buildings

[*Aspen Villas, Park City, UT*](#) - 88-Unit Apartment Complex

[*Multi-Family Properties*](#) - California, Nevada, Phoenix, New Mexico, Texas, Idaho, Washington, Oregon, Colorado and Utah

[*American Golf Portfolio*](#) - California, Hawaii, Arizona; Golf Courses and Clubhouses

Plus Mixed Use, Mobil Home Parks, and other Miscellaneous Projects.

Speaking

Moderator; Property Condition Assessment Panel, 2015 / 2016 / 2017 / 2018 / 2019 / 2020 / 2021
Construction Lender Risk Management Roundtable

Publications

[*LIHTC, Construction, and Green, Oh My!*](#), GlobeSt.com, January 10, 2022

[*FHFA to Increase Multifamily Radon Sampling Requirements*](#), GlobeSt.com, August 23, 2021

[*Making Sense to Accessibility Laws in Multifamily Transactions*](#), GlobeSt.com, January 28, 2020

[*Fannie/Freddie Due Diligence: Four Things to Know*](#), GlobeSt.com, August 22, 2019

Fannie Mae Takes Important Step to Align Agency Seismic Requirements, GlobeSt.com, August 29, 2017

[*Understanding Freddie Mac's Requirements for Forward Commitment or Mod Rehab Projects*](#), California Mortgage Finance News, Winter, 2017

[*Multifamily Green Revolution*](#), CMBA, January 2017

[*New Lending Program Advances Appeal of Green Building*](#), Real Estate Weekly, September 7, 2016

[*Inside Freddie Mac's Seismic Shift*](#), GlobeSt.com, October 29, 2015

[*Freddie Mac's PCA Changes in a Nutshell*](#), GlobeSt.com, May 5, 2015

[*Fannie Lowers Rates for Green-Certified Multifamily Properties*](#), GlobeSt.com, March 6, 2015

[*What Lenders Need to Know About Fannie 2.0*](#), GlobeSt.com, December 11, 2015

[*Fannie Mae Lowers Rates for Green-Certified Multifamily*](#), Multi-Housing News, August 27, 2015

[*Fannie Mae's Property Guidelines Adjustment*](#), Multi-Housing News, May 4, 2015

[*Freddie Mac Rolls Out new Small Loan Program*](#), GlobeSt.com, October 27, 2014

Contact

dmccreery@partneresi.com

APPENDIX G: ENDANGERED SPECIES

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

San Mateo County, California



Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📅 (916) 414-6713

Federal Building

2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

-
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
 2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse <i>Reithrodontomys raviventris</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/613	Endangered

Birds

NAME	STATUS
California Least Tern <i>Sternula antillarum browni</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
California Ridgway's Rail <i>Rallus obsoletus obsoletus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered
Western Snowy Plover <i>Charadrius nivosus nivosus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle <i>Chelonia mydas</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6199	Threatened
Northwestern Pond Turtle <i>Actinemys marmorata</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

San Francisco Garter Snake *Thamnophis sirtalis tetrataenia* Endangered
Wherever found
No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/5956>

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Tidewater Goby <i>Eucyclogobius newberryi</i> Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> Wherever found There is proposed critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

Flowering Plants

NAME	STATUS
Franciscan Manzanita <i>Arctostaphylos franciscana</i> Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5350	Endangered

Presidio Manzanita *Arctostaphylos hookeri* var. *ravenii* Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/7216>

Robust Spineflower *Chorizanthe robusta* var. *robusta* Endangered

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/9287>

San Francisco Lessingia *Lessingia germanorum* (=L.g. var. *germanorum*) Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/8174>

Showy Indian Clover *Trifolium amoenum* Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/6459>

White-rayed Pentachaeta *Pentachaeta bellidiflora* Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/7782>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act ² and the Migratory Bird Treaty Act (MBTA) ¹. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their nests, should follow appropriate regulations and implement required avoidance and minimization measures, as described in the various links on this page.

The [data](#) in this location indicates that no eagles have been observed in this area. This does not mean eagles are not present in your project area, especially if the area is difficult to survey. Please review the 'Steps to Take When No Results Are Returned' section of the [Supplemental Information on Migratory Birds and Eagles document](#) to determine if your project is in a poorly surveyed area. If it is, you may need to rely on other resources to determine if eagles may be present (e.g. your local FWS field office, state surveys, your own surveys).

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC
<https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

Bald and Golden Eagle information is not available at this time

Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle ([Bald and Golden Eagle Protection Act](#) requirements may apply).

Proper interpretation and use of your eagle report

On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the

potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the [RAIL Tool](#) and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Migratory birds

The Migratory Bird Treaty Act (MBTA) ¹ prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior [authorization](#) by the Department of Interior U.S. Fish and Wildlife Service (FWS).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC
<https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

Migratory bird information is not available at this time

Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Avoidance & Minimization Measures for Birds](#) describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the [Bald and Golden Eagle Protection Act](#) and those species marked as “Vulnerable”. See the FAQ “What are the levels of concern for migratory birds?” for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your

project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle ([Bald and Golden Eagle Protection Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the [RAIL Tool](#) and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Bald and Golden Eagle Protection Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ "Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:

10/21/2025 14:46:20 UTC

Project Code: 2026-0006621

Project Name: Liberty Bank, aka Rotary Gardens

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2))

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

PROJECT SUMMARY

Project Code: 2026-0006621
Project Name: Liberty Bank, aka Rotary Gardens
Project Type: Residential Construction
Project Description: Multi-family residential construction
Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@37.6575155,-122.40895678335201,14z>



Counties: San Mateo County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 16 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Salt Marsh Harvest Mouse <i>Reithrodontomys raviventris</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/613	Endangered

BIRDS

NAME	STATUS
California Least Tern <i>Sternula antillarum browni</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
California Ridgway's Rail <i>Rallus obsoletus obsoletus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4240	Endangered
Western Snowy Plover <i>Charadrius nivosus nivosus</i> Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

REPTILES

NAME	STATUS
Green Sea Turtle <i>Chelonia mydas</i> Population: East Pacific DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Northwestern Pond Turtle <i>Actinemys marmorata</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1111	Proposed Threatened
San Francisco Garter Snake <i>Thamnophis sirtalis tetrataenia</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5956	Endangered

AMPHIBIANS

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened

FISHES

NAME	STATUS
Tidewater Goby <i>Eucyclogobius newberryi</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/57	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> There is proposed critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

FLOWERING PLANTS

NAME	STATUS
Franciscan Manzanita <i>Arctostaphylos franciscana</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5350	Endangered
Presidio Manzanita <i>Arctostaphylos hookeri</i> var. <i>ravenii</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7216	Endangered
Robust Spineflower <i>Chorizanthe robusta</i> var. <i>robusta</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9287	Endangered
San Francisco Lessingia <i>Lessingia germanorum</i> (= <i>L.g.</i> var. <i>germanorum</i>) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8174	Endangered
Showy Indian Clover <i>Trifolium amoenum</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6459	Endangered
White-rayed Pentachaeta <i>Pentachaeta bellidiflora</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7782	Endangered

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Partner Engineering and Science Inc.

Name: Jackelyn Goldschmidt

Address: 6600 France Ave S

City: Edina

State: MN

Zip: 55435

Email: jgoldschmidt@partneresi.com

Phone: 3209051775

Section 7 ESA Review				
SPECIES	STATUS	CRITICAL AND SUITABLE HABITAT	HABITAT PRESENCE	DETERMINATION
Salt Marsh Harvest Mouse <i>(Reithrodontomys raviventris)</i>	Endangered	Habitat consists of salt and brackish marshes, where plants provide a dense mat of cover, ideally around 30-50 cm high with a high percentage of pickleweed and complex structure of Atriplex and other species. Needs access to refuge/cover on high ground, especially during highest tides in winter. Subspecies raviventris does little nest building but may use accumulations of vegetation on the ground surface.	Not present on the subject property	No Effect
California Least Tern <i>(Sternula antillarum browni)</i>	Endangered	California least terns live near the coast. They typically nest on undisturbed stretches of flat, open beaches in proximity of estuaries and lagoons, and can also be found near bays, ocean, lake, and rivers. Today, nesting in California has been narrowed to colonies in San Francisco Bay, Sacramento River delta, and coastal areas from San Luis Obispo County to San Diego County. This species migrates to western Mexico between August and November for the fall and winter and arrives to the west coast of California around April.	Not present on the subject property	No Effect
California Ridgway's Rail <i>(Rallus obsoletus obsoletus)</i>	Endangered	California clapper rails occur almost exclusively in tidal and brackish marshes with unrestricted daily tidal flows, adequate invertebrate prey food supply, well-developed tidal channel networks, and suitable nesting and escape cover to provide habitat during extreme high tides. Their current distribution is restricted to the San Francisco Bay Estuary	Not present on the subject property	No Effect
Western Snowy Plover	Threatened	Barren to sparsely vegetated sand beaches, dry salt flats in lagoons, dredge spoils deposited on	Not present on the subject property	No Effect

Section 7 ESA Review				
SPECIES	STATUS	CRITICAL AND SUITABLE HABITAT	HABITAT PRESENCE	DETERMINATION
<i>(Charadrius nivosus nivosus)</i>		beach or dune habitat, levees and flats at salt-evaporation ponds, river bars, along alkaline or saline lakes, reservoirs, and ponds. Nests are a natural or scraped depression on dry ground usually lined with pebbles, shell fragments, fish bones, mud chips, vegetation fragments, or invertebrate skeletons.		
Green Sea Turtle <i>(Chelonia mydas)</i>	Threatened	Generally found in fairly shallow waters (except when migrating) inside reefs, bays, and inlets. Attracted to lagoons and shoals with an abundance of marine grass and algae. Open beaches with a sloping platform and minimal disturbance are required for nesting.	Not present on the subject property	No Effect
Northwestern Pond Turtle <i>(Actinemys marmorata)</i>	Proposed Threatened	Aquatic habitats include a wide variety of permanent and semi-permanent water bodies. Water bodies include rivers, creeks, small lakes, ponds, and marshes, and occasionally brackish water. Man-made habitats can also include reservoirs, canals, cattle ponds, and sewage-treatment ponds. Prefer water bodies with deeper pools and ample basking locations. Overwinter in upland habitats. Nest in areas with open canopies, sandy banks and bars along water bodies, or in fields with sunny spots within a few hundred meters of water.	Not present on the subject property	No Effect
San Francisco Garter Snake <i>(Thamnophis sirtalis tetrataenia)</i>	Endangered	Found near freshwater marshes, ponds, and slow-moving streams. Also found in upland areas near ponds or marsh habitats in fall and winter. Has been found up to 180 meters away from water sources. Feeding and breeding prefer marshes.	Not present on the subject property	No Effect

Section 7 ESA Review				
SPECIES	STATUS	CRITICAL AND SUITABLE HABITAT	HABITAT PRESENCE	DETERMINATION
California Red-legged Frog (<i>Rana draytonii</i>)	Threatened	Requires aquatic breeding areas embedded within a matrix of riparian and upland dispersal habitats. Breeding sites of the California red-legged frog are in aquatic habitats including pools and backwaters within streams and creeks, ponds, marshes, springs, sag ponds, dune ponds and lagoons. Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	Not present on the subject property	No Effect
Tidewater Goby (<i>Eucyclogobius newberryi</i>)	Endangered	This benthic fish occurs in small coastal lagoons, lower reaches of streams, and uppermost portions of large bays. It is most abundant in the upper ends of lagoons created by small coastal streams. In lower sections of coastal streams, it occurs in fresh to brackish water (preferably less than 10 ppt). It occurs in vegetated pools of slow (but not stagnant) areas of streams and has been documented in ponded freshwater habitats as far as 8 km upstream from San Antonio lagoon in Santa Barbara County. Generally it occurs in water 25-100 cm deep. It can complete the life cycle in fresh or brackish water. It prefers mud substrates and areas of high dissolved oxygen.	Not Present on the Subject Property	No Effect
Monarch Butterfly (<i>Danaus plexippus</i>)	Proposed Threatened	In general, breeding areas are virtually all patches of milkweed in North America and some other regions. The critical conservation feature for North American populations is the overwintering habitats, which are certain high altitude Mexican conifer forests or coastal California conifer or	Not present on the subject property	No Effect

Section 7 ESA Review				
SPECIES	STATUS	CRITICAL AND SUITABLE HABITAT	HABITAT PRESENCE	DETERMINATION
		Eucalyptus groves as identified in literature. all North American monarchs overwinter in one of these two areas. In addition, certain major coastal migratory stopovers may be important conservation sites especially those in along Delaware Bay in New Jersey including Cape May. Coastal regions are important flyways and so nectar (wild or in gardens) is an important resource in such places.		
Franciscan Manzanita <i>(Arctostaphylos franciscana)</i>	Endangered	Habitat includes shrubland/chaparral. The Franciscan Manzanita (<i>Arctostaphylos franciscana</i>) was previously believed extinct in the wild; however, a single wild plant was discovered in 2009. Because the only remaining individual exists in a reintroduced population not yet established, the Franciscan Manzanita is assessed as Globally Historical.	Not present on the subject property	No Effect
Presidio Manzanita <i>(Arctostaphylos hookeri var. ravenii)</i>	Endangered	Habitat includes maritime chaparral, coastal prairie on serpentine soils. Only one genetic individual exists in the wild; clones and seedlings have been artificially propagated from this individual and reintroduced. The original and reintroduced plants are located in remnant coastal scrub and grassland in the Presidio of San Francisco, California.	Not present on the subject property	No Effect
Robust Spineflower <i>(Chorizanthe robusta var. robusta)</i>	Endangered	Habitat includes sandy soils along the coast of California.	Not present on the subject property	No Effect

Section 7 ESA Review				
SPECIES	STATUS	CRITICAL AND SUITABLE HABITAT	HABITAT PRESENCE	DETERMINATION
		Known from only 10 sites in coastal and near-coastal areas of Santa Cruz, Monterey, and Marin Counties, California. Much of its habitat has been destroyed or degraded by urbanization, agricultural development, and non-native plants.		
San Francisco Lessingia <i>(Lessingia germanorum</i> <i>(=L.g. var. germanorum))</i>	Endangered	Habitat includes shrubland/chaparral and sand/dune scrub habitats. Endemic to the San Francisco peninsula in California, where nearly all of its habitat has been destroyed or fragmented by urbanization. The 6 remaining, remnant populations face threats from continuing development, quarrying of sand for use in golf courses, fertilizer runoff, invasive alien plants, and heavy pedestrian, bicycle, and motorized off-road vehicle traffic.	Not present on the subject property	No Effect
Showy Indian Clover <i>(Trifolium amoenum)</i>	Endangered	Habitat is typically low, wet swales in grasslands. Also found on grassy hillsides at up to about 400 meters in elevation. Prefers open sunny sites, serpentine soil in coastal bluff scrub and valley and foothill grassland.	Not present on the subject property	No Effect
White-rayed Pentachaeta <i>(Pentachaeta bellidi ora)</i>	Endangered	Habitat includes bunchgrass communities associated with serpentine soils. Extant at a single site, bisected by an interstate highway, in San Mateo County, California. The plants are locally very abundant in some years (often more than 1 million individuals). At least 8 historical occurrences in Marin, San Mateo, and Santa Cruz counties have been extirpated by urbanization and off-road vehicles.	Suitable habitat may be present	Potential Effect

APPENDIX H: EXPLOSIVE AND FLAMMABLE HAZARDS



OFFICE OF THE CITY CLERK

Thank you for your interest in public records of the City of South San Francisco. Your request has been received and is being processed. Your request was created on 10/21/2025 and given the reference number R018446-102125 for tracking purposes.

Your request mentioned: I am requesting any information on the proposed installation of any ASTs (diesel, crude oil, gasoline, propane, etc.) within a one-mile radius of 500 Linden Avenue, South San Francisco, California, 94080. The property is planned for the new construction of a multi-family residential complex that will receive FHA mortgage insurance via the County of San Mateo Department of Housing. A part of HUD's reporting requirements is obtaining a response from the local fire department or building department regarding knowledge of any proposed ASTs within a one-mile radius.

You can monitor the progress of your request in "[My Request Center](#)". You'll receive an email when your request has been completed.

Again, thank you for using the Public Records Center.

City Hall: 400 Grand Avenue • South San Francisco, CA 94080 • P.O Box 711 • South San Francisco, CA 94083
Phone: 650-877-8518 • Fax 650-829-6641 • www.ssf.net

1-Mile Radius Map

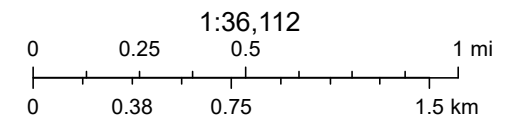


October 20, 2025

 Project Buffer

 Search Result (point)

 Liberty Bank, aka Rotary Gardens



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, Maxar

NATIONAL PIPELINE MAPPING SYSTEM

Legend

— Gas Transmission Pipelines

— Hazardous Liquid Pipelines



Pipelines depicted on this map represent gas transmission and hazardous liquid lines only. Gas gathering and gas distribution systems are not represented.

This map should never be used as a substitute for contacting a one-call center prior to excavation activities. Please call 811 before any digging occurs.

Questions regarding this map or its contents can be directed to npms@dot.gov.

Projection: Web Mercator

Datum: WGS84

Map produced by the Public Viewer application at www.npms.phmsa.dot.gov

World Imagery map service data is attributed to Esri, Maxar, Earthstar Geographics, and the GIS User Community.

Date Printed: Oct 20, 2025



Pipeline DF3265

15007	
Attribute	Value
Category: PIPELINE ATTRIBUTES	
OPERATOR ID	15007
OPERATOR NAME	PACIFIC GAS & ELECTRIC CO
SYSTEM NAME	LBAY
SUBSYSTEM NAME	
PIPELINE ID	DF3265
MILES	0.00
COMMODITY CATEGORY	Natural Gas
COMMODITY DESCRIPTION	NATURAL GAS
INTERSTATE DESIGNATION	N
PIPELINE STATUS CODE	Active (filled)
REVISION DATE	12/05/2023
FRP SEQUENCE NUMBER	
INSPECTION AUTHORITY	PHMSA
Category: GENERAL CONTACT	
FIRST NAME	
LAST NAME	
TITLE	
ENTITY	PG&E Customer Service
PHONE	(888) 743-7431
EMAIL	PipelineRequests@pge.com
ADDRESS	1850 Gateway Blvd. Mail Stop 6053E
CITY	Concord
STATE	CA

Pipeline
485038BTSF

18092	
Attribute	Value
Category: PIPELINE ATTRIBUTES	
OPERATOR ID	18092
OPERATOR NAME	SFPP, LP
SYSTEM NAME	SFPP_NORTH
SUBSYSTEM NAME	LS-38; BRISBANE - SF AIRPORT JCT.12"
PIPELINE ID	485038BTSF
MILES	5.53
COMMODITY CATEGORY	Non-HVL Product
COMMODITY DESCRIPTION	NON HVL PRODUCT
INTERSTATE DESIGNATION	N
PIPELINE STATUS CODE	Active (filled)
REVISION DATE	06/13/2023
FRP SEQUENCE NUMBER	
INSPECTION AUTHORITY	State
Category: GENERAL CONTACT	
FIRST NAME	
LAST NAME	
TITLE	
ENTITY	PUBLIC AWARENESS COORDINATOR
PHONE	(800) 276-9927
EMAIL	PUBLICAWARNES@KINDERMORGAN.COM
ADDRESS	1001 LOUISIANA STREET SUITE 1000
CITY	HOUSTON
STATE	TX



Pipeline Hazard:

According to the National Pipeline Mapping System (NPMS), there is a pipeline located approximately 580.8 feet to the east-southeast of the subject property (ID DF3265) and 1,108.8 feet to the to the east-southeast of the subject property (ID 485038BTSF).

According to the NPMS, Pipeline ID DF3265 contains natural gas and is operated by Pacific Gas & Electric Company (PG&E), and Pipeline ID 485038BTSF contains jet fuel (Jet-A) and is operated by SFPP, LP.

According to Mr. Sean Wagner, Expert Compliance Specialist with PG&E, Pipeline ID DF3265 contains natural gas, has a diameter of 24 inches, and a maximum allowable operating pressure of 145 pounds per square inch (PSI). Additionally, according to PG&E, the depth of the pipeline is unable to be ascertained.

According to the MAP Guide on Acceptable Separation Distance and Pipelines Fact Sheet (March 2023), pipelines that have a pressure under 200 PSI are considered to be "exempt" from pipeline hazards. Therefore, no further action pertaining to Pipeline ID DF3265 is warranted.

According to Mr. Brian Snead, Damage Prevention/Right of Way Specialist PNR Bay Division with Kinder Morgan (SFPP), Pipeline ID 485038BTSF contains jet fuel (Jet-A), has a diameter of 12 inches, and a maximum operating pressure of 275 PSI.

No information pertaining to ASDs for jet fuel (or Jet-A) are provided in the MAP Guide. Therefore, per direction of the MAP Guide ASD Fact Sheet, Partner has requested ASD information for jet fuel from HUD. According to Mr. Daniel Z. Weissman with HUD, jet fuel has a similar composition to diesel fuel, so Partner compared ASDs of diesel for the purpose of this project.

Table A9-1. Diesel Thermal Radiation ASDs (feet)

Diameter (in)	ASD (feet)
4	536
6	634
8	713
10	782
12	843
14	898
16	949
18	996
20	1,040
22	1,081
24	1,121

Pipeline ID 485038BTSF



Per HUD guidelines for acceptable separation distances (ASD) for diesel pipelines, the ASD for thermal radiation for Pipeline ID 485038BTSF is approximately 843 feet. Based on HUD's ASD information, the pipeline is not considered to be a hazard.

Shaw, Allyson

From: Snead, Brian <SneadB@kindermorgan.com>
Sent: Wednesday, April 17, 2024 1:56 PM
To: Goldschmidt, Jackie
Cc: Shaw, Allyson
Subject: RE: Pipeline information request
Attachments: KM_Developer_Handbook.pdf; EC_PA-BROCHURE_WEB.pdf

CAUTION: This message originated from outside the Partner organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Greetings Jackie Goldschmidt,

I have been asked to address your questions regarding Kinder Morgan's (SFPP) pipeline 485038BTSF, which operates along the CalTrain/Union Pacific railroad property in S San Francisco, CA.

1. Pipeline diameter is 12" 12.75 OD.
2. Maximum Operating pressure is 275psi.
3. The Line is considered a transmission line.
4. The line is indeed active.
5. The line contains jet fuel (Jet-A), it is used solely for the purpose of supplying the San Francisco International Airport.

Kinder Morgan appreciates you reaching out for information regarding the facilities we operate in the S San Francisco area and if you have any additional basic questions please feel free to contact me directly as needed.
For more technical or project based questions please submit request to KMEncroachmentsPacific@kindermorgan.com.

In the meantime please see copies of Kinder Morgan's Developers Hand book and Public Awareness informational bulletin for future reference that are attached with this response.

Best Regards.

Brian Snead

Damage Prevention/Right of Way Specialist PNR Bay Division
Cell (510) 719-9785
sneadb@kindermorgan.com



From: Goldschmidt, Jackie <jgoldschmidt@partneresi.com>
Sent: Friday, April 12, 2024 7:34 PM
To: Public Awareness <PublicAwareness@kindermorgan.com>
Cc: Shaw, Allyson <ashaw@partneresi.com>
Subject: Pipeline information request

You don't often get email from jgoldschmidt@partneresi.com. [Learn why this is important](#)

[This email message was received from the Internet and came from outside of Kinder Morgan.]

WARNING: EXTERNAL EMAIL: PROCEED WITH CAUTION.

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Hello,

Per HUD guidelines, Partner Engineering and Science, Inc. is conducting a hazard analysis for an existing residential development in South San Francisco, California. As part of the assessment, we must calculate the acceptable separation distance between the subject property and any nearby pipelines based on the pipeline diameter and maximum operating pressure.

According to the National Pipeline Mapping System (NPMS), there is a pipeline located to the south of our subject property. According to the NPMS, the pipeline is currently active and operated by SFPP, LP, Pipeline ID 485038BTSE.

Based on my understanding of the above material, can you provide some clarity on the following information:

- Please confirm (1) the diameter of the pipeline, (2) the operating pressure of the pipeline, (3) the pipeline is considered a transmission line, (4) is active, and (5) the contents of the pipeline.

18092	
Attribute	Value
Category: PIPELINE ATTRIBUTES	
OPERATOR ID	18092
OPERATOR NAME	SFPP LP
SYSTEM NAME	SFPP_NORTH
SUBSYSTEM NAME	LS-35 BRISBANE - SF AIRPORT JCT 12"
PIPELINE ID	485038BTSF
MILES	5.53
COMMODITY CATEGORY	Non-HVL Product
COMMODITY DESCRIPTION	NON HVL PRODUCT
INTERSTATE DESIGNATION	N
PIPELINE STATUS CODE	Active (Filed)
REVISION DATE	05/13/2021
FRP SEQUENCE NUMBER	
INSPECTION AUTHORITY	State
Category: GENERAL CONTACT	
FIRST NAME	
LAST NAME	
TITLE	
ENTITY	PUBLIC AWARENESS COORDINATOR
PHONE	(800) 276-9927
EMAIL	PUBLICAWARENESS@KINDERMORGAN.COM
ADDRESS	1001 LOUISIANA STREET SUITE 1000
CITY	HOUSTON
STATE	TX



Thank you,

Jackie Goldschmidt
Senior Project Assessor

PARTNER ENGINEERING AND SCIENCE, INC.

6600 France Avenue South, Suite 320, Edina, MN 55435

C: 320-905-1775 | O: 714-450-3197 | F: 612-293-0892

Shaw, Allyson

From: Pipeline Requests <PipelineRequests@pge.com>
Sent: Wednesday, May 22, 2024 10:58 AM
To: Shaw, Allyson; Goldschmidt, Jackie
Subject: Index 16970: Pipeline information request

Classification: Confidential

Allyson,

Please note that pipeline depth of cover may vary significantly over the length of the pipeline and is subject to change over time as land leveling and construction affects the amount of cover. Furthermore, without digging and exposing a pipeline, it is not possible to determine the exact depth at specific locations.

Please always call 811 (a free service) at least two working days in advance of any digging or landscaping project to allow crews to mark the location of all underground utilities before any work begins.

The above response also applies to all pipeline depths. We are unable to approximate without digging and exposing the pipe.

Please let us know should you have any further questions.

Respectfully,

Sean Wagner

Expert Compliance Specialist, Gas Operations Data Requests (GODR)
Gas Operations Support Team (GOST) | Pacific Gas and Electric Company

From: Shaw, Allyson <ashaw@partneresi.com>
Sent: Wednesday, May 22, 2024 7:48 AM
To: Pipeline Requests <PipelineRequests@pge.com>; Goldschmidt, Jackie <jgoldschmidt@partneresi.com>
Subject: RE: Index 16970: Pipeline information request

Classification: Confidential

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Hi Sean, thank you so much for providing this information. Can you please also provide the depth of the pipeline if this information is available?

Thanks again!

Allyson Shaw
Project Manager

PARTNER ENGINEERING AND SCIENCE, INC. | www.partneresi.com

Building Assessments & Engineering | Construction Risk Management | Energy, Sustainability & ESG+R | Environmental Consulting | Environmental Health & Safety | Geotechnical Services | Land Surveying & Zoning | Site Civil Engineering

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From: Pipeline Requests <PipelineRequests@pge.com>
Sent: Thursday, April 18, 2024 4:33 PM
To: Goldschmidt, Jackie <jgoldschmidt@partneresi.com>
Cc: Shaw, Allyson <ashaw@partneresi.com>
Subject: Index 16970: Pipeline information request

Classification: Confidential

Jackie,

Please find the response to your request below.

QUESTION 16970.01: Please confirm (1) the diameter of the pipeline, (2) the operating pressure of the pipeline, (3) the pipeline is considered a transmission line, (4) is active, and (5) the contents of the pipeline.

RESPONSE 16790.01: The pipeline in question is PG&E's gas transmission pipeline L-101_P2. This active pipeline contains natural gas and has an outer diameter of 24 inches with a maximum allowable operating pressure (MAOP) of 145 pounds per square inch gauge (psig).

Please let us know should you have any further questions.

Respectfully,

Sean Wagner

Expert Compliance Specialist, Gas Operations Data Requests (GODR)
Gas Operations Support Team (GOST) | Pacific Gas and Electric Company

From: Goldschmidt, Jackie <jgoldschmidt@partneresi.com>
Sent: Wednesday, April 17, 2024 12:58 PM
To: Pipeline Requests <PipelineRequests@pge.com>
Cc: Shaw, Allyson <ashaw@partneresi.com>
Subject: RE: Index 16970: Pipeline information request

Classification: Confidential

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Sean,

We are looking for information about the whole blue pipeline in the map below. DF3265 was just the number that came up when I clicked on the center of the pipeline on the NPMS mapping program. It was my assumption that the pipeline was uniform in parameters across the whole pipeline, but if that is not the case we are most interested in the segment of pipeline shown in the map below (not as much beyond the boundaries of the image). If you need additional location details let me know.

Thank you,

Jackie Goldschmidt
Senior Project Assessor

PARTNER ENGINEERING AND SCIENCE, INC.

6600 France Avenue South, Suite 320, Edina, MN 55435
C: 320-905-1775 | O: 714-450-3197 | F: 612-293-0892

From: Pipeline Requests <PipelineRequests@pge.com>
Sent: Wednesday, April 17, 2024 12:21 PM
To: Goldschmidt, Jackie <jgoldschmidt@partneresi.com>
Cc: Shaw, Allyson <ashaw@partneresi.com>
Subject: Index 16970: Pipeline information request

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Classification: Confidential

Jackie,

We are working through this request and have a quick follow up question. The map below shows DF3265 as a segment of that blue pipeline. I was hoping to clarify if you want pipeline information for this small segment, or if you are actually looking for information associated with the blue pipeline in the map below?

Let me know if you have any questions.

Thank you in advance

Sean Wagner

Expert Compliance Specialist, Gas Operations Data Requests (GODR)
Gas Operations Support Team (GOST) | Pacific Gas and Electric Company

From: Pipeline Requests <pipelinerequests@pge.com>
Sent: Monday, April 15, 2024 8:11 AM
To: Goldschmidt, Jackie <jgoldschmidt@partneresi.com>
Cc: Shaw, Allyson <ashaw@partneresi.com>
Subject: Index 16970: Pipeline information request

Your Request Has Been Logged.

Index Tracking Number: **16970**

Please Note: GOST is experiencing a high volume of requests; your response will be provided as soon as practicable.

Regards,
Sean Wagner
Gas Operations Data Requests

From: Goldschmidt, Jackie <jgoldschmidt@partneresi.com>
Sent: Friday, April 12, 2024 5:31 PM
To: Pipeline Requests <pipelinerequests@pge.com>
Cc: Shaw, Allyson <ashaw@partneresi.com>
Subject: Pipeline information request

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Hello,

Per HUD guidelines, Partner Engineering and Science, Inc. is conducting a hazard analysis for an existing residential development in South San Francisco, California. As part of the assessment, we must calculate the acceptable separation distance between the subject property and any nearby pipelines based on the pipeline diameter and maximum operating pressure.

According to the National Pipeline Mapping System (NPMS), there is a pipeline located to the south of our subject property. According to the NPMS, the pipeline is currently active and operated by Pacific Gas & Electric Co., Pipeline ID DF3265, containing natural gas.

Based on my understanding of the above material, can you provide some clarity on the following information:

- Please confirm (1) the diameter of the pipeline, (2) the operating pressure of the pipeline, (3) the pipeline is considered a transmission line, (4) is active, and (5) the contents of the pipeline.

15007	
Attribute	Value
Category: PIPELINE ATTRIBUTES	
OPERATOR ID	15007
OPERATOR NAME	PACIFIC GAS & ELECTRIC CO
SYSTEM NAME	LBAY
SUBSYSTEM NAME	
PIPELINE ID	DF3265
MILES	0.00
COMMODITY CATEGORY	Natural Gas
COMMODITY DESCRIPTION	NATURAL GAS
INTERSTATE DESIGNATION	N
PIPELINE STATUS CODE	Active (filled)
REVISION DATE	12/05/2023
FRP SEQUENCE NUMBER	
INSPECTION AUTHORITY	PHMSA
Category: GENERAL CONTACT	
FIRST NAME	
LAST NAME	
TITLE	
ENTITY	PG&E Customer Service
PHONE	(888) 743-7431
EMAIL	PipelineRequests@pge.com
ADDRESS	1850 Gateway Blvd. Mail Stop 6053E
CITY	Concord
STATE	CA



Thank you,

Jackie Goldschmidt
Senior Project Assessor

PARTNER ENGINEERING AND SCIENCE, INC.

6600 France Avenue South, Suite 320, Edina, MN 55435
C: 320-905-1775 | O: 714-450-3197 | F: 612-293-0892

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MAP Guide on Acceptable Separation Distance and Pipelines

Acceptable Separation Distance

■ HUD's Acceptable Separation Distance process requires assessment of both existing and planned above-ground tanks. Where can I find good information on planned tanks near my project site?

A: Potential information sources for planned Aboveground Storage Tanks (ASTs) may include:

- Local government planning office: Planning staff may be aware of sites that have applied for AST permitting or are zoned for industrial development that will utilize ASTs.
- State Emergency Response Commission (SERCs) or Local Emergency Planning Committees (LEPCs) under the [Emergency Protection Community Right-to-Know Act \(EPCRA\)](#)
- Fire Department

■ Current information on planned tanks may be incomplete or may change as development of facilities handling these hazardous materials moves forward. How do I deal with such contingencies in my HUD review?

A: The environmental review determines project impacts and compliance based on the information available at the time of the environmental review. For sites outside of the control of the HUD applicant or partner, such as nearby planned hazardous facilities, the environmental review must assess the impact of the planned facility based on the information available at the time the review is completed.

Fall Hazards and Pipelines Applicability

■ How does HUD define the terms "ancillary facilities," "common areas" and "like related property improvements or features" as they apply to fall hazards and pipelines analysis?

A: The restrictions on fall hazards and pipelines apply to buildings, ancillary facilities, structures, or common areas. HUD defines ancillary facilities as facilities ancillary to housing. This would include onsite areas that are not residential buildings, but are there to support or complement residential buildings and are used by people, including private balconies, front or back yards, divided green space or patios, carports, garages, sheds and pergolas or buildings like gyms, pool houses, etc. Ancillary facilities would also include "common areas," which are the non-private ancillary spaces on the housing site that residents are allowed or expected to access. Common areas are areas where people would likely congregate, and include playgrounds, and outdoor recreation areas. Parking lots included within the site boundaries of, and designed to serve the residents of, a HUD-insured residential or mixed-use development are covered under this definition.

Walking trails, pathways and sidewalks that include items such as sitting benches, tables, pergolas, or gazebos are always considered common areas of congregation. Walking trails, pathways and sidewalks without these amenities may be excluded on a case-by-case basis (for example a trail in a natural area that is not actively managed or monitored by the property, or a trail segment and connects to a larger biking or walking trail network).

Like related property improvements or features is a phrase that captures any ancillary facilities or common areas not discussed in the examples above.

Pipeline Assessment

What pipelines should I assess under 9.6.19.A?

A: All projects at the CEST or EA level review must identify all pipelines within the site boundaries or immediately adjacent to the property that transport flammable or combustible liquids or gases at a pressure exceeding 200 psig to confirm that no structures, ancillary facilities, common areas, parking areas or like related improvements are within 10 feet of the easement of a pressurized pipeline. This does not apply to distribution lines supplying only the facility itself.

If not already identified on the site survey or site plan, these pipelines can be identified using the National Pipeline Mapping System and other sources such as state databases. If these resources do not provide adequate detail on all areas within 10 ft of site improvements, all available resources, including 811, should be used to ensure compliance.

What pipelines should I assess under 9.6.19.B?

A: For new construction projects and rehabilitation projects where residential density is increased, the environmental review must consider 9.6.19.A (specific pipeline resources discussed in question 4) and Section 9.6.19.B, which requires assessment of above-ground and below-ground pipelines within a mile of the property that transport flammable or combustible liquids or gases at a pressure exceeding 200psig. This includes onsite or immediately adjacent pipelines outside of the 10-foot setback from the easement.

For the one-mile baseline impact radius assessment, HUD's primary reference is the National Pipeline Mapping System (NPMS) Pipeline Information Management and Mapping Application (PIMMA) and the site survey, as corroborated by site observation.

For projects near fracking sites, the requirement at 9.6.19.D.6.b to analyze hazards from above ground fracking operations within 1000 feet of the property includes above ground pipelines associated with the fracking operation that are above 200 psi. These may be identified through the agency that regulates the oil and gas industry in the jurisdiction (in Texas, for example, The Railroad Commission of Texas).

According to the definition of "hazard" at 24 CFR 51.201, underground pipelines are specifically excluded from coverage under 24 CFR 51C. If this is the case, what is the basis for the required pipeline assessment under MAP Guide 9.6.19.B?

A: The Multifamily Accelerated Processing (MAP) guide has always considered hazards and risks as part of the underwriting process and has included a safe distance from pipeline easements for decades. In 2016, the MAP guide added a risk analysis for pipelines, and the 2020 updates clarify what is involved in that risk analysis.

The risk analysis clarifications are based on a study HUD commissioned in 2016. HUD determined that there was a need to establish specific criteria for pipeline impact radius risk analysis based on the incidence of fires or explosions caused by leaking or damaged lines and the need for criteria that take into account the difference in risk associated with pipelines of larger diameter or greater pressure. HUD also took into account EPA guidelines for siting school facilities and state regulations and local ordinances on pipelines.

Due to terrorism concerns, gas providers tend to not provide information on pipeline diameter and operating pressure. Are there any suggestions or recommendations on how to obtain that information?

A: Step one: Request information on the pipeline attributes (pipeline diameter and operating pressure) from the pipeline owner. Identify yourself as requesting this information for a federal project environmental review. Usually, the pipeline operator for the company owning the pipeline will provide the attribute information for the assessed pipeline. If the operator is unable to provide operating pressure, applicants can ask pipeline operators whether the project is within the PIR based on [Appendix Tables A.9.1.2 and A.9.1.3](#). Operators are sometimes more willing to provide this 'yes or no' instead of giving an exact operating pressure. HUD would accept the operator's determination that the project is outside of the PIR from Tables A.9.1.2 and A.9.1.3 to satisfy 9.6.19.B.2. Applicants can also get pipeline attribute data by calling 811.

Step two: If unable to get the pipeline diameter, operating pressure or pipeline operator confirmation based on the Appendix tables, contact the HUD field or Regional environmental officer for the location where the pipeline is being assessed. They may be able to get more details as federal employees. [View the appropriate contact](#).

In some cases, it may be possible to determine a project is outside the pipeline's Potential Impact Radius (PIR) without getting the operating pressure. If the pipeline diameter is known and the separation distance is greater than the highest distance listed for that diameter in tables A.9.1.2 and A.9.1.3 of the MAP Guide, then the analysis does not need to consider the pipeline.

As a last option, if the diameter is known but the MAOP cannot be obtained, then applicants can use the following equation and table to estimate MAOP. Please note that this is an estimate for screening purposes and is not intended to produce the actual MAOP. When using this estimate, applicants must include correspondence from the pipeline operator declining to provide the MAOP.

Estimated MAOP = $48,000 \times t/d$, where d = pipeline diameter in inches and t = pipeline wall thickness in inches as indicated in the table below.

(Please note that this table lists wall thickness according to Schedule STD in the American Petroleum Institute's (API) 5L and the American Society of Mechanical Engineers (ASME) B36.10M – 2018 standard. This is the most common Schedule used for natural gas pipelines. If the pipeline being analyzed uses a different Schedule from these standards, analysts should consult the appropriate table for wall thickness in those standards.)

Once MAOP is estimated, the analyst can use that MAOP and the known pipeline diameter to estimate the acceptable separation distance using tables A.9.1.2 or A.9.1.3.

Schedule STD for pipeline wall thickness, API 5L and ASME B.36.10M - 2018

Diameter (inches)	Wall thickness (inches)
4	0.237
5	0.258
6	0.28
8	0.322
10	0.365
12	0.375
14	0.375
16	0.375
18	0.375
20	0.375
22	0.375
24	0.375
30	0.375
32	0.375

Diameter (inches)	Wall thickness (inches)
34	0.375
36	0.375
42	0.375

What pipeline pressure should be used for the calculation?

A: Assessments should use the “Maximum Allowable Operating Pressure” (MAOP) for gases, or “Maximum Operating Pressure” (MOP) for liquids, for the relevant pipeline segment. MAOP and MOP are defined in the Code of Federal Regulations as the maximum internal pressure permitted during the operation of a pipeline.

Can HUD provide the equations used to create the BPIR/ASD tables for each product and scenario (thermal radiation and blast overpressure)? This would allow reviewers to interpolate between values more accurately in the table when pipeline diameter or operating pressures are in between those listed.

a. Liquids:

Screening distances¹ for pipelines carrying flammable or combustible liquids were derived using a pool fire analysis that models the volume of liquid contained in a ten-mile section of pipeline, based on diameter, in a pool with an area estimated using a correlation for a standard spill developed by other federal regulatory agencies, and pool depth corresponding to spilled volume and area. The dimensions of this theoretical pool were then processed using the HUD ASD Calculator to determine an Acceptable Separation Distance used as a screening value. HUD has determined that it is not practicable to reproduce this calculation to screen individual liquid-carrying pipelines. For pipelines with a diameter between given values in the screening table, interpolation may be used to determine the intermediate distance. Alternatively, you may use distance for the next higher diameter or pressure provided. However, this may substantially overstate the pipeline impact radius.

b. Gases:

- **Thermal Radiation:** The PIR calculations were modified to determine the impact radius based on a thermal radiation threshold of 450 Btu/ft²/hr, in keeping with the HUD regulations. The calculation uses the following formula:: $r = [C^*P^*D^2I_{th}]^{0.5}$

Where:

- r = Potential impact radius [ft]
- C = Material-specific constant [natural gas: 2348; hydrogen: 1599; ethane: 3539; syngas: 1667]
- P = Pipeline pressure [psi]
- D = Pipeline diameter [in]
- I(th) = Thermal heat flux threshold [450 Btu/ft²/hr]

The material specific constant is multiplied by the pipeline pressure times the pipeline diameter squared, all that divided by the thermal heat flux threshold. The square root of the result will be the PIR.

Modified according to contents, the formulas are:

- Natural gas: $r = 2.28(P^*D^2)^{0.5}$
- Ethylene: $r = 2.80(P^*D^2)^{0.5}$
- Hydrogen: $r = 1.88(P^*D^2)^{0.5}$
- Syngas: $r = 1.92(P^*D^2)^{0.5}$
- **Blast Overpressure:** Distances for blast overpressure were derived using the NOAA/EPA ALOHA dispersion model and applying HUD overpressure limits assuming full combustion of the release. HUD has determined that it is not feasible to reproduce this calculation case by case for diameters and pressures not listed on the chart. Where only one value (diameter or pressure) is known, users may estimate intermediate values using linear interpolation. Alternatively, you may use distance for the next higher diameter or pressure provided. However, this may substantially overstate the pipeline impact radius.

¹ Distances are measured from the center of the pipeline to the site boundary.

Can you discuss the qualifications required for the engineering report needed to assess the thermal radiation and blast overpressure hazard?

A: The person producing the report must have the following qualifications:

- a. Be licensed as a Professional Engineer (PE)
- b. Have familiarity with pipeline industry safety standards

For the purposes of evaluating the pipeline hazards, HUD does not require the engineer to be licensed in the state where the project is located, but they must affix their seal to the report. The engineer would need to be licensed in the state where the project is located for any proposed barriers or building features designed as mitigation under 9.6.19.B.4.

Beyond HUD requirements, a professional engineer or registered architect or other professional subject to state licensure or regulation of professional practice is always expected to meet the requirements for the state in which the property of concern is located. States may vary in both the degree of and the process for extending reciprocal recognition to professionals licensed in other states.

What are the requirements for the engineering report required by section 9.6.19(B)(3)(a), when property improvements are located within distances listed in the tables in Appendix 9?

A: For projects located within the PIR of a high-pressure pipeline transporting flammable or combustible liquids or gases, the engineering report required by MAP Guide 9.6.19(B)(3)(a) may assess the likelihood of a pipeline release and projected resulting thermal radiation and blast overpressure risk. The engineering report must be signed by a licensed professional engineer and should examine each project individually, with decisions made independently according to the facts of each situation.

The engineering report should include:

- Distance from pipeline to project site
- The pipeline's most recent inspection report (see question 12 for how to obtain)
- Conditions of the specific pipeline segment such as corrosion, damage, defects, deferred maintenance and historical incidents such as leaks or releases²
- Pipeline depth or pipeline aboveground exposure
- Type of soil in soil column from pipeline to project from Geotech survey or U.S. Department of Agriculture (USDA) soil survey map

For **buildings and structures**, HUD will accept an engineering report that determines an underground pipeline depth of three or more feet to be adequate mitigation if the soil overburden between the project and pipeline has a high bearing capacity as determined by the engineer and the pipeline segment has passed its most recent inspection report with no unresolved violations. For **outdoor ancillary facilities or common areas**, HUD will accept an engineering report that determines an underground pipeline depth of six or more feet to be adequate mitigation if the same conditions apply.

If the above conditions do not apply, the engineering report must discuss whether other existing barriers such as roads built to Federal DoT standards, topography, walls or buildings provide mitigation or whether the project must add additional mitigation to protect residents from thermal radiation. Thermal radiation, unless contraindicated by the engineering report, is assumed to exceed the goal of 450 Btu/ft²/hr within the distances listed in the tables in A.9.1.1.

No buildings, structures, ancillary facilities, common areas, parking areas or like related improvements may be within 10 feet of the easement of a pressurized pipeline as per 9.6.19.A.

For initial screening based on pipeline depth prior to completion of a full engineering report, reviewers may contact Nelson Rivera directly at Nelson.A.Rivera@hud.gov, with a cc to Sara Jensen at Sara.Jensen@hud.gov and the multifamily project contact.

²Reports on some historical incidents can be found on the [Pipeline and Hazardous Materials Safety Administration \(PHMSA\) website](#).

³No buildings, structures, ancillary facilities, common areas, parking areas or like related improvements may be within 10 feet of the easement of a pressurized pipeline as per 9.6.19.A.

[How do I obtain a pipeline inspection report?](#)

A: You can find inspection report information for each state by reaching out to the State Program Managers and/or following the links at the [National Association of Pipeline Safety Representatives website](#). Here is some specific information for Texas and Louisiana.

TEXAS

Access the Texas Railroad Commission's Pipeline Inspection, Permitting and Evaluation System (PIPES), and Case Administration Service Electronic System (CASES) by registering as a consultant. Request access by using the [RRC Access Management Process \(RAMP\)](#) and clicking on [Security Access Form - External \(SAFE\)](#). Once a login has been received from the RRC, you will have access to the RRC's CASES and Pipeline Inspection, Permitting & Evaluation System (PIPES). Access to both systems can be found using the [RRC portal](#): Search for inspection packages and violations by the name of the pipeline.

LOUISIANA

Visit the State of Louisiana Department of [Natural Resources Pipeline Safety Program website](#). Look under "Pipeline Inspection Database" then click "Inspection Reports (How to Access)" Online records from 2008 to present.

Please note that interstate pipelines are inspected by the [PHMSA](#), not the State.

The BPIR tables in Appendix A.9.1 cover diesel, gasoline, crude oil, natural gas, hydrogen, and ethane. Are these the only substances that would warrant further analysis?

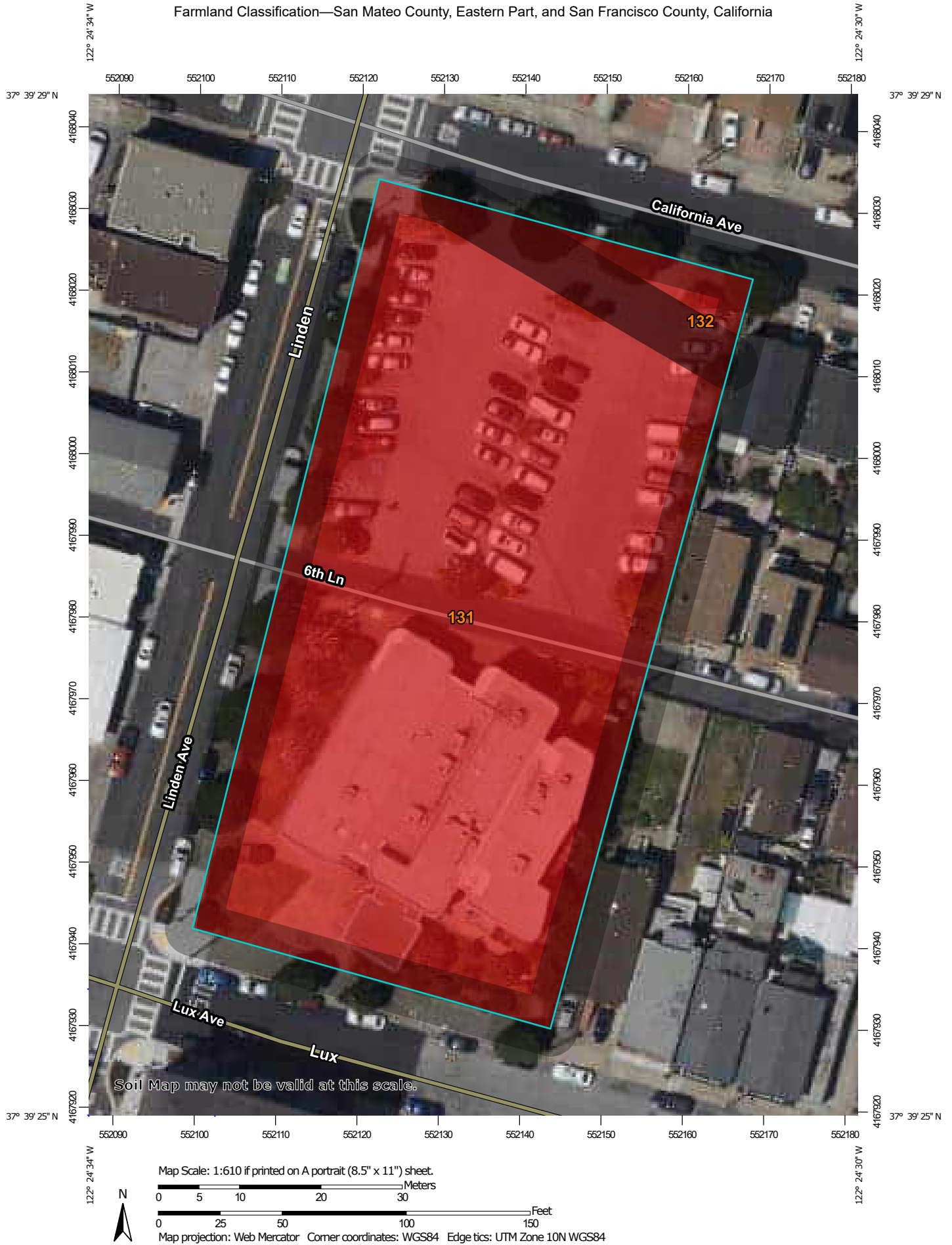
A: The requirements at 9.6.19.B apply to any pressurized pipeline transferring flammable or combustible liquids and gases that exceed 200 psi operating pressure. The substances listed in the BPIR tables in Appendix A.9.1 of the MAP guide are those that are encountered most frequently, but other substances may also require analysis.

Common substances that could require analysis if they exceed 200 psi operating pressure include: natural gas; liquid petroleum (including crude oil and refined products made from crude oil such as gasoline, home heating oil, diesel fuel, aviation gasoline, jet fuels, and kerosene); liquefied ethylene; propane; butane; hydrogen; and some petrochemical feedstocks (ethylene, propylene butadiene, benzene, toluene, xylene, hexane, heptane).

For assistance with calculation of screening distances for high-pressure pipelines carrying substances not listed here, please contact Sara Jensen at Sara.Jensen@hud.gov.

APPENDIX I: FARMLAND PROTECTION

Farmland Classification—San Mateo County, Eastern Part, and San Francisco County, California



MAP LEGEND

Area of Interest (AOI)

-  Area of Interest (AOI)

Soils

Soil Rating Polygons

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of statewide importance, if drained
-  Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if irrigated

-  Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if irrigated and drained
-  Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
-  Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

-  Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if warm enough
-  Farmland of statewide importance, if thawed
-  Farmland of local importance
-  Farmland of local importance, if irrigated

-  Farmland of unique importance
-  Not rated or not available

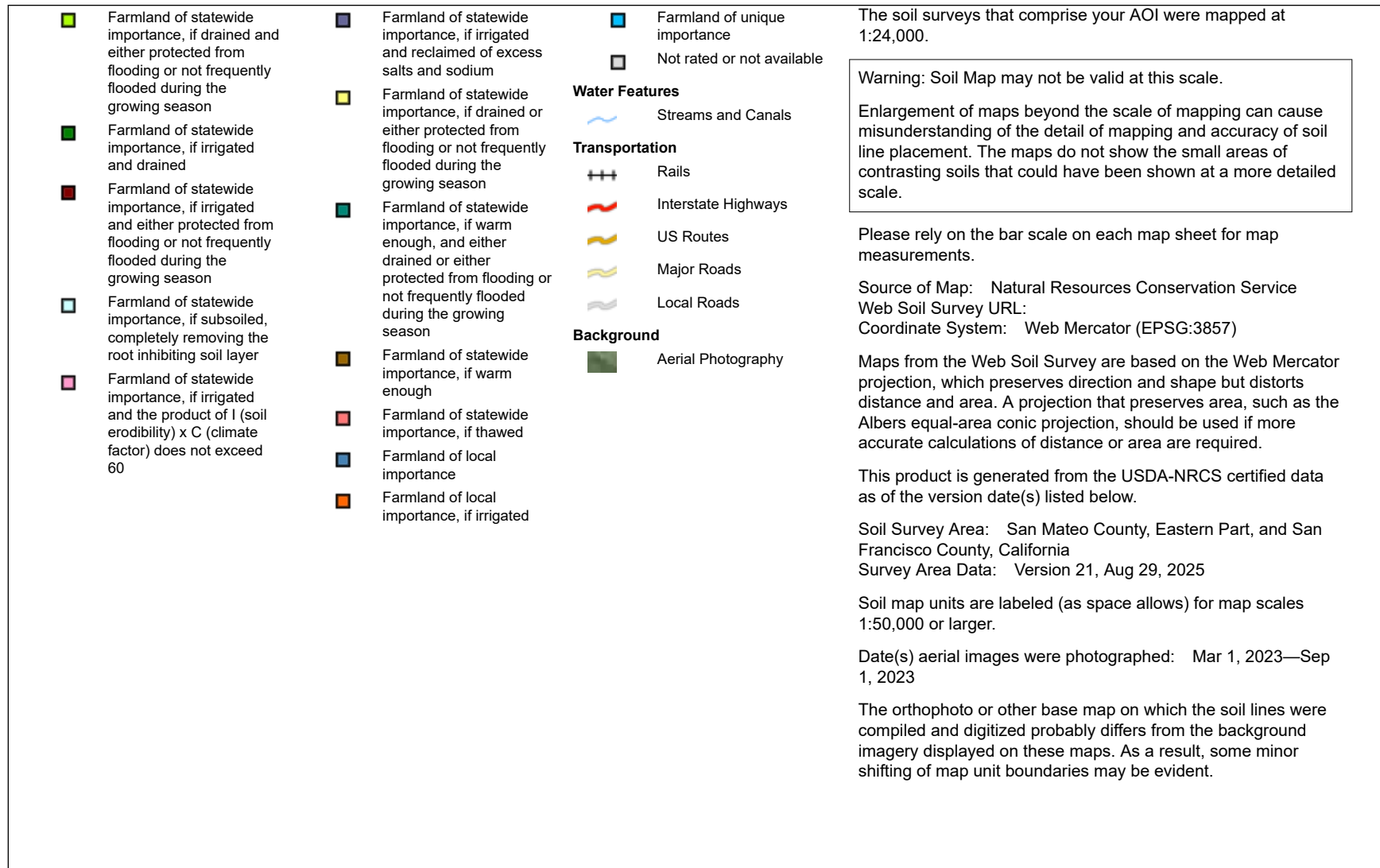
Soil Rating Lines

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

Farmland Classification—San Mateo County, Eastern Part, and San Francisco County, California

	Prime farmland if subsoiled, completely removing the root inhibiting soil layer		Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium		Farmland of unique importance		Prime farmland if subsoiled, completely removing the root inhibiting soil layer
	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60		Farmland of statewide importance, if irrigated and drained		Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season	Soil Rating Points			Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
	Prime farmland if irrigated and reclaimed of excess salts and sodium		Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season		Not prime farmland		Prime farmland if irrigated and reclaimed of excess salts and sodium
	Farmland of statewide importance		Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer		Farmland of statewide importance, if thawed		Prime farmland if protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance
	Farmland of statewide importance, if drained		Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60		Farmland of local importance		Prime farmland if irrigated		Farmland of statewide importance, if drained
	Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season				Farmland of local importance, if irrigated		Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
	Farmland of statewide importance, if irrigated						Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if irrigated

Farmland Classification—San Mateo County, Eastern Part, and San Francisco County, California



Farmland Classification

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
131	Urban land	Not prime farmland	1.0	95.4%
132	Urban land-Orthents, cut and fill complex, 0 to 5 percent slopes	Not prime farmland	0.1	4.6%
Totals for Area of Interest			1.1	100.0%

Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Rating Options

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

Urban Areas



October 20, 2025

Counties

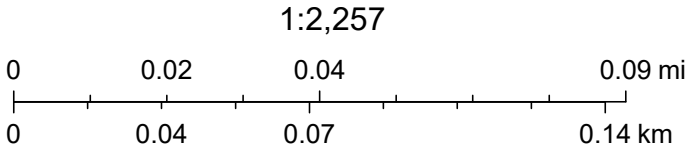
States

2020 Urban Areas

2020 Urban Areas

Counties

States



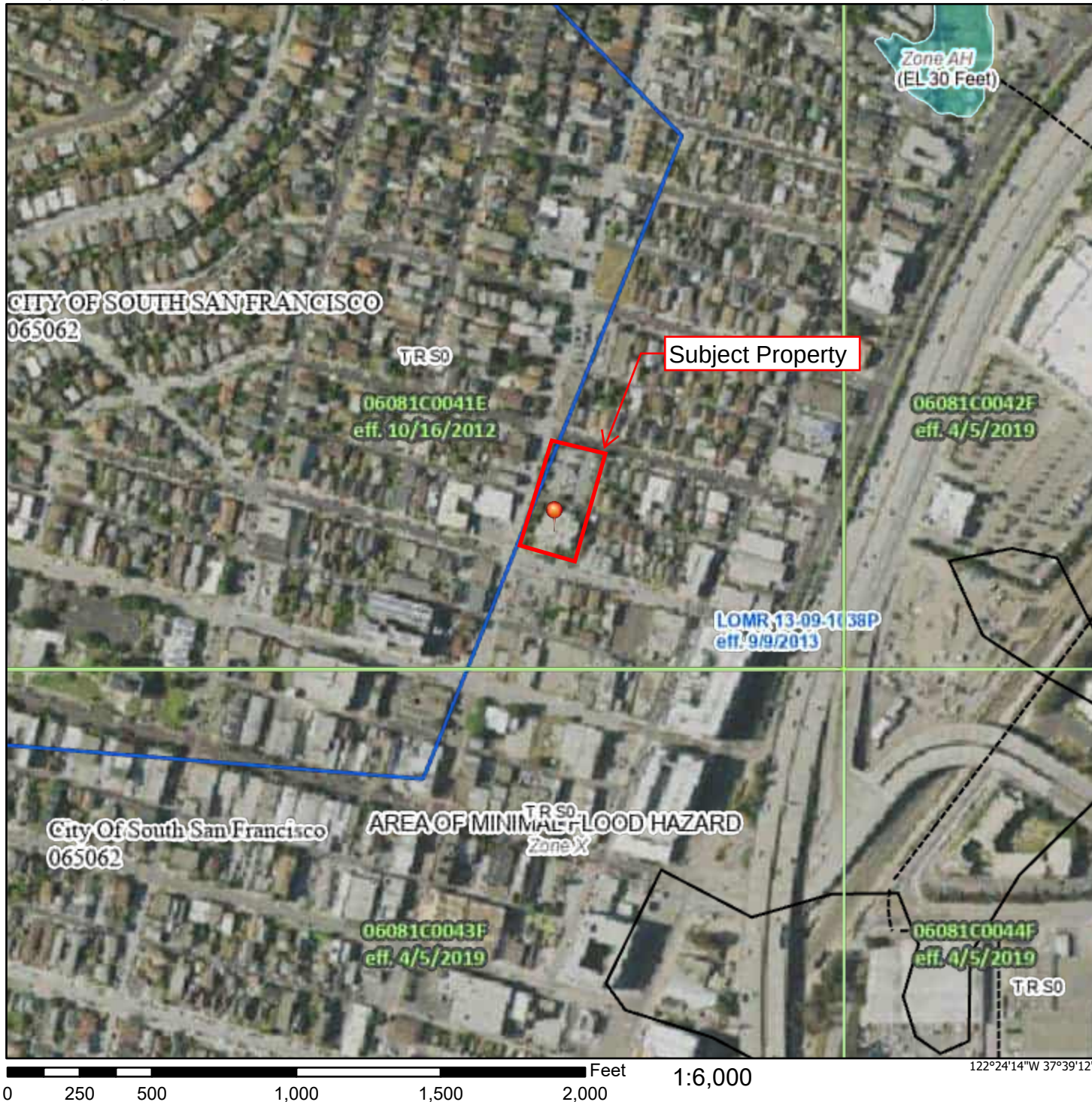
Maxar, Microsoft, Source: U.S. Census Bureau

APPENDIX J: FLOODPLAIN MANAGEMENT

National Flood Hazard Layer FIRMette



122°24'51"W 37°39'40"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped
		The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.



This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **10/20/2025 at 8:41 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Basemap Imagery Source: USGS National Map 2023

500 Linden Ave, South San Fran X

Show search results for 500 Linden A...

Measurement

Feet

Measurement Result

1,287.8 Feet

Clear

Press CTRL to enable snapping

Legend

Effective FIRM Panels

GeoIndex

- No Digital Data Available
- Digital Data Available
- Unmapped

NFHL

LOMRs

Status

- Effective

Political Jurisdictions



Profile Baselines



Cross-Sections



Base Flood Elevations



Levees



Coastal Transects



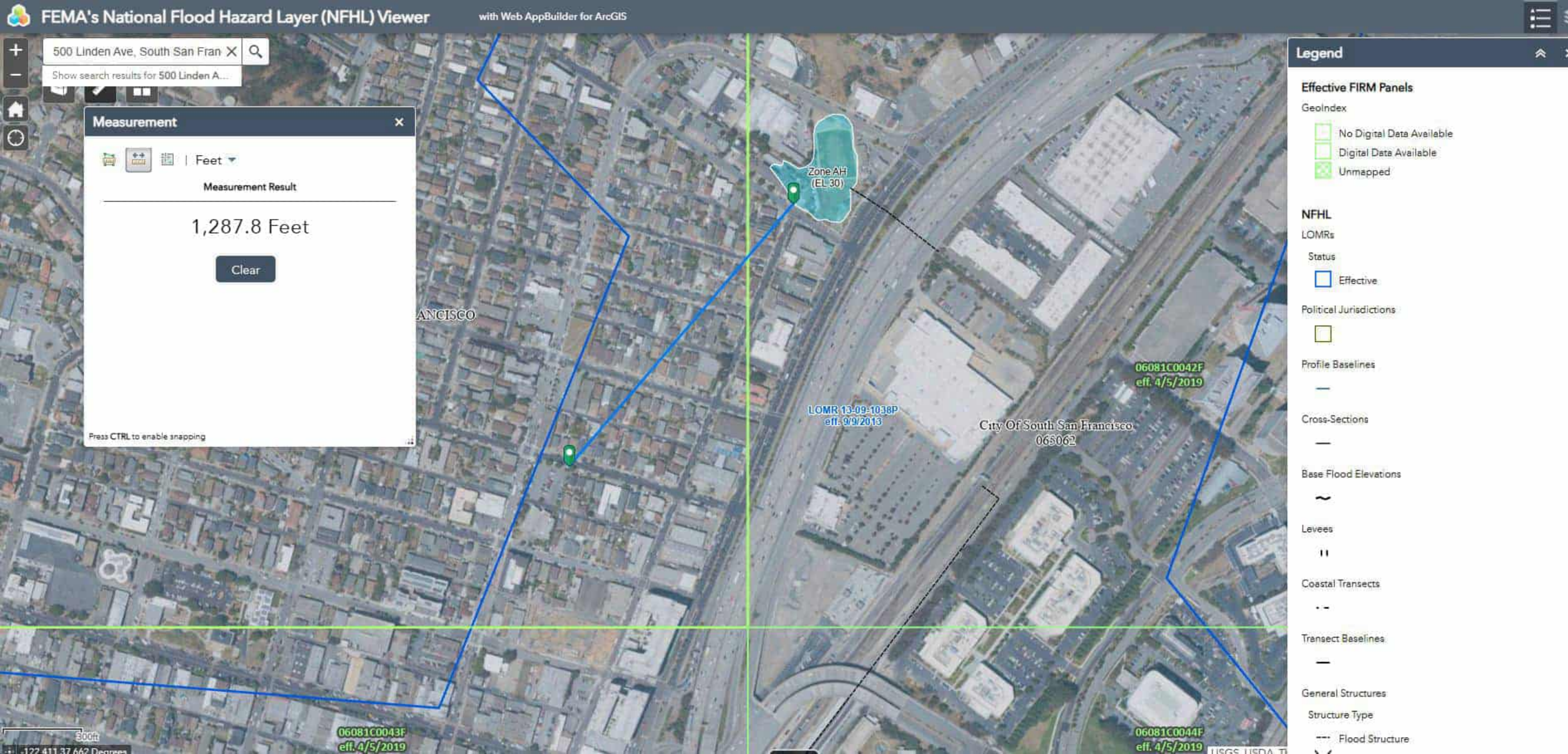
Transect Baselines

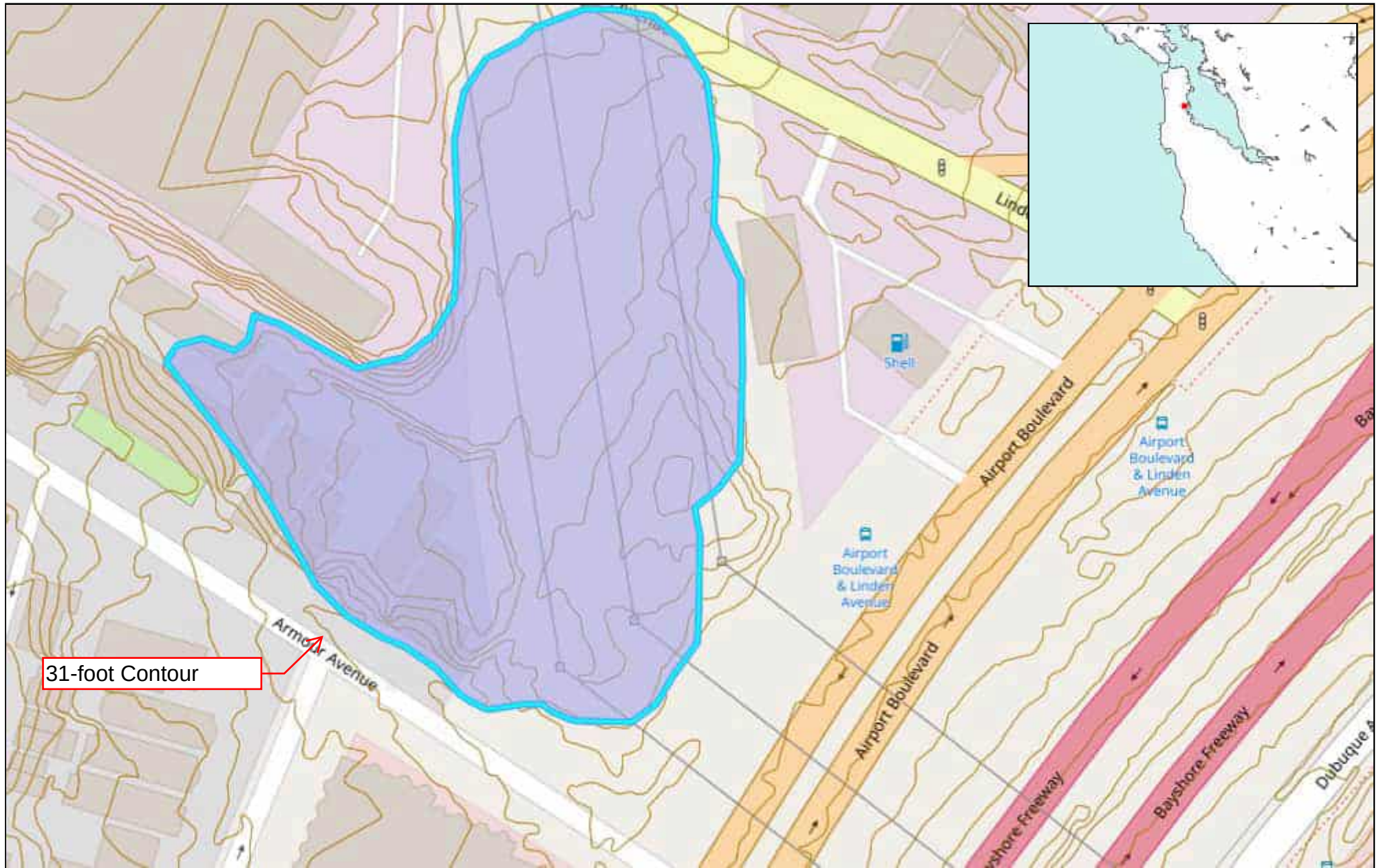


General Structures

Structure Type

- Flood Structure





0.04 0 0.02 0.04 Miles

WGS_1984_Web_Mercator_Auxiliary_Sphere
© Latitude Geographics Group Ltd.

1:1,128



This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

[Search](#)[Clear All Fields](#)

Search Results for SOUTH SAN FRANCISCO, CITY OF

Click [subscribe](#) to receive email notifications when products are updated.

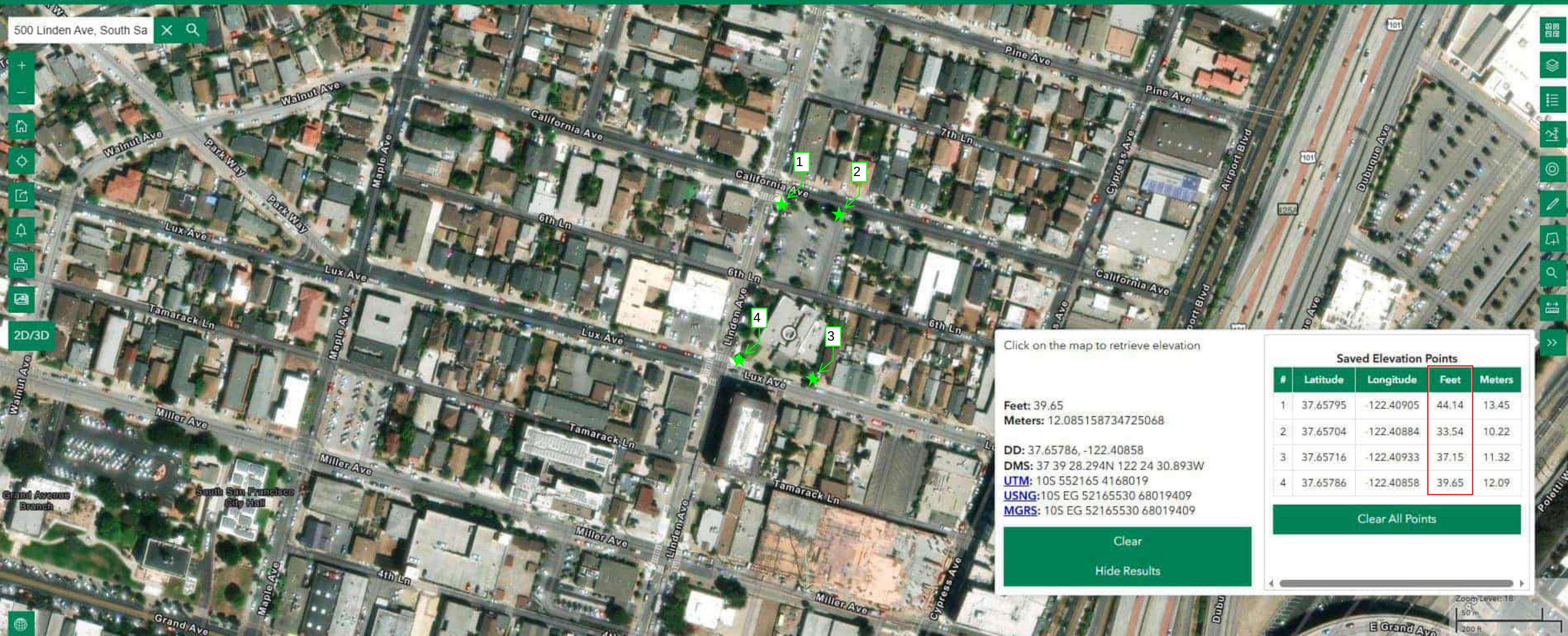
Click to [download a listing](#) of all products. ?

If you are a person with a disability, are blind, or have low vision, and need assistance, please contact a [map specialist](#).

Please Note: Searching All Products by county displays all products for all communities within the county. You can refine your search results by specifying your specific jurisdiction location using the drop-down menus above.

[Expand All](#) ?[Effective Products \(23\)](#) ?[Preliminary Products \(0\)](#) ?[Pending Product \(0\)](#) ?[Historic Products \(70\)](#) ?[Flood Risk Products \(4\)](#) ?[Share This Page](#)

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APPENDIX K: HISTORIC PRESERVATION

November 13, 2025

Amah Mutsun Tribal Band of Mission San Juan Bautista
PO Box 214211, 2929 Fulton Ave Unit 19, Sacramento, CA 95821
cdzimmer93@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Senior Cultural Monitor & Consultant, Councilman Christopher Zimmer,

County of San Mateo is considering funding the project listed above with federal funds from the U.S. Department of Housing and Urban Development (HUD). Under HUD regulation 24 CFR 58.4, County of San Mateo has assumed HUD's environmental review responsibilities for the project, including tribal consultation related to historic properties. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, plant and animal communities, and buildings and structures with significant tribal associations.

County of San Mateo will conduct a review of this project to comply with Section 106 of the National Historic Preservation Act and its implementing regulations 36 CFR Part 800. We would like to invite you to be a consulting party in this review to help identify historic properties in the project area that may have religious and cultural significance to your tribe, and if such properties exist, to help assess how the project might affect them.

The project site is currently developed with one (1) two-story bank building and an associated paved parking lot, located at 500 Linden Avenue, South San Francisco, San Mateo County, California. The property is at the east side of Linden Avenue in between California Avenue to the north and Lux Avenue to the south and is surrounded at the east and opposite sides of the street by varied mixed-use buildings. The subject property is currently occupied by Liberty Bank for commercial use—it is however vacant at this time. Onsite operations consist of previous commercial banking operations and associated parking lot. In addition to the current structure, the subject property is also improved with asphalt-paved parking areas and associated landscaping.

The site development requires demolition of the existing 1971 bank building and preparation for a new six-story and basement, approximately 73 foot high, 87,263 square foot, apartment building with concrete foundations, steel and wood framing, and exterior veneers including masonry, composite, and metal panels, concrete masonry units, and formed concrete. Parking is proposed at the basement level and on the adjacent property. A total of 10 studio apartments, 69 one-bedroom apartments, and 1 two-bedroom apartment are currently proposed on floors two through six.

Due to the project scope of work, Partner Engineering and Science (Partner) completed an Historic Architecture and Cultural Resources Section 106 Assessment to assess the likelihood of encountering cultural resources and the potential impact to the subject property building. Results of the Assessment indicate that the Direct APE contains historically aged properties but based on our research the building is NOT NRHP eligible nor is it eligible for the CR or a local list; demolition of the building will result in NO EFFECT.

Within the Indirect APE there are NO NRHP, NO CR, NOR LOCALLY designated historic resources, although there are historically aged properties and thus while the project may affect said resources, such effects will NOT BE ADVERSE. Finally, to those non-historic resources in the APE (which counts for the majority), the project will have NO Effect on adjacent properties. Outside of the Indirect APE there are NRHP designated historic resources, but distance, topography, natural landscaping, and infill buildings are in between and thus the project will have NO Effect on historic properties.

There are no archaeological resources recorded at the subject property, and there is a low probability of significant intact archaeological resources occurring beneath the pavements and foundations on the subject property. Debris from late-19th to mid-20th century construction and settlement of South San Francisco could occur as isolated elements of the historic landscape. Please refer to the Attachments for a complete copy of the Assessment and its findings.

Please notify us in writing within 30 calendar days from receipt of this letter whether you wish to consult on this project. If you have any initial concerns with impacts of the project on religious or cultural properties, please be sure to note them in your response.

Enclosed are the site photos and maps that show the project area and, if applicable, an additional area of potential indirect effects.

More information on the Section 106 review process is available at <http://www.onecpd.info/environmental-review/historic-preservation/>.

HUD's process for tribal consultation under Section 106 is described in a Notice available at <https://www.onecpd.info/resource/2448/notice-cpd-12-006-tribal-consultation-under-24-cfr-part-58>.

If you do wish to consult or even if you do not wish to consult, please include in your reply the name and contact information for the tribe's principal representative in the consultation. We value your assistance and look forward to consulting further if there are historic properties of religious and cultural significance to your tribe that may be affected by this project. Please email your response to emalabanan@smchousing.org or to provide further guidance within 30 Days upon receiving this notice.

Sincerely,



Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Wuksache Indian Tribe/Eshom Valley Band
1179 Rock Haven Ct., Salinas, CA 93906
kwood8934@aol.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Chairperson Kenneth Woodrow,

County of San Mateo is considering funding the project listed above with federal funds from the U.S. Department of Housing and Urban Development (HUD). Under HUD regulation 24 CFR 58.4, County of San Mateo assumed HUD's environmental review responsibilities for the project, including tribal consultation related to historic properties. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, plant and animal communities, and buildings and structures with significant tribal associations.

County of San Mateo will conduct a review of this project to comply with Section 106 of the National Historic Preservation Act and its implementing regulations 36 CFR Part 800. We would like to invite you to be a consulting party in this review to help identify historic properties in the project area that may have religious and cultural significance to your tribe, and if such properties exist, to help assess how the project might affect them.

The project site is currently developed with one (1) two-story bank building and an associated paved parking lot, located at 500 Linden Avenue, South San Francisco, San Mateo County, California. The property is at the east side of Linden Avenue in between California Avenue to the north and Lux Avenue to the south and is surrounded at the east and opposite sides of the street by varied mixed-use buildings. The subject property is currently occupied by Liberty Bank for commercial use—it is however vacant at this time. Onsite operations consist of previous commercial banking operations and associated parking lot. In addition to the current structure, the subject property is also improved with asphalt-paved parking areas and associated landscaping.

The site development requires demolition of the existing 1971 bank building and preparation for a new six-story and basement, approximately 73 foot high, 87,263 square foot, apartment building with concrete foundations, steel and wood framing, and exterior veneers including masonry, composite, and metal panels, concrete masonry units, and formed concrete. Parking is proposed at the basement level and on the adjacent property. A total of 10 studio apartments, 69 one-bedroom apartments, and 1 two-bedroom apartment are currently proposed on floors two through six.

Due to the project scope of work, Partner Engineering and Science (Partner) completed an Historic Architecture and Cultural Resources Section 106 Assessment to assess the likelihood of encountering cultural resources and the potential impact to the subject property building. Results of the Assessment indicate that the Direct APE contains historically aged properties but based on our research the building is NOT NRHP eligible nor is it eligible for the CR or a local list; demolition of the building will result in NO EFFECT.

Within the Indirect APE there are NO NRHP, NO CR, NOR LOCALLY designated historic resources, although there are historically aged properties and thus while the project may affect said resources, such effects will NOT BE ADVERSE. Finally, to those non-historic resources in the APE (which counts for the majority), the project will have NO Effect on adjacent properties. Outside of the Indirect APE there are NRHP designated historic resources, but distance, topography, natural landscaping, and infill buildings are in between and thus the project will have NO Effect on historic properties.

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Please notify us in writing within 30 calendar days from receipt of this letter whether you wish to consult on this project. If you have any initial concerns with impacts of the project on religious or cultural properties, please be sure to note them in your response.

Enclosed are the site photos and maps that show the project area and, if applicable, an additional area of potential indirect effects.

More information on the Section 106 review process is available at <http://www.onecpd.info/environmental-review/historic-preservation/>.

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Please email your response to emalaban@smchousing.org or to provide further guidance within 30 Days upon receiving this notice.

Sincerely,



Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Amah Mutsun Tribal Band
P.O. Box 5272, Galt, CA 95632
aerieways@aol.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Vice-Chairperson Ed Ketchum,

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HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Amah Mutsun Tribal Band of Mission San Juan Bautista
PO Box 214211, 2929 Fulton Ave Unit 19, Sacramento, CA 95821
garryzimmer@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Senior Cultural Monitor & Consultant Garry Zimmer,

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Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

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November 13, 2025

Amah Mutsun Tribal Band of Mission San Juan Bautista
3030 Soda Bay Road, Lakeport, CA 95453
amahmutsuntribalcommunications@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Chairperson Irene Zwierlein,

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Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Amah Mutsun Tribal Band of Mission San Juan Bautista
PO Box 214211, 2929 Fulton Ave Unit 19, Sacramento, CA 95821
michellezimmer1966@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Senior Cultural Monitor & Consultant Michelle Zimmer,

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Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

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November 13, 2025

Amah Mutsun Tribal Band of Mission San Juan Bautista
2451 Tyrolean Way, Sacramento, CA 95821
shelbyzimmer1997@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Senior Cultural Monitor & Consultant, Councilwoman Shelby Brown,

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Tribal Consultation Lead

Attachment:

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November 13, 2025

Amah Mutsun Tribal Band
P.O. Box 5272, Galt, CA 95632
vjlttestingcenter@aol.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Chairperson Valentin Lopez,

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Sincerely,

Eleazar Malabanan

Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Indian Canyon Mutsun Band of Costanoan
P.O. Box 28, Hollister, CA 95024
admin@kanyonconsulting.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Chairperson Ann Marie Sayers,

County of San Mateo is considering funding the project listed above with federal funds from the U.S. Department of Housing and Urban Development (HUD). Under HUD regulation 24 CFR 58.4, County of San Mateo has assumed HUD's environmental review responsibilities for the project, including tribal consultation related to historic properties. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, plant and animal communities, and buildings and structures with significant tribal associations.

County of San Mateo will conduct a review of this project to comply with Section 106 of the National Historic Preservation Act and its implementing regulations 36 CFR Part 800. We would like to invite you to be a consulting party in this review to help identify historic properties in the project area that may have religious and cultural significance to your tribe, and if such properties exist, to help assess how the project might affect them.

The project site is currently developed with one (1) two-story bank building and an associated paved parking lot, located at 500 Linden Avenue, South San Francisco, San Mateo County, California. The property is at the east side of Linden Avenue in between California Avenue to the north and Lux Avenue to the south and is surrounded at the east and opposite sides of the street by varied mixed-use buildings. The subject property is currently occupied by Liberty Bank for commercial use—it is however vacant at this time. Onsite operations consist of previous commercial banking operations and associated parking lot. In addition to the current structure, the subject property is also improved with asphalt-paved parking areas and associated landscaping.

The site development requires demolition of the existing 1971 bank building and preparation for a new six-story and basement, approximately 73 foot high, 87,263 square foot, apartment building with concrete foundations, steel and wood framing, and exterior veneers including masonry, composite, and metal panels, concrete masonry units, and formed concrete. Parking is proposed at the basement level and on the adjacent property. A total of 10 studio apartments, 69 one-bedroom apartments, and 1 two-bedroom apartment are currently proposed on floors two through six.

Due to the project scope of work, Partner Engineering and Science (Partner) completed an Historic Architecture and Cultural Resources Section 106 Assessment to assess the likelihood of encountering cultural resources and the potential impact to the subject property building. Results of the Assessment indicate that the Direct APE contains historically aged properties but based on our research the building is NOT NRHP eligible nor is it eligible for the CR or a local list; demolition of the building will result in NO EFFECT.

Within the Indirect APE there are NO NRHP, NO CR, NOR LOCALLY designated historic resources, although there are historically aged properties and thus while the project may affect said resources, such effects will NOT BE ADVERSE. Finally, to those non-historic resources in the APE (which counts for the majority), the project will have NO Effect on adjacent properties. Outside of the Indirect APE there are NRHP designated historic resources, but distance, topography, natural landscaping, and infill buildings are in between and thus the project will have NO Effect on historic properties.

There are no archaeological resources recorded at the subject property, and there is a low probability of significant intact archaeological resources occurring beneath the pavements and foundations on the subject property. Debris from late-19th to mid-20th century construction and settlement of South San Francisco could occur as isolated elements of the historic landscape. Please refer to the Attachments for a complete copy of the Assessment and its findings.

Please notify us in writing within 30 calendar days from receipt of this letter whether you wish to consult on this project. If you have any initial concerns with impacts of the project on religious or cultural properties, please be sure to note them in your response.

Enclosed are the site photos and maps that show the project area and, if applicable, an additional area of potential indirect effects.

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Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Costanoan Rumsen Carmel Tribe
108 South Acacia, Rialto, CA 92376
crct.crd@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Tribal Council Carla Muñoz,

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500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Cultural Resource Officer Henry Muñoz,

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HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Indian Canyon Mutsun Band of Costanoan
971 S 7th Street, San Jose, CA 95122
kanyon@kanyonconsulting.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear MLD Contact Kanyon Sayers-Roods,

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HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Costanoan Rumsen Carmel Tribe
29539 Oakbridge Dr, Menifee, CA 92586
crct.crd@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Cultural Resource Officer Samuel Rodriguez,

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Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Muwekma Ohlone Indian Tribe of the SF Bay Area
1169 S. Main Street, Ste. 336, Manteca, CA 95337
cnijmeh@muwekma.org

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Chairperson Charlene Nijmeh,

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1169 S. Main Street, Ste. 336, Manteca, CA 95337
rmassiatt@muwekma.org

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Councilmember/MLD Tribal Rep. Richard Massiatt,

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Within the Indirect APE there are NO NRHP, NO CR, NOR LOCALLY designated historic resources, although there are historically aged properties and thus while the project may affect said resources, such effects will NOT BE ADVERSE. Finally, to those non-historic resources in the APE (which counts for the majority), the project will have NO Effect on adjacent properties. Outside of the Indirect APE there are NRHP designated historic resources, but distance, topography, natural landscaping, and infill buildings are in between and thus the project will have NO Effect on historic properties.

There are no archaeological resources recorded at the subject property, and there is a low probability of significant intact archaeological resources occurring beneath the pavements and foundations on the subject property. Debris from late-19th to mid-20th century construction and settlement of South San Francisco could occur as isolated elements of the historic landscape. Please refer to the Attachments for a complete copy of the Assessment and its findings.

Please notify us in writing within 30 calendar days from receipt of this letter whether you wish to consult on this project. If you have any initial concerns with impacts of the project on religious or cultural properties, please be sure to note them in your response.

Enclosed are the site photos and maps that show the project area and, if applicable, an additional area of potential indirect effects.

More information on the Section 106 review process is available at <http://www.onecpd.info/environmental-review/historic-preservation/>.

HUD's process for tribal consultation under Section 106 is described in a Notice available at <https://www.onecpd.info/resource/2448/notice-cpd-12-006-tribal-consultation-under-24-cfr-part-58>.

If you do wish to consult or even if you do not wish to consult, please include in your reply the name and contact information for the tribe's principal representative in the consultation. We value your assistance and look forward to consulting further if there are historic properties of religious and cultural significance to your tribe that may be affected by this project.

Please email your response to emalabanan@smchousing.org or to provide further guidance within 30 Days upon receiving this notice.

Sincerely,



Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

The Ohlone Indian Tribe
P.O. Box 3388, Fremont, CA 94539
chochenyo@AOL.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Chairperson Andrew Galvan,

County of San Mateo is considering funding the project listed above with federal funds from the U.S. Department of Housing and Urban Development (HUD). Under HUD regulation 24 CFR 58.4, County of San Mateo has assumed HUD's environmental review responsibilities for the project, including tribal consultation related to historic properties. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, plant and animal communities, and buildings and structures with significant tribal associations.

County of San Mateo will conduct a review of this project to comply with Section 106 of the National Historic Preservation Act and its implementing regulations 36 CFR Part 800. We would like to invite you to be a consulting party in this review to help identify historic properties in the project area that may have religious and cultural significance to your tribe, and if such properties exist, to help assess how the project might affect them.

The project site is currently developed with one (1) two-story bank building and an associated paved parking lot, located at 500 Linden Avenue, South San Francisco, San Mateo County, California. The property is at the east side of Linden Avenue in between California Avenue to the north and Lux Avenue to the south and is surrounded at the east and opposite sides of the street by varied mixed-use buildings. The subject property is currently occupied by Liberty Bank for commercial use—it is however vacant at this time. Onsite operations consist of previous commercial banking operations and associated parking lot. In addition to the current structure, the subject property is also improved with asphalt-paved parking areas and associated landscaping.

The site development requires demolition of the existing 1971 bank building and preparation for a new six-story and basement, approximately 73 foot high, 87,263 square foot, apartment building with concrete foundations, steel and wood framing, and exterior veneers including masonry, composite, and metal panels, concrete masonry units, and formed concrete. Parking is proposed at the basement level and on the adjacent property. A total of 10 studio apartments, 69 one-bedroom apartments, and 1 two-bedroom apartment are currently proposed on floors two through six.

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Sincerely,



Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

The Ohlone Indian Tribe
259 Winwood Avenue, Pacifica, CA 94044
dirwin0368@yahoo.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear THPO Desiree Vigil,

County of San Mateo is considering funding the project listed above with federal funds from the U.S. Department of Housing and Urban Development (HUD). Under HUD regulation 24 CFR 58.4, County of San Mateo has assumed HUD's environmental review responsibilities for the project, including tribal consultation related to historic properties. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, plant and animal communities, and buildings and structures with significant tribal associations.

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Please email your response to emalabanan@smchousing.org or to provide further guidance within 30 Days upon receiving this notice.

Sincerely,



Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

The Ohlone Indian Tribe
17365 Via Del Rey, San Lorenzo, CA 94580
vincent.d.medina@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Cultural Leader Vincent Medina,

County of San Mateo is considering funding the project listed above with federal funds from the U.S. Department of Housing and Urban Development (HUD). Under HUD regulation 24 CFR 58.4, County of San Mateo has assumed HUD's environmental review responsibilities for the project, including tribal consultation related to historic properties. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, plant and animal communities, and buildings and structures with significant tribal associations.

County of San Mateo will conduct a review of this project to comply with Section 106 of the National Historic Preservation Act and its implementing regulations 36 CFR Part 800. We would like to invite you to be a consulting party in this review to help identify historic properties in the project area that may have religious and cultural significance to your tribe, and if such properties exist, to help assess how the project might affect them.

The project site is currently developed with one (1) two-story bank building and an associated paved parking lot, located at 500 Linden Avenue, South San Francisco, San Mateo County, California. The property is at the east side of Linden Avenue in between California Avenue to the north and Lux Avenue to the south and is surrounded at the east and opposite sides of the street by varied mixed-use buildings. The subject property is currently occupied by Liberty Bank for commercial use—it is however vacant at this time. Onsite operations consist of previous commercial banking operations and associated parking lot. In addition to the current structure, the subject property is also improved with asphalt-paved parking areas and associated landscaping.

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Please notify us in writing within 30 calendar days from receipt of this letter whether you wish to consult on this project. If you have any initial concerns with impacts of the project on religious or cultural properties, please be sure to note them in your response.

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If you do wish to consult or even if you do not wish to consult, please include in your reply the name and contact information for the tribe's principal representative in the consultation. We value your assistance and look forward to consulting further if there are historic properties of religious and cultural significance to your tribe that may be affected by this project.

Please email your response to emalabanan@smchousing.org or to provide further guidance within 30 Days upon receiving this notice.

Sincerely,



Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment



Main Office - Department of Housing
264 Harbor Blvd., Building A, Belmont, CA 94002-4017

Housing & Community Development (HCD)
Tel: (650) 802-5050

Housing Authority of the County of San Mateo (HACSM)
Tel: (650) 802-3300

Board of Supervisors:
Dave Pine
Noelia Corzo
Ray Mueller
Warren Slocum
David Canepa

Director:
Raymond Hodges

Deputy Director:
Rose Cade

January 16, 2026

Marni McManus, MA, RPA
Senior Tribal Archaeologist
Muwekma Ohlone Tribe
mcmanus@muwekma.org

Subject: Reply to Tribal Monitoring Request

RE: Liberty Bank, aka Rotary Gardens
 500 Linden Avenue
 South San Francisco, San Mateo County, CA 94080
 Partner Project No. 25-551454.1
Program: HOME

Dear Ms. McManus;

Thank you for your correspondence of November 13, 2025 replying to our notification of the subject project and our invitation to the Muwekma Tribe to be a consulting party in our Section 106 review to help identify historic properties in the project area that may have religious and cultural significance to the Muwekma, and if such properties exist, to help assess how the project might affect them. This is a Federal HUD project and no CEQA review, or consultation is being requested. Your response, however, was directed to a project in Saratoga, Santa Clara County, California and not our low-income housing HUD project in South San Francisco. We want to make sure you are addressing the correct project, so we have attached the report and supporting documents prepared by Partner Engineering and Science, Inc. (Partner).

As noted in our documentation submitted with our letter of November 4, 2025, the subject property is currently occupied by Liberty Bank for commercial use—it is vacant at this time. The proposed site development requires demolition of the existing two story 1971 bank building and preparation for a new six-story and basement, approximately 73 foot high, 87,263 square foot, apartment building with concrete foundations, steel and wood framing, and exterior veneers including masonry, composite, and metal panels, concrete masonry units, and formed concrete. Parking is proposed at the basement level and on the adjacent property. A total of 10 studio apartments, 69 one-bedroom apartments, and 1 two-bedroom apartment are currently proposed on floors two through six.

Due to the project scope of work, Partner completed a Cultural Resources Section 106 Assessment to assess the likelihood of encountering Historic Properties listed or eligible for listing in the National Register of Historic Places (NRHP) and concluded from an archaeological survey and review of records at Sonoma State University that there are no archaeological resources recorded or identified at the subject

property. The Partner research identified only one known recorded precontact archaeological resource (P-41-0002207) located near the former bayshore 0.3 miles to the northeast and along a short ephemeral drainage of San Bruno Mountain. Sparse, thin lenses of suspected shell midden associated with disturbed fill materials were identified in 2-inch diameter geoprobes at 0.96, 1.07 and 3.12 meters below the road surface.

Two other precontact resources are suspected to have been mapped in the early 1900s roughly 0.4 and 0.5 miles south along the lower portion of the former drainage of Colma Creek where it meets bayshore tidal flats. These sites are only suspected to have been present based on crude mapping and recording of locations by archaeologist Nels Nelson during his extensive 1907-1908 surveys to identify hundreds of shell mounds around San Francisco Bay. Recent investigations at one of these suspected site locations (P-41-0000045) using geoprobes failed to identify any remnant of buried midden deposits to depths up to 38 feet.

Existing data on site locations indicate there is potential for naturally buried archaeological sites in areas where the coastlines and bayshore were lower than at present, and several such resources have been identified in such conditions. The subject property, however, as identified by Partner, does not meet these conditions and therefore has a low potential for buried precontact resources. Debris from late-19th to mid-20th century construction and settlement of South San Francisco could occur as isolated elements of the historic landscape.

Based on the results of the Historic Architecture and Cultural Resources Section 106 Assessment, Partner recommends a finding of "No Historic Properties Affected" pursuant to 36 CFR 800.4(d)(1).

Thank you for your attention to this matter. If you concur with Partner's assessment and do not wish to consult further knowing the actual project scope, or even if you do still wish to consult, please provide your reply at your earliest opportunity. We value your assistance and look forward to consulting further if it can be demonstrated that there are historic properties of religious and cultural significance to the Muwekma that may be affected by this project.

Sincerely,



Manasa Hegde
HCD Specialist III, Department of Housing
County of San Mateo

cc: cnijmeh@muwekma.org

**Cultural Resource Protection and Tribal Consultation Services
Provided by Muwekma Ohlone Tribe Inc.**

Scope of Services

Muwekma Ohlone Tribe Inc., a non-profit organization founded and managed by the Muwekma Ohlone Tribe of the San Francisco Bay, is dedicated to the preservation and protection of Ohlone cultural heritage, offers specialized services to construction management firms to ensure compliance with state and federal laws governing Native American cultural resources. These services focus on proactive monitoring of construction sites to prevent desecration of burial grounds and sacred sites, respectful relocation of human remains and associated funerary objects, and comprehensive anthropological analysis of uncovered artifacts. By partnering with the Muwekma Ohlone Tribe, construction firms can mitigate project risks, fulfill regulatory obligations under the California Environmental Quality Act (CEQA), and demonstrate cultural sensitivity in development projects within traditional Ohlone territories.

This Scope of Work (SOW) outlines the services, subsegments of work types, process timelines, and relevant California laws and regulations. Services are tailored to project scale, location, and potential impacts, with fees structured on a per-project or hourly basis (to be negotiated). All activities prioritize tribal sovereignty, cultural protocols, and dignified treatment of ancestral remains and artifacts.

Services Provided

The Muwekma Ohlone Tribe Inc. provides end-to-end cultural resource management services, including:

1. **Pre-Construction Cultural Resource Assessment and Consultation:** Identification of potential tribal cultural resources (TCRs) through archival research, sacred lands file reviews, and tribal knowledge-sharing.
2. **On-Site Monitoring and Archaeological Oversight:** Continuous or periodic presence of trained tribal monitors and anthropologists during ground-disturbing activities to detect and protect cultural resources.
3. **Discovery Response and Emergency Protocols:** Immediate intervention upon discovery of human remains, artifacts, or sacred sites, including work stoppage coordination and stakeholder notifications.
4. **Respectful Relocation and Repatriation:** Coordination of exhumation, temporary curation, and reinterment of human remains and funerary objects in consultation with tribal elders and descendants.
5. **Anthropological Documentation and Analysis:** Scientific examination, cataloging, and reporting on artifacts to support repatriation, educational outreach, and compliance documentation.

6. Reporting and Compliance Support: Preparation of technical reports, mitigation plans, and CEQA documentation to facilitate project approvals and avoid delays.

These services ensure projects avoid or minimize adverse impacts to TCRs, defined as sites, features, places, cultural landscapes, sacred places, or objects with cultural value to California Native American tribes that are either listed/eligible for listing in the California Register of Historical Resources or determined significant by tribal consultation.

Subsegments of Work Types

The following table enumerates key subsegments under each major service category, detailing specific tasks, deliverables, and responsible parties.

Service Category	Subsegment	Description	Process	Roles
Pre-Construction Assessment	Archival and Ethnographic Review	Review of NAHC sacred lands files, historical records, and oral histories.	Preliminary TCR Map and Risk Assessment	Tribal Historian/Ethnographer
	Tribal Consultation Kickoff	Formal AB 52 consultation meetings with project leads.	Consultation Agreement and Timeline	Tribal Chair/Designated Rep
	Archaeological Survey Planning	Design of pedestrian and subsurface surveys if needed.	Survey Protocol Document	Licensed Archaeologist/Tribal Monitor
On-Site Monitoring	Daily/Periodic Monitoring	Presence during excavation to observe for cultural materials.	Daily Monitoring Logs	Tribal Monitors/Archaeologist
	Training for Construction Crew	Cultural sensitivity and discovery protocols for site workers.	Training Certification Records	Tribal Elder/Monitor
	GPS-Mapped Monitoring Zones	Establishment of high-risk areas based on pre-assessments.	Zoned Site Plan	GIS Specialist/Tribal Rep
Discovery Response	Immediate Work Stoppage	Halt all activities within 100 ft of discovery; secure site.	Incident Report and Photos	On-Site Monitor/Construction Mgr
	Notification Chain	Alerts to coroner, NAHC, and tribe within required timelines.	Notification Log	Tribal Rep/Compliance Officer
	Initial Assessment	Non-invasive evaluation to determine scope (e.g., remains vs. artifacts).	Preliminary Findings Memo	Anthropologist/Tribal Elder
Relocation and Repatriation	Exhumation Protocol	Sensitive recovery using tribal protocols and scientific methods.	Recovery Field Notes	Forensic Anthropologist/Tribal Team

Service Category	Subsegment	Description	Process	Roles
Anthropological Work	Temporary Curation	Secure storage compliant with NAGPRA/CalNAGPRA standards.	Curation Agreement	Museum/Curation Facility
	Reinterment Ceremony	Culturally appropriate reburial with elder-led rites.	Reinterment Report	Tribal Spiritual Leader
	Artifact Cataloging	Documentation, photography, and non-destructive analysis.	Catalog Database	Anthropologist/Lab Technician
	Provenience Analysis	Contextual study of artifacts relative to site and burials.	Analytical Report	Specialist in Ohlone Material Culture
	Repatriation Recommendation	Guidance on return to tribe for ceremonial disposition.	Repatriation Plan	Tribal Rep/Anthropologist
Reporting and Compliance	Mitigation Monitoring Plan	CEQA-compliant plan for ongoing protection.	Approved Mitigation Plan	Project Environmental Consultant
	Final Technical Report	Comprehensive summary for regulatory submission.	CEQA Addendum/Technical Report	Lead Anthropologist/Tribal Rep
	Post-Project Debrief	Lessons learned and recommendations for future projects.	Debrief Summary	All Parties

Process Timeline

The timeline below outlines a standard process for a typical construction project, aligned with statutory requirements. Timelines are flexible based on project phase and discoveries but must adhere to legal mandates (e.g., immediate halts). Total duration: 6-18 months, depending on complexities.

Phase/Subsegment	Key Activities	Timeline (from Phase Start)	Regulatory Trigger
Pre-Construction (Months 1-3)	Application completeness determination; tribal notification; initial consultation request/response.	14 days: Notify tribe 30 days: Tribe requests consultation 30 days: Begin consultation	AB 52 (§ 21080.3.1); CEQA Guidelines
	Archival review and survey planning.	45 days: Tribal comments on plans	Public Resources Code § 65352
	Consultation meetings and agreement.	Conclude before EIR release (typically 60-90 days)	AB 52 Consultation Process
Construction Monitoring (Ongoing, Months 4-12+)	Crew training; establish monitoring zones; daily logs.	Ongoing (full project duration)	CEQA Mitigation Measures

Phase/Subsegment	Key Activities	Timeline (from Phase Start)	Regulatory Trigger
	Periodic reports to project lead.	Bi-weekly or as-needed	Project-Specific Agreement
Discovery Response (Immediate)	Halt work; secure site; notify coroner/NAHC.	Immediate: Halt work 24 hours: Coroner notification 48 hours: Tribal inspection	Health & Safety Code § 7050.5; PRC § 5097.98
	Initial assessment and mitigation planning.	7-14 days: Develop response plan	NAHC Guidelines
Relocation/Repatriation (Weeks 2-8 post-discovery)	Exhumation; temporary curation; reinterment planning.	30 days: Complete recovery 60 days: Reinterment (if feasible)	PRC § 5097.94; CalNAGPRA
	Ceremony and site restoration.	Aligned with tribal protocols	Tribal Sovereignty Protocols
Anthropological Work (Weeks 4-12 post-discovery)	Cataloging and analysis; repatriation recommendations.	45-90 days: Final analysis	Professional Standards (SAA)
Reporting (Months 12-18)	Draft/final reports; CEQA submission; debrief.	30 days post-phase: Submit reports	CEQA (§ 21083.2); Project Closeout

Note: Delays may occur due to consultations, weather, or legal reviews. All timelines prioritize cultural respect over speed.

State of California Laws and Regulations

The following table summarizes key California laws and regulations mandating these services. Compliance is enforced through CEQA, NAHC oversight, and potential civil/criminal penalties (e.g., misdemeanors under Penal Code § 622 1/2). Federal overlays like NAGPRA apply on federal lands but are supplemented by state provisions.

Law/Regulation	Key Provisions	Applicability to Services	Citation/Source
AB 52 (2014) - Tribal Consultation under CEQA	Requires notification to tribes within 14 days of project application; 30-day window for consultation request; defines TCR impacts as significant environmental effects; mandates avoidance/mitigation.	Pre-construction consultation; monitoring; mitigation planning.	Public Resources Code §§ 21074, 21080.3.1, 21084.2
Health & Safety Code § 7050.5	Requires immediate cessation of work upon discovery of human remains; coroner notification within 24 hours; NAHC involvement for Native American remains; 48-hour tribal inspection period.	Discovery response; halt protocols; notifications.	Health & Safety Code Division 7, Part 1
Public Resources Code § 5097.98	Parallels § 7050.5 for Native American remains; mandates reinterment on-site if no other recommendation; prohibits disturbance until processes complete.	Relocation; reinterment; anthropological assessment.	Public Resources Code Division 5, Chapter 1.8

Law/Regulation	Key Provisions	Applicability to Services	Citation/Source
Public Resources Code § 5097.94	Establishes NAHC role in disposition of remains and items; requires tribal consultation for treatment; supports repatriation.	Repatriation; respectful relocation.	Public Resources Code § 5097.91-5097.99
California Native American Graves Protection and Repatriation Act (CalNAGPRA, 2001)	State analog to federal NAGPRA; requires inventories, consultations, and repatriation of remains/cultural items by agencies/museums; applies to non-federally recognized tribes.	Anthropological work; curation; repatriation.	Health & Safety Code §§ 8010-8011
CEQA Guidelines (Appendix G, Section XVII)	Adds TCR impact questions to initial studies; requires evaluation of substantial adverse changes to TCRs.	Overall compliance; reporting; mitigation.	14 CCR § 15000 et seq.
Public Resources Code § 21083.2	Mandates evaluation of unique archaeological resources in EIRs; allows preservation or mitigation funding.	Monitoring; anthropological analysis; alternatives to excavation.	Public Resources Code Division 13, Chapter 2.6
Penal Code §§ 622 1/2, 623	Misdemeanor for willful destruction/injury of archaeological/historical sites or cave evidence.	Prohibits desecration; enforces monitoring.	Penal Code Part 1, Title 14
Government Code §§ 65351-65352.4	Requires tribal involvement in general plan amendments; 45-day comment periods; meaningful consultation.	Pre-construction planning; land use protections.	Government Code Title 7, Division 1, Chapter 3

For full text, refer to the California Legislative Information website or NAHC resources. Non-compliance may result in project delays, fines up to \$50,000 per violation, or injunctions.

Lawlor, Michael

From: Alan Leventhal <aleventh@muwekma.org>
Sent: Tuesday, February 17, 2026 4:40 PM
To: Manasa Vigneshwar Hegde; Bernadette Quiroz
Cc: Charlene Nijmeh; Marni McManus; Jan Stokley
Subject: Re: Rotary Gardens: Response to tribal monitoring request
Attachments: Ancient and modern genomics of the Ohlone.pdf; BIA Smith Letter 1998.pdf; Community Based Archaeology Byrd et al 2022 - Sii Tupentak.pdf; DC District Court Muwekma.pdf; Federal Court Opinion Muwekma-1 (1).pdf; Lofgren Extension of Remarks.pdf; Lt. Governor Letter 2002.pdf; Lucas Marine 1928 BIA.pdf; Miller's Restoration Bill 2000.pdf; Previous Recognition 5-24-96-1.pdf; The Muwekma Ohlone Tribe Timeline and Evidence 2025.pdf; UC Berkeley Chancellor Carol Christ Muwekma - Support Letter.pdf; Fighting_Erasure_and_Dispossession_in_th.pdf; Muwekma Ethnohistory CA-SMA-309 Updated-compressed-min.pdf

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Dear Manasa,

Thank you and your colleagues for hosting the Tribal Consultation with Bernadette and me with regards to the proposed housing project located at 500 Linden Avenue in South San Francisco. Please share the following along with the attachments with your fellow team members on this project.

As you also already know, the Muwekma Ohlone Tribe is the only BIA documented previously federally recognized tribe of the San Francisco Bay Area (based upon 25 CFR Part 83.8) with a tribal enrollment of approximately 600 hundred BIA documented tribal members representing 13 lineages who have direct descent from the historic continuously existing **Verona Band of Alameda County**. The Muwekma enrolled families are descended from Missions San Francisco, Santa Clara, and San Jose as well as from the several historic East Bay Rancherias that include the Alisal (Pleasanton) Rancheria, Del Mocho (Livermore) Rancheria, Sunol Rancheria, El Molino (Niles) Rancheria, the Springs Rancheria (San Lorenzo/San Leandro), and a settlement in Newark. These were the only areas of the bay Area where our tribal members could work and survive unmolested after the American Conquest of California.

During the 1880s, U.S. Senator George Hearst and his wife, Phoebe Apperson Hearst purchased part of the old (1839) Bernal/Sunol/Pico owned Rancho Valle de San José y Corralitos which includes the present-day towns of Pleasanton and Sunol, and it included the Alisal Rancheria with approximately 125 Muwekma Indians residing there on the land. There the Hearsts built their mansion Hacienda del Pozo de Verona mansion, from which the Muwekma Tribe was named by Special Indian Agent Charles E. Kelsey the Verona Band after the railroad station built by Western Pacific Railroad near the Hearst property. Years later, it was Phoebe Apperson Hearst who funded the fledgling anthropology department at Berkeley, and she invited several anthropologists/linguists such as Alfred L. Kroeber, C. Hart Merriam, and Edward W. Gifford to come down to interview our direct biological Elders in order to record our Indian languages spoken at our Tribe's Alisal and Niles Rancherias.

The Muwekma families were identified and listed on the two 1900 Federal Indian Censuses for Pleasanton and Niles; Special Indian Agent Charles E. Kelsey's Census of 1905-1906; 1910 Federal Indian Census of Indian Town; the 1910 and 1913 Indian Rancheria maps prepared by Kelsey for the Department of Interior and

Congress; 1914, 1923 and 1927 Superintendent reports; the 1928-1932 BIA enrollment under the 1928 California Indian Jurisdictional Act; attendance at Indian Boarding Schools in the 1930s and 1940s; with the 2nd BIA enrollment period (1950-1957); with the 3rd BIA enrollment period (1968-1971); identified in 1965 as "Ohlone Members and Contacts" for protecting our Ohlone Indian Cemetery associated with Mission San Jose (1962-1971); as well as other historic documents and newspapers.

Since 1962, the Elders and their families enrolled in our Tribe were engaged in the preservation of our Ohlone Indian Cemetery. Years later, during the early 1980s, the Mission San Jose/Verona Band tribal community organized under the 1934 Indian Reorganization Act to formalize the Muwekma Ohlone Tribal governing council for status clarification with the Bureau of Indian Affairs. as well as legally interfacing with various governmental agencies. Since 1982, our Tribe has been listed as Most Likely Descendants (MLDs) with the Native American Heritage Commission and named the Most Likely Descendant Tribe on many of our ancestral heritage sites. Over the years our Tribe has worked with various San Francisco Bay Area municipal and county governments, and planning departments, State agencies such as Caltrans, as well as other entities such as East Bay Regional Park District, and the San Francisco Public Utilities Commission, as well as Federal agencies on many projects relating to our ancestral heritage sites.

The Muwekma tribal leadership and language committee have been engaged in renaming their ancestral heritage sites in their Muwekma Ohlone language. Furthermore, the Tribe has been engaged in CRM work since the mid-1980s, and have published many archaeological reports pertaining to our ancestral heritage sites and human remains including recent burial recovery field work at several sites in the San Francisco County at **CA-SFR-4/H Čaurismin Warep 'Ómmutka** meaning **Place of the Yerba Buena (Is)land in the Bay Site** with Caltrans on the Bay Bridge retrofit project, San Mateo County at a mound site **CA-SMA-309 Wirak Tayyi Trépam Táareš-tak** meaning **Man with the Bird Bone Tubes Site** (Arellano et al. 2023), Alameda County, Santa Clara Valley, Morgan Hill and on Stanford University at **CA-SCL-609** to which the Tribe named **Horše 'Iššéete Ruwwatka** meaning **Place of the Good Health House Site** (Leventhal et al. 2016); **SCL-287/CA-SMA-263** site complex was named **Yuki Kutsuimi Šaatoš Inūxw [Sand Hill Road] Sites** located to the west of **CA-SCL-623** along San Francisquito Creek on Stanford University lands (Leventhal et. al 2010); At **CA-SCL-30/H** the **3rd Mission Santa Clara Indian Neophyte Cemetery Clareño Muwékma Ya Tunnešte Nómmo (Where the Clareño Indians are Buried Site)** (Leventhal et. al 2011; Arellano et al, 2021a; and at **CA-SCL-755 Širkeewis Rūpin Tiprectak, Place of the Black Willow Marsh Site** located on Santa Clara University campus (Leventhal et al. 2023); and more recently at a construction site located to the west of the San Jose Airport, where 42 ancestral burials were encountered during mechanical excavation. The site, **CA-SCL-1070** yielded AMS dates on several of the burials that range from 8934 to 10,400 cal B.P. and AMS dating test results on the non-burial features range from 10,300 to 12,000 cal B.P. The Tribal leadership renamed this site **Mánni Húyyú Muwékma Yatiš Tunnešetka** meaning **Place Where the Ancient People Are Buried Site** (aDNA, Stable Isotope, and AMS studies in progress).

We have also co-authored many journal articles with many scholars from various universities such as Stanford, Santa Clara, San Jose, University of New Mexico at Albuquerque, University of Oklahoma at Norman, University of Illinois, U.C. Davis, California State University at Chico, and private CRM firms on our ancestral remains, ceremonial grave regalia, AMS dating, Stable Isotope, and modern and aDNA studies which we are attaching several copies.

In conclusion, we are formally requesting continued tribal consultation under Section 106 for this housing project. Muwekma Tribal Executive Director for Tribal Cultural Resources Bernadette Quiroz will be your main contact person for this project and for future Tribal Consultations along with Tribal Chairwoman Charlene Nijmeh and Alan Leventhal, Tribal Archaeologist, and Marni McManus, Tribal Bioarcheologist. Furthermore, should you or the project developer and/or other consultants choose to work with our Tribe for monitoring and, if necessary, burial recovery services we will make ourselves available for this project.

On Behalf of the Muwekma Ohlone Tribal Council,

Respectfully submitted,

Alan Leventhal, Muwekma Ohlone Tribal Archaeologist RPA and Ethnohistorian (1980-Present)
Board Member Muwekma Ohlone Preservation Foundation
Emeritus Faculty, Anthropology Department, San Jose State University, (1978-2019)

From: Manasa Vigneshwar Hegde <mhegde@smchousing.org>
Sent: Wednesday, February 4, 2026 8:50 AM
To: Bernadette Quiroz <bquiroz@muwekma.org>
Cc: Charlene Nijmeh <cnijmeh@muwekma.org>; Marni McManus <mcmamus@muwekma.org>; Alan Leventhal <aleventh@muwekma.org>; Jan Stokley <jstokley@smchousing.org>
Subject: Re: Rotary Gardens: Response to tribal monitoring request

Dear Bernadette,

Thank you for your email on behalf of the Muwekma Ohlone tribe requesting consultation with San Mateo County on the affordable housing project located at 500 Linden Avenue, South San Francisco after we notified you that your prior response to our request for consultation concerned a project not located in San Mateo County.

Regarding the South San Francisco project, we had previously sent you the Section 106 assessment, which documented the reasons why the affordable housing project had a low potential for archaeological resources at the Area of Potential Effects (APE).

For your convenience, I am re-sending the Section 106 assessment originally sent on November 13, 2025.

Considering the findings of the Section 106 assessment, it would be helpful for the County as the Responsible Entity if you would please clarify the following:

1. Do you have questions or comments about the findings of the Section 106 assessment?
2. If you do not have questions or comments about the finding of low potential for archaeological resources at the APE, can you please clarify the scope of the ongoing consultation that you think is needed to address the low potential for archaeological resources at the APE?

Thank you for assisting us by replying to the above clarifying questions.
Manasa

Manasa Hegde (she/her)
Housing & Community Development Specialist III
County of San Mateo, Department of Housing
mhegde@smchousing.org | Phone: +1 628-258-3176



COUNTY OF SAN MATEO

From: Bernadette Quiroz <bquiroz@muwekma.org>

Sent: Tuesday, February 3, 2026 2:31 PM

To: Manasa Vigneshwar Hegde <mhegde@smchousing.org>

Cc: Charlene Nijmeh <cnijmeh@muwekma.org>; Marni McManus <mcmamus@muwekma.org>; Alan Leventhal <aleventh@muwekma.org>

Subject: Re: Rotary Gardens: Response to tribal monitoring request

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Thank you, Manasa, for your response.

Muwekma Ohlone Tribe, Inc. would like to move forward with tribal consultation for this project. The appropriate Tribal representatives who should participate in the consultation are cc'd on this email.

For scheduling, please use the booking link provided below to select a date and time that works best for your team.

We also respectfully request that any additional project information or documentation you would like us to review be provided prior to the consultation.

Please let us know if you have any questions. We look forward to consulting with you.

Thank you,



Bernadette Quiroz

Executive Director of Muwekma Ohlone Tribe Incorporated (MOTI)

MOTI is a California-incorporated 501(c)3 non-profit founded by the sovereign **Muwekma Ohlone Tribe of the San Francisco Bay** to protect our ancestral burial grounds within the confines of State law in order to provide cultural resource management services, including archeological monitoring, excavation, and reburial.

Muwekma Ohlone Tribe of the San Francisco Bay

2570 N. First Street, 2nd Floor, #1035

San Jose, CA 95131

(408) 852-1677 o.

(785) 730-6165 m.

Bquiroz@muwekma.org

Muwekma.org

MuwekmaOhlone.org

From: Marni McManus <mcmanus@muwekma.org>
Sent: Wednesday, January 21, 2026 3:14 PM
To: Bernadette Quiroz <bquiroz@muwekma.org>
Subject: Fw: Rotary Gardens: Response to tribal monitoring request

I don't think I forwarded this to you yet?

Best regards,
Marni McManus M.A., RPA
Senior Tribal Archaeologist and Bioarchaeologist



From: Manasa Vigneshwar Hegde <mhegde@smchousing.org>
Sent: Friday, January 16, 2026 2:55 PM
To: Marni McManus <mcmanus@muwekma.org>
Cc: Jan Stokley <jstokley@smchousing.org>; Richard Massiatt <rmassiatt@muwekma.org>; Alan Leventhal <aleventh@muwekma.org>; Charlene Nijmeh <cnijmeh@muwekma.org>
Subject: Rotary Gardens: Response to tribal monitoring request

Hi Ms. McManus,
Hope this email finds you well.

Please see the attached letter in response to your request for Tribal consultation(s) under Section 106, CEQA, for the proposed multifamily affordable housing project at 500 Linden Avenue.

Please review and respond if you have any questions or would like to engage further with County/Project Staff.

Thanks,
Manasa

Manasa Hegde (she/her)
Housing & Community Development Specialist III
County of San Mateo, Department of Housing
mhegde@smchousing.org | Phone: +1 628-258-3176



COUNTY OF SAN MATEO



Carol T. Christ

CHANCELLOR

200 California Hall #1500

Berkeley, CA 94720-1500

510 642-7464

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chancellor.berkeley.edu

December 21, 2020

The Honorable Tara Sweeney
Assistant Secretary – Indian Affairs
United States Department of the Interior
1849 C Street, NW
Washington, DC 20240

Dear Assistant Secretary Sweeney:

I write to urge you to consider reaffirming The Muwekma Ohlone Indian Tribe as a federally recognized tribe.

The Muwekma Ohlone people have lived in the San Francisco Bay Area since long before the arrival of the Spanish. The present-day Muwekma Ohlone Indian Tribe comprises virtually all of the known surviving American Indian lineages aboriginal to the San Francisco Bay region.

The direct ancestors of the present-day Muwekma Tribe were Federally Acknowledged by the U.S. Government through the Appropriation Acts of Congress of 1906 and later years. Today, 100% of Muwekma tribal members are descended directly from that previously recognized Tribe. The Muwekma Ohlone Indian Tribe was never terminated and their members still live in their aboriginal homeland today, working within their own communities to strengthen ties to local universities, local government, and community groups.

While the Muwekma were never formally terminated, a large part of their elimination from the rolls rests on the authority of Berkeley anthropologist Alfred Kroeber. In his Handbook of the Indians of California (1925), he declared "The Costanoan (Muwekma) group is extinct so far as all practical purposes are concerned." This, and other comments outweighed the opinions of other experts in the field, including C. Hart Merriam and J.P. Harrington, and contributed to the mistaken belief that the Muwekma were functionally non-existent. This travesty of justice is a large part of our pending decision to rename Kroeber Hall. It is our hope that this is a larger part of recognition and restoration of justice for the Muwekma people.

Other California Tribes in a similar situation as Muwekma did, in fact, have their status positively clarified by administrative actions of previous Assistant Secretaries of Indian Affairs.

After decades of struggling to clarify their sovereign status, it is time to give the Muwekma people the justice they deserve and to have their government-to-government relationship restored.

Thank you for your consideration.

Sincerely,

A handwritten signature in blue ink that reads "Carol T. Christ". The signature is written in a cursive, flowing style.

Carol Christ
Chancellor

UNIVERSITY OF CALIFORNIA, BERKELEY

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO



SANTA BARBARA • SANTA CRUZ

OFFICE OF THE VICE CHANCELLOR FOR RESEARCH
119 CALIFORNIA HALL #1500

BERKELEY, CALIFORNIA 94720-1500

December 17, 2020

The Honorable Tara Sweeney
Assistant Secretary – Indian Affairs
United States Department of the Interior
1849 C Street, NW
Washington, DC 20240

Dear Assistant Secretary Sweeney:

We are writing to urge you to consider reaffirming the The Muwekma Ohlone Indian Tribe to a federally recognized tribe.

Our university acknowledges that we are located on the ancestral and unceded land of the Chochenyo-speaking Ohlone people. The Muwekma Ohlone are thus included in our land acknowledgement as people who have lived in this area since long before the arrival of the Spanish. We have an institutional obligation to respect their history and their relationship to the land where we live and work, affirming that the living members of the tribe are the direct descendants of the Muwekma Tribe that was Federally Acknowledged by the U.S. Government through the Appropriation Acts of Congress of 1906 and later years. The Muwekma Ohlone Indian Tribe was never terminated, and their members still live here today, working within their own communities to strengthen ties to institutions like our university. Members of the tribe have been working with us to ensure respect for potential burial sites when the university has a building project. They participate in language revival and cultural and learning activities on campus. They contribute to the campus and broader community with their knowledge and skills.

In my capacity as NAGPRA officer for the University of California, Berkeley, I have seen the importance of federal recognition in repatriation cases. Our university holds a significant number of ancestral remains and sacred objects that can be affiliated to the Muwekma Ohlone, and we look forward to working with them to ensure that the ancestors and their belongings return home. Clarification and reassertion of their sovereign status would greatly assist in restoring justice and returning the ancestors.

Thank you for your consideration.

Sincerely,

A handwritten signature in cursive script that reads "Randy Howard Katz".

Randy Howard Katz
Vice Chancellor for Research

A handwritten signature in cursive script that reads "Linda Haverty Rugg".

Linda Haverty Rugg
Associate Vice Chancellor for Research



Phoebe A.
Hearst Museum
of Anthropology

December 11, 2020

The Honorable Tara Sweeney
Assistant Secretary – Indian Affairs
United States Department of the Interior
1849 C Street, NW
Washington, DC 20240

Dear Assistant Secretary Sweeney:

I write to urge you to consider reaffirming The Muwekma Ohlone Indian Tribe to a federally recognized tribe.

The Muwekma Ohlone people have lived in the San Francisco Bay Area since long before the arrival of the Spanish. The present-day Muwekma Ohlone Indian Tribe is comprised of all of the known surviving American Indian lineages aboriginal to the San Francisco Bay region.

The direct ancestors of the present-day Muwekma Tribe became Federally Acknowledged by the U.S. Government through the Appropriation Acts of Congress of 1906 and later years. Today, 100% of Muwekma tribal members are descended directly from that previously recognized Tribe. The Muwekma Ohlone Indian Tribe was never terminated and their members still live in their aboriginal homeland today working within their own communities to strengthen ties to local universities, including UC Berkeley.

At Berkeley and the Hearst Museum we inherit the legacy of famed University of California anthropologist Alfred Kroeber, who, in 1925, wrongly wrote that the Ohlone people were “extinct so far as all practical purposes are concerned.” Even Kroeber later recognized his mistake, delivering testimony in subsequent decades in an attempt to correct himself and recognize the survivorship of the Verona Band. Kroeber failed to correct his error during his lifetime. Nearly a century later, we support reaffirming the Muwekma Ohlone Indian Tribe to a federally recognized tribe.

We have seen other California Tribes in a similar situation as Muwekma have their status positively clarified by administrative actions of previous Assistant Secretaries of Indian Affairs.

After decades of struggling to clarify their sovereign status, it is time to give the Muwekma people the justice they deserve and to have their government-to-government relationship restored.

Thank you for your consideration,



Lauren Kroiz
Faculty Director
Phoebe A. Hearst Museum
Associate Professor, History of Art Department
University of California, Berkeley



Caroline Jean Fernald
Executive Director
Phoebe A. Hearst Museum



UNIVERSITY OF CALIFORNIA, BERKELEY

DEPARTMENT OF ANTHROPOLOGY
510/642-3391

BERKELEY, CALIFORNIA 94720-3710
FAX: 510/643-8557

Dec. 10, 2020

The Honorable Tara Sweeney
Assistant Secretary – Indian Affairs
United States Department of the Interior
1849 C Street, NW
Washington, DC 20240

Dear Assistant Secretary Sweeney:

I write to urge you to consider reaffirming The Muwekma Ohlone Indian Tribe as a federally recognized tribe. I am an anthropologist who works on histories of indigenous peoples in the Americas, and have served as chair of this department twice (from 2006 to 2009, and 2019 to 2020). As the Director of Berkeley's anthropology museum from 1994 to 1999, I worked with California indigenous communities and learned about the history of changes in Federal recognition that affected local indigenous peoples. I have had the honor to work with undergraduate and graduate students from these communities and know how important recognition is to them.

The direct ancestors of the present-day Muwekma Tribe became Federally Acknowledged by the U.S. Government through the Appropriation Acts of Congress of 1906 and later years. Today, 100% of Muwekma tribal members are descended directly from that previously recognized Tribe. The Muwekma Ohlone Indian Tribe was never terminated. The members still live in their aboriginal homeland today working within their own communities to strengthen ties to local universities, local government, and community groups. Other California Tribes in a similar situation as Muwekma did in fact have their status positively clarified by administrative actions of previous Assistant Secretaries of Indian Affairs.

The Muwekma Ohlone people have lived in the San Francisco Bay Area since long before the arrival of the Spanish. The present-day Muwekma Ohlone Indian Tribe is comprised of all of the known surviving American Indian lineages aboriginal to the San Francisco Bay region.

As a scholar, I find the evidence for continuity of the Muwekma Ohlone people compelling. After decades of struggling to clarify their sovereign status, it is time to give the Muwekma people the justice they deserve and to have their government-to-government relationship restored.

Thank you for your consideration.

Rosemary A. Joyce
Professor of Anthropology
Alice S. Davis Endowed Chair in Anthropology (2015- 2018)
Richard and Rhoda Goldman Distinguished Professor in the Social Sciences (2009- 2014)



DEPARTMENT OF ANTHROPOLOGY
510-642-3392

BERKELEY, CALIFORNIA 94720-3710, U.S.A.
FAX: 510-642-8557

The Honorable Tara Sweeney
14th, 2020
Assistant Secretary – Indian Affairs
United States Department of the Interior
1849 C Street, NW
Washington, DC 20240

December

Dear Assistant Secretary Sweeney:

I write to urge you to consider reaffirming The Muwekma Ohlone Indian Tribe to a federally recognized tribe.

The Muwekma Ohlone people have lived in the San Francisco Bay Area since long before the arrival of the Spanish. The present-day Muwekma Ohlone Indian Tribe is comprised of all of the known surviving American Indian lineages aboriginal to the San Francisco Bay region.

The direct ancestors of the present-day Muwekma Tribe became Federally Acknowledged by the U.S. Government through the Appropriation Acts of Congress of 1906 and later years. Today, 100% of Muwekma tribal members are descended directly from that previously recognized Tribe. The Muwekma Ohlone Indian Tribe was never terminated and their members still live in their aboriginal homeland today working within their own communities to strengthen ties to local universities, local government, and community groups.

Other California Tribes in a similar situation as Muwekma did in fact have their status positively clarified by administrative actions of previous Assistant Secretaries of Indian Affairs.

After decades of struggling to clarify their sovereign status, it is time to give the Muwekma people the justice they deserve and to have their government-to-government relationship restored.

Thank you for your consideration

Sincerely,

A handwritten signature in dark ink, appearing to read "Charles Hirschkind".

Charles Hirschkind
Chair, Department of Anthropology
UC Berkeley

Ancient and modern genomics of the Ohlone Indigenous population of California

Alissa L. Severson^a, Brian F. Byrd^b, Elizabeth K. Mallott^c, Amanda C. Owings^{d,e}, Michael DeGiorgio^f, Alida de Flamingh^{d,e}, Charlene Nijmeh^g, Monica V. Arellano^g, Alan Leventhal^{g,h}, Noah A. Rosenberg^{i,1}, and Ripan S. Malhi^{d,e,1}

^aDepartment of Genetics, Stanford University, Stanford, CA 94305; ^bFar Western Anthropological Research Group, Davis, CA 95618; ^cDepartment of Anthropology, Northwestern University, Evanston, IL 60206; ^dDepartment of Anthropology, University of Illinois, Urbana, IL 61801; ^eCarl R. Woese Institute for Genomic Biology, University of Illinois, Urbana, IL 61801; ^fDepartment of Electrical Engineering and Computer Science, Florida Atlantic University, Boca Raton, FL 33431; ^gMuwekma Ohlone Tribe of the San Francisco Bay Area, Castro Valley, CA 94546; ^hDepartment of Anthropology, San Jose State University, San Jose, CA 95192; and ⁱDepartment of Biology, Stanford University, Stanford, CA 94305

Edited by Anne Stone, School of Human Evolution and Social Change, Arizona State University, Tempe, AZ; received June 27, 2021; accepted January 18, 2022

Traditional knowledge, along with archaeological and linguistic evidence, documents that California supports cultural and linguistically diverse Indigenous populations. Studies that have included ancient genomes in this region, however, have focused primarily on broad-scale migration history of the North American continent, with relatively little attention to local population dynamics. Here, in a partnership involving researchers and the Muwekma Ohlone tribe, we analyze genomic data from ancient and present-day individuals from the San Francisco Bay Area in California: 12 ancient individuals dated to 1905 to 1826 and 601 to 184 calibrated years before the present (cal BP) from two archaeological sites and eight present-day members of the Muwekma Ohlone tribe, whose ancestral lands include these two sites. We find that when compared to other ancient and modern individuals throughout the Americas, the 12 ancient individuals from the San Francisco Bay Area cluster with ancient individuals from Southern California. At a finer scale of analysis, we find that the 12 ancient individuals from the San Francisco Bay Area have distinct ancestry from the other groups and that this ancestry has a component of continuity over time with the eight present-day Muwekma Ohlone individuals. These results add to our understanding of Indigenous population history in the San Francisco Bay Area, in California, and in western North America more broadly.

genes and languages | identity by descent | Indigenous population genetics | paleogenomics | Penutian hypothesis

Among the geographic regions of North America, California is one of the areas with the greatest cultural and linguistic diversity of Indigenous peoples (1–3). With significant coastal and terrestrial ecological productivity, the region supported large pre-contact populations with the highest population density in North America (4–6). The geographic, cultural, and linguistic complexity of California at European contact contributed to considerable structuring among the Indigenous groups speaking more than 78 mutually unintelligible languages within six major linguistic families (3, 7). Today, California is home to 109 federally recognized sovereign tribal nations and more than 40 non-federally recognized tribal groups.

Considering regions within California, the area surrounding San Francisco Bay in Northern California supported some of the highest regional population densities at the start of European colonization in 1776 (8, 9). Indeed, the 21 Spanish mission locations in California, which were situated in a manner that correlated with Indigenous population density, included five missions located near San Francisco Bay. Population reconstructions using Spanish mission baptismal recruitment records reveal that at contact, more than 15,000 Native Americans from five distinct language groups were residing in sedentary villages within 45 territorial communities (land-controlling autonomous polities) within 20 km of the bay (9–11). Extensive investigation

of the region's dense archaeology has produced a trans-Holocene record, revealing that intensive sedentary or semisedentary habitation extends back >5,000 y (11–14).

With a rich regional archaeological record spanning >11,000 y of Indigenous habitation (14), much potential exists for coproduction of knowledge by recovering ancient DNA from Indigenous ancestors and jointly analyzing genetic and archaeological data. To date, however, California and the San Francisco Bay Area have seen little attention in paleogenomic studies. The most detailed study of ancient human genomic data in California has focused on Southern California, considering populations from the Channel Islands (15); additional significant studies of nearby regions have examined Lovelock Cave and Spirit Cave in Nevada (16), as well as the Pacific Northwest (16–18) and Northern Mexico (15, 19).

With generally sparse geographic coverage and relatively few ancient individuals from North America investigated using genomics, studies in the region have often focused on questions concerning initial entry of Indigenous populations into the Americas and broad-scale migration history of early Indigenous

Significance

California supports a high cultural and linguistic diversity of Indigenous peoples. In a partnership of researchers with the Muwekma Ohlone tribe, we studied genomes of eight present-day tribal members and 12 ancient individuals from two archaeological sites in the San Francisco Bay Area, spanning ~2,000 y. We find that compared to genomes of Indigenous individuals from throughout the Americas, the 12 ancient individuals are most genetically similar to ancient individuals from Southern California, and that despite spanning a large time period, they share distinctive ancestry. This ancestry is also shared with present-day tribal members, providing evidence of genetic continuity between past and present Indigenous individuals in the region, in contrast to some popular reconstructions based on archaeological and linguistic information.

Author contributions: A.L.S., B.F.B., C.N., M.V.A., A.L., N.A.R., and R.S.M. designed research; A.L.S., B.F.B., E.K.M., A.C.O., A.d.F., C.N., M.V.A., A.L., N.A.R., and R.S.M. performed research; A.L.S., B.F.B., M.D., N.A.R., and R.S.M. analyzed data; and A.L.S., B.F.B., N.A.R., and R.S.M. wrote the paper.

The authors declare no competing interest.

This article is a PNAS Direct Submission.

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¹To whom correspondence may be addressed. Email: noahr@stanford.edu or malhi@illinois.edu.

This article contains supporting information online at <http://www.pnas.org/lookup/suppl/doi:10.1073/pnas.2111533119/-DCSupplemental>.

Published March 21, 2022.

groups (15, 16, 19, 20). Studies have often focused on the information revealed about broad-scale population history from a small number of individuals (21–24), with relatively few studies focusing on a specific geographic area and considering multiple sampled individuals (17, 18); another limitation has been the use of genetic sites in mitochondrial DNA rather than genome-wide (25).

In this study, in partnership of researchers with the Muwekma Ohlone tribe of the San Francisco Bay Area, we examine a time transect of a single region of Indigenous habitation, centered on Sunol on the southeast side of San Francisco Bay. The Muwekma Ohlone are one of the descendant communities of Ohlone who originally occupied ~4.3 million acres from San Francisco to Monterey and from the coast to the upland edge of the Central Valley. The Muwekma Ohlone comprise all the lineages who trace their ancestry through the Bay Area Missions of San Francisco, Santa Clara, and San Jose and who were also members of the historic previously federally recognized Verona Band of Alameda County who resided on the Pleasanton (Alisal), Sunol, Livermore (Del Mocho), and Niles (El Molino) rancherias from post-Spanish mission secularization (1834) to the early 1900s.

We consider human paleogenomic analysis from burials at two adjacent ancestral Ohlone settlements set away from the bay margin near Sunol, one dated to 2,440 to 175 cal BP, the other to 605 to 100 cal BP (26, 27). We also present information derived from living members of the Muwekma Ohlone tribe, considering that their ancestral lands include this locality and noting their strong historical ties to this region in particular that persist to the present day (SI Appendix, Table S1). Tribal members trace familial connections to the Sunol region (a 5-mile radius around Sunol includes the historic rancherias listed above and Mission San Jose) over many generations, as reported in interviews with tribal elders and genealogical analysis (28–30). This investigation, considering multiple groups across a range of time periods, provides a case example of joint ancient and modern DNA analysis in a single regional setting.

We combine information from traditional knowledge, genetics, and archaeology to examine the three sets of individuals. First, we investigate the ancient Bay Area individuals in relation to other ancient persons from the Americas, focusing attention on California and surrounding regions. Next, we examine the relationships of individuals between the two sites as well as between the ancient individuals and the modern tribal members, assessing the possibility of genetic continuity among these groups. The analysis reveals that genetic links between ancient and modern populations are evident despite the extreme disruption to the Ohlone that occurred during Spanish occupation and subsequent incorporation of the region into Mexico and then the United States—including forced migration to the missions and reductions in lifespan due to new diseases and the conditions of mission life (9, 31–33). The broader genetic context inferred for the three sets of individuals deepens understanding of Indigenous population history of California and the San Francisco Bay Area.

Results

Community Engagement. Large-scale infrastructure construction led to the excavation of two Ohlone villages, *Sii Tiáupentak* (CA-ALA-565/H) and *Rummei Ta Kuččuwiš Tiprectak* (CA-ALA-704/H), in Sunol, CA (see *Archaeological Investigation*). Far Western Anthropological Research Group completed the excavations in partnership with the Tribe, with community members participating in all aspects of fieldwork as well as being the primary excavators of all burials.

The genomics section of the project began in 2016 after Tribal Council requested and approved a study design for the

endeavor. The study design included community-based methods (34–36). After the project began, members of the research team visited the sites and met with Tribal Council and community members multiple times to have discussions on the latest results of the project, safeguards to be used for the data generated in the project, and thoughts on paths forward for the study. During the time period of the COVID-19 pandemic, the research team met virtually with Tribal Council and community members. Prior to the start of the project, members of the Tribe attended the Summer Internship for Indigenous Peoples in Genomics program in 2011 and 2013 to learn about the latest genomic analyses and about topics in the ethical, legal, and social implications of genomics research with Indigenous communities. Importantly, members of the Muwekma Ohlone tribe contributed to manuscripts and news stories published or disseminated about the project.

Archaeological Investigation. *Sii Tiáupentak* (CA-ALA-565/H) and *Rummei Ta Kuččuwiš Tiprectak* (CA-ALA-704/H) are both ancestral Native American Ohlone settlements situated in an open valley of the southeast San Francisco Bay region, central California, USA (Fig. 1). Modern development for large-scale infrastructure construction necessitated that substantive archaeological excavations be conducted at both sites. Archaeological mitigation of construction impacts to these archaeological sites, including the identification, excavation, analysis and reporting of human remains, strictly conformed to all state and local laws and regulations.

The Muwekma Ohlone tribe was appointed Most Likely Descendant Tribe for the project by the state and, in 2015, prior to the development of the research design for archaeological investigations, recommended detailed analysis, including paleogenomics, of all ancestral remains that may be encountered. All research designs, analytical studies of ancestral remains, and reports were reviewed and approved by tribal leadership, and the Tribe partnered with the research team to conduct these investigations.

Sii Tiáupentak (“Place of the Water Round House Site”) is a large (2.8 ha/6.9 acres), intensively occupied sedentary village consisting of a thick deposit of cultural material creating a low, anthropogenic mound, along with an associated cemetery (27). Archaeological investigation of 6.2% of the site recovered a wide range of cultural remains, including more than 13,000 artifacts, numerous food remains, 36 features, and 66 burials comprising 76 individuals. The site dates from 605 to 100 cal BP (1345 to 1850 CE), based on 129 radiocarbon dates from features, burials, and generalized site deposits. The site was founded prior to European contact and continued to be inhabited during early European coastal exploration starting in 1542 CE and through the region’s Spanish colonization, until the inhabitants were forced into the Spanish mission compounds (1776 to 1807). The site was also briefly reoccupied in the 1830s after the collapse of the Spanish empire. The eight individuals in this study include six females and two males of varied ages at death, and they span the full time range of occupation.

The nearby site of *Rummei Ta Kuččuwiš Tiprectak* (“Place of the Stream of the Lagoon Site”) has a similar size but is a multi-component settlement including a precolonial Indigenous occupation and a subsequent colonial Mexican and Early American period ranch complex in use from 1839 CE to the early 1900s. The Native American component of the site includes artifactual and other debris, 44 features, and 25 burials comprising 29 individuals. This component was inhabited from 2,440 to 175 cal BP (490 BCE to 1775 CE), based on 60 radiocarbon dates from generalized site deposits, features, and burials (26). The settlement was most intensive between 2,440 to 1,610 cal BP (88% of dates fall in this time span). The six individuals for which genomic analysis was attempted include four females and one male,

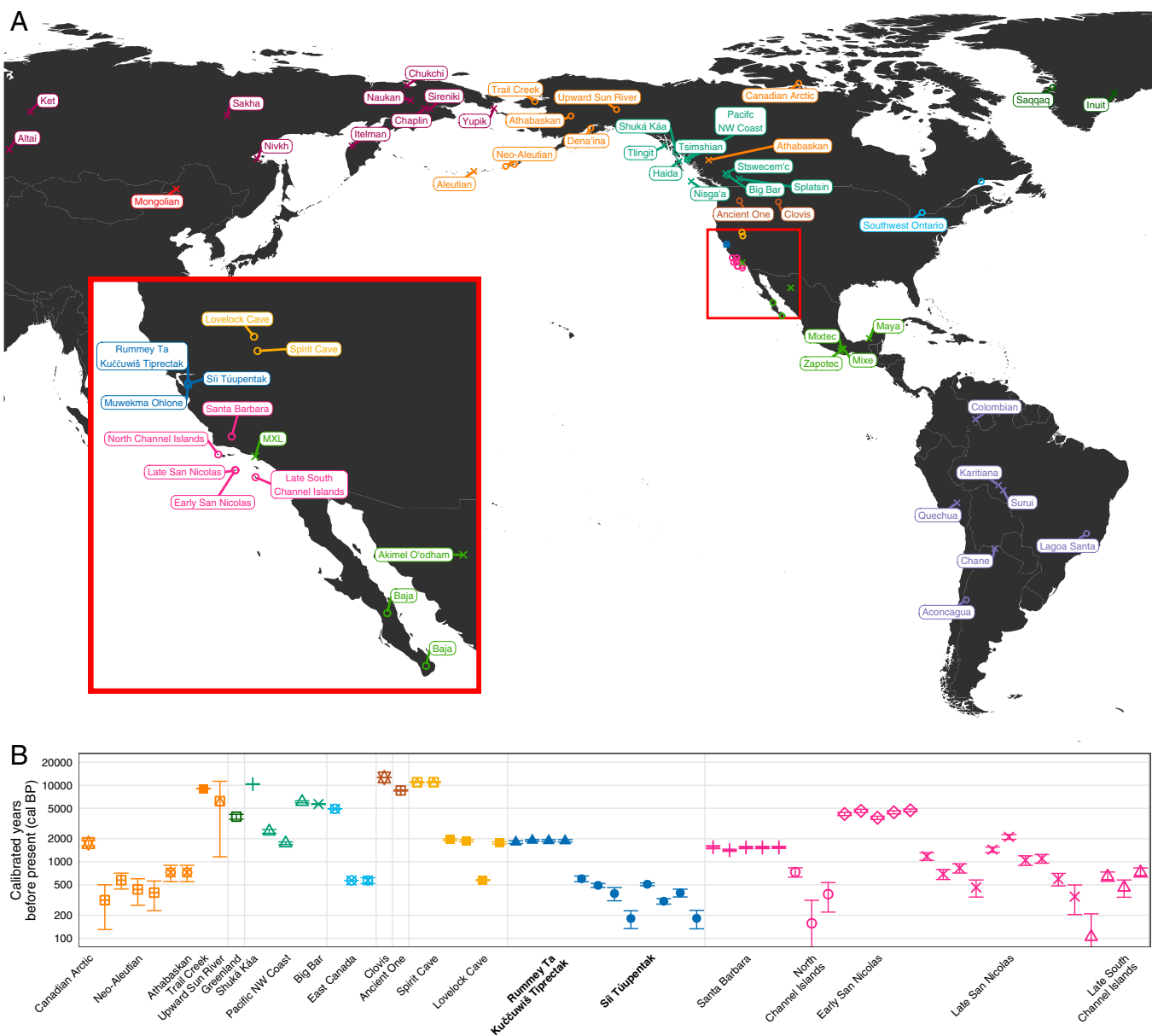


Fig. 1. Identifiers for ancient and present-day individuals used in this study. (A) Map of ancient and present-day individuals, colored by regional group. The inset shows the new individuals from the San Francisco Bay Area (blue) and the surrounding groups. (B) Dates of ancient individuals included in the dataset.

including two children and three adults, and date from 1,905 to 1,785 cal BP.

Genetic Dataset. We whole-genome sequenced 12 ancient individuals from two archaeological sites in the San Francisco Bay Area to a depth of 0.06 to 7.8× and mean 2.4×, after excluding two samples from the *Rummy Ta Kuččuwiš Tiprectak* site without sufficient genetic material (SI Appendix, Table S2 and Figs. S1–S3). Individuals from *Sii Túupentak* dated to 601 to 184 cal BP, and individuals from *Rummy Ta Kuččuwiš Tiprectak* dated to 1905 to 1826 cal BP. We also whole-genome sequenced eight present-day members of the Muwekma Ohlone tribe to high coverage, ranging from 18 to 25×. We assembled a dataset of relevant previously published samples. This dataset included 291 individuals from Asia, Europe, North America, and South America; it contained 68 ancient individuals and 223 modern individuals (SI Appendix, Table S3; Fig. 1A). After merging the

new and previously published individuals, the dataset we analyzed contains 311 individuals, 80 ancient individuals and 231 present-day individuals, typed for 474,317 single-nucleotide polymorphisms (SNPs; see SI Appendix, Methods).

Radiocarbon dates of the 12 newly sampled ancient individuals and those available for the previously published individuals are shown in Fig. 1B. Focusing on the ancient individuals from Nevada and California, we see that the dates fall into approximately three periods. The oldest group, from >4,000 cal BP, includes the individuals from Spirit Cave and those labeled Early San Nicolas. An intermediate group with ages between 2,000 to 1,500 cal BP includes the Lovelock Cave, *Rummy Ta Kuččuwiš Tiprectak*, and Santa Barbara groups. The most recent set includes individuals from *Sii Túupentak*, North Channel Islands (in this study, San Miguel and Santa Cruz), Late San Nicolas, and South Channel Islands (San Clemente and Santa Catalina), mostly with dates <1,000 cal BP.

Overview of Data Analysis. Using the sample of 311 present-day and ancient individuals, we performed principal components analysis (PCA) and model-based clustering analysis to identify genetic relationships among previously reported individuals, the newly sampled ancient individuals, and the present-day Muwekma Ohlone individuals. We then restricted attention to a subset of 165 individuals with ancestry relevant to the new individuals, and repeated the analysis, also analyzing identity-by-state (IBS) segment sharing (*SI Appendix, Table S4*). Whereas the PCA and model-based clustering analyses use the genotypes of the 474,317 SNPs directly, in order to identify IBS segments, we imputed genotypes from the ancient samples across the whole genome (*Materials and Methods*). In interpreting the results of the various analyses, we considered the relationships of the 12 newly sampled ancient individuals and eight present-day Muwekma Ohlone individuals to other individuals, as well as to each other.

The San Francisco Bay Area Individuals in the Context of Native American Genetic Diversity. First, using PCA and unsupervised model-based clustering, we explore the relationship between the San Francisco Bay Area individuals and previously published ancient and present-day individuals from surrounding regions. Fig. 2A shows a PCA plot of 311 individuals. European individuals cluster in the lower right corner of the plot, and the northernmost populations from Siberia, Alaska, and Greenland appear at the top of the figure. The lower left corner contains a cluster of individuals from California, Nevada, Mexico, and Central and South America.

Clines are visible between these three corners of the plot. Three clines connect the left edge of the plot to the right corner of Europeans. Several Siberian individuals are placed along the upper right edge, a line of Pacific Northwest individuals connects the center of the left edge to the right corner, and a line of individuals from Mexico connects the lower left corner to the corner containing Europeans. These clines appear to reflect varying European admixture that aligns with principal component 1 (PC1). Present-day members of the Muwekma Ohlone tribe, who have a known history of admixture with European Americans, Mexicans, and Mexican Americans, fall along the lower edge, with variable values for PC1.

Focusing on the cluster of individuals from California, Nevada, Mexico, and South America, Fig. 2B enlarges the lower left corner of Fig. 2A. In the enlarged view, individuals

from South America appear in the bottom left corner, anchoring a south-to-north cline along PC2. At the top of Fig. 2B, the individuals from Lovelock Cave in Nevada, who are close in age to those from the *Rumney Ta Kuččuwiš Tiprectak* and Santa Barbara sites (Fig. 1B), fall above the main cluster. The ancient individuals from the San Francisco Bay Area cluster with the ancient individuals from Southern California along the left edge of Fig. 2B.

Model-based unsupervised clustering for $K = 10$ clusters, performed using NGSadm, appears in Fig. 3. From Asia to South America, we first observe a cluster that appears largely in Mongolia and Siberia (dark blue) and a cluster that appears in Siberia, Greenland, and Alaska (light blue). Two clusters appear primarily in the Pacific Northwest and Alaska, with one centered on Stswece'm'c and Splitsin (light green) and the other appearing in most other populations from the region (dark green). A sample of Europeans is assigned to a single cluster, which is seen in many populations in the plot (red). Among the remaining five clusters, three are centered on specific populations: Akimel O'odham (formerly termed Pima; light orange), Karitiana (pink), and Surui (light purple). One is centered on native populations of Mexico and South America (dark orange).

The ancient individuals from the San Francisco Bay Area and Southern California both have majority membership in the same component (purple). As in the PCA, these two groups cluster together. We also observe, as seen by Scheib et al. (15), that the ancient individuals from Southern California separate into two groups: Individuals from San Nicolas and the Southern Channel Islands have membership primarily in a single component (purple), whereas individuals from Santa Barbara and the North Channel Islands have more substantial membership in a second component as well (orange). As was seen by Moreno-Mayar et al. (16), we find that the individuals from Lovelock Cave in Nevada have noticeable membership in a component shared with those from the Pacific Northwest (light green, dark green), a similar signal to their separation in the PCA plot in Fig. 2B. The present-day Muwekma Ohlone are known to have European, Mexican, and Ohlone genealogical ancestors, consistent with the appearance of the red, orange, and purple components observed in these individuals.

Population Structure Within Western North American Populations. Next, we consider a subset of 165 individuals to more closely

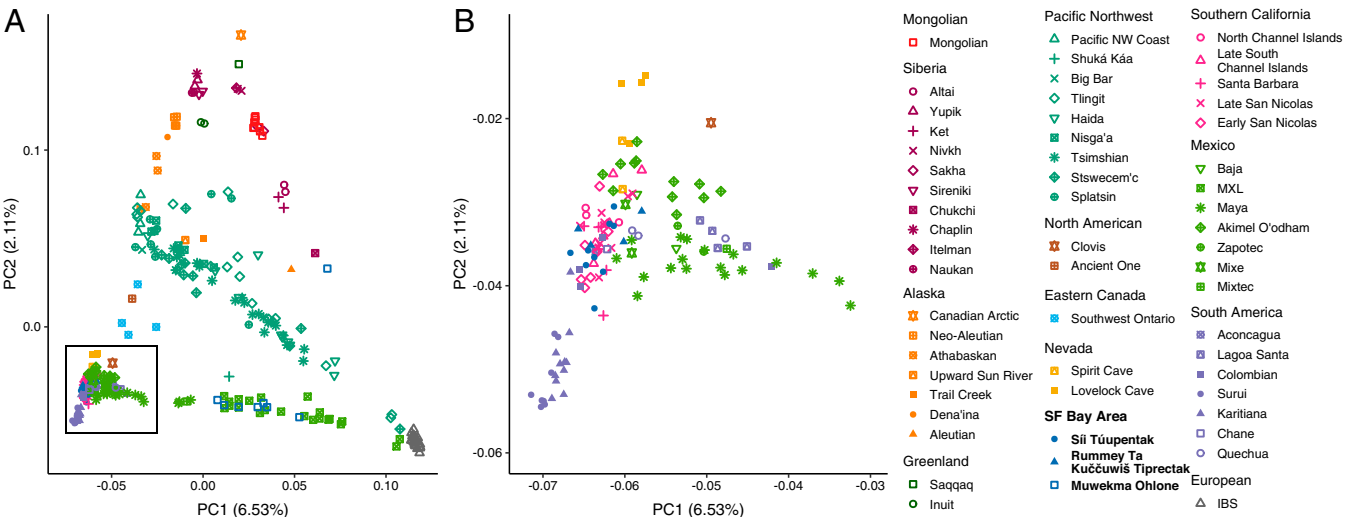


Fig. 2. PCA of all ancient and present-day individuals. (A) PCA of 311 individuals in the full dataset, including 231 modern and 80 ancient individuals. (B) An enlarged view of the cluster in the Bottom Left Corner of A.

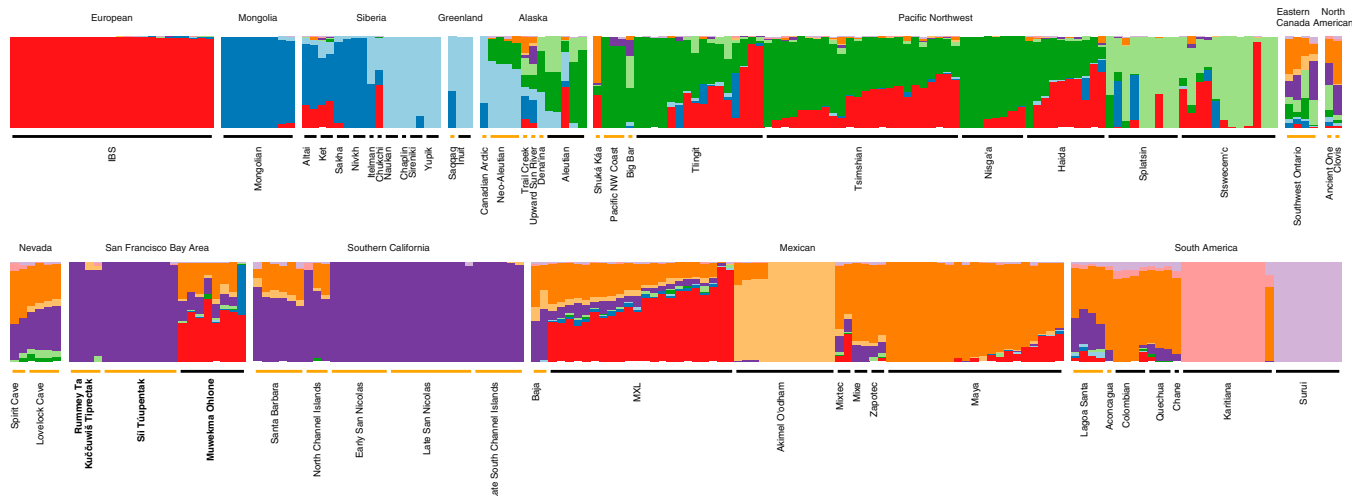


Fig. 3. Model-based clustering of all 311 ancient and present-day individuals, with $K = 10$ clusters. The results represent a summary of 10 independent runs of unsupervised clustering. Each of the 10 clusters is represented by a color, and each individual is represented by a vertical bar. To aid interpretation, clustering results from a unified analysis are depicted over two rows. Ancient individuals are denoted by an orange horizontal line below the plot, and present-day individuals are denoted by a black horizontal line.

examine population structure within western North America. For this subset, we perform PCA, model-based clustering, and analysis of IBS segment sharing.

Fig. 4A shows the first two principal components. The ancient individuals from San Nicolas and the South Channel Islands cluster are in the top left corner, with the remaining Southern California individuals from Santa Barbara and the North Channel Islands appearing below them along the left side. The European individuals cluster on the right side. Most remaining individuals cluster in the bottom left corner, including those from *Rumney Ta Kuččuwiš Tiprectak* and *Sii Túupentak*. Muwekma Ohlone and MXL (Mexican in Los Angeles) individuals fall along a cline connecting the lower left corner to the cluster containing Europeans, the same cline observed in Fig. 2A.

We plot PC2 with PC3 in Fig. 4B. In this plot, the individuals from *Rumney Ta Kuččuwiš Tiprectak* and *Sii Túupentak* separate from the large cluster that appeared in the lower left corner of Fig. 4A. In the top left corner, the individuals from

Rumney Ta Kuččuwiš Tiprectak and *Sii Túupentak* cluster together. Populations placed near these individuals in Fig. 4A, including several Indigenous populations from Mexico, appear in the center and lower left corner.

Inferences with unsupervised model-based clustering for $K = 4$ and 5 appear in Fig. 5. At $K = 4$, we observe four clusters that are largely similar to four of the clusters seen in the $K = 10$ analysis shown for the larger dataset in Fig. 3. The European individuals are placed in one cluster (red), the Akimel O'odham individuals are assigned primarily to a second cluster (light orange), a third cluster is centered on individuals from Mexico (dark orange), and a fourth is centered on the ancient individuals from California (purple).

Increasing K to 5 splits the purple cluster into two, with the purple cluster remaining centered on the individuals from Southern California and the new blue cluster centered on the ancient individuals from the San Francisco Bay Area. A small amount of membership is seen in this blue cluster in other populations, including the individuals from Santa Barbara and the

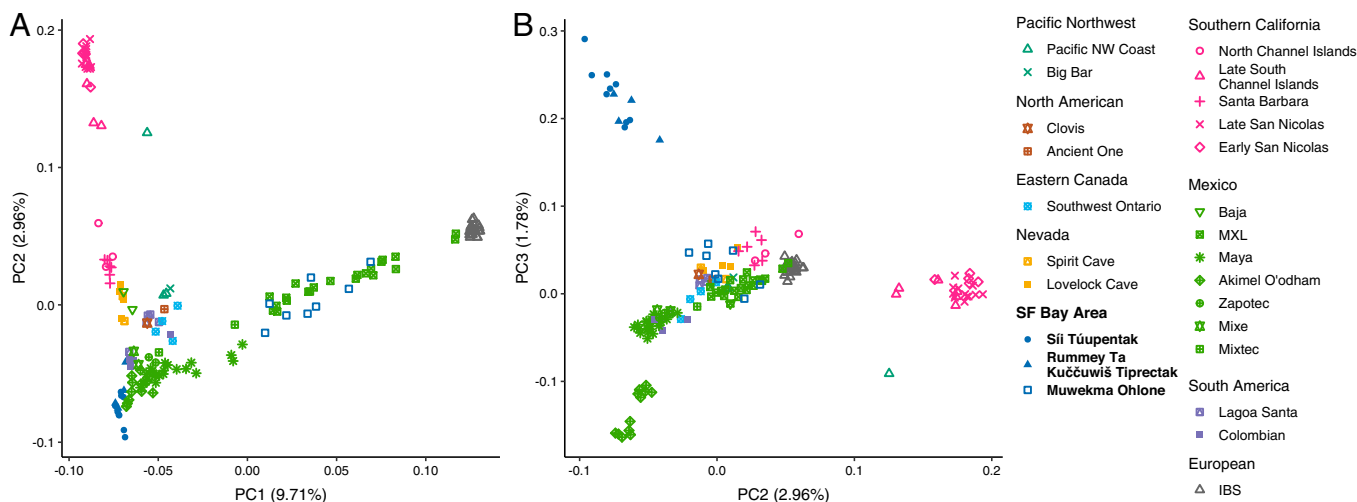


Fig. 4. PCA of a subset of ancient and present-day individuals, considering 165 samples with ancestry relevant to newly sampled individuals from the San Francisco Bay Area. (A) PCs 1 and 2. (B) PCs 2 and 3.

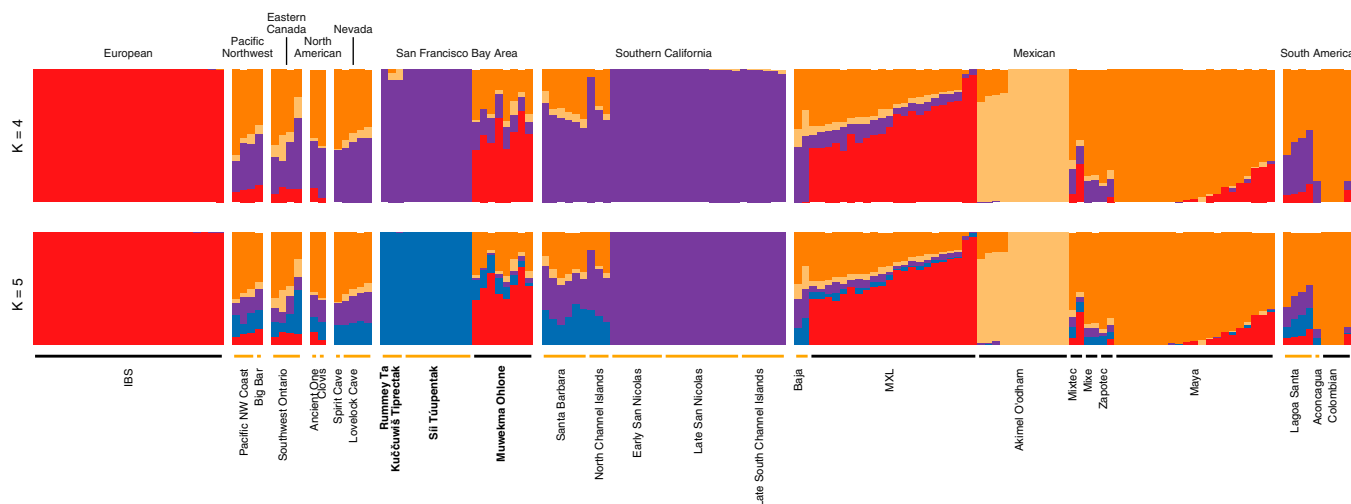


Fig. 5. Model-based clustering of a subset of ancient and present-day individuals, considering 165 samples with ancestry relevant to newly sampled individuals from the San Francisco Bay Area. Separately for $K = 4$ and $K = 5$, the results represent a summary of 10 independent runs of unsupervised clustering. Coloring is the same as described in Fig. 3.

North Channel Islands, the Spirit Cave and Lovelock Cave samples, the North American samples, the Lagoa Santa sample from South America, and the modern Muwekma Ohlone.

To further understand population structure in western North America, we evaluate IBS genomic sharing between pairs of individuals, focusing on 53 ancient individuals from Nevada, California, and Mexico and employing genome-wide imputed genotypes (Fig. 6). The individuals from the oldest site, Spirit Cave in Nevada, share segments broadly, potentially reflecting ancestral haplotype sharing with many more recent individuals because of their increased ages. To some extent, a similar pattern is seen for individuals from the next oldest site, Early San Nicolas.

The highest levels of IBS sharing occur along the diagonal between individuals from the same population. The analysis

suggests four clusters—Nevada, San Francisco Bay Area, North Channel Islands together with Santa Barbara, and South Channel Islands—for which pairs within a cluster possess elevated IBS sharing relative to pairs from distinct clusters. Segment sharing decreases for pairs from distinct clusters, with the exception of the sharing between individuals from the North Channel Islands and the Late South Channel Islands, who are close in age.

The clustered pattern of IBS sharing mirrors observations seen in Figs. 4 and 5. Because the highest levels of sharing occur within these population clusters and because the individuals in a cluster have a range of ages, the IBS sharing within each cluster suggests population continuity over space and over time, in the sense that subsequent populations possess ancestry in prior populations. Focusing on the San Francisco Bay Area, the elevated sharing between the individuals from the older *Rumney Ta Kuččuwiš Tiprectak* site and the more recent *Sii Túupentak* site and the relatively low sharing of these individuals to others suggest a notable level of genetic continuity in time between the two sites and that at both of the time periods they represent, their populations possessed distinct ancestry from contemporaneous individuals in Nevada and Southern California.

Present-day Muwekma Ohlone and Ancient *Rumney Ta Kuččuwiš Tiprectak* and *Sii Túupentak* Individuals. Present-day members of the Muwekma Ohlone tribe are known to possess European, Mexican, and Ohlone genealogical ancestors, and we observe this history of admixture in many of our analyses. In Figs. 24 and 44, the Muwekma Ohlone lie along a cline on PC1, reflecting European and Mexican admixture. In Figs. 3 and 5, the largest cluster memberships for the Muwekma Ohlone appear in the cluster centered on the European individuals (red) and the cluster centered on Indigenous individuals from Mexico (dark orange).

Despite this signal of admixture, the analyses consistently suggest shared ancestry between the Muwekma Ohlone and the individuals from the *Rumney Ta Kuččuwiš Tiprectak* and *Sii Túupentak* sites. In Fig. 3 and in the analysis with $K = 4$ in Fig. 5, the Muwekma Ohlone share membership with the ancient individuals from California, both those from the San Francisco Bay Area and those from Southern California (purple). In Fig. 5, at $K = 5$, we also see that the cluster centered on the

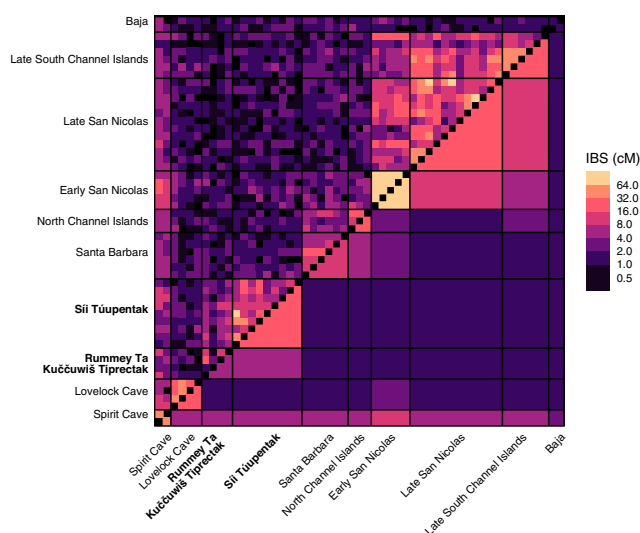


Fig. 6. Total pairwise IBS segment sharing for 53 ancient individuals from Nevada, California, and the Baja peninsula. The upper triangle of the matrix shows the total length of segments shared for pairs of individuals. The lower triangle shows mean pairwise values. In the triangularly shaped regions incident to the diagonal, the mean is taken across pairs within a population; rectangles off the diagonal show means across pairs, one from one population and one from another population.

individuals from *Rummey Ta Kuččuwiš Tiprectak* and *Sii Tüupentak* is visible in the Muwekma Ohlone (blue).

By excluding membership corresponding to European admixture, we can compare the shared membership that the Muwekma Ohlone possess with the cluster centered on *Rummey Ta Kuččuwiš Tiprectak* and *Sii Tüupentak* to corresponding shared membership that other modern populations possess with this cluster. In Fig. 7, for various modern populations, we consider the relative proportion that appears in the blue component in the $K = 5$ plot in Fig. 5 in modern individuals, as a fraction of total membership excluding the red component centered on the European individuals. This analysis reveals that the Muwekma Ohlone possess a larger relative proportion of the blue component than do other populations; Mann-Whitney tests for the eight Muwekma Ohlone produce $P = 5.6 \times 10^{-4}$ for a comparison with 22 MXL individuals, $P = 3.0 \times 10^{-5}$ with 12 Akimel O'odham individuals, and $P = 4.0 \times 10^{-6}$ with 21 Maya individuals (with small sample sizes of two individuals each, $P = 0.09$ with Mixtec, $P = 0.02$ with Mixe, and $P = 0.04$ with Zapotec). Hence, despite the admixture history of the Muwekma Ohlone, so that the population possesses multiple membership components, one membership component shared between the Muwekma Ohlone and the ancient individuals from the *Rummey Ta Kuččuwiš Tiprectak* and *Sii Tüupentak* sites—a component suggestive of a partial shared ancestry—can be observed. This sharing between the present-day and ancient individuals is further supported in additional tests using the f_4 statistic, by which greater similarity is observed between the Muwekma Ohlone and the *Rummey Ta Kuččuwiš Tiprectak* and *Sii Tüupentak* sites than between the Muwekma Ohlone and ancient individuals from surrounding regions (SI Appendix, Table S5).

Discussion

In this study, we sequenced genomes of 12 ancient individuals from two archaeological sites in the San Francisco Bay Area and eight present-day members of the Muwekma Ohlone tribe. To study population structure within California and western North America more broadly, we compared these individuals to previously published genomes of ancient and present-day

Indigenous individuals. We also compared the 12 ancient individuals and eight modern individuals from the San Francisco Bay Area.

Continuity of Ancient and Modern Populations in the San Francisco Bay Area. We first performed analyses of the newly sampled ancient individual genomes with a broad sample containing individuals from North America, South America, Europe, and Siberia. In these analyses, the ancient individuals from the *Rummey Ta Kuččuwiš Tiprectak* and *Sii Tüupentak* sites clustered most closely with the ancient individuals from Southern California. Using PCA, the individuals from these groups overlap (Fig. 2), and with model-based clustering, we see that a shared cluster is centered on them (Fig. 3, purple).

Next, we focused our analysis on a subset of populations with ancestry relevant to the newly sequenced ancient individuals. In finer-scale analysis, the ancient individuals from the San Francisco Bay Area and Southern California, who cluster together in the larger dataset, are split into separate clusters. With PCA, the individuals from *Rummey Ta Kuččuwiš Tiprectak* and *Sii Tüupentak* cluster together (Fig. 4), and with model-based clustering, at $K = 5$, a cluster is centered on the ancient individuals from the San Francisco Bay Area (Fig. 5, blue). In an analysis of IBS sharing, we find elevated sharing among the ancient San Francisco Bay Area individuals from the two archaeological sites relative to the sharing with individuals from Mexico, Nevada, and Southern California.

Finally, we considered the relationship between the ancient individuals from *Rummey Ta Kuččuwiš Tiprectak* and *Sii Tüupentak* and their relationship to the present-day Muwekma Ohlone. Although the present-day individuals also possess recent European and Mexican ancestry, we find that they also share ancestry with the ancient individuals. In particular, considering fractions of individual genomes estimated to have Indigenous ancestry, we found in Fig. 7 that the Muwekma Ohlone share a relatively high proportion of a cluster shared with the ancient individuals from the San Francisco Bay Area (blue cluster in Fig. 5).

The shared ancestry components provide support for genetic continuity between the individuals from the *Rummey Ta Kuččuwiš Tiprectak* and *Sii Tüupentak* archaeological sites and between the two sites and the present-day Muwekma Ohlone. This continuity, in the sense of a possible genealogical descent relationship connecting the more ancient and more recent populations, would then extend from the *Rummey Ta Kuččuwiš Tiprectak* individuals, dated to 1905 to 1826 cal BP, through the *Sii Tüupentak* individuals, who date to 601 to 184 cal BP, to current tribal members. The two archaeological sites represent substantially longer time periods than the dates associated with the particular individuals sampled; *Rummey Ta Kuččuwiš Tiprectak* was inhabited 2440 to 175 cal BP, most actively during 2440 to 1610 cal BP, and *Sii Tüupentak* spans 605 to 100 cal BP. The genetic connections between the two archaeological sites and between the sites and the present-day Muwekma Ohlone individuals suggest that the present-day Muwekma Ohlone share continuity with peoples who have inhabited the San Francisco Bay Area for at least two millennia, since the genetic sampling period for *Rummey Ta Kuččuwiš Tiprectak*, 1905 to 1826 cal BP, and potentially to the earliest dates of the site, around 2440 cal BP. These results suggest that models in which ancestral Ohlone populations are posited to have migrated to the region 1,500 to 1,000 y ago (3, 37, 38) provide underestimates of the continuity of the population. They are compatible with reconstructions that posit Ohlone population continuity in this portion of the San Francisco Bay Area extending back to 2,500 y ago or possibly earlier (39–41).

We note that the population continuity we have observed between the archaeological sites and the current Muwekma

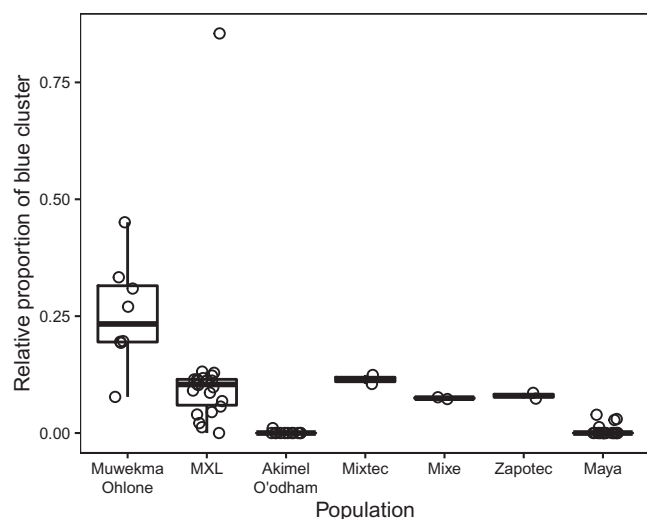


Fig. 7. Membership in the blue cluster in the $K = 5$ cluster analysis in Fig. 5, divided by one minus membership in the red cluster, for present-day populations from California and Mexico. For each individual, the proportion is calculated as the membership fraction in the blue cluster divided by the total fraction of membership in the blue, purple, light orange, and dark orange clusters. Individual values and boxplots are shown.

Ohlone takes the form of a continuity of genetic ancestry components and a noteworthy sharing of genomic segments. This form of genetic continuity does not provide formal evidence that the modern individuals are directly descended from the individuals studied from these archaeological sites, but it is compatible with a view that the modern population is descended from those in the archaeological sites or from genetically similar contemporaneous populations. That this continuity is detectable is perhaps surprising, considering the extreme disruption and increase in deaths of the Ohlone caused by Spanish occupation. Mission records document substantial intermixture with neighboring non-Ohlone groups that began after other tribal groups (notably Coast Miwok, Bay Miwok, Plains Miwok, and Yokuts) from neighboring areas were brought to the same missions because of the rapid decline of Bay Area Ohlone mission populations (9, 42). As a result, for example, some descendants of marriages between Ohlone and non-Ohlone individuals identified culturally as Ohlone, spoke the language, and maintained key cultural traditions (28, 30, 43). Genetic continuity with the archaeological sites is detectable despite this intermixture of Indigenous populations from locations relatively distant from the sites.

Interpretations in Relation to the Penutian Language Family. Attempts to explain the complex mosaic of California languages and language families at European contact have given primacy to historical linguistic reconstructions that posit successive precontact migrations and displacements of various language groups and approximate timings of language divergence within families (44–46). Archaeologists have then looked for changes in the precontact archaeological record that would test these models. As a result, precontact California history is often framed as possessing linguistic and archaeological cultural concordance (40, 47). With respect to the San Francisco Bay Area, this view holds that speakers of Hokan languages initially occupied central California. Subsequently, Hokan speakers were then pushed to geographic peripheries by Penutian speakers entering California in a series of migrations and inhabiting the Central Valley and Bay Area (3, 13, 40, 48). Proto-Penutian speakers in California are hypothesized to have originated in the Great Basin or possibly on the Columbian Plateau. This hypothesis has been based on historical linguistic reconstructions, archaeological investigations, and recent mitochondrial DNA research (3, 40, 49)—notably including similarities in material culture (projectile point types, stone pipes, extensive bone tool industry with distinctive types, and basketry techniques) between the Lovelock Culture of western Nevada and the appearance of the Windmiller Pattern in central California during the Late Holocene (40, 48, 50). The Ohlone language falls within the geographically extensive Penutian language family, most closely related to the neighboring Miwok and Yokuts languages (44–48).

The four ancient Lovelock Cave individuals are clustered to some extent with ancient individuals from the San Francisco Bay Area and Southern California (Fig. 2). They also share two ancestry clusters with ancient and modern individuals from the Pacific Northwest (Fig. 3, light green, dark green). Four ancient Pacific Northwest Coast individuals, along with the ancient Big Bar individual also from the Pacific Northwest, possess a small amount of membership in a cluster shared with the ancient individuals from Nevada and California (Fig. 3, purple). These patterns are compatible with a view that the Lovelock Cave individuals share similarities with Penutian groups that spread both into the Pacific Northwest and into California (48). In this view, the shared ancestry component could represent a signature of a spread of the Penutian languages, with the Lovelock Cave individuals and the Pacific Northwest Coast and Big Bar individuals both descended from ancestors in the Great Basin region (Fig. 3, purple).

Despite this similarity to the ancient individuals from Lovelock Cave, both the ancient San Francisco Bay Area individuals and the present-day Muwekma Ohlone individuals clustered more closely with ancient individuals from Southern California, where the Penutian language family is absent, than with the (possibly Penutian-speaking) Lovelock Cave individuals associated with Lovelock Culture. Because our analyses do not cluster individuals associated with putative regions of Penutian speakers together (e.g., Lovelock Cave, Pacific Northwest, San Francisco Bay Area), we can conclude that if Penutian languages did spread from the Great Basin into California, then either the spread might have involved linguistic rather than demic diffusion or a shared genetic signal of an initial migration has been eroded by subsequent demographic processes. In both scenarios, genetic and linguistic histories in California are not coupled, so that a history of the spread of cultures in the region is unlikely to always align with the spread of languages. This perspective is consistent with the challenges archaeologists have noted in trying to link historical linguistic models of migrations of populations speaking specific languages with clear changes in the archaeological record, resulting in widely divergent suggestions for the timing of these migration events (13, 14, 51).

We note that in Southern California, we observed a consistent separation of South Channel Islands and San Nicolas individuals from individuals from the North Channel Islands and Santa Barbara, amplifying a pattern visible in figure S11 in Scheib et al. of ref. 15. The ancient individuals from Santa Barbara and the North Channel Islands cluster with the ancient San Francisco Bay Area samples, separating from the individuals from the South Channel Islands, including the individuals from San Nicolas Island. This separation accords with a language boundary at the time of European contact: Individuals from Santa Barbara and the North Channel Islands spoke Chumash languages (considered either part of the Hokan group or an ancient linguistic isolate), whereas individuals from the South Channel Islands (plus San Nicolas) spoke Takic languages of the Uto-Aztecan group (45, 46). Takic language speakers are hypothesized to have migrated from the Great Basin into Southern California during the last 5,000 y, with uncertain timing of their arrival on the coast and the South Channel Islands (1, 40, 45, 52). The genetic clustering of Early San Nicolas Island individuals (dated from 5,000 to 4,000 cal BP) with Late San Nicolas Island individuals (dated to 2,000 cal BP or later) but separate from individuals from the North Channel Islands and Santa Barbara suggests population continuity on San Nicolas during this time span and is compatible with the reconstruction that posits an early arrival of Takic language speakers on San Nicolas.

Methodological Considerations. Because of the poor read quality and low sequencing depth for ancient samples, analysis of ancient DNA has primarily made use of haploid genomes in which the haplotype phase has been lost. However, the augmentation of ancient samples with modern reference genomes is increasingly making it possible to perform genotype imputation and haplotype phasing in ancient samples (53). Previous studies have used imputed diploid genotypes from ancient individuals to study demographic history and estimate phenotypes in ancient individuals (54–58). Our work is one of relatively few studies that use imputed genotypes in ancient samples to evaluate haplotype sharing within and between ancient and present-day individuals (55–57).

In this study, we encountered a scenario in which a modern population of interest to examine for genetic continuity with ancient populations possesses admixture components that are not informative about the relationships of interest. Such scenarios can be addressed by performing analyses that disregard those admixture components. In our scenario, we sought to

discern, within the component of genomic membership not assigned to European admixture, relative contributions of clusters associated with different Indigenous populations (Fig. 7). The signature of similarity between present-day Muwekma Ohlone and a cluster with considerable membership in the ancient San Francisco Bay Area samples and smaller signatures of other modern populations with this cluster suggests the potential of the approach in other comparisons of ancient populations to modern admixed populations.

Many ancient DNA studies in the Americas, and particularly those involving individuals from North America, have studied large-scale processes such as the initial peopling of the continents (19, 21, 22, 24) or subsequent major migration events (15, 16). As a result, enough ancient individuals have been sequenced to provide reference data for studies that focus on ancient genomics of a specific region, such as the Pacific Northwest (18) or the Caribbean (59, 60). Our study of ancient and present-day individuals from the San Francisco Bay Area contributes an example of the use of regionally focused ancient genomics to demonstrate how analysis of ancient and modern individuals can reveal changes in local population structure over time.

An important component of this study has been its community engagement process and coproduction of knowledge as part of increasing interest in partnerships between researchers and Indigenous communities to conduct genetic research (34, 36, 61)—including genetic research that involves Indigenous ancestors (35, 62). A distinctive feature in this case has been the participation of a tribal group in the initiative to pursue the project, in the selection of research questions, in archaeological excavation and ancient genomics involving sites in their historical lands, and in present-day genomic analysis with current tribal members. Hence, in addition to its scientific conclusions, the study provides a contribution to advancing community engagement models in Indigenous genomics. The study reaffirms the Muwekma Ohlone's deep-time ties to the area, providing evidence that disagrees with linguistic and archaeological reconstructions positing that the Ohlone are late migrants to the region (37, 38). The results have also generated interest from tribal leadership in carrying out similar genomic investigations on ancestral remains from older sites in order to better document and understand the time depth of Ohlone population-genetic continuity in the San Francisco Bay region.

Materials and Methods

Ethics Approvals. The study proceeded with significant community engagement at all stages (*Community Engagement*), under Institutional Review Board protocol no. 10538 from the University of Illinois at Urbana-Champaign, and it included informed consent from present-day members of the Muwekma

Ohlone tribe. In addition, the Muwekma Ohlone Tribal Council also approved the study, including the genomic analysis of community members and ancestral remains. The Tribal Council was consulted on the results and approved the manuscript for disseminating the study.

Principal Components Analysis. We performed PCA with both the full set of 311 and the subset of 165 individuals, employing all 474,317 SNPs. For both datasets, we first estimated the covariance matrix of individual genotype vectors from genotype likelihoods (*SI Appendix, Methods*). We then used the eigen function in R to calculate eigenvectors, corresponding to principal components, and eigenvalues.

Model-Based Clustering. We used NGSadmix (63) to perform unsupervised model-based clustering on genotype likelihoods from the 85,659 SNPs that remained after LD pruning. For each tested number of clusters K , we performed the clustering 10 independent times, running NGSadmix with parameters $-\text{minMaf } 0.05$, $-\text{maxiter } 10,000$, and $-\text{tol } 0.000001$. We also included the parameter $-\text{minInd } 35$ for the full dataset of 311 individuals and $-\text{minInd } 15$ for the subset of 165 individuals. To evaluate the clustering solutions inferred by NGSadmix, we ran CLUMPP (64) with parameters DATATYPE 0, M 2, W 0, S 2, and GREEDY_OPTION 2, and REPEATS 1000. Next, following Verdu et al. (65), we clustered the runs based on pairwise G' values greater than 0.9. For the majority cluster of each K value, which contained the most runs, we reran CLUMPP with the same parameters to produce an averaged clustering solution for display in figures. Preferred choices for the value of K were obtained by use of evalAdmix (ref. 66; *SI Appendix, Methods and Fig. S4*).

IBS Segment Sharing. We identified IBS segments between pairs of samples in four steps (*SI Appendix, Fig. S5*). First, we estimated genotype likelihoods in the ancient and modern samples with ANGSD (67). Second, we phased and imputed genotypes from the genotype likelihoods with GLIMPSE (68). Third, we called IBS segments from the phased genotypes with hap-IBD (69). Fourth, in modern admixed individuals, we performed local ancestry assignment and identified IBS segments that lie on the Indigenous background, considering comparisons between modern samples and other modern samples, and between modern samples and ancient samples. This pipeline generated a list of IBS segments shared between ancient and modern individuals, restricting attention to the Indigenous-origin segments of the modern genomes. Further details appear in the *SI Appendix, Methods and Fig. S6*.

Data Availability. Genomic data from previous studies have been obtained from public sources, as described in the supplementary material. The Muwekma Ohlone Tribe will review requests for genomic data on tribal members and associated archaeological sites before access can be granted. Please send requests to the corresponding authors.

ACKNOWLEDGMENTS. We thank the Muwekma Ohlone Tribal Council for support of this project. Partial analysis funding was provided by Far Western Anthropological Research Group via an archaeological mitigation contract with the San Francisco Public Utilities Commission, and B.F.B. thanks Kimberly Stern Liddell, Bryan Deassaure, and Deborah Craven-Green for their support. We thank Paul Verdu for assistance with data files. We acknowledge support from NSF grants BCS-1518026, BCS-2001063, BCS-2017956, and BCS-2018200.

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IN REPLY REFER TO:

United States Department of the Interior

BUREAU OF INDIAN AFFAIRS

Sacramento Area Office
2800 Cottage Way
Sacramento, California 95825



Ms. Dena Magdaleno
Post Office Box 56
Burnt Ranch, CA 95527

JAN 23 1998

Dear Ms. Magdeleno:

This is to acknowledge receipt of your letter dated December 16, 1997 and received in this office on December 22, 1997. Please accept our apologies for the delay in responding.

At your request, I am writing a letter of support for the Tsnungwe Council and the Muwekma Ohlone Tribe in their bid for Federal recognition. First let me state that the Bureau of Indian Affairs, Sacramento Area Office, is painfully conscious of the fact that California Indian tribes and their individual members have suffered numerous atrocities and inequities from the dominant culture through the hands of the United States Government and the State of California. To this day, those tribes who are fortunate to have Federal recognition status continue to suffer inequities in their share of Federal funds compared to funds received by similar tribes in other states. To that end, this office fully supports efforts by Indian groups such as the Tsnungwe Council and the Muwekma Ohlone Tribe in their bids for Federal recognition status.

Along with your request regarding the Tsnungwe Council, you provided a letter signed by the Acting Director, Office of Tribal Services, which acknowledged that you had established evidence that your ancestors were considered as parties to the 1864 Treaty. We concur with the Central Office of this finding and will support your bid for Federal recognition. I believe the Assistant Secretary - Indian Affairs has the administrative authority to reaffirm Federal status to your tribe.

Although the Central Office has noted that the 1851 Treaty did not provide conclusive evidence that the treaty did not establish clear evidence of Federal recognition of your ancestors, I am fully supportive of your efforts to establish "unambiguous" Federal recognition of your ancestral group as a tribal entity.

The Bureau of Indian Affairs, Sacramento Area Office, is ready to assist the Tsnungwe Council and the Muwekma Ohlone Tribe in seeking administrative Federal recognition on the basis your tribes were never terminated.

Sincerely,


Acting Area Director

Community-Based Archaeology at *Sii Túupentak* in the San Francisco Bay Area: Integrated Perspectives on Collaborative Research at a Major Protohistoric Native American Settlement

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This paper presents an example of a community-based archaeological study in the southeast San Francisco Bay Area by the Muwekma Ohlone Tribe, joined by an interdisciplinary team of researchers. The nature and breadth of this cooperative effort is presented, highlighting the Tribe's perspective on project goals, the nature of their involvement, and their initiative in addressing ancestral remains and funerary regalia. This includes the questions being asked of the archaeological record, how these interests and goals were operationalized within the context of a CRM-driven development project, and how the results will be contextualized to the broader community. Project insights are summarized, with particular emphasis on the lifeways of Sii Túupentak's ancestral Ohlone inhabitants during the four centuries prior to forced relocation in 1805 due to Spanish colonization. The discussion touches on site setting, age, and structure; the subsistence economy; the lived lives and mortuary practices of the ancestors; sociopolitical implications of regional trade; and the wider implications of the study.

COLLABORATIVE RESEARCH BETWEEN NATIVE American tribes and archaeologists has increased in recent years. This paper presents an example of a community-based archaeological study at *Sii Túupentak* ("Place of the Water Roundhouse Site," CA-ALA-565/H), an ancestral heritage Native American Ohlone village and associated cemetery in the southeast San Francisco Bay Area (Fig. 1). This is a collaborative study by the Muwekma Ohlone Tribe of the San Francisco Bay Area, joined by an interdisciplinary team of archaeological

researchers led by the Far Western Anthropological Research Group. The nature and breadth of this cooperative effort is presented, highlighting the Tribe's perspective on overall project goals, the nature of their involvement throughout the study, and their initiative in addressing ancestral remains and funerary regalia. This includes consideration of the questions being asked of the archaeological record, how these interests and goals were operationalized within the context of a cultural resources management (CRM) driven development project, the key



Figure 1. Regional map showing project location.

role played by the project proponents and the regulatory agency, and how the results are being contextualized to the broader San Francisco Bay Area community.

As requested by the Tribe prior to the start of the project, detailed archaeometric analyses were carried out on the ancestral Ohlone individuals recovered from burial excavations to gain new insights into community trends, social and ideological complexity, and the lives of these individuals. Novel project insights are emphasized, with particular emphasis on the lifeways of *Sii Túupentak's* ancestral Ohlone inhabitants during the four centuries prior to forced relocation in 1805 due to Spanish colonization. The site setting, age, and structure, and its subsistence economy are presented initially. This is followed by consideration of the lived lives and mortuary practices of the ancestors, the sociopolitical implications of regional trade prior to and during Spanish colonization, and the broader implications of the study.

REGIONAL BACKGROUND

California is well-known for being one of the geographical regions of North America with extremely high indigenous cultural and linguistic diversity (Golla 2011; Heizer 1978; Kroeber 1925). In the late 1700s Native Californians spoke more than 78 languages within six major linguistic families (Golla 2011; Hinton 1994). California also supported large pre-colonial populations with the highest population density in North America, owing in large part to its high coastal and terrestrial ecological productivity (Coddington and Jones 2013; Kroeber 1939; Ubelaker 1992).

The San Francisco Bay Area notably had some of the highest regional population densities in California (along with the Lower Sacramento Valley and the Santa Barbara area) at the start of European colonization (Cook 1976). Based on population reconstructions using Spanish Mission baptismal recruitment records, more than 15,000 Native Americans from five distinct language

groups were residing in 45 territorial communities (land-controlling autonomous polities) within 20 kilometers (km.) of the Bay (Byrd et al. 2017, 2018; Milliken 1995, 2010). Native American groups residing in the San Francisco Bay Area included the Ohlone in the southern and central portion; Coast Miwok in the northwest portion; and Bay Miwok, Plains Miwok, Patwin, and Delta Yokuts in the eastern Bay-Delta area (Johnson 1978; Kelly 1978; Kroeber 1925; Levy 1978a, 1978b; Wallace 1978). All lived in villages with well-defined tribal territories that were considerably smaller than the potential daily foraging range, and they interacted and traded widely with nearby settlements (Byrd et al. 2020a).

The site of *Sii Tüupentak* is situated near Sunol in the southeast San Francisco Bay Area within the Causen Ohlone territorial community (Milliken 1995, 2006). As such it lies within the unceded lands of the Ohlone, who at the time of Spanish colonization occupied ~4.3 million acres from San Francisco to Monterey and from the coast to the upland edge of the Central Valley. The Ohlone population circa 1770 is estimated to have been at least 16,000 people living in 59 Territorial Communities (Milliken 2010). Between 1770 and 1797, Spanish colonizers situated six California missions in Ohlone territory owing to the high indigenous population density.

Extensive investigation of the San Francisco Bay's numerous archaeological sites has produced a trans-Holocene record, revealing that intensive sedentary or semi-sedentary habitation of complex hunter-gatherers extends back more than 5,000 years (Byrd et al. 2017; Lightfoot 1997; Milliken et al. 2007). Regional population grew over the last 4,000 years, along with increasing social, political, and economic complexity. This resulted in an increasing reliance on more costly-to-acquire foods (including particular species of marine mammals, terrestrial mammals, birds, fish, and plants) indicative of resource intensification (Broughton 1999; Broughton et al. 2015; Whitaker and Byrd 2014; Wohlgemuth 2002). Active landscape management (including prescribed burning), territorial circumscription, and periodic upswings in inter-group violence are also indicated (Lightfoot et al. 2013; Milliken 2006; Schwitalla et al. 2014). It has also been asserted that non-egalitarian social structure and status ascription was widespread in the region (Bellifemine 1997; Hylkema 2002:258–261; Leventhal 1993; Luby 2004; Milliken et al. 2007),

particularly during the Late Period (post-685 calibrated years before present [cal B.P.]), although more nuanced perspectives have also been presented (Byrd and Rosenthal 2016).

Luby (1995) initially recorded and excavated *Sii Tüupentak* with a field school in 1993, noting that it was a significant Late Period/Contact-era village that may also include a Native American rancheria associated with the nearby circa-1840s Mexican-era Suñol Adobe complex. It is also probably the Ohlone village described by Fages and Crespi when they traversed the Sunol Valley (which they named Santa Coleta, noting that it was an ideal setting for a mission) on April 2, 1772 Common Era (C.E.; 178 cal B.P.; Crespi 1927:300). More than a decade after Luby's work, plans for large-scale infrastructure construction by the San Francisco Public Utilities Commission (SFPUC) of a public outreach watershed interpretive center within the site boundaries required extensive archaeological investigations to be conducted at this large, ancestral Native American Ohlone settlement (Byrd et al. 2020a). Therefore, the current archaeological study provided the opportunity to better bridge the gap between pre-colonial and post-colonial Ohlone lifeways.

It should also be noted that additional large-scale infrastructure construction by the SFPUC led to the discovery and extensive data recovery of the archaeological site of *Rummey Ta Kuččuwiš Tiprectak* ("Place of the Stream of the Lagoon Site," CA-ALA-704/H) 400 meters to the northeast (Byrd et al. 2020b; Ross et al. 2020). This large, multicomponent settlement included a pre-colonial Indigenous occupation and a subsequent colonial Mexican and Early American period ranch complex (including remnants of the Suñol Adobe) in use from 1839 C.E. to the early 1900s. The Native American component was investigated by the same collaborative team that conducted the excavations and analysis at *Sii Tüupentak*, documenting numerous features and burials dating primarily from 2,440 to 1,610 cal B.P. (88% of the dates fall within this time span) along with sparser evidence of occupation between 1610 to 175 cal B.P. (Byrd et al. 2020b).

COLLABORATIVE ARCHAEOLOGY

Community-based or collaborative archeology falls within the broad category of public archaeology. There

is a long history of public archaeology and publications on this topic; in the U.S.A. this orientation took off in the 1960s and 1970s with changes in public interest, laws, and policy regarding the archaeological record (McGimsey 1972). During the last 20 years, engagement with local communities has been an increasingly important focus of public archaeology and archaeology in general, as witnessed by the emergence of topical journals (e.g., the *Journal of Community Archaeology* and *Heritage and Public Archaeology*) and a series of edited books, especially in the last few years (e.g., Gould 2019; Gürsu 2019; Merriman 2004).

This interest in and advocacy for community-engaged archaeology is global in nature (Jameson and Musteață 2019; Okamura and Matsuda 2012). It is also prominent in California, and the investigations of Kent Lightfoot and his colleagues (e.g., Lightfoot and Gonzalez 2018; Lightfoot et al. 2013) and of Tsim Schneider and Lee Panich (e.g., Schneider 2021; Schneider and Panich 2019) are notable examples of community-engaged archaeology, focusing on collaborative research on topics of interest to Native California descendant communities. Indeed, such projects across North America have been wonderfully successful, asking questions descendant communities are interested in, training Native American community members, and helping indigenous scholars to become professional archaeologists (Cowie et al. 2019; Silliman 2008).

Overall, these global archaeological developments have provided much insight into how to design and carry out community-engaged research projects, highlighting how individual projects will vary greatly based upon the descendant community involved (Gürsu 2019; Jameson and Musteață 2019). It has also been noted that in indigenous settings, an important first step is invariably for participants to acknowledge that archaeology has an early historical legacy founded in racism and questionable ethics, and that there is a need to actively work to decolonize its modern practices (Church 2020; Colwell 2016; Murray 2011). It is also important to recognize that most of these praiseworthy community-engaged projects have been done outside of CRM, and very rarely in challenging archaeological situations where modern development cannot or will not avoid impacting archaeological sites (Church 2020). In such contexts, moving from descendant community consultation to

meaningful collaboration is much more challenging, due to time constraints, costs, and reliance on normative CRM protocols. These trends and recent developments were very much on our minds when we embarked on this study, and as outlined here, we hope our experiences contribute meaningfully to the topic.

Similar trends toward community-engaged research are also taking place in related fields, notably in history and biological anthropology (Meloche et al. 2021; Smith 1988; Warren 2017). In biological anthropology, for example, there is now widespread and growing recognition that the ethical study of ancestors must be done with the consent and oversight of the descendent community (Bader and Malhi 2019). It is also important to stress that the perspective of indigenous communities regarding such investigations will vary greatly. Many will not want any study of their ancestors. Other tribes will have considerable interest in reconstructing who their ancestors were in life and will want to ask specific questions that have relevance to their community.

The edited volume *Working With and For the Ancestors* (Meloche et al. 2021) presents a series of collaborative studies where research on ancestors was first approved by the indigenous descendant community and then carried out in a collaborative, sensitive, and appropriate manner (e.g., Bader et al. 2021). The work at *Sii Túupentak*, presented here, is in this vein of collaborative research with the active participation of the descendant community.

***SII TÚUPENTAK* COLLABORATIVE STUDY**

The *Sii Túupentak* collaborative project started well before the current social movement supporting racial justice for underprivileged and minority communities in the U.S., and evolved over more than half a decade. The collaboration involved the SFPUC (the development project proponent), the Muwekma Ohlone Tribe of the San Francisco Bay Area (the descendant community), joined by San Jose State University anthropology students, an archaeological research team led by Far Western and academic scholars from several universities, and the San Francisco Planning Department (the regulatory agency ensuring compliance with city protocols regarding state of California environmental laws and regulations, notably the California Environmental Quality Act).

Former Chairwoman and state-assigned Most Likely Descendent (M.L.D.) representative Rosemary Cambra, current Chairwoman Charlene Nijmeh, Vice Chair and current M.L.D. Monica V. Arellano (who also led the Muwekma's field team and served as primary monitor), and Tribal Archaeologist Alan Leventhal all played key roles in the project. The project also benefited from the experience gained by the Muwekma Ohlone's long-term program of historical and archaeological research that has included running their own CRM archaeological projects (e.g., Cambra et al. 1996; Field et al. 1992; Leventhal et al. 1987, 2015) and developing collegial relationships between members of the archaeological community and the Tribe. Many of those initial collaborative projects prominently involved Mark Hylkema while he worked for Caltrans. They included the Tamien Station project (CA-SCL-690), during which Muwekma Tribal members monitored, excavated, and were technicians in training at the Osteology Lab at SJSU, and also wrote their own ethnographic overview chapter (Hylkema 1994, 2007); and 1992 investigations at "Kaphan UmuX: The Three Wolves site," CA-SCL-732, a large, ancestral Native American cemetery site discovered in a San Jose interchange (Cambra et al. 1996), during which Hylkema assisted in certifying the Muwekma Ohlone Tribe and their archaeological firm, *Ohlone Families Consulting Services*, to direct the field work and write the report, despite opposition from the archaeological community.

One of the principal goals of this and prior Muwekma archaeological and historical investigations and collaborations with various scholars has been to shatter the widespread myth that the Muwekma Ohlone people are extinct and/or have no historic or biological claims to their ancestral heritage cemeteries and village sites.

In April 2014, Muwekma Ohlone Tribal leadership was approached by the SFPUC to discuss plans to construct an educational facility—the Alameda Creek Watershed Center—adjacent to the Sunol Water Temple, with a focus on the natural history of the Alameda Creek watershed. The agency intended to include space in the center for the indigenous inhabitants of the region to tell their story. Thus, the Muwekma Ohlone had the rare opportunity to present information to the SFPUC on their tribe's history and heritage and their relationship to the greater Sunol/Pleasanton/Niles/Livermore region from Spanish contact, through the twentieth century, and into

the present. The Alameda Creek Watershed Center is scheduled to open in 2023.

During these discussions, the Muwekma Ohlone Tribal leadership demonstrated to SFPUC officials (who funded the project) that by employing various records including Spanish Mission marriage, baptismal, and death records:

- their enrolled lineages descend from the California tribes of the greater East and South Bay region and could trace their ancestry back to their aboriginal villages;
- that their direct biological ancestors were missionized into the three Bay Area Spanish missions—San Jose, Santa Clara, and San Francisco;
- their families comprised the historic (after 1906) and previously federally-recognized Verona Band of Alameda County that resided in the Pleasanton (Alisal), Sunol, Livermore (Del Mocho), and Niles (El Molino) rancherias from post-mission secularization to the early twentieth century;
- they served as linguistic and cultural consultants to such notable anthropologists as J. P. Harrington and A. L. Kroeber between 1879 and 1934, when their last fluent speakers passed away;
- they had family members buried at the Ohlone Indian Cemetery in the city of Fremont during the nineteenth and early to mid-twentieth centuries;
- they enrolled with the Bureau of Indian Affairs between 1928 and 1971;
- they went to Indian boarding schools in the 1930s and 1940s; and
- they belonged to the Bay Area California Indian Council in the mid-1940s to 1950s.

All of these details were also published in the project's ethnohistory chapter, which was written by the tribal leadership and the Language Committee (Arellano et al. 2020).

Muwekma Ohlone families clearly lived for centuries within the greater Sunol region, and parents and grandparents were baptized at Mission San Jose as Indians. For example, co-author Monica V. Arellano's paternal grandfather Albert Arellano and his mother (her great

grandmother) Mercedes Marine were born on the Alisal Rancheria (1910 Federal Indian Census, “Indian Town” Pleasanton Township). Her father Joel C. Arellano, Sr. and his siblings regularly met and played on the rocks in Niles Canyon as children while visiting other Muwekma Indians living in Niles. Although left as a landless tribe, the Muwekma Ohlone never abandoned their tribal relations or left their aboriginal lands, and Muwekma families have maintained close ties and relationships to Sunol and surrounding areas during the twentieth century (i.e., born on the Sunol Rancheria, baptized, sent to the orphanage, and having funeral services at Mission San Jose) within the San Francisco Bay Area.

A Memorandum of Understanding was then developed so the Muwekma Ohlone could consult on the Watershed Center’s indoor and outdoor Native American cultural exhibits and serve as monitors on the archaeological work for the project. Tribal leadership made recommendations relative to the treatment of the archaeological site (*Sii Tiiupentak*) that lay within the footprint of the proposed Watershed Center. Furthermore, SFPUC allowed the Tribe to recommend a Cultural Resources Management firm that they felt would be respectful of their input and leadership, and thus one they could trust. Far Western was recommended and accepted, and joined the project in June 2015; subsequently, the team—including the staff of the SFPUC—has collaborated in meaningful ways on this project.

The Muwekma Ohlone involvement in the community-based cultural resources work for the project has included the following:

- naming the archaeological site *Sii Tiiupentak*, meaning “Place of the Water Roundhouse Site” in their native Chochenyo Ohlone language;
- recommending and approving all archaeological field and lab methods;
- reviewing, providing comments, and approving all of the technical reports (including: Research Design for Archaeological Testing, Archaeological Testing Report, Research Design for Archaeological Data Recovery, and Archaeological Mitigation Report);
- monitoring all fieldwork;
- excavating all ancestral burials;
- writing the ethnohistory chapter in the final reports;

- contributing to manuscripts and news stories published or disseminated about the project, including a peer-reviewed archaeological monograph on the investigations, several articles in professional journals, and articles in newspapers, including the *New York Times*;
- approving the curation plan (non-mortuary items were curated at Sonoma State University’s curation facility) and reburial of ancestors and sacred objects nearby and taking the lead on the reburial process;
- providing substantive input on the Watershed Center’s educational displays and programs that will prominently feature the Tribe’s history and highlight their ancestral heritage site;
- supporting and being active participants in all phases of the archaeological mitigation project documented in the PBS educational film *Time Has Many Voices* aimed at the broader Bay Area community.

The main archaeology field investigations carried out by Far Western and the Muwekma Ohlone involved a multi-stage field effort between 2016-2017 that included test excavations, data recovery investigations, remote sensing (Engbring et al. 2019; Grebenkemper et al. 2021), mechanical and manual archaeological stripping, and the excavation of all features and burials identified. Fieldwork entailed the excavation of 48 units, 10 trenches, and 1,130 liters of sediment floated and fine-mesh wet screened. It also ultimately entailed the stripping (including a substantive portion done manually) of 1,700 cubic meters of sediment covering the full building footprint to ensure that all burials and features were carefully identified and recovered prior to construction. Whenever conflicts or concerns occurred during more than a year of working side by side, the group (including SFPUC officials) sat in a circle under a tree at the site and had meetings. During these, the team talked through the process to ensure everyone was heard, and everyone listened to each other with respect and looked for common ground in what at times was a challenging endeavor, especially when numerous burials were encountered.

Collectively, Muwekma Ohlone tribal members and representatives of the scientific community are looking into the lives and deaths of ancestral people from the past. For the Tribe, this includes a variety of studies (notably

including accurate sex determination) conducted to provide enhanced perspective on the persona of each individual, to gain insight into them as the unique people that they were. Muwekma Ohlone would not survive to this day if it were not for the sacrifice, struggles, and commitment of their families. By retelling some of their history and stories through archaeology, the Tribe members celebrate the lives of their ancestors, and ultimately honor them when they are returned to the *warep* (translated as “the earth” in Chochenyo), where their loved ones originally placed them with affection and respect.

With regard to the study of their ancestors that might be encountered during fieldwork, rigorous state of the art archaeometric studies were requested by the Muwekma Ohlone at the very first archaeological meeting for the project in 2014. At the request of tribal leadership, a presentation to the Tribal Council on proposed methods and research specialties was conducted by Far Western. Approved analyses (using microsamples) for ancestral remains included radiocarbon dating; stable isotopes (carbon, nitrogen, strontium, sulfur) to examine diet, age at weaning, and changes in residence; study of teeth proteins to identify sex, especially of young individuals; paleogenomic DNA analysis to determine sex and ancestry/relatedness; ancient DNA (aDNA) analysis to confirm osteological indications of tuberculosis; dental calculus analysis to identify inhalant compounds, notably tobacco; and a pilot study of dental calculus to explore the oral microbiome aDNA with respect to diet and disease. Several presentations were made to the Tribal Council on emerging results during the project, and a talk on the project was presented at a tribal-wide meeting upon completion of the study. All of these studies were completed and published collectively as part of the overall study of *Sii Tüupentak* as a UC Davis *CARD* monograph (Byrd et al. 2020a). A series of articles on various aspects of the results has also been published (Buonasera et al. 2020, In press; Engbring et al. 2019; Grebenkemper et al. 2021; Scheib et al. 2018; Severson et al. 2002).

HIGHLIGHTING *SII TÜUPENTAK* RESULTS

Setting, Age, and Site Structure

Sii Tüupentak is located on an alluvial floodplain near the confluence of Alameda Creek and Arroyo de la Laguna within the Alameda Creek watershed, the largest in the

southern San Francisco Bay Area. Situated adjacent to a rich riparian setting, the extensive Sunol Valley was an oak savanna with adjacent grasslands, and the nearby hills contained a mixed hardwood forest (Stanford et al. 2013). The site is a large (6.9 acres) sedentary village site consisting of a thick deposit of cultural material along with an associated cemetery (Byrd et al. 2020a). In the middle of the site there is a low (30 cm.) anthropogenic mound (approximately 30 meters in diameter) formed by intensive occupation activity. Archaeological investigation of 6.2% of the site recovered a wide range of cultural remains, including more than 13,000 artifacts, numerous food remains, 36 features, and 66 burials comprising 76 individuals.

Sii Tüupentak dates from 605–111 cal B.P. (1345–1839 C.E.), based on 129 radiocarbon median intercept results from 96 burials and features (Byrd et al. 2020a:83–86). More than 95 percent of the features and burials are concentrated in a narrower time span from 539–145 cal B.P. (1411–1805 C.E.), indicating that *Sii Tüupentak* was primarily occupied for around 400 years. This occupation encompassed the last 100 years of the central California Late 1 Period (full extent of period 685–440 cal B.P.), all of the Late 2 Period (440–180 cal B.P.), and almost 30 years of ‘historical era’ occupation after the arrival of the Spanish (Groza et al. 2011). Thus, the site was founded prior to European contact and continued to be inhabited during early European coastal exploration. This colonial exploration started 408 cal B.P./1542 C.E. and continued through the region’s Spanish colonization, which began locally 173 cal B.P./1777 C.E. with the founding of missions San Francisco Asis (Dolores) and Santa Clara, until most of the inhabitants were forced into the Spanish mission compounds (145 cal B.P./1805 C.E.). The site was also reoccupied in the 1830s C.E. after the Spanish empire lost control of Alta California.

Five site components (Late 1, Late 2a, Late 2b, Late 2c, and Historic) were defined for intra-site analysis, based on the temporal distribution of dated features and burials (Table 1). Notably, the Late 2c component continued until 145 cal B.P. (1805 C.E.) in the “Historic/Mission” period, based on radiocarbon dating evidence of occupation continuity. This is consistent with Spanish mission records that demonstrate that 98 percent of the Ohlone of the Sunol area (the *Causen* tribal community) listed in the Spanish mission registries did not relocate

Table 1

SÍI TÚUPENTAK TEMPORAL COMPONENTS-BASED RADIOCARBON MEDIAN INTERCEPTS OF FEATURES AND BURIALS

Period (Groza et al. 2011)	Site Component	Total Span (cal B.P.)	Total Span (C.E.)	Burial % (n = 70)	Feature % (n = 26)
Historic: 145–50 cal B.P. (1805–1900 C.E.)	Historic	119–112 (9 years)	1831–1838	1%	4%
Late 2: 440–145 cal B.P. (1520–1805 C.E.)	Late 2c	199–145 (54 years)	1744–1805	11%	17%
	Late 2b	312–273 (39 years)	1638–1677	37%	6%
	Late 2a	395–362 (33 years)	1512–1588	23%	26%
Late 1: 685–440 cal B.P. (1265–1520 C.E.)	Late 1	539–441 (98 years)	1411–1509	26%	44%
		605–601 (4 years)	1345–1349	1%	2%

to the missions until 153–146 cal B.P. (1797–1804 C.E.), when nearby Mission San Jose was founded (Milliken 2010). Finally, the historical-era component dates from 119 to 112 cal B.P. (1831 to 1838 C.E.), documenting post-mission use of the site by Native people during the Mexican period presumably associated with the adjacent Suñol ranch complex.

Intra-site analysis revealed strong, temporally-driven spatial patterning during settlement occupation. Features and burials were concentrated in a 65-by-20-meter area, with most from the Late 1 Period in the northwest portion of this concentration, and the vast majority of Late 2 burials and features (and 60% of all burials) within and immediately to the southeast of the low mound (Fig. 2). In contrast, the historic Mexican Period Native American feature and burial were situated much farther to the southeast of this concentration. Generalized site midden deposits were also patterned along this northwest-southeast site axis (from Late 1 to Historic Period in age). Notably, over time, based on generalized site deposit constituents that were spatially associated with the remains from each period, there was increased reliance on imported Napa obsidian for flaked stone tool use, shifting from moderate (45%) in the Late 1 Period to overwhelmingly dominant near the end of the Late 2 Period (up to 83%).

Subsistence Economy

Features were dominated by residential-related fire-affected rock concentrations, ash lenses, and large roasting pits (Fig. 3). In addition to these domestic features, a large formal hearth and a pit feature may have been used in ceremonial activities. Subsistence analysis reveals the inhabitants actively managed the local landscape, and that prescribed burns were undoubtedly undertaken to enhance grasslands

and small-seeded plants (Wohlgemuth 2020; see also Lightfoot and Lopez 2013). Wohlgemuth's (2020) study demonstrates that plant resource processing was strongly associated with domestic features, sometimes represented by plants collected during a single season and sometimes by plants collected during more than one season. In these contexts, small-seed processing (notably farewell to spring, fescue, and hairgrass) was more important than that of nuts. Overall, the site's rich archaeobotanical assemblage included 50 plant genera dominated by small seeds and nuts (primarily acorn and then bay nut). Most are spring-ripening small-seed taxa (46%) and summer small-seed and berry taxa (42%), with fewer fall-ripening nut taxa (12%)—a seasonality distribution consistent with a sedentary village community, given that all key seasons of plant availability are represented. Eurasian cultigens (wheat, barley, and watermelon) and weeds (such as filaree and cheeseweed) and New World domesticated corn are present and were primarily recovered from two Late 2c features and the historical-era Native American feature.

Analysis by Whitaker (2020) reveals that vertebrate faunal remains from features and elsewhere include both large and small mammalian fauna (notably deer, rabbits, hares, various carnivores, and rodents), with many fewer birds and other remains. Domestic dog is also present, based on aDNA results by Brian Kemp (Whitaker 2020:251). Fish were also important, mainly represented by freshwater fishes (especially Sacramento sucker), along with a moderate quantity of salmonids, pike minnow, and surfperch (Gobalet 2020). Estuarine fish and shellfish taxa were uncommon, and the former declined over time. The results reveal a consistent and sustained pattern of procurement throughout the sequence with an absence of large mammal resource depression.

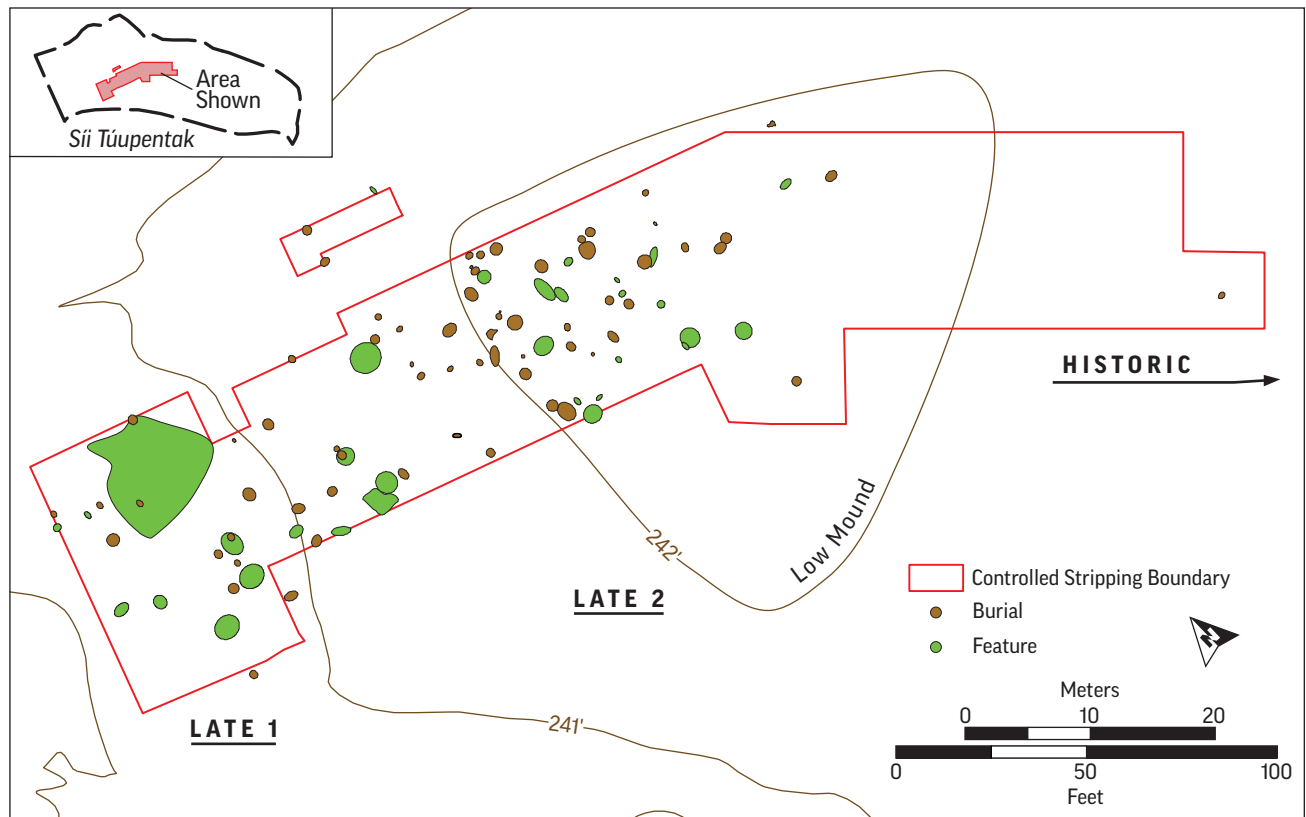


Figure 2. Map showing distribution of burials and features by period, and location of low anthropogenic mound.



Figure 3. Roasting pit Feature 10.

Instead, a healthy U-shaped artiodactyl population (with younger and older adults dominating the assemblage) persisted despite hunting throughout the year, particularly in the fall and winter, based upon a dental increment seasonality analysis by Jaffke and Peabody (Whitaker 2020:229–230). Eurasian domesticates are not present in protohistoric features, a trend consistent with prior investigations of sites of this age in the Bay Area (Byrd et al. 2018). The lone 1830s historical-era feature includes cattle, goat, and domestic cat, a shift consistent with Native American's access to domesticated resources while working on the adjacent Suñol Rancho.

LIVED LIVES

As requested by the Muwekma Ohlone, detailed archaeometric analyses of the 76 individuals recovered from burial excavations yielded new insights into the lives of these unique individuals, as well as community trends and insights into social and ideological complexity. Multi-factor sexing of adults and younger individuals—combining the results of osteological, ancient DNA (aDNA), and amelogenin protein from teeth—allowed for comprehensive sexing of a burial population for the first time in indigenous California, and the ability to differentiate between health, diet, and mortuary trends in females and males of all ages (Buonasera et al. 2020; DiGiuseppe and Grant 2020; Malhi et al. 2020; Parker et al. 2020). Based on the analyses, the biological sex of the indigenous ancestors included 32 females, 34 males, and 10 of indeterminate sex.

Nuclear genome aDNA analysis by Malhi and colleagues provided new insights into broader Native American lineages and early migration patterns in the peopling of the New World (Malhi et al. 2020; Scheib et al. 2018). Notably, Severson et al. (2022), in a study of 12 ancestors from *Sii Túupentak* and nearby *Rummeý Ta Kučučwiš Tiprectak* and eight present-day members of the Muwekma Ohlone, demonstrated that these pre-contact individuals shared a distinct ancestry from other groups, as well as an element of continuity over time with living Muwekma Ohlone tribal members. As Severson et al. (2022:7) noted, “the shared ancestry components provide support for genetic continuity between the individuals from the *Rummeý Ta Kučučwiš Tiprectak* and *Sii Túupentak* archaeological sites and between the two sites

and the present-day Muwekma Ohlone.” The results indicate that the Ohlone arrived in the Bay Area at least 500–1,000 years earlier than the 1,500–1,000 cal B.P. time frame typically suggested (Fagan 2004; Golla 2011; Levy 1978a). Mitochondrial genomic aDNA analysis revealed that the population of *Sii Túupentak* was primarily composed of individuals from haplogroup D, with lesser representation by haplogroups C and B. This differs markedly from the results from most other nearby sites (Byrd et al. 2020a:Fig. 201; Monroe 2014, 2019), probably due to long-term differences in mating interactions between territorial communities.

A notable osteological observation on health and disease was also confirmed by an aDNA analysis conducted by Anne Stone, who demonstrated that at least four individuals from *Sii Túupentak* were suffering from tuberculosis, generally considered to be a disease introduced to North America by Europeans (DiGiuseppe and Grant 2020:276). All were males, including three juveniles and one infant, with median age intercepts from 478–312 cal B.P. (1472–1638 C.E.) and all but one dating to 382–290 cal B.P. (1568–1638 C.E.). These results indicate that early European explorers (who landed at nearby Monterey or along the Mendocino/Marin coasts following established trade networks) may have first introduced the disease to the region, rather than its original introduction coinciding with Spanish colonization in the late 1700s.

Variations in diet and survivorship were observed both between males and females, and between adults and younger individuals. In terms of dietary patterns, a stable carbon, nitrogen, and sulfur isotope analysis by Eerkens et al. (2020a) revealed that males consistently consumed higher trophic-level foods than females (both among adults and children), and that there was an overall steady temporal trend towards a reduction in diet breadth and an intensification in the use of regional resources. In terms of childhood diet, Eerkens et al.'s (2020b) study (based on serial nitrogen and carbon isotope samples from teeth) revealed that males were weaned on average almost a year earlier than females (2.3 versus 3.2 years). As detailed by Buonasera et al. (In press), male infants (five years or younger) were also less likely to live to adulthood, dying almost twice as often as female infants, and there appears to be a positive correlation between isotopic dietary signals and an individual's survivorship

into adulthood. This is likely the result of a biological survival advantage in female infants (e.g., Zarulli et al. 2018), combined with such extrinsic factors as disease, nutrition, and engendered enculturation.

Other differences between male and female adults were also discerned. Strontium isotope analysis of molars and bone by Harold (2020) revealed trends in residential marriage patterns, with more females than males immigrating around the age of puberty, indicating a preference for patrilocal. General migration frequency also decreased over time, indicating that fewer people immigrated from farther afield. This may suggest a reduction in the need for exogamy over time, likely due to a growing local population with more potential marriage partners.

A liquid chromatography-mass spectrometry analysis of dental calculus by Tushingham et al. (2020) showed that there were also differences between males and females in the use of psychoactive plant inhalants. Compared to males, a higher proportion of women of varied ages tested positive for nicotine use. Moreover, there are patterned differences in the location of nicotine on teeth—among men, it is found primarily on the front teeth, which is indicative of smoking, while among women it is located primary on the back teeth, which is indicative of tobacco chewing. These results contradict ethnographic reports that mention only tobacco smoking, and state that males of all ages were the predominate users, with only occasional older women and female shamans smoking tobacco (Harrington 1932; Tushingham et al. 2020:357; Winter 2000a).

MORTUARY PRACTICES

Investigations of mortuary practices revealed a series of patterns, the most notable of which are highlighted here (Byrd and Engbring 2020). Some 79% of the 76 ancestors documented were present as inhumations and 21% were cremations. There was a shift from uniform mortuary treatment in the Late 1 Period (exclusively primary inhumations, typically loosely flexed on their back or right side) to highly varied and more complex interment practices in the Late 2 Period that included cremations (26%) and secondary inhumations (6%) for the first time. The earliest cremation is dated to 387 cal B.P. (1563 C.E.) during the Late 2a component, and relative cremation

frequencies rise in later components. Cremations mainly involve adults (94%; and 39% of all Late 2 adults), and cremated males (mainly young or middle-aged adults) are twice as common as females. All were secondary burials (i.e., were cremated elsewhere), and two-thirds were interred in two adjacent clusters of five individuals each, interred over a considerable period of time. One cluster was centered on a large formal hearth; the other cluster had stone cairns with mortars overlying each individual.

Another significant Late 2 mortuary development was the ritual use of red pigment on human bone and on select artifacts (lipped type E shell beads, bone whistles, and a mortar). Red pigment, dated to the Late 2b and 2c components (296–183 cal B.P./1654–1767 C.E.), occurs with 21% of the burials. Most is bright reddish-orange cinnabar (mercury sulfide) pigment, along with some hematite, distinguished by X-ray fluorescence (XRF) analysis (Martindale Johnson 2020a). Cinnabar pigment occurs with 30% of adults from these components—typically males (71%) and especially cremated individuals. In contrast, only a single younger individual has associated cinnabar pigment. Cinnabar was also used by the Ohlone in historical times as a paint for a variety of ceremonial and ritual purposes, including as body paint, for pictographs, and for wall painting at the Mission Santa Clara church (Coombs 1999; Hylkema 2010; Jones 2015).

With respect to mortuary items, a diverse range of offerings and combinations of non-perishable items were interred with burials, highlighting the uniqueness of individuals. *Olivella* shell beads dominated the list of mortuary items (Eubanks 2020; more than 90% of the almost 4,500 items recovered), along with a fair number of abalone shell ornaments, projectile points, mortars, pestles, and whistles, with lesser quantities of 20 other types of items, including smoking pipes (Figs. 4 and 5). Most individuals had mortuary offerings (83%), typically involving just a few items, but some had many items. Individuals with numerous mortuary offerings were from varied temporal components, locations in the site, and DNA-based matrilineages; they also included inhumations and cremations, men and women, and diverse ages (including a fetus).

Four ancestors are highlighted here with respect to mortuary offerings to illustrate variations in practice. Each lived a unique life, and they were mourned by



Figure 4. Select *Sii Túupentak* artifacts including thin rectangles (Class M) *Olivella* beads, banjo abalone pendants, projectile points, very large incised bird bone, bone whistles, and composite smoking pipe.



Figure 5. Select *Sii Túupentak* artifacts including two flower-pot/show mortars and a pestle.

family and friends after their passing, as evidenced by their careful and sometimes lavish interments. Late 1 Period Individual 66 was born around 1429 C.E. (521 cal B.P.) at a different settlement (i.e., outside of the *Sii Túupentak* strontium isotope range) and lived to the age of 35–40 years. She was buried with more funerary objects (n=1,154) than any other individual. Most (97%) were rectangular M-series *Olivella* sequin shell beads,

often overlapping (see Fig. 4), which were likely stitched onto a garment or blanket, along with 25 abalone shell ornaments, two bone whistles, a bone tool, one flower-pot/show mortar (see Fig. 5), four pestles, and another ground stone item. The whistles were placed on her neck and cheek, and the imported flower-pot/show mortar was ritually broken along its rim. Large, finely-made volcanic mortars from *Sii Túupentak* and elsewhere were

undoubtedly used in special ceremonies, such as feasting or food-related ritual events associated with the (re) distribution of food resources, and their deposition with selected individuals likely implies that these individuals occupied an elevated social rank within the local community (Bellifemine 1997; Buonasera 2013:205–206; Leventhal 1993:222–225, 261–263; Martindale Johnson and Byrd 2020:474–480).

Late 1 Individual 36 was born at *Sii Túupentak* more than a half century later, around 1473 C.E. (477 cal B.P.) and died some 17 to 20 years later. Although the number of total associated mortuary items was relatively low and notably no shell beads were present, there was a high diversity of offerings. She was accompanied by five bone whistles, and she had a pestle on her outstretched right arm, two whistles behind her neck, and two bone tools elsewhere (see Fig. 4). She was also interred with the only two banjo abalone ornaments documented at *Sii Túupentak* (both probably suspended as a necklace; see Fig. 4). They are notable, since they have been suggested as identifying Kuksú ceremonial system big head dancers and possibly indicating membership in the Kuksú religion (Hedges 2019; Hylkema 2002; Leventhal 1993; Milliken et al. 2007).

Individual 62 was a female *in utero* neonate aged 36–40 weeks in component Late 2b (1646 C.E./304 cal B.P.). She was interred with 239 *Olivella* shell beads (primarily spire-lopped Type A), two projectile points, and a very large, elaborately incised bird bone tube (see Fig. 4). This individual is noteworthy for several reasons: she was the only fetus with mortuary items not interred with an adult, she had more associated items than all but eight individuals in the mortuary population, and is the only individual buried with an incised bone tube.

Finally, Late 2b Burial 49 is a double interment of cremated adult males dated to 1662 C.E. (283 cal B.P.). One man was in his 20s, with more than 200 (mostly E-Series lipped) *Olivella* beads and two Stockton Serrated obsidian arrow points. The other individual lived to 35–40 years of age and was interred with 21 mostly obsidian projectile points of varied types (see Fig. 4, including three non-local point types; several of the points were embedded in his body), 21 mostly spire-lopped *Olivella* shell beads, a large pestle (see Fig. 5), two obsidian bifaces, and assorted obsidian flakes and a flake tool. A substantial overturned bowl mortar was situated next to both individuals.

Considerable attention has been placed on mortuary practices as a way of gaining insight into socio-political complexity and identifying elites in northern California and elsewhere (e.g., Atchley 1994; Bellifemine 1997; Byrd et al. 2017:12-1-12-4; Gamble 2008; King 1974; Leventhal 1993). There has also been greater recognition of the fact that there is not always a simple 1:1 relationship between mortuary offerings and status or wealth, since mortuary events are public occasions where shared social meanings and memories are constructed, social order is reinforced, group cohesion is promoted, and community-wide identities are crafted (e.g., Reddy 2015). This highlights the need to explore social identity, agency, and interaction with respect to a wider range of social categories (including age, sex, and group affiliation) when considering mortuary practices (Byrd and Rosenthal 2016; Gardner 2013; Leventhal 1993; Luby 2004).

Overall, several factors may have contributed to variations in mortuary offerings: achieved status, intra-community membership/lineage, and the loss felt by surviving family members. There is no unequivocal mortuary evidence of either hereditary elites (where, for example, families of individuals of both sexes and all ages have many more mortuary offerings, were buried in close proximity to each other, and/or were buried in a distinctive and elaborate manner) or an extremely poor segment of the community. Instead, in the Late 2 Period, there is an increasing divergence in mortuary offerings, with adult cremations having a mean and median 10 times greater than adult inhumations. Cremated adults also have greater shell bead ubiquity, many more non-shell bead items, and consumed more foods of a higher trophic level, an indication that their diets were richer in meat (Eerkens et al. 2020a). Interestingly, Late 2 Period adult inhumations also have 50 percent fewer mortuary items on average than Late 2 younger individuals, with older adults having the least associated items. These differences in mortuary behavior and offerings between Late 2 adult cremations and inhumations may signify more broad-scale, intra-community social differences in mortuary treatment. At the end of the sequence (Late 2c, post-199 cal B.P./1744 C.E.), there is an uptick in median mortuary items, the diversity of total items, the ubiquity of shell beads, and the quantities of non-shell bead items, despite the lowest mean in mortuary items. Both internal and possibly external factors (such as disruptions in

long-standing trade networks) may have influenced these Late 2c mortuary trends toward more varied and evenly distributed mortuary offerings within the population. These trends highlight changes in the complexity of mortuary practices, especially in the latter half of the occupation span.

SOCIOPOLITICAL IMPLICATIONS OF TRADE AND EXCHANGE

Fine craftsmanship is exhibited in the elaborately made and abundant non-perishable material goods of the *Sii Tüupentak* community. Many items were made with locally available products—elaborate bone awls, whistles, and the incised tube, as well as ground stone pestles and bowl mortars made of local greywacke (Galindo Arias 2020; Martindale Johnson 2020b). A considerable number of items, including the three most common mortuary offerings, however, were non-local trade goods. Although trade details are unknown, acquisition of these items was most likely via trade and exchange (and typically as finished items), since direct source acquisition would have required traveling through the territories of three or more tribes, and at times having to cross into the territory of non-Ohlone-speaking Bay Area groups (Fig. 6).

Olivella shell beads and abalone pendants were imported primarily from along the central California coast, a distance of at least 50 km. A nearby prominent hematite source is 30 km. to the northwest, while the only source of cinnabar is the Pooyi/Almaden Mine area of Mount Umunhum 45 km. to the south, where the Ohlone had active mining tunnels in 150 cal B.P. (1800 C.E.) if not earlier (Coombs 1999; Heizer and Treganza 1972:302, 311–312). Flowerpot/show mortars (all four of which were recovered from mortuary contexts) were XRF sourced to a volcanic outcrop at Mount Diablo 35 km. to the north (Martindale Johnson 2020b: 141–146; see also Bennyhoff 1977). These very large (at least two times the largest bowl mortars), well-finished and unique mortars were likely acquired as finished products via trade with the Bay Miwok that resided near Mount Diablo. Obsidian (the dominant flaked-stone raw material for both debitage and tools, despite the presence of local cherts) was imported from the Napa and Annadel sources in Wappo territory, a distance of 110 km., with seven tribes, the Bay, and two language groups in between.

The widespread extent of this active system of trade and exchange involving these luxury goods testifies to the wealth of the community and the settlement's importance in central California. It also provides insight into the structure and organization of regional inter-territorial community interaction and alliance maintenance, reinforcing the importance of well-developed rules of political, social, and religious interaction mediated by community leaders (Bean and Lawton 1973; Gardner 2013; Leventhal 1993). The nature and extent of these interactions appear to have varied across this region, suggesting overlapping spheres of social interaction reinforced by trade and the exchange of finished goods, raw materials, mates, food resources, and other material attributes of these socio-political, economic, and symbolic interactions. Notably, widely traded emblematic objects reflect a community of practice that was contingent on shared beliefs and ideas grounded in ceremonial and socio-political interaction (Wenger 1998).

In the eastern Bay area, flower-pot/show mortars and banjo abalone ornaments are both present, with mortars more frequent in the north and the pendants much more ubiquitous in the south (Byrd et al. 2020a:469–486). Clam shell disk beads, on the other hand, are absent or very rare south of the Sacramento River, and only a single one was recovered from *Sii Tüupentak* (Eubanks 2020; Rosenthal 2011). Finally, high-volume trade of Napa obsidian was concentrated in the inland east Bay Area valleys and extended only as far south as *Sii Tüupentak*. Napa obsidian is present at Native American settlements within the tribal territories in the east Bay margins, northern Santa Clara Valley, and the San Francisco Peninsula, but it is not the dominant raw material used (Byrd et al. 2020a:472–473). These overlapping interaction spheres cross-cut linguistic and territorial community boundaries in much more varied and complex ways than has thus far been appreciated.

FORCED ABANDONMENT AND PERSEVERANCE

Spanish Mission Santa Clara and the San Jose Pueblo were founded in 1777 C.E. (173 cal B.P.) only 30 km. to the southwest (Milliken 1995). Despite being situated relatively close by, *Sii Tüupentak* was somewhat buffered by the presence of other Ohlone territorial communities

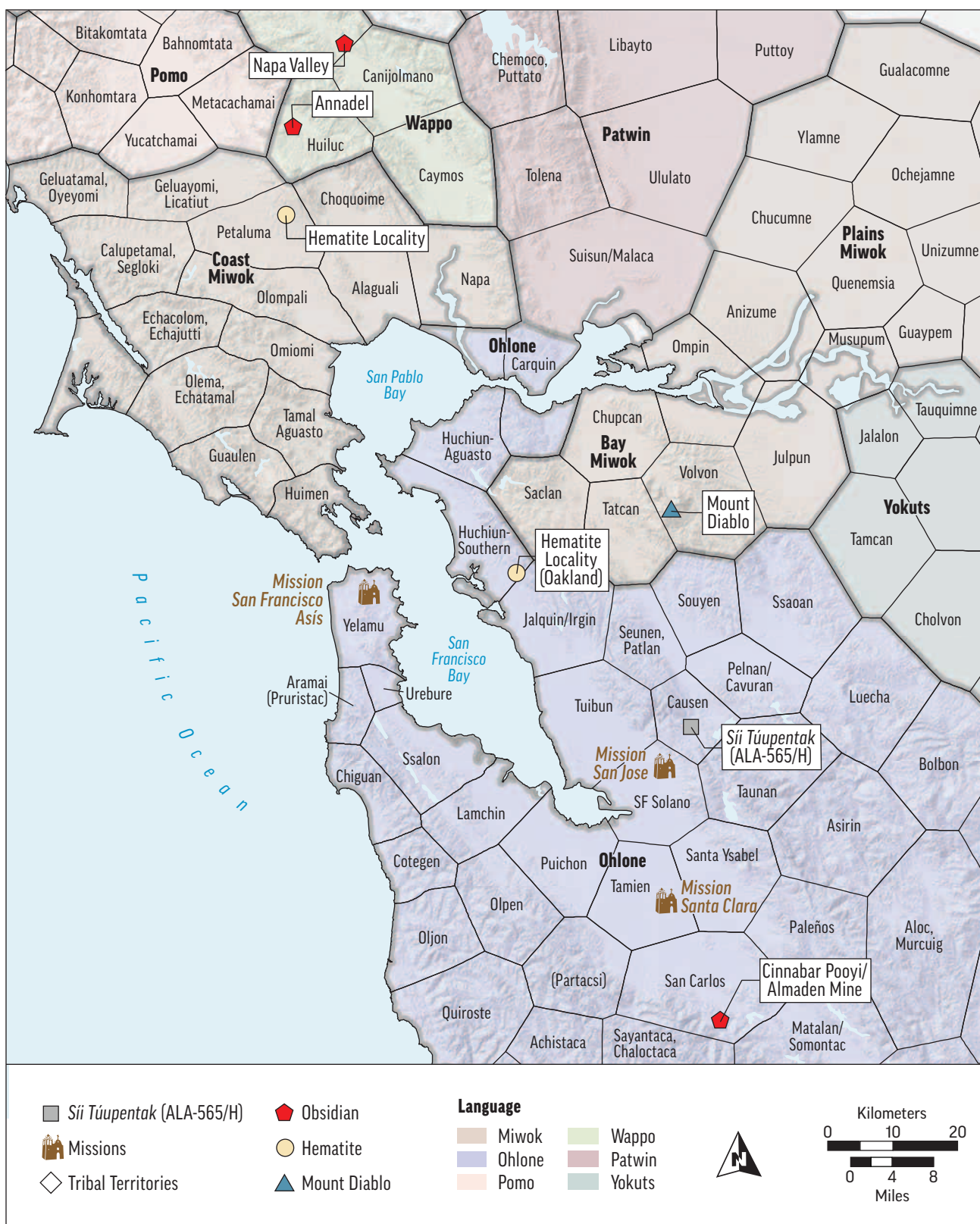


Figure 6. Prominent raw material source localities in relationship to *Sii Túupentak* and tribal community territories.

(Tamien, Santa Ysabel, and SF Solono) between them and the newly arrived colonizers at Mission Santa Clara and Pueblo de San Jose (see Fig. 6). During the several decades of regional co-existence, there is limited material evidence of interaction with the Spanish—a few glass trade beads, and two features with introduced domestic food remains, including watermelon, grain (probably wheat or barley), and corn as well as filaree, a non-local weed. This is consistent with the low-level integration of colonial items at indigenous settlements in the Bay Area during the Spanish colonial period (Byrd et al. 2018), and the conservative incorporation of newly introduced foods into the indigenous diet noted elsewhere in California (Reddy 2015).

Historical records reveal that external events that took place less than a decade before *Sii Túupentak* was abandoned circa 1804 had a profound impact. Mission San Jose was founded on June 11, 1797 C.E. (153 cal B.P.), just 6.5 km. to the southwest of the Ohlone settlement (Milliken 1995, 2008). This was immediately followed by a violent summer of concerted efforts by Spanish soldiers to exert their control over the lands near their new mission, to capture Ohlone and Bay Miwok runaways from missions San Francisco and Santa Clara, and to punish the Native Americans still living in independent villages in the southeast Bay region that had given them refuge (Milliken 1995, 2008). Was *Sii Túupentak* visited during these military raids? That is unknown, but it is likely, since this was the closest substantial indigenous settlement to the new Spanish outpost. Certainly, the inhabitants knew their options had just become more limited, and their lives were about to change significantly.

On September 7, 1797, a few days after the first baptism at the mission, the first Ohlone from the *Sii Túupentak* area came to Mission San Jose and were baptized—five children aged 2–8 were brought by an elderly native man (Milliken 2010). By the end of the year, two-thirds of the newly baptized people at the mission were from the *Sii Túupentak* area. The archaeological dating evidence from *Sii Túupentak* is consistent with the mission baptismal records, which confirm that during the next eight years, until 1804 C.E. (146 cal B.P.), 209 Ohlone from the *Sii Túupentak* area relocated to the mission (and only one did so afterwards, in 1807). They helped build its now famous church, worked the mission agricultural lands where Ohlone College stands today, and

undoubtedly planted and tended the mission's orchards and fields, as well as the incipient herds of cattle. This was, however, a harsh and foreign setting for them, and life expectancy at this colonial outpost was on average only eight years, based upon an analysis of the digital mission records (Milliken et al. 2006). As a result, only four people from the *Sii Túupentak* area survived until the Spanish colonial effort collapsed in 1833 C.E. (117 cal BP). One of those survivors was Moychol (MSJ-B 6) from “de la Lameda” (Alameda Creek), a two-year-old boy who was part of the first group from *Sii Túupentak* to be baptized at the new mission.

The Ohlone narrative did not end there—*Sii Túupentak* also has a modest 1830s Mexican period component, complete with a feature and burial, revealing post-Spanish-era use of the site by Ohlone that returned to this persistent place (Byrd et al. 2020a; Luby 1995). Some were undoubtedly among the Native American laborers documented as having worked at the Mexican period *Rancho El Valle de San José*, which was centered on the Sunol area, and the 1845 Suñol Adobe (situated within the pre-contact Ohlone settlement of *Rummey Ta Kuččuwiš Tiprectak*) was located 400 meters away (Arellano et al. 2020; Byrd et al. 2020b; Ross et al. 2020). The subsequent American period presented new challenges for the survivors of missions San Jose, Santa Clara, and San Francisco, but their descendants persisted nearby, living in Niles Canyon to the west, and near Verona station at the Alisal Rancheria to the northeast (Arellano et al. 2020). They continued to work in the local area, and the descendants from the historic, federally recognized Verona Band of Alameda County are thriving today as the Muwekma Ohlone Tribe of the San Francisco Bay Area, who collaborated on and actively participated in the design, implementation, and fieldwork at *Sii Túupentak*. They are also active stewards of their ancestral sites and a vital part of the Bay Area community.

CONCLUSIONS

This study has provided fresh insights into indigenous lifeways during a 400-year period, from just prior to early European exploration, through Spanish colonization and the forced relocation of many Native Californians into the missions in central California—a period of significant change in the lives of native people. Overall, the evidence

demonstrates that *Sii Túupentak* was a substantial, sedentary village, undoubtedly the most important village within the Causen Ohlone territory. This community was also an important node in central California inter-regional social interactions, interactions that were deeply meaningful and demonstrative of a set of shared beliefs and ideas. These complex inter- and intra-community dynamics entailed diverse elements, some of which were expressed in the form and patterning of material culture, while others were expressed in the life histories of the individuals that comprised these communities. These patterns were nuanced and filtered by social conventions tied to local community size, families, and lineages, and the social agency of the individuals within them. These ritualized practices helped to bond these distinctive territorial communities together into a rich tapestry of shared beliefs, practices, and obligations that reinforced social order and promoted regional cohesion within this densely populated area of central California.

This was also a substantial collaborative, community-engaged research project, with agency representatives, tribal members, and archaeologists working together during more than a year of fieldwork and research, resulting in a tremendous co-generation of knowledge of benefit to the descendent community. This paper has attempted to share our experience doing collaborative archaeology in a CRM mitigation context, as well as demonstrate that archaeological investigations centered on the co-production of information are both necessary and possible. It is also important to emphasize that the Muwekma Ohlone “Indianized” the collaborative process, which included reciprocity, mutual benefits between the scientific community, SFPUC, and the tribe, and mutual respect, acknowledging the tribe’s history, heritage, and intellectual property.

Despite the challenges of a large, fast-paced excavation and the breadth of the discoveries, it was a collectively enriching and rewarding experience. Given that archaeological findings can be unpredictable, collaborative endeavors also require periodic recalibration to ensure goals and methods are in sync for everyone, and if needed, new approaches and solutions can be implemented. Our experiences underscore the importance of research and methodological flexibility even while fieldwork is ongoing, which can be difficult due to a number of factors, including financial considerations.

One of the most important lessons learned was that a community-based project like this can only succeed with the effective and willing involvement and in partnership with the project proponent and the regulatory agency. These keystones of the CRM process are generally underappreciated (especially in CEQA-only projects), and much more support and recognition of outstanding regulatory practitioners is crucial, as is a willingness to call out those that are failing in their regulatory responsibilities. More graduate training is also needed to prepare students to succeed in such roles. In the case of this project we wholeheartedly acknowledge the efforts and support of our key partners on the staff of the SFPUC and the San Francisco Planning Department.

Of course, in hindsight there are aspects of the project that could have been done better or differently. More involvement of Muwekma Ohlone excavating units and features (and not just burials) would have been beneficial to all parties. Similarly, a better integration of the descendant community into the laboratory phase would have increased inclusivity at every stage of knowledge production and provided long-lasting dividends for everyone.

Working so closely together during this project resulted in the creation of strong relationships of mutual respect within this “new ecology of learning” (Warren 2017). It also facilitated several key goals, including empowering Muwekma tribal participants, refining cross-disciplinary approaches that enabled archaeologists to relate ethically and effectively with the descendant community, and the repatriation of knowledge to aid in the rediscovery of historical details and the creation of new narratives (e.g., Barnes 2017; Warren 2017). An important Muwekma Ohlone objective was to move away from the abstract and impersonal ways that academics have described their ancestors. Instead, they wanted to honor and celebrate the perseverance and tenacity of their ancestors as individuals, by respectfully telling the story of their lived lives. We believe this study successfully accomplished this and several other key objectives.

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**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA**

MUWEKMA TRIBE,

Plaintiff,

v.

BRUCE BABBITT,,
Secretary of the United States Department
of the Interior, and

KEVIN GOVER,
Assistant Secretary for Indian Affairs,
United States Department of the Interior,

Defendants.

Civil Action No.: 99-3261 (RMU)

Document Nos.: 27, 28

MEMORANDUM OPINION

Granting the Plaintiff's Motion to Amend the Court's Order

I. INTRODUCTION

The Muwekma Tribe is a tribe of Ohlone Indians indigenous to the present-day San Francisco Bay area. In the early part of the Twentieth Century, the Department of the Interior ("DOI") recognized the Muwekma Tribe as an Indian tribe under the jurisdiction of the United States. In more recent times, however, and despite its steadfast efforts, the Muwekma Tribe has been unable to obtain federal recognition, a status vital for the Tribe and its members. Without federal recognition, the Tribe cannot receive the benefits of health care, housing, economic development, and self-governance that the United States provides to federally recognized tribes. See Pl.'s Mot. for Summ. J. at 2; 25 C.F.R. § 83.2.

**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA**

MUWEKMA OHLONE TRIBE,	)	
	)	
Plaintiff,	)	
	)	
v.	)	
	)	Civil Action No. 03-1231(RBW)
DIRK KEMPTHORNE, ¹	)	
Secretary of the Interior, <u>et al.</u> ,	)	
	)	
Defendants.	)	
	)	

MEMORANDUM OPINION

The Muwekma Ohlone Tribe (“Muwekma,” “the Tribe,” or “the plaintiff”)² brings this action under the United States Constitution and the Administrative Procedure Act (“APA”), 5 U.S.C. §§ 554, 701-706 (2000), seeking review of the “Final Determination Against Federal Acknowledgment of the Muwekma Ohlone Tribe” (“Final Determination”), 67 Fed. Reg. 58,631 (2002), issued by the Department of the Interior (“DOI” or “the Department”),³ which declined to

¹ Pursuant to Federal Rule of Civil Procedure 25(d)(1), the Court has substituted the Secretary of the Interior, Dirk Kempthorne, for the former Secretary, Gale Norton, as a defendant in this action.

² As a matter of convenience, and in accordance with both parties’ pleadings, the Court will at times throughout this Opinion refer to the plaintiff as “the Tribe.” See Complaint ¶ 1; Answer at 2 n.2. The Court notes, however, that the plaintiff’s status as a Native American tribe within the meaning of the federal acknowledgment criteria is the primary point of contention in this litigation. See Morton v. Mancari, 417 U.S. 535, 553 & n.24 (1974) (stating that for the purposes of federal recognition tribal status is a political rather than racial classification). Accordingly, the Court’s reference to the plaintiff as “the Tribe” is not intended to suggest that the plaintiff is, or should be, entitled to federal tribal recognition.

³ The named defendants are (1) Gale Norton, in her official capacity as the Secretary of the Interior (“Secretary”); (2) Aurene Martin, in her capacity as the Acting Assistant Secretary for Indian Affairs; and (3) the Department of the Interior (collectively “the defendants”). As noted supra, Dirk Kempthorne has been substituted for Gale Norton pursuant to Rule 25(d)(1). In addition, Aurene Martin is no longer the Acting Assistant Secretary for Indian Affairs, and the position is currently vacant.

grant federal recognition to Muwekma as a Native American tribe pursuant to the acknowledgment criteria of 25 C.F.R. § 83 (2006) ("Part 83"). Complaint ("Compl.") ¶ 1. Specifically, Muwekma contends, inter alia, that the Department violated the Equal Protection Clause and the APA by requiring it to undergo the Part 83 acknowledgment procedures while allowing similarly situated tribal petitioners to bypass these procedures altogether. Compl. ¶¶ 37-39; Points and Authorities in Support of Plaintiff's Motion for Summary Judgment ("Pl.'s Mem.") at 22-30. Currently before the Court are the parties' cross-motions for summary judgment.⁴ For the reasons set forth below, the Court denies both parties' motions without prejudice and directs the Department to supplement the administrative record.

I. Background

The following facts are not in dispute. Muwekma is a group of American Indians indigenous to the San Francisco Bay area, the members of which are direct descendants of the historical Mission San Jose Tribe, also known as the Pleasanton or Verona Band of Alameda County ("the Verona Band"). Pl.'s Mem. at 4; Defs.' Mem. at 5; Answer at 6. From 1914 to 1927, the Verona Band was recognized by the federal government as an Indian tribe. Pl.'s Mem. at 4-5; Defs.' Mem. at 5; Answer at 12-13. Neither Congress nor any executive agency ever formally withdrew federal recognition of the Verona Band. Pl.'s Mem. at 5; Answer at 14.

⁴ The following papers have been submitted in connection with these motions: (1) Points and Authorities in Support of Plaintiff's Motion for Summary Judgment ("Pl.'s Mem."); (2) Memorandum in Support of Defendants' Cross-Motion for Summary Judgment and Response in Opposition to Plaintiffs' Motion for Summary Judgment ("Defs.' Mem."); (3) Reply Brief in Support of Plaintiff's Motion for Summary Judgment and Opposing Defendants' Motion for Summary Judgment ("Pl.'s Opp."); (4) Reply Memorandum in Support of Defendants' Cross-Motion for Summary Judgment ("Defs.' Reply"); (5) Plaintiff's Notice of Supplemental Authority ("Pl.'s Not."); (6) Defendants' Response to Plaintiff's Filing of Supplemental Authority ("Defs.' Resp."); (7) Plaintiff's Second Notice of Supplemental Authority ("Pl.'s Second Not."); (8) Defendants' Response to Plaintiff's Second Notice of Supplemental Authority ("Defs.' Second Resp."); and (9) Plaintiff's Reply in Support of Second Notice of Supplemental Authority ("Pl.'s Reply to Second Resp.).



OPEN ACCESS

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Fighting erasure and dispossession in the San Francisco Bay Area: putting archaeology to work for the Muwekma Ohlone Tribe

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Gustavo Flores⁴ and Samuel Connell⁵

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The Muwekma Ohlone Tribe has long been involved in the archaeology and stewardship of their ancestral homelands, both through their own cultural resource management (CRM) firm and through collaborations with academic and CRM archaeologists. In this article, we build on the past 40 years of archaeological collaborations in the southern San Francisco Bay region and offer examples of how archaeologists can support tribal heritage and environmental stewardship by using the traditional purview of material culture in combination with a broader array of evidence and concerns. As presented in our brief case studies, the Muwekma Ohlone Tribe and scholars are working together to reclaim tribal heritage and promote Native stewardship in a cultural landscape that has been marred by more than 250 years of dispossession. We examine this work in the context of the renaming of ancestral sites, the public interpretation of Native heritage associated with Mission Santa Clara de Asís, archival research into the history of Indigenous resistance, as well as collaborative efforts to awaken traditional ecological knowledge in service of the Tribe's stewardship and land management goals.

KEYWORDS

Indigenous archaeology, colonialism, traditional ecological knowledge, Ohlone, California

1 Introduction

In this article, we focus on the Indigenous stewardship of cultural landscapes and heritage in one of the United States' largest metropolitan areas. The homelands of the Muwekma Ohlone Tribe encompass much of the San Francisco Bay Area of central California, which today has a population of nearly eight million people (Figure 1). Though the history of Euro-American colonization in this region is relatively short—beginning in earnest in the 1770s—the compounding effects of missionary and settler colonialism have resulted in a “politics of erasure” that have left the Muwekma Ohlone Tribe landless, without recognition by the United States federal government, and increasingly gentrified out of their ancestral territories (Field et al., 2013). Despite these obstacles, the Tribe has worked diligently for several decades to protect ancestral sites, reclaim heritage, and to seek ways to steward their homelands. Archaeologists are working with and for the Muwekma

Ohlone Tribe on many of these efforts, even as specific projects expand beyond the purview of traditional archaeology. This work is driven by shared commitment to collaboratively addressing critical issues that are rooted in traditional practices and historical injustices. To highlight both the challenges and opportunities of this work, we offer a sample of recent academic-tribal partnerships in the southern San Francisco Bay region.

In thinking about how archaeology can contribute to the Tribe's efforts to protect heritage sites and steward its ancestral homelands, it is critical to recognize that Muwekma Ohlone leaders and the broader Ohlone community have been involved in this work for many decades—longer, in fact, than the current trend toward collaborative and community-based approaches among many non-Native archaeologists (e.g., Cambra et al., 1996; Field et al., 2007). Still, inasmuch as the interrelated projects described below follow the interests and direction of the Tribe, we broadly position our work as contributing to ongoing shifts toward archaeologies centered on principles of community engagement, social justice, and Indigenous sovereignty (Schneider and Hayes, 2020; Nelson, 2021; Laluk et al., 2022; Little, 2023; Montgomery and Fryer, 2023). Particularly as educators, we wish to instill these ethics in the students that we train to become the next generation of archaeologists while simultaneously working toward a future where “archaeology and related heritage practices can be put to work effectively supporting things that matter beyond the small circles of our disciplines” (Fryer and Dedrick, 2023, p. 335).

2 Historical background

As in other regions of the world, the colonial history of the San Francisco Bay region has important implications for tribal sovereignty, heritage, and environmental stewardship. Ohlone people lived in the region for thousands of years before the onset of Spanish colonialism in the late 18th century, when Franciscan missionaries founded Missions San Francisco (1776), Santa Clara (1777), and San José (1797) (see Figure 1). During this time, thousands of Ohlone people were forced off their homelands and into the missions, non-native plants and animals spread throughout the region, and colonial authorities outlawed Indigenous landscape management practices such as cultural burning (Milliken, 1995; Lightfoot et al., 2013; Panich, 2020). Beginning in the 1830s and 1840s, many Ohlone ancestors were emancipated from the missions, and some even overcame structural barriers to receive land grants from the Mexican government, enabling them to return to their ancestral homelands as free citizens. Many other Native families and individuals simply walked away from the missions to return to home or to create new lives in the Pueblo of San José (today the city of San Jose) and various ranchos throughout the region (Shoup and Milliken, 1999; Panich, 2019).

In the late 1840s, however, the annexation of California by the United States marked the transition to settler colonialism and with it came a new wave of dispossession and outright genocide (Lindsay, 2012; Madley, 2016). Pushed off of the former mission lands and later settlements, members of the lineages that comprise the Muwekma Ohlone Tribe regrouped in the southeastern Bay Area where they coalesced in the

closely intertwined settlements of Niles, Sunol, and Alisal (near present-day Pleasanton). This community was recognized by the United States federal government in the early 20th century, though they only had a tenuous hold on the land. The Bureau of Indian Affairs sought to alleviate the conditions of landless California Indians but ultimately ignored the ancestors of the Muwekma Ohlone Tribe due to the negligence of a single Indian agent in the mid-1920s. Around this same time, the Ohlone community was similarly written off by anthropology when Kroeber (1925, p. 464) stated that they were “extinct, so far as all practical purposes are concerned” (and see Leventhal et al., 1994; Field, 1999; Panich, 2020; Barron, 2022).

These injustices continue to reverberate a century later. Though the tribe was never terminated, the Muwekma Ohlone Tribe—now numbering more than 600 members—is today not among the 574 tribes recognized by the US federal government. As a previously unambiguously recognized tribe, the Muwekma Ohlone are seeking the restoration of their federal status and resist the politics of erasure in various ways, including their active involvement in the archaeology and stewardship of their ancestral homelands.

3 Tribal involvement in archaeology

The excavation of Muwekma Ohlone ancestral sites—by both academic and amateur archaeologists—has a long history. Some of the earliest professional investigations in the region centered on the monumental shellmounds that Ohlone ancestors and other Native Californians constructed along the margins of the San Francisco Bay and neighboring bodies of water. Most of the major mounds, such as Emeryville Shellmound, were excavated in the early 1900s and have been repeatedly disturbed—and in some cases totally destroyed—over the course of the following decades (Lightfoot et al., 2017). Not even more recent sites were spared the destruction. Native burials at Mission Santa Clara, for example, were disturbed by construction activities several times in the late 19th and early 20th centuries, with rampant collection of human remains and associated funerary belongings by a range of individuals and organizations (Panich, 2022). Across the region, hundreds of other ancestral sites were damaged or destroyed by agriculture, construction, or archaeological activities in the first several decades of the 20th century.

The 1960s marked a major turning point in cultural resource law with the implementation of National Historic Preservation Act of 1966, the National Environmental Policy Act of 1969, and the California Environmental Quality Act of 1970. Yet, even before the passage of these laws, the Ohlone community banded together in 1964 to preserve a cemetery originally associated with Mission San José that had long been an important burying ground for Ohlone families. This action by the Ohlone community saved the site, known today as the Ohlone Indian Cemetery, from being destroyed during the construction of Interstate 680 (Milliken et al., 2009, p. 224–225; Medina, 2015). Still, the extensive urban and suburban development of the San Francisco Bay region during the 1960s and 1970s meant that scores of ancestral sites continued to be disturbed, even if nominally protected by cultural resource laws.

However, because the Muwekma Ohlone Tribe is not currently federally recognized, the Tribe's participation in CRM archaeology

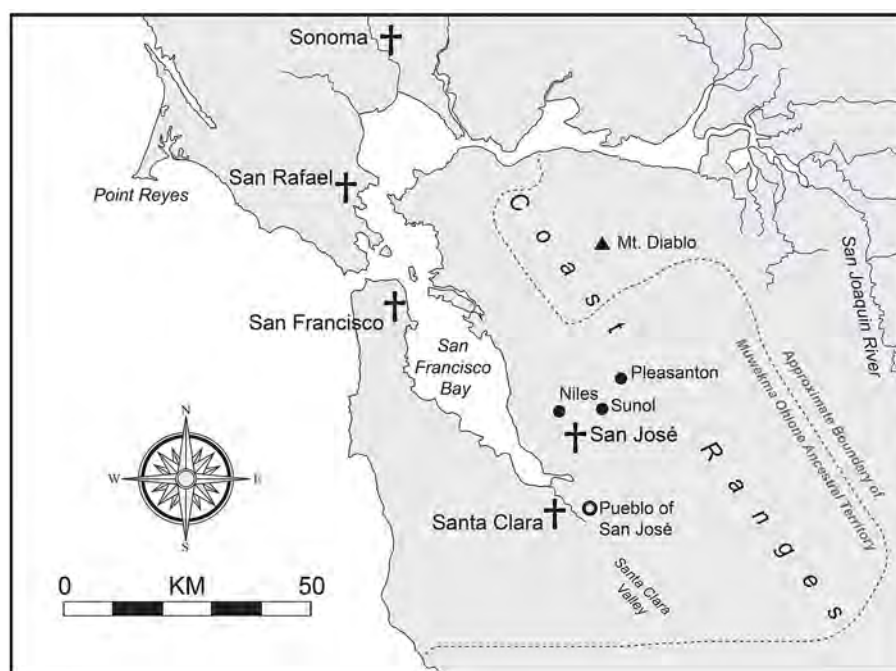


FIGURE 1
Map of the San Francisco Bay area, with places mentioned in text.

is limited by legal statute (Becks, 2015). In response to the continued threats to ancestral sites in the 1980s, the Muwékma Ohlone Tribe created its own cultural resource management firm, the Ohlone Families Consulting Services, which has recently been reorganized to fit directly into the organizational structure of the Tribe. Similar legal obstacles hinder the ability of the Muwékma Ohlone Tribe—like other unrecognized tribes—to request the repatriation of ancestors or associated belongings through the federal Native American Graves Protection and Repatriation Act (NAGPRA) process. In contrast, the California Native American Graves Protection and Repatriation Act (CalNAGPRA) does allow for repatriation to non-recognized tribes, though the process has yet to be fully completed at most Bay Area institutions and it will take time to identify the extent of existing collections from ancestral Ohlone sites created by previous academic and CRM projects. In recognition of these inequities, Stanford University voluntarily repatriated some 700 ancestors to the Muwékma Ohlone Tribe before the passage of NAGPRA in 1990, setting an important national precedent (Kakaliouras, 2012, p. 215).

Since the mid-1980s, the Tribe's participation in archaeology has offered opportunities for tribal members to help protect ancestral sites, to participate in archaeological research, and to combat the narratives of extinction that continue to plague the Tribe (Figures 2, 3). For example, direct tribal involvement in CRM archaeology has allowed the Muwékma Ohlone Tribe's Language Committee to rename impacted sites in their ancestral Chochenyo Ohlone language. To date, the Tribe has renamed approximately two dozen sites across the region, including locales in Alameda, San Mateo, Santa Clara, and Santa Cruz counties (Table 1). This practice is a powerful rejoinder to archaeologists who would presume to see

ancestral Ohlone sites as their own sources of data (named either by impersonal alphanumeric systems and/or site names that memorialize settler land owners). This practice of renaming also rhetorically signals to broader audiences that Muwékma Ohlone people still exist today in the region, just as they have for thousands of years.

The Muwékma Ohlone Tribe's longstanding presence has given them substantial control over how and when they collaborate with academic and CRM archaeologists, resulting in fruitful relationships with a range of institutions and CRM firms who agree to abide by the research goals and protocols determined by the Tribe (Monroe et al., 2022). For example, a recent mitigation project in the town of Sunol involved a productive relationship with Far Western Anthropological Research Group and other archaeologists. The partnership resulted in multiple co-authored journal articles, a monograph, as well as a PBS documentary, "Time Has Many Voices: The Excavation of a Muwékma Ohlone Village," in which the history of their people is told through the lens of an excavation and its resultant analysis (Byrd et al., 2022). During this project, the Tribe made the decision to proceed with ancient DNA studies that conclusively linked living tribal members to ancestors who were laid to rest hundreds of years ago, a study that received widespread media attention (Severson et al., 2022). The Tribe also regularly supports doctoral dissertations and masters theses conducted by students at local universities (e.g., Becks, 2018; Ragland, 2018). While not all tribes or descendant communities have the same approach, being involved in archaeology allows the Muwékma Ohlone Tribe to ensure that research regarding their ancestors and heritage proceeds in a respectful and ethical manner.

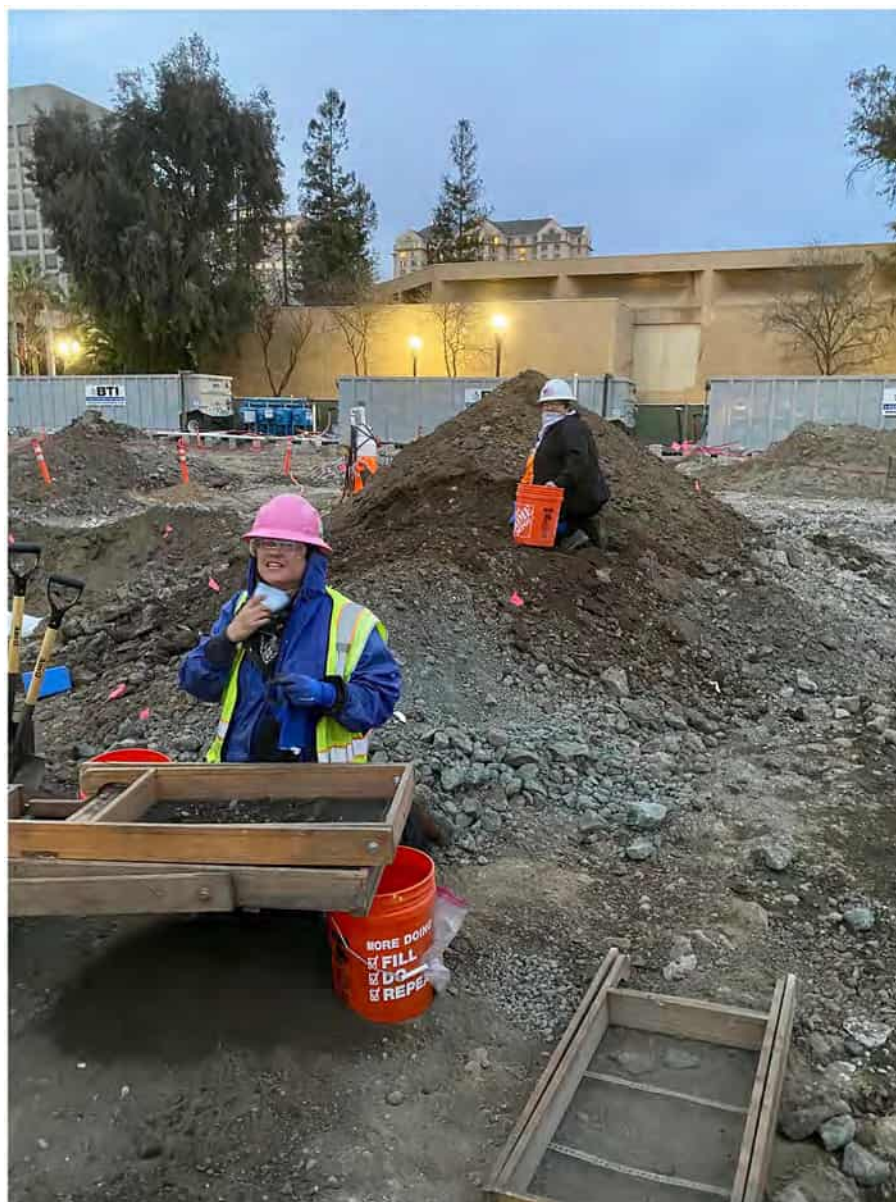


FIGURE 2

Members of the Muwekma Ohlone Tribe participating in a data recovery mitigation at an ancestral site in San Jose, California. Monica V. Arellano (foreground) sifts sediments while Laura Padron checks the spoils pile. Photo by Monica V. Arellano.

In the following sections, we highlight our interrelated projects that build on this strong foundation to support the Muwekma Ohlone Tribe's efforts to counter the politics of erasure and restore tribal sovereignty over heritage and the environment.

4 Reclaiming colonial spaces

In addition to reclaiming ancient sites, the Muwekma Ohlone Tribe is drawing on archaeological findings to reframe the relationship between its ancestors and the California mission system (ca. 1769–1840s). At one level, is difficult to overstate the negative impacts of the Spanish missions on the Indigenous

peoples of California. Tens of thousands were forced from their homelands to the missions, where strict social controls, crushing labor demands, and the suppression of traditional practices led to a catastrophic loss of life. Yet, Native Californians fought hard to maintain their communities and their connections to their ancestral territories, often in ways that are ignored in traditional historical narratives (Panich and Schneider, 2014; Hull and Douglass, 2018). In public interpretations of mission sites, however, this tension between struggle and persistence is often overshadowed by public memory that celebrates the European origins of the missions while largely overlooking the experiences of Native Californians (Dartt-Newton, 2011; Kryder-Reid, 2016; Panich, 2016, 2022).

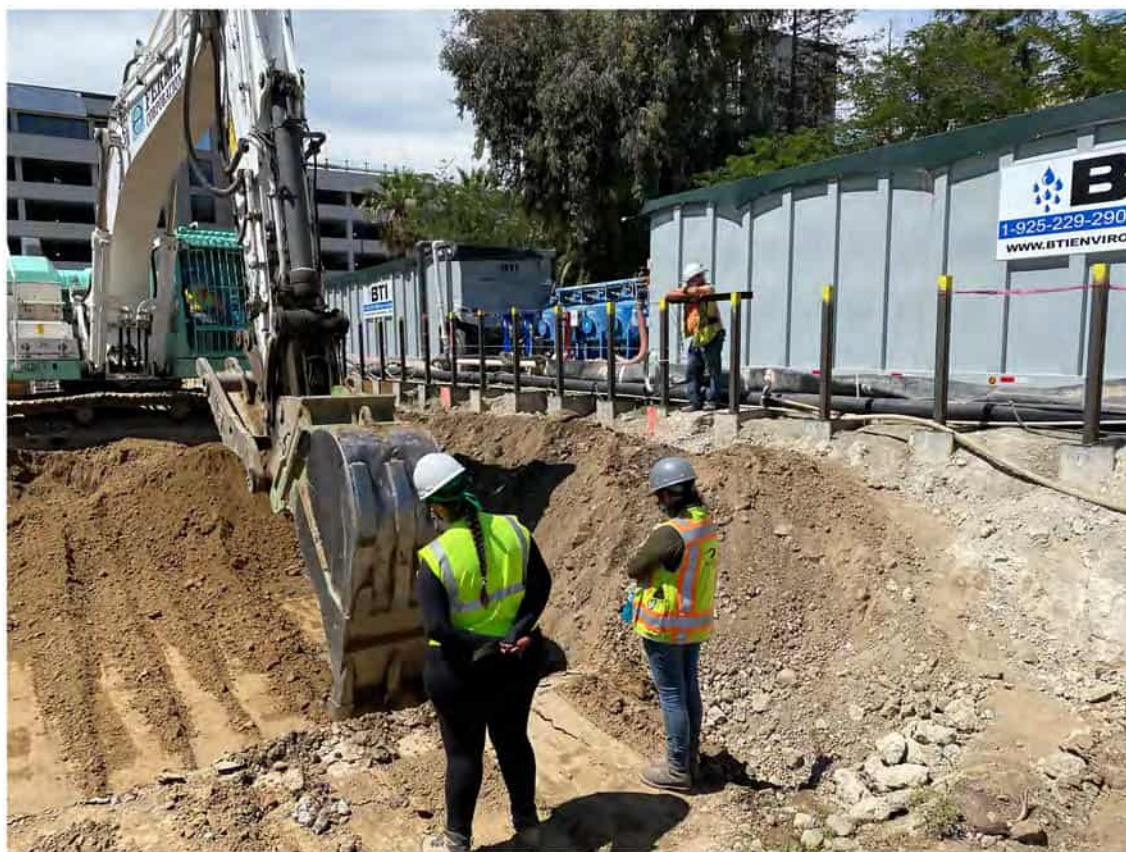


FIGURE 3

Tribal member Gloria Gomez (left) monitors backhoe work at an ancestral site in San Jose, California. Photo by Monica V. Arellano.

At Mission Santa Clara—on the campus of Santa Clara University (SCU)—tribal members have been working with archaeologists and other scholars to reclaim Native heritage. The Tribe has been involved with the campus museum, the de Saisset, for decades and, in their capacity as the state-designated most likely descendants (MLDs), tribal members have aided in the recovery of several ancestors buried on and near the university. Many of those ancestors lived during pre-contact times—dating back at least 2,500 years—and were laid to rest in an area that is today the center of the SCU campus (e.g., [Leventhal et al., 2023](#)). Others were associated with Mission Santa Clara, including individuals buried in the third mission cemetery (ca. 1781–1818). The California Department of Transportation consulted with the Muwekma Ohlone Tribe during an early project at the cemetery ([Hylkema, 1995](#), p. 9–10), and later the Tribe led the excavation and reburial of several individuals who were disturbed during gas line maintenance in 2009. As noted in [Table 1](#), the Tribe's Language Committee renamed this cemetery as *Clareño Muwékma Ya Túnnešte Nómmo* at the completion of that particular project ([Leventhal et al., 2011](#)). Despite these connections, the Tribe's involvement in archaeological fieldwork at and near Mission Santa Clara has been largely limited to burial recoveries in a CRM context. Outside of the de Saisset Museum, very little public interpretation exists on the SCU campus that speaks to the rich and complex histories of the Muwekma Ohlone Tribe or other Native peoples of central California who were

present on this land before, during, and after the mission period. In other words, Native heritage has been largely erased for the tens of thousands of people who each year pass through the SCU campus as visitors, students, staff, or faculty.

Given this situation, SCU's leadership convened the Ohlone History Working Group in 2019 to conduct a campus-wide assessment of monuments and markers and make recommendations for better integrating Ohlone heritage into the interpretive apparatus at Mission Santa Clara and across the SCU campus ([Baines et al., 2020](#)). The working group was staffed by Ohlone representatives and SCU personnel, including Muwekma Ohlone Chairwoman Charlene Nijmeh and Lee Panich, coauthor of this paper. One of the highest priorities identified by the working group was to formally recognize the thousands of Native Californians, most of whom were of Ohlone descent, who are buried in the two mission cemeteries on the SCU campus. Taking inspiration in part from the work of Ohlone relatives at Mission San Francisco de Asís ([Galvan and Medina, 2018](#)), representatives from the Muwekma Ohlone Tribe and SCU personnel created a digital memorial that opened in SCU's de Saisset Museum in the autumn of 2023. The memorial includes the names of all 7,612 Native people listed in the mission's burial records, as well as a series of biographies of Native individuals that were written by SCU students in conversation with Muwekma Ohlone tribal youth ambassadors. Crucially, the exhibit seeks to

TABLE 1 Archaeological sites renamed in the Chochenyo Ohlone language by the Muwekma Ohlone Tribe's Language Committee.

Trinomial	Renamed as	Translation
CA-ALA-12, –13, –328, and –329	<i>Mayyan Šaatošikma</i>	Coyote Hills Sites
CA-ALA-565	<i>Sii Túupentak</i>	Place of the Water Round House
CA-ALA-677/H	<i>'Ayttakiš'Eete Hiramwiš Trepam-tak</i>	Place of the Woman Sleeping Under the Pipe
CA-ALA-704	<i>Rummey Ta Kuččuwiš Tiprectak</i>	Place of the Stream of the Lagoon
CA-SCL-30/H	<i>Clareño Muwékma Ya Túnnešte Nómmo</i>	Where the Clareño Indians are Buried
CA-SCL-38	<i>Yukisma</i>	At the Oaks
CA-SCL-125	<i>'Arma'Ayttakiš Rummey-tak</i>	Place of the Spirit Woman Spring
CA-SCL-128	<i>Thámien Rúmmeytak</i>	Thámien (Guadalupe) River Site
CA-SCL-215	<i>Yakmuy 'Ooyakma-tka</i>	Place of the East Ridge
CA-SCL-287/CA-SMA-263	<i>Yuki Kutsuimi Šaatoš Inuxw</i>	Sand Hill Road Sites
CA-SCL-314	<i>'Irek Šarotka</i>	Place of the Fossil Shell
CA-SCL-330	<i>Chitcomini'Arweh Wallaka-tka</i>	Place of the Blue Oak Rancheria
CA-SCL-609	<i>Horše'Iššeete Ruwwatka</i>	Place of the Good Health House
CA-SCL-732	<i>Kaphan Húunikma</i>	Three Wolves Site
CA-SCL-755	<i>Širkeewis Riipin Tiprectak</i>	Place of the Black Willow Marsh
CA-SCL-851	<i>'Utthin Širkeewis Tcitca'Irekmatka</i>	Two Black Obsidian Rocks Site
CA-SCL-867	<i>Riipin Waréptak</i>	In the Willows Area
CA-SCL-869	<i>Katwáš Ketneyma Waréptak</i>	The Four Matriarchs Site
CA-SCL-894/948	<i>Tupium Táareštak</i>	Place of the Fox Man
CA-SCL-895	<i>Kiriṭ-smin'ayye Sok óte Tápporikmatka</i>	Place of Yerba Buena and Laurel Trees
CA-SCL-950	<i>Cashrishmini'Awweš'Irek'Innutka</i>	Yellow Salt Rock Road Site
CA-SCL-967	<i>Táareš Tunnešte'Ullaštak Chitcomini Šaro-tka</i>	Place of the Man Buried on a Bed of Blue Mussel Shells
CA-SCL-1070	<i>Manni Huyyu Muwekma Yatiš Tunnešte-tka</i>	Place Where the Ancient People are Buried
CA-SCR-12	<i>Satos Rini Rumaytak</i>	At the Hill above the River
CA-SMA-267	<i>Loškowiš'Awweš Táareštak</i>	White Salt Man Site
CA-SMA-309	<i>Wirak Tayyi Trépam Táareš-tak</i>	Man with the Bird Bone Tubes Site

make connections between the past and the present, and to that end, includes video segments featuring Muwekma Ohlone leaders and youth speaking about how the events of the mission period continue to reverberate for their community today (Figure 4).

At SCU, the Muwekma Ohlone Tribe is also working to reinsert Indigenous heritage across the landscape. Given the inertia of the physical interpretive environment, detailed by the Ohlone History Working Group report (Baines et al., 2020), much of this work has thus far relied on digital platforms (Lueck and Panich, 2020). For example, in the summer of 2020, representatives from the Tribe worked with other Ohlone community members, as well as Panich and SCU personnel, to create a virtual walking tour to be used in remote teaching during the COVID-19 pandemic. Hosted on Google Earth, the tour focuses primarily on Ohlone interpretation of archaeological deposits on and near the SCU campus, including a precontact village site and the vast Native neighborhood, or *ranchería*, associated with Mission Santa Clara (Panich et al., 2014; Peelo et al., 2018). Google Earth tours, however, are not well supported on most mobile phones. Accordingly, the project team,

which has expanded to include other SCU faculty and students, is now in the process of developing an augmented reality (AR) tour that users can experience on their mobile devices (Jauregui et al., 2024). The capabilities of the AR tour also allow for different forms of content, such as 3D models, audio, and video. In keeping with the tribal interests, these possibilities have expanded the tour beyond archaeology to highlight Muwekma Ohlone heritage past, present, and future.

Taken together, these interrelated projects demonstrate how archaeologists and descendant communities can work together to reclaim colonial spaces. Crucially, at SCU the process has been one of co-creation, in which Muwekma Ohlone representatives have provided direction to interdisciplinary teams who have leveraged university resources for collaborative interventions in the local heritage landscape. Within this context, the inclusion of undergraduate students has been especially important, as SCU students have a demonstrated interest in local archaeology and Ohlone heritage but have been excluded from several recent large-scale CRM projects on their own campus (Kroot and Panich, 2020).



FIGURE 4

Members of the Muwekma Ohlone Tribe at the Native memorial at Santa Clara University's de Saisset Museum. Left to right: Gloria Gomez, Isabella Gomez, GiGi Gomez, Lucas Arellano, and Monica V. Arellano. Photo courtesy of Lauren Baines.

By working with the Muwekma Ohlone Tribe on the heritage projects described above, students gain a firsthand appreciation for how archaeologists and other scholars can collaborate productively with Indigenous communities. Of course, this work is not always easy, and it is important for students and practitioners alike to reflect on the challenges of engaging with difficult histories across differences in individual and institutional positionalities (Lueck et al., 2021; Gomez and Lueck, 2023). But it is worth doing, since as Montgomery and Fryer (2023) remind us, “the future of archaeology is (still) community collaboration.”

5 Native resistance and the roots of dispossession

As disruptive as the mission system was to Native life in California, the lands surrounding each mission were—in a quasi-legal sense—still held in trust for the missions' Indigenous residents. When the missions began to close down in the 1830s, in a process called secularization, this understanding was undermined by colonial elites. Seeking to control the highly productive lands of California's coasts and inland valleys, colonists petitioned for grants of former mission lands leading to the rise of huge estates all across the region. Though the American annexation in the late 1840s led to an outright genocide in the attempt to seize Native land, the origins of dispossession that began in earnest in the 1830s are of particular relevance for understanding the colonial history of the

San Francisco Bay region and the realities faced by the Muwekma Ohlone Tribe today.

Few archaeological datasets or published first-hand accounts offer a Native perspective on the process of mission secularization in Muwekma Ohlone homelands of the southern Bay Area, though it is worth pointing out that in the 1870s, an Ohlone man—Lorenzo Asisara—provided a testimonial about the inequities his communities experienced at Mission Santa Cruz, on the Pacific Coast, some four decades earlier (Castillo, 1989; and see Rizzo-Martinez, 2022). To address this gap in understanding, our team has been conducting research on primary archival documents that may offer different ways of viewing the written and archaeological records for Muwekma Ohlone homelands during the 1830s and 1840s (Panich et al., in press). Here, we focus on one specific document from the year 1842 that was identified and translated by coauthor Gustavo Flores (Anonymous, 1842). This primary document is an indictment against several Native men from Mission San José and other nearby missions who plotted a revolt in response to what they saw as the theft of their lands and property. It includes their direct testimony as recorded by a court scribe in the Pueblo of San José in June of 1842 (see Figure 1). In these pages, we learn about their complaints, and why they sought to capture a Californio colonist named José de Jesús Vallejo, who was an administrator at Mission San José and the elder brother of Mariano Guadalupe Vallejo, a very important colonist in Alta California. This court hearing took place 4 years before the Americans would begin their own occupation of California. However even at this time, Californios were beginning to take possession of Native land,

and many of the Native men who stood before the court objected to the fact that Vallejo was doing just that. The translation of this document provides several insights, two of which we will focus on here.

The first thing that we can decipher from the court document is the identities of the people involved. Contextualizing names, age, origin, and religion for each individual provides a more detailed perspective on the identities of these Native men. This information can then be cross-referenced, using mission sacramental records related to baptisms, marriages, and burials to identify specific individuals and trace their genealogy through time and their social relationships to their contemporaries in the mission system. One name that appears in the court transcript is Zenon, whose Native name was Patcha. Zenon Patcha can be linked to several current members of the Muwekma Ohlone Tribe, as he was the father of Angela Colos (Santa Clara baptism #7774; see [Early California Population Project, 2022](#)), an important Ohlone ancestor who participated in extensive interviews with early anthropologists, as described below. In the testimony, Zenon Patcha was identified as a ringleader who organized and carried out this plan to fight for Native people's land and property. Even though Zenon Patcha was baptized originally at Mission San Rafael, we know through marriage records that he found his way to the southern San Francisco Bay region by the 1830s (Santa Clara marriage #2711; see [Early California Population Project, 2022](#)).

Furthermore, translating this account brings to light the agency of Native people to organize and address the rapidly disappearing mission lands that elite Californios were converting into private ranchos. Instead of passively watching as the land that had been promised to them by the Church was being expropriated, these Native Californians were organizing a revolt to remove José de Jesús Vallejo from control of the mission and keep him from taking their land and other goods. Some of the Native men, or ringleaders as the document describes them, were caught as a result of this act of resistance, and placed in custody during an investigation into the revolt.

This primary document demonstrates the continuity of the struggles for land. The Muwekma Ohlone Tribe continues this legacy of activism as they work to organize to regain their status as a federally recognized tribe. One of their goals is to gain land back, as a space that can continue to exist for future generations. Exploring the rich archival record that includes not just this court case but many other documents related to Ohlone people in the 1830s and 1840s provides new information about how the ancestors of the Muwekma Ohlone Tribe fought for land, similar to the struggles that they continue to fight today. These connections were revealed through collaboration, reviewing, translating, and cross referencing the primary sources, which can be a powerful tool for gaining a more nuanced view of the region's history, often through the voices of Native individuals themselves.

This research is part of a broader set of interrelated research projects that bring together colleagues from archaeology, adjacent disciplines, and the Muwekma Ohlone Tribe to consider a range of primary documents written when colonists from New Spain first occupied California. Overall, these documents, dating from 1769 to the late 1850s, chronicle the dramatic changes to the Tribe's ancestral homelands through source material ranging from letters, early baptismal records, ecclesiastical documents, and court

records. No single repository exists for this material, making it challenging for descendant communities to access; documents can be found anywhere from university libraries, municipal archives, to small historical societies. Some of the collections that the project team have worked with are housed at History San José in the city of San Jose, the Bancroft Library at the University of California Berkeley, and the Early California Population Project database housed by the University of California Riverside and the Huntington Library. We have also been particularly grateful to the staff at the SCU Archives and Special Collections, who have opened their doors and manuscript collections to members of the Muwekma Ohlone Tribe on several occasions ([Figure 5](#)).

Researching and translating colonial period documents provides a critical insight into the lives of Native people who experienced colonialism firsthand, and offers a glimpse into powerful events—such as the planned revolt against the administrators of Mission San José—that are largely invisible in the archaeological record. Translating is a valuable tool to deeply understand history, and to rectify outdated historical views of Native people in the San Francisco Bay Area. It allows us to ask the following questions: Can we see Native Californian struggles to hold onto their ancestral homelands? Can we connect identities in the documentary records to tribal lineages and specific members of descendant communities today? By addressing these critical questions, we can see better how ancestors of today's Muwekma Ohlone Tribe fought to hold onto their property and lands as the mission system collapsed around them, thus offering new insights into the Indigenous heritage of the San Francisco Bay Area.

6 Awakening traditional ecological knowledge

Given the colonial history of the San Francisco Bay Area, how might archaeologists support communities like the Muwekma Ohlone Tribe who are looking forward to a different type of future? Environmental justice research often focuses on how environmental and planning policies disproportionately impact on communities of color. Within this broader framing, tribal communities in the United States—like Indigenous peoples elsewhere—stand out due to the amplifying effects of colonialism. For example, settler colonial encroachment and theft of ancestral territories has resulted in limited access to specific homelands, the resources contained therein, and ultimately, traditional ecological and sacred knowledge ([Harris and Harper, 2011](#); [Whyte, 2016](#)). Indeed, the expropriation of Native lands had profound effects for tribal communities across California. Rather than simply documenting such harms, however, archaeologists in the San Francisco Bay Area are contributing to collaborative, tribally-led efforts to repair historical injustices. Below, we discuss efforts to support tribal goals through the Muwekma Ohlone Preservation Foundation, which oversees projects related to cultural revitalization and land access, ownership, and stewardship.

A major initiative in this regard is to awaken traditional ecological knowledge that has gone dormant over the past 250 years of Spanish, Mexican, and American colonialism—including information on plants, animals, and gathering places—to contribute to the environmental health and sovereignty of



FIGURE 5

Members of the Muwekma Ohlone Tribe reviewing mission-period documents at the Santa Clara University Archives and Special Collections. Left to right, Chairwoman Charlene Nijmeh, Tristan Nijmeh, Isabella Gomez, Gloria Gomez. Photo courtesy of Kike Arnal.

the contemporary tribal community (Field et al., 2007). Even though settlers managed to gain control of most of the ancestral homelands of the Muwekma Ohlone Tribe, many ancestors found refuge in and around the Alisal rancheria where they kept critical information alive. Ohlone ancestors living in that area participated in an important cultural revival during the late 19th and early 20th centuries. Accordingly, several well-known anthropologists visited the community, providing an opportunity for Ohlone elders to leave an invaluable record for future generations.

The most extensive conversations took place with linguist John Peabody Harrington of the Smithsonian Institution, who spoke with several prominent Ohlone elders, including Angela Colos, Jose Guzman, Susana Nichols, and Jose Binoco, among others (Harrington, 1984). Many of these individuals were born in the waning days of the mission period and were raised by parents, grandparents, and other relatives who taught them extensive knowledge of local landscapes and the plants and animals that sustained them. Accordingly, Harrington's copious field notes contain detailed accounts of ecological practices as well as names of plants and animals in the Chochenyo Ohlone language. This information offers solid evidence of how Ohlone people used local landscapes and particular species of plants and animals before and after the arrival of Euro-Americans to the San Francisco Bay area. Drawing inspiration from academic-tribal partnerships like those discussed elsewhere in this special issue, we are currently working with the Tribe to transcribe and annotate relevant information from Harrington's interviews with Muwekma Ohlone elders for

the purposes of awakening the knowledge that they passed down (Lightfoot et al., 2021; and see Woodward and Macri, 2005).

Despite the historical challenges faced by their ancestors, the Muwekma Ohlone Tribe is today making strides toward reestablishing traditional stewardship practices across their ancestral homelands. At Stanford University, for example, coauthor Michael Wilcox has established a native plant garden that serves both as a community engaged learning space for Stanford students and as a test plot for the Tribe's revival of broader landscape stewardship practices (Figure 6). In classes taught through the Center for the Comparative Studies in Race and Ethnicity, Wilcox brings students out of the classroom to a corner of the Stanford campus where hawks circle above and students can imagine a Bay Area landscape managed by tribal communities. There, students can also directly confront the cumulative colonial impacts, such as widescale dispossession, that are facing the Muwekma Ohlone Tribe while simultaneously helping to redress critical issues like food justice and tribal sovereignty through their labor and class projects aimed at advancing the garden.

Over the course of several years, for example, Stanford students and tribal partners have removed thistle (*Cirsium vulgare*) and other invasive species that have direct connections to the colonial history of the region (Allen, 2010; Fischer, 2015). Students then work to replace these invasive species with grasses, flowers, and herbs that have cultural relevance for the tribal community, as informed by archaeological research and the reclamation of ancestral knowledge from anthropological archives, such as



FIGURE 6

Seedling prior to planting on a collaborative work day at the Stanford native plant garden. Photo by Lee Panich.

Harrington's field notes. A current project is restoring understory vegetation in a heavily impacted portion of the Stanford native plant garden that was historically used as a staging area for a gravel pit. Students and tribal members have planted species including sages (*Salvia* spp.), manzanita (*Arctostaphylos* spp.), wild rose (*Rosa californica*), and thimbleberry (*Rubus parviflorus*)—all of which are well documented in the archaeological and ethnographic literature for the region (e.g., [Lightfoot and Parrish, 2009](#)). Importantly, the Stanford native plant garden is also a small corner of their homeland in the urbanized San Francisco Bay Area that tribal members can use to awaken traditional practices.

The collaborative work at Stanford is one part of a growing effort by the Tribe, under the auspices of the Muwekma Ohlone Preservation Foundation, to strengthen connections to its ancestral territory. The Preservation Foundation has several key goals, including the establishment of a physical community—a new tribal village—that would provide opportunities for community and family wellbeing while offering a permanent land base in this rapidly gentrifying region. Indeed, land access is another key goal, underscoring the need for physical spaces to host gatherings

and to implement newly awakened stewardship practices. As exemplified by the renaming of ancestral sites in the Chochenyo Ohlone language, described above, the Tribe has made great strides in the area of language revitalization, and the time is ripe for parallel strides in landscape stewardship. Through existing partnerships with local institutions—universities like Stanford as well as a host of conservation organizations—and based on the model of collaborative eco-archaeological studies in service of tribal sovereignty established by the neighboring Amah Mutsun Tribal Band ([Lopez, 2013](#); [Lightfoot et al., 2021](#); [Apodaca et al., in press](#)), the Muwekma Ohlone Tribe is well positioned to use historical and archaeological research to create a better future for its members.

7 Teaching the next generation

As archaeology continues to move toward a greater emphasis on community engagement, exemplified by the collaborative projects with the Muwekma Ohlone Tribe described above, the nature of field schools is evolving to meet the realities of a

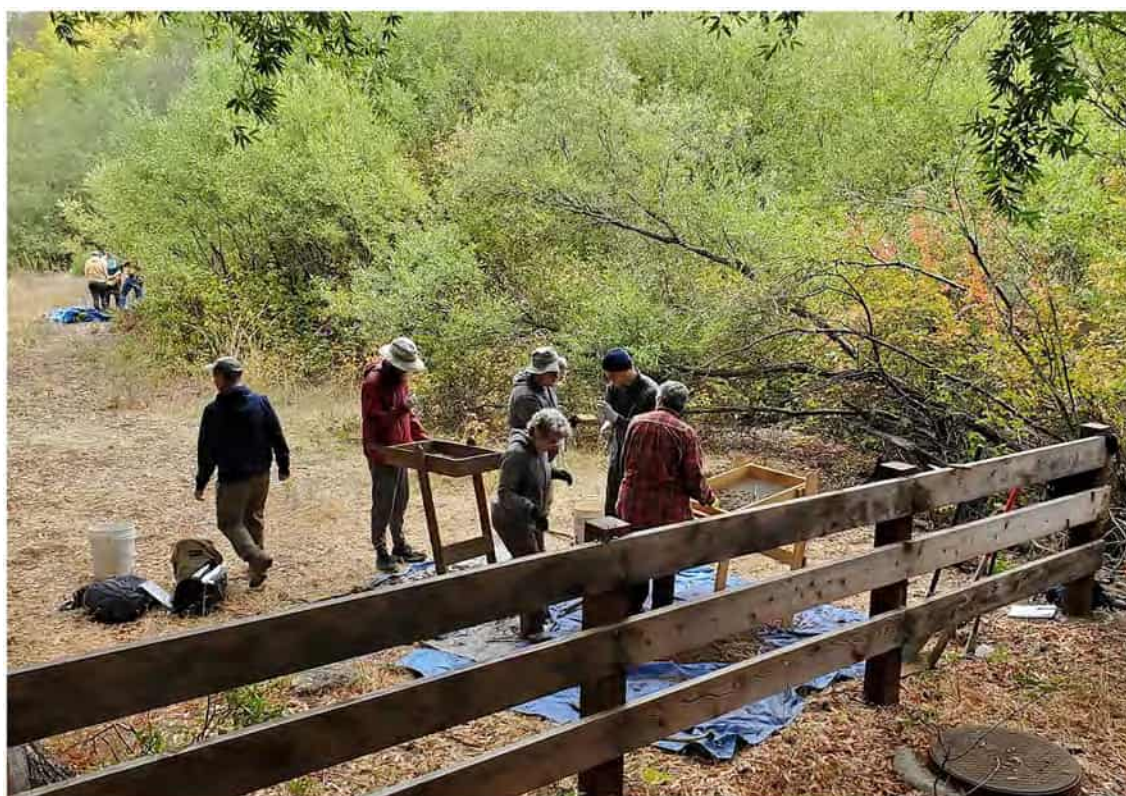


FIGURE 7
Foothill College students participate in a local field school. Photo by Samuel Connell.

changing discipline. It is no secret that archaeological field schools have traditionally emphasized the training of students in exotic locations, though this mindset has shifted over the course of our own careers. For example, in the mid-1990s into the 2010s field schools began to emphasize community-based interactions, with students expressly asked to interact and hopefully integrate with communities. Recent approaches to field schools incorporate deeper connections to Indigenous rights, using the community based participatory research (CBPR) framework and specifically models drawn from Indigenous archaeologies (Silliman, 2008; Cipolla and Quinn, 2016; Cowie et al., 2019; Gonzalez and Edwards, 2020).

In California, field schools have started integrating Native Californian communities into programs that emphasize training in ethical fieldwork practices, low-impact field methods, and the co-creation of knowledge about the past. For example, a University of California Berkeley field school at the Russian Colony of Ross partnered with members of the Kashia Band of Pomo Indians to implement a non-invasive “catch and release” survey methodology in which ancestral sites were characterized by the analysis of surface artifacts that were returned at the completion of the project (Gonzalez et al., 2006). This collaborative approach also exists on Santa Catalina Island, where Desireé Martinez and Wendy Teeter have built an exemplary model of this practice. The Pimu Catalina Island Archaeology Project braids Indigenous and western knowledge and practices. Tongva tribal members are part of the planning and teaching of the field programs (Martinez, 2012). More recently,

Berkeley archaeologists have been working with the United Auburn Indian Community on prescribed fire burns and forestry management projects with students making direct contributions to tribal projects (Sunseri et al., in press). These programs, and others like them, can benefit tribes both by producing knowledge of the past in a sensitive way and by establishing new professional norms regarding respectful collaboration that are becoming a standard part of archaeological practice in California and elsewhere.

In the southern San Francisco Bay area, each of the coauthors of this article have endeavored to provide students with classroom materials and hands-on experiences that align with the wishes of the Muwekma Ohlone Tribe and the other Indigenous communities with which we work. For example, coauthor Sam Connell regularly runs field schools through Foothill College that are, in part, designed to be service projects (Figure 7). Here, the educational lessons are of course to be “of service” but also to consider the nature of stakeholder intentions and wishes. In such cases, the outcomes of collaboration can include both practical products, such as site testing or cultural resource inventories of particular parcels of interest to descendant communities, or more abstract benefits, such as instilling students with a regard for tribal sovereignty at the very outset of their young careers in archaeology. Ultimately, these are important conversations to have with students on archaeological projects who are interested in getting it right. Students, in other words, are interested in making an impact and they want to address the colonial narratives of archaeology head on (Connell, 2012).

There is no doubt that the future of archaeological field schools—like archaeology more generally—is more community collaboration, particularly under the auspices of tribal communities. At Foothill College, field schools that are offered in California are constructed to maximize connection to tribes while simultaneously being cognizant on the potential burden that archaeology (especially field schools) can put on tribal members and administrators. Still, exit interviews with students consistently highlight the moments where scientific methods were woven with traditional ecological knowledges. Students have a strong desire to help in whatever capacity possible, and service learning projects or days spent directly contributing to Native-led projects are important experiences that no classroom lecture can offer. The current generation of students has recognized, at times before their faculty mentors, the essential importance of collaborative research. As discussed above, many CRM firms are already on board and have created strong collaborative relationships with the Muwekma Ohlone Tribe and other Native Californian communities. It is time for archaeological training to meet this demand.

8 Discussion and conclusion

We are writing this essay in the midst of fundamental shifts in the field of archaeology, and in California archaeology in particular. After decades of rampant destruction and desecration of ancestral sites—particularly during the massive expansion of California's population centers since the mid-20th century—tribal communities across the region have found themselves at the nexus of competing interests involving construction, archaeological research, and Indigenous stewardship of cultural heritage. The Muwekma Ohlone Tribe is no exception, and tribal members have for decades stood up to archaeologists in both academia and CRM who disregarded community concerns about the treatment of ancestors and the continuing importance of sacred places across the landscape. Yet, the papers in this special issue—combined with myriad others in the broader literature—give us hope for the future of archaeology conducted with, for, and by Indigenous communities (Nelson, 2021), particularly in the critical realm of sustainable stewardship of both cultural landscapes and heritage places.

As educators, we recognize our particular obligation to provide students and the next generation of archaeologists with a different, less extractive model of what archaeology can be. Of course, training in field methods remains an important cornerstone of undergraduate education, but the overarching ethos needs to be one in which impacts to ancestral sites are minimized and the interests of descendant communities are prioritized. This is not necessarily new—Mack and Blakey (2004) argued for viewing descendant communities as an “ethical client” some two decades ago—but now more than ever this posture requires a reappraisal of what it means to do archaeology (Schneider and Hayes, 2020). As summarized above, many of our colleagues in CRM archaeology have also built productive collaborative relationships with the Muwekma Ohlone Tribe and other Native Californian communities, often through large-scale data recovery projects in which they have worked side by side with tribal members to produce meaningful results (Monroe

et al., 2022). We see this work as proof that training in community based collaborative archaeology is a critical element of career development for a 21st century archaeology.

So, returning to the title of our paper, what does it mean to put archaeology to work for the Muwekma Ohlone Tribe? Building on the long history of the Tribe's involvement with archaeology, each of us might answer slightly differently, but all of us look to our Muwekma Ohlone partners for guidance on how best to center the interests of the Tribe in our collaborative work. This could include representing tribal interests in meetings with developers and CRM archaeologists or renaming ancestral sites in the Chochenyo Ohlone language; working with students and tribal members to leverage the material record to commemorate those impacted by colonial missions; finding new archival evidence of how tribal ancestors fought against early land grabs; digging holes not for the recovery of artifacts but to plant seedlings that will help awaken traditional knowledge and related practices; or training the next generation to put the needs of descendant communities first. In their own way, each of these projects—and numerous others involving our colleagues at other institutions—are designed to support the Muwekma Ohlone Tribe's stewardship of their own heritage and cultural landscapes.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

Written informed consent was obtained from the individual(s), and minor(s)' legal guardian/next of kin, for the publication of any potentially identifiable images or data included in this article.

Author contributions

LP: Conceptualization, Resources, Writing – original draft, Writing – review & editing. MA: Conceptualization, Resources, Writing – review & editing. MW: Conceptualization, Resources, Writing – review & editing. GF: Conceptualization, Investigation, Writing – original draft, Writing – review & editing. SC: Conceptualization, Writing – original draft, Writing – review & editing.

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Conflict of interest

MA was employed by Muwekma Ohlone Tribe.

The remaining authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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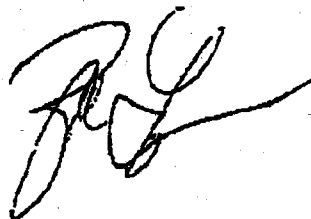
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Rep. Zoe Lofgren

002

Extension of Remarks
Representative Zoe Lofgren
July 25, 2002



The Muwekma Ohlone Indian Tribe is a sovereign Indian Nation located within several counties in the San Francisco Bay Area since time immemorial.

In 1906, the Tribe was formally identified by the Special Indian Census conducted by Indian Agent C.E. Kelsey, as a result of the Congressional Appropriation Act mandate to identify and to purchase land for the landless and homeless California Indian tribes.

At this time, the Department of Interior and the Bureau of Indian Affairs federally acknowledged the Verona Band as coming under the jurisdiction of the Reno and Sacramento Agencies between 1906 and 1927.

The Congress of the United States also recognized the Verona Band pursuant to Chapter 14 of Title 25 of the United States Code, which was affirmed by the United States Court of Claims in the Case of Indians of California v. United States (1942) 98 Ct. Cl. 583.

The Court of Claims case judgment instructed the identification of the Indians of California with the creation of Indian rolls. The direct ancestors of the present-day Muwekma Ohlone Tribe participated in and enrolled under the 1928 California Indian Jurisdictional Act and the ensuing Claims Settlement of 1944 with the Secretary of the Interior approving all of their enrollment applications.

Meanwhile, as a result of inconsistent federal policies of neglect toward the California Indians, the government breached the trust responsibility relationship with the Muwekma tribe and left the Tribe landless and without either services or benefits. As a result, the Tribe has suffered losses and displacement. Despite these hardships the Tribe has never relinquished their Indian tribal status and their status was never terminated.

In 1984, in an attempt to have the federal government acknowledge the status of the Tribe, the Muwekma Ohlone people formally organized a tribal council in conformance with the guidelines under the Indian Reorganization Act of 1934.

In 1989, the Muwekma Ohlone Tribal leadership submitted a resolution to the Bureau of Indian Affairs Branch of Acknowledgement and Research with the intent to petition for Federal acknowledgement. This application is known as Petition #111. This federal process is known to take many years to complete.

Simultaneously, in the 1980's and 1990's, the United States Congress recognized the federal government's neglect of the California Indians and directed a Commission to study the history and current status of the California Indians and to deliver a report with recommendations. In the late 1990's the Congressional mandated report - the California

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Rep. Zoe Lofgren

003

Advisory Report, recommended that the Muwekma Ohlone Tribe be reaffirmed to its status as a federally recognized tribe along with five other Tribes, the Dunlap Band of Mono Indians, the Lower Lake Koi Tribe, the Tamungwe Council, the Southern Sierra Miwuk Nation, and the Tolowa Nation.

On May 24, 1996, the Bureau of Indian Affairs pursuant to the regulatory process then issued a letter to the Muwekma Ohlone Tribe concluding that the Tribe was indeed a Federally Recognized Tribe.

In an effort to reaffirm their status and compel a timely decision by the Department of the interior, the Muwekma Ohlone Tribe sued the Bureau of Indian Affairs. The Court has mandated that the Department issue a decision this year. That decision is expected in early August.

Specifically, on July 28, 2000, and again on June 11, 2002, Judge Ricardo Urbina wrote in his Introduction of his Memorandum Opinion Granting the Plaintiff's Motion to Amend the Court's Order (July 28, 2002) and Memorandum Order Denying the Defendant's to Alter or Amend the Court's Orders (June 11, 2002) affirmatively stating that:

"The Muwekma Tribe is a tribe of Ohlone Indians indigenous to the present-day San Francisco Bay area. In the early part of the Twentieth Century, the Department of the Interior ("DOI") recognized the Muwekma tribe as an Indian tribe under the jurisdiction of the United States." (Civil Case No. 99-32571 RMU D.D.C.)

I proudly support the long struggle of the Muwekma Ohlone Tribe as they continue to seek justice and to finally, and without further delay, achieve their goal of their reaffirmation of their tribal status by the federal government. This process has dragged on long enough. I hope that the Bureau of Indian Affairs and the Department of Interior will do the right thing and act positively to grant the Muwekma Ohlone Tribe their rights as a Federally Recognized Indian Tribe. The Muwekma Ohlone Tribe has waited long enough; let them get on with their lives as they seek to improve the lives of the members of this proud tribe. To do anything else is to deny this Tribe Justice. They have waited patiently and should not have to wait any longer.



CRUZ M. BUSTAMANTE
Lieutenant Governor
State of California

August 29, 2002

The Honorable Neal McCaleb
Assistant Secretary-Indian Affairs
United States Department of the Interior
1849 C Street, N.W.
Washington, D.C. 20240

Dear Secretary McCaleb:

I write to urge you to support Petition #111 by the Muwekma Ohlone Tribe for reaffirmation of Federal Acknowledgement.

The Muwekma Ohlone Tribe meets all of the criteria for reaffirmation set by the court as well as the Bureau of Indian Affairs' acknowledgement criteria. The tribe is a previously recognized tribe. It has demonstrated that it has had a trust relationship with the United States from 1906 to the present and Congress has never terminated their relationship.

The tribe's members descend from an historical Indian tribe and they are not members of any other Federally-recognized tribe.

After compiling data and completing extensive research, the Muwekmas have presented a compelling case for the tribe's Federal Acknowledgement. I respectfully urge you and the Bureau of Indian Affairs to carefully review their Petition.

Sincerely,

CRUZ M. BUSTAMANTE
Lieutenant Governor

cc: The Honorable Aurene Martin, Deputy Assistant Secretary-Indian Affairs

CMB:BM/mb082902

DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS

Application Number 10298

Application for enrollment
with the Indians of the State of California under
the Act of May 18, 1928 (45 Stat. L. 602)

The Secretary of the Interior,

Washington, D. C.

Sir:

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

1. State the full names, ages, sex, and dates of birth of yourself and your minor children living on May 18, 1928.

<u>English Names</u>	<u>Relationship in Family</u>	<u>Ages in 1928</u>	<u>Sex</u>	<u>Dates of Birth Month Day Year</u>	<u>Degree of Indian Blood</u>
Marine, Lucas	Head	38	M	10-18-1900	1/2
" Ernest	Son	2	M	1-26-1926	3/4

Note:* See application of Katie Marine, wife, Centerville, Alameda County, California. App. No. 10675

2. Residence on May 18, 1928 Centerville, Alameda County, California.
Box 6,

3. Post Office Centerville Alameda California.
Town or City, Box Number or County State
Rural Route Number.

Note:* Does not live on Trust Lands.

4. Place of birth of yourself and each of your minor children
Near Sunol, Alameda County, California. My child was born
in Alameda County, California.

Application Number 10298
Name Marine, Lucas

Action taken

Approved, FAB

5. Where have you and your children resided since birth?

In Alameda and Mendocino Counties, California.

6. Are you married? Yes.

7. If a married woman, give your name before you were married.

8. Name and exact date of birth (Month, Day, and Year) of your wife (or husband).

Katie Marine, nee Peralta-- Age about 35 years.

9. Is he (or she) of Indian blood? If so, state the name of the Tribe or Band, and degree of Indian blood.

Yes 4/4

Ohlones, (Tribal name unknown)

Alameda County, California.

10. What is your degree of Indian blood and to what Tribe or Band of Indians of the State of California do you belong?

1/2

Degree of Indian Blood

Ohlones (?) Tribal name

Unknown, Alameda County, California.

Name of Tribe or Band

11. To what Treaty or Treaties were you or your ancestors a party, and where did you (or they) reside on June 1, 1852? Where and when were said Treaties negotiated?

I do not know.

12. Give the names of your California Indian ancestors living on June 1, 1852, through whom you claim, who were parties to any Treaty or Treaties with the United States. If you claim through more than one ancestor living on that date, set forth each claim separately. State your descent from said ancestor or ancestors setting forth your relationship to them.

Names

Tribe or Band

Relationship by Blood

Evalina Marine

Ohlones, Tribal name unknown.

Mother.

Alameda County, California.

(See Nos 15 and 26)

-2-

13. Give the names of the Chiefs, Captains and Headmen of the Tribe or Band to which your ancestors belonged on June 1, 1852, who executed the Treaty or Treaties herein referred to, if you know them.

H.L.C.
[DRAFT]

April 13, 2000
106th CONGRESS
2nd Session
H. R. ____

IN THE HOUSE OF REPRESENTATIVES

Mr. George Miller of California introduced the following bill; which was referred to the Committee on _____

A BILL

To restore Federal recognition to certain California Indian tribes, address the special land needs of the California Indians, establish equitable treatment of California Indians in the programs and services of the Bureau of Indian Affairs, develop adequate California tribal justice systems, and for other purposes.
Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

- (a) Short Title.--This Act may be cited as the "California Indian Act of 2000".
- (b) Table of Contents.--The table of contents for this Act is as follows:

- Sec. 1. Short title; table of contents.
- Sec. 2. Findings and purpose.
- Sec. 3. Policy.
- Sec. 4. Definitions.

TITLE I--RESTORATION OF TERMINATED CALIFORNIA INDIAN TRIBES

- Sec. 101. Definitions.
- Sec. 102. Restoration of Federal recognition, rights, and privileges of the Tribes.
- Sec. 103. Economic development.
- Sec. 104. Transfer of land to be held in trust.
- Sec. 105. Membership rolls.
- Sec. 106. Interim government.
- Sec. 107. Tribal constitution.

TITLE VII--MISCELLANEOUS PROVISIONS

Sec. 701. Contract authority.

Sec. 702. Certain land and facilities held in trust for the California Indians.

Sec. 703. Savings provisions.

SEC. 2. FINDINGS AND PURPOSE.

(a) Findings.--Congress finds that--

- (1) the Advisory Council on California Indian Policy, pursuant to the Advisory Council on California Indian Policy Act of 1992 (Public Law 10209416; 25 U.S.C. 651 note), submitted its proposals and recommendations regarding remedial measures to address the special status of California's terminated and unacknowledged Indian tribes and the needs of California Indians relating to economic self-sufficiency, health, and education;
- (2) in the Advisory Council on California Indian Policy Extension Act of 1998 (Public Law 10509294), the Congress directed the Council to work with the Congress, the Secretaries of the Interior and Health and Human Services, and the California Indian tribes to implement the Council's proposals and recommendations contained in its report to Congress, including presenting draft legislation to Congress for implementation of the recommendations requiring legislative changes.
- (3) California Indian tribes cannot effectively exercise sovereignty or self-determination without a land base large enough to develop economically and provide for the basic needs of tribal members, including adequate housing, employment, and social welfare services;
- (4) as a result of their uniquely tragic history, California Indian tribes do not have a land base that is adequate to meet their immediate and essential needs for housing, economic development, and cultural and natural resource protection and preservation;
- (5) although a large number of California Indian tribes negotiated 18 treaties with the United States in the early 1850's that would have set aside approximately 8,500,000 acres as their tribal homelands, the United States Senate failed to ratify these treaties;
- (6) the Senate's failure to ratify the California Indian treaties, in conjunction with Congress' passage of the 1851 Land Claims Act which required those claiming interests in California lands to file their claim within 2 years or forever forfeit such claim, denied California Indians any legally cognizable claim to their ancestral lands;
- (7) most California Indians were rendered homeless by these Federal actions, a situation that remained unremedied for many years until the United States

and early 1860's by military and volunteer patrols that resulted either in their death, removal to the Hoopa Valley Reservation or hiding in the hills. However, a few years later the Tsnungwe returned to their aboriginal lands where they have remained ever since.

(4) The Muwekma are the aboriginal inhabitants of the southern, eastern, and western regions of the San Francisco Bay Area, including all of what is now San Francisco, San Mateo, Alameda, and Contra Costa Counties, much of what is now Santa Clara County, and parts of Santa Cruz, San Joaquin, Napa, and Solano Counties. The Muwekma Indians are from the following aboriginal tribes: Passasimi/Yatikumne, Tamcan, Josemite, Lacquisemne, Julpun, Napian/Karkin, Jalquin/Yrgin, Alson/Tamien, Suenen, Chupcan, Choquoime, and Nototomne. Spanish missionaries forced the ancestors of the Muwekma Tribe into the Missions Dolores, San Jose, and Santa Clara in the late 18th and early 19th centuries. In the 1830's the Mexican Government secularized the missions and distributed their lands. Many Muwekma left the missions and resettled in other parts of the Bay Area, including on 20a number of rancherias in Alameda County, including the Alisal Rancheria near Pleasanton, the Del Mocho Rancheria in Livermore, the El Molino Rancheria in Niles, as well as on rancherias in Sunol and San Leandro/San Lorenzo until the early part of the 20th century. The Muwekma people continue to reside in their aboriginal territory in the San Francisco Bay Area.

(5) The Tolowa are the aboriginal inhabitants of the present day county of Del Norte, located in the northwestern corner of California. In this area, their villages were scattered along the coastline, at the Lakes Earl and Tolowa, and along the larger tributaries of the Smith and Winchuck Rivers. The Tolowa signed a treaty with the United States on August 17, 1857, and were removed to the Klamath Reservation that same year. They were subsequently moved to the Smith River Reserve until it was discontinued on May 3, 1862, and thereafter moved several more times, including to the Siletz Indian Reservation in Oregon and to the Round Valley, Hoopa, and Klamath Reservations in California. Documents of the Bureau of Indian Affairs from 1915 through 1916 show that 100 acres of land was to be purchased for the Lake Earl (Tolowa) Indians and the Lipps-Michaels Survey of Landless Nonreservation Indians of California, 1919-1920, confirms such a purchase of 100 acres of undivided land near Crescent City, Del Norte County, for these Indians.

(6) The Southern Sierra Miwuk Nation is composed of several bands or groups of Indians of the Yosemite/Mariposa area. These bands or groups are mentioned in countless official letters and journals of the United States Commissioners who were charged by Congress to negotiate treaties with the California Indian tribes during the period 1851-1852. The first treaty camp was Camp Fremont, just northwest of Mariposa, California. The second treaty camp was Camp Barbour, south of Mariposa in the Millerton Lake area. Some of the Southern Sierra Miwuk bands or groups that signed the treaties or were mentioned in the

**An Ethnohistory of the San Mateo Peninsula, Santa Clara Valley and Adjacent Regions;
Historic Ties of the Muwekma Ohlone Tribe of the San Francisco Bay Area and Tribal
Oversight on the Burial Recovery Program Conducted at *Wirak Táyvi Trépam Táareš-tak*
(Man with the Bird Bone Tubes Site) CA-SMA-309 Located at 303 Baldwin Avenue Within
the Ethnohistoric Ssalson Ohlone Tribal Territory**

by

Monica V. Arellano, Alan Leventhal, Sheila Guzman-Schmidt,
Gloria E. Arellano Gomez and Charlene Nijmeh



Report Prepared for:

City of San Mateo Planning Division file PA17-085

and

Prometheus Real Estate Group

and

Basin Research Associates, Inc.

Prepared by:

**Monica V. Arellano, Alan Leventhal, Sheila Guzman-Schmidt, Gloria E. Arellano Gomez,
and Charlene Nijmeh**

Muwekma Ohlone Tribe of the San Francisco Bay Area

2023

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Acknowledgements

We want to thank City of San Mateo who funded the Burial and Archaeological Data Recovery Program for the completed recovery of the Muwekma Ohlone ancestral *Wirak Tayyi Trépam Táareš (Bird Bone Tube Man)* burial from *Wirak Tayyi Trépam Táareš-tak CA-SMA-309* from this construction project back on October 20, 2021.

We want to thank the City of San Mateo planning department and administrative staff for all their support. We also want to thank Mr. Christopher Canzonieri, Lead Biological Anthropologist and Project Archaeologist, and Dr. Colin Busby from Basin Research Associates, Inc.

We want to thank the Muwekma Ohlone Tribal leadership for supporting the various contributing research projects relating to their ancestral heritage cemetery sites and allowing SJSU faculty, staff and students to learn more about their ancestral past and publish information in collaboration with the tribal membership on their ancestral and historical heritage.

We also want to offer acknowledgement and thanks to the Elders of the Muwekma Ohlone Tribe, members of the Tribe’s Language Committee **Monica V. Arellano, Sheila Guzman Schmidt** and **Gloria E. Arellano Gomez** who named this site in the Tribe’s language, and also enrolled tribal members for their support on this as well as other projects addressing their ancestral heritage sites. We also want to acknowledge the tribal co-authors Monica V. Arellano, Sheila Guzman Schmidt, Gloria E. Arellano Gomez, Charlene Nijmeh, and Muwekma Archaeologist and Ethnohistorian Alan Leventhal who contributed to the ethnohistory chapter.

It is our hope that this Ethnohistory provides historical, cultural, and educational information about our Tribe’s history and heritage and dispels many of the myths about our people. It is in the spirit of the preservation and dissemination of the Tribe’s long history, struggle, and heritage that this report has been written.

Aho!

Reburial Honoring Ceremony

A **Reburial Honoring Ceremony** was held earlier this year for the *Wirak Tayyi Trépam Táareš* (**Bird Bone Tube Man**) burial near this ancestral heritage cemetery site. The Reburial Honoring Ceremony was held by the Muwekma Ohlone tribal leadership along with representatives from the City of San Mateo and Basin Research Associates.

Dedication of this Report

This report is dedicated to and in honor of the passing of

- 1) **Muwekma Tribal Elder WW II Veteran Henry “Hank” Anthony Alvarez**, and,
- 2) **The *Wirak Tayyi Trépam Táareš* (Bird Bone Tube Man) burial**

In almost all of the previous published Muwekma Tribal standalone tribal ethnohistories and archaeological reports, the Muwekma Tribal leadership has honored one of the Elders or tribal members who have passed away. A decision was made to honor Tribal Elder **Henry “Hank” Alvarez** who had passed away on August 6, 2022 at the age of 100 (**Figure TOC-1**).

**In Loving Memory of
Muwekma Tribal Elder Henry “Hank” Anthony Alvarez
(February 27, 1922 – August 6, 2022)**



Figure TOC-1: Muwekma Elder Henry “Hank” Anthony Alvarez

On August 6, 2022, Muwekma Tribal Elder, former Tribal Vice-Chairman, Tribal Councilman, and World War II U.S. Army combat Veteran, Henry “Hank” Anthony Alvarez passed away at the age of 100. He was last surviving member of the federally recognized Tribe identified by the Bureau of Indian Affairs as the Verona Band of Alameda County. Hank was born February 27, 1922 to his parents Dolores Marine and Jack Alvarez. He was the second eldest son of Dolores Marine Alvarez Piscopo Galvan (1890-1982) who was the daughter of Muwekma Indian Avelina Cornates Marine and Rafael Marine.

As a child Hank was baptized at Sacred Heart Church located at 325 Willow Street, near Palm Street in downtown San Jose. Hank grew up with his brothers and sisters in Santa Cruz, San Jose, Alvarado and Brentwood near the Sacramento Delta. While living in Brentwood, his mother Dolores Marine Alvarez Piscopo Galvan enrolled herself and her children in 1932 with the Bureau of Indian Affairs (see **Figure TOC-2** BIA Application # 10681 below). Dolores Marine was also a leader in the community who informed other members of the community about the BIA enrollment and insured that the children of her deceased sisters were also enrolled.

**DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS**

Application Number **10681**
Name **Galvan, Dolores**

Application Number **10681**
Application for enrollment
with the Indians of the State of California under
the Act of May 18, 1928 (45 Stat. L. 602)

The Secretary of the Interior,
Washington, D. C.

Sir:

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

1. State the full names, ages, sex, and dates of birth of yourself and your minor children living on May 18, 1928.

English Names	Relationship in Family	Ages in 1928	Sex	Dates of Birth Month Day Year	Degree of Indian Blood
Galvan, Dolores (Lola)	Wife	33	F	3-2-1895	
Galvan, Jennie	Daughter	21	F	1-7-1907	
Galvan, Jessie	Daughter	20	F	5-20-1908	
Galvan, John	Son	14	S	5-24-1914	
Galvan, Bessie	Daughter	13	D	12-13-1915	
Galvan, Benjamin	Son	9	S	9-6-1919	
Galvan, Henry	Son	6	S	2-27-1922	
Piscopo, Salvador D.	Son	5	S	10-1-1923	
Galvan, Philip	Son	2	S	1-18-1924	
Galvan, Benjamin	Son	1	S	6-23-1927	
Galvan, Dolores	Daughter	0		12-19-1931	

2. Residence on May 18, 1928 Brentwood, Calif

3. Post Office Box 438 Town or City, Box Number or Rural Route Number. County State

4. Place of birth of yourself and each of your minor children Miles, Mendocino Co., Calif

Approved _____

Figure TOC-2: BIA Application of Dolores Marine Alvarez Piscopo Galvan and Children

A year after the outbreak of World War II Hank, who was then married, enlisted in the United States Army (Serial # 39 118 248) at the San Francisco Presidio on December 28, 1942. He served as a Pvt. First Class in the U.S. Army, in the **101st Airborne Division**. Hank was also trained as a **Combat Engineer** with the **326th Airborne Engineer Battalion (AEB)** at Camp Claiborne, Louisiana which was the headquarters for the Army's first airborne divisions which included the 82nd and 101st Airborne Divisions. The 326th Airborne Engineer Battalion moved to Fort Bragg, North Carolina along with the 101st Airborne Division.

Hank joined his four brothers Johnnie A. Alvarez (Army Air Corps Pacific Theater); Francis Salvador “Sal” Samuel Dominic Piscopo, Sergeant Technical [E-7] U.S. Army, 14th Mechanized Cavalry Group, 18th Cavalry Squadron, European Theater); Philip Galvan (U.S. Army, Fort Benning, Georgia); and Michael Benjamin Galvan, (Merchant Marines, U.S. Navy – (USS *Enterprise*), U.S. Army and Army Air Corps), during World War II.

After extensive training in the United States, the 326th AEB deployed to England on September 5, 1943, from Pier 90, North River, New York. The Ship 294 (HMS *Samaria*) landed at Liverpool, England, and the battalion moved by train to Basildon Park, near Reading, Berkshire. Under the command of Lt Colonel John Pappas, the Battalion's training focused on physical conditioning, firing of weapons, glider loading, glider flights, unit and division tactical exercises.

Hank's division landed at Utah Beach, Normandy, while serving with the 326th Airborne Engineer Battalion, 101st Airborne. He participated in the Battle of Carentan, a port city in France (June 10-14, 1944). In the ensuing battle, the 101st forced passage across the causeway into Carentan on June 10 and 11, 1944. A lack of ammunition forced the German forces to withdraw on June 12. The 17th SS Panzergrenadier Division counter-attacked the 101st Airborne on June 13. Initially successful, its attack was thrown back by Combat Command A (CCA) of the U.S. 2nd Armored Division.

While in Luxembourg, Hank was transferred to the **327th Infantry (Glider) Regiment** with the 101st Airborne. Afterwards, Hank was reassigned to the 106th Infantry Division, 423rd Infantry Regiment, Company B that fought in France and Belgium at Bastogne (Battle of the Bulge), Luxembourg, and Germany at the Ramagen Bridge crossing the Rhine River in Germany. Hank's regiment fought at Saint Laurent Sur Mer and Saint Nazaire, France, and near the Malmedy Massacre that occurred in Belgium by German troops in December 1944. Hank's unit later transferred to Patton's 3rd Army. Just prior to Germany's surrender, he was later assigned to tank patrols, drove wreckers, and tank transports. He drove jeep for Captain Marcus as a courier between Germany and France (Hank interview 2009). At the end of the war Hank was stationed in Mahndorf, near Bremen Germany.

For its outstanding accomplishments at Normandy and Bastogne, the 326th Airborne Engineer Battalion was twice awarded the **Presidential Unit Citations**: Streamer embroidered **NORMANDY**, and Streamer embroidered **Bastogne, French Croix de Guerre** with Palm, World War II, **Belgian Croix de Guerre** 1940 with Palm. For its contribution to the success of the European War, the Battalion was awarded the French Croix de Guerre (with Palm), the Netherlands Orange Lanyard, and the Belgian Fourragere. The 326th Airborne Engineer Battalion was deactivated in Germany on November 30, 1945.

Hank's units fought in the following campaigns with the 101st Airborne Division: **Normandy; Ardennes/Alsace; Rhineland** (GO 40 WD 45); **Northern France** (GO 33 WD 45); and **Central Europe**. He was issued the following medals and badges: Sharpshooter M1, WWII Victory Medal, and European African Middle East Campaign Medal, Distinguished (Presidential) Unit Citation, and Parachute/Glider patch. Both the 101st Airborne Division and the 106th Infantry Division earned Presidential Unit Citations. Hank was honorably discharged at Camp Beale, California on December 15, 1945. Hank returned home from Europe with the 82nd Medical Battalion, 12th Armored Division.

After the war, on April 26, 1950, Hank enrolled himself and his family with the Bureau of Indian Affairs (BIA) during the second enrollment period. During the early 1960s Hank served in a leadership position along with his brothers and sister to save the Tribe's Ohlone Indian Cemetery from destruction which is located near Mission San Jose.

During the mid-1960s, when the Ohlone families gathered and worked under the principal efforts and leadership of Hank's mother Dolores and his aunt Trina Marine Elston Thompson Ruano in order to protect the historic Ohlone Indian Cemetery in Fremont from destruction, his uncle Dario identified the places of where his family relations were buried in the cemetery.

Hank and his mother Dolores Marine [Figure TOC-3] and his two younger brothers Philip Galvan and Ben Michael Galvan and sister Dotty Galvan Lameira were instrumental in forming the Board of Directors for the Ohlone Indian cemetery between 1965 and 1971, when the American Indian Historical Society in San Francisco was able to transfer the deed to the property from the Oakland Diocese to the newly emergent Ohlone Indian Tribe, Inc. non-profit.



Figure TOC-3: Dolores Marine Alvarez Piscopo Galvan (1969)

Hank and his family, along with his siblings, and their families were identified in the **May 1965 Listing of Ohlone Contacts and Ohlone Members** [Figure TOC-4].

Circa. May, 1965 – “Listing of Ohlone Contacts and Ohlone Members”

Henry A. Alvarez	Hank Alvarez	Jose Rodriguez
Stella T. Alvarez		Concha Rodriguez
Thomas M. Alvarez		Henry Rodriguez
Carol Ann Alvarez		Susanne Rodriguez
		Caroline Rodriguez
Alfonso A. Juarez		
Pauline Juarez		Margaret (Sanchez) Martinez
Peter D. Juarez		Ricardo Martinez
James A. Juarez		Robert Martinez
Richard H. Juarez		Natividad Martinez
C. M. Juarez (Sullivan)		
Rose Mary M. Juarez		Dolores (Sanchez) Martinez
		Candelario Martinez
Ruben Arellano		Manuel Martinez
Ofelia F. Arellano		Rose Mary (Cambra) Martinez
Ruben F. Arellano		Mary Louise Martinez
(Cruz/Cline)		
Arthur Steven Arellano		
		Octavia W. Lopez
Sammy Arellano		Julia Lopez
		William James Lopez
Albert M. Arellano		Sylvia Lopez
Frank A. Arellano		Geraldine Lopez
Albert Tomas Arellano		Mrs. Emily Dewey (Marshall sister)
Edwina E. Arellano		Jackie Dewey
Gregory Arellano		
Rebecca M. Arellano		Lydia Arellano Jaurequi
Timothy Arellano		Pamela Jaurequi
Frances Marie Arellano		Kathleen Jaurequi
Oscar Jaurequi		
Arnold Sanchez		Joel Arellano
Edward Sanchez		Helen Arellano
		Judy Arellano
Enos M. Sanchez		Donna Arellano
Angie C. Sanchez		Evelyn Arellano
Arthur R. Sanchez		Joel Arellano, Jr.
Ishmael Arellano		Virginia Arellano
Juanita Arellano		
		Jenny Galvan
Michael Galvan		Dolores D. Galvan
Mary Archuleta		Dolores M. Galvan
Philip Galvan		

Figure TOC-4: Hank Alvarez and other Ohlone Contacts and Ohlone Members

During the late 1980s and early 1990s, Hank and his family enrolled in the Muwekma Ohlone Tribe. As the tribal council developed policies and political strategies to deal with legal issues, Hank had served as **Vice Chairman** of the Muwekma Ohlone Tribe as well as serving on the Tribal Council and the **Council of Elders**. He helped lead the effort by the tribe to regain its Federal Recognition from the U.S. Government, which began in 1906 when the Indian Service Bureau first federally recognized the tribe as the Verona Band of Alameda County.

Hank had served on the Muwekma Tribal Council since 1992 and was the oldest surviving member of the Verona Band of Alameda County, and oldest veteran in the Tribe. In the late 1990s Hank, along with other Muwekma Veterans and tribal families later marched in the Fourth of July Parade in Pleasanton. Hank was a key note speaker at this event and the local newspapers offered no coverage on Muwekma's participation or of Hank's keynote presentation.

In 1994, Hank was a co-author of the article titled **The Ohlone Back From Extinction**, published in *The Ohlone Past and Present* by Ballena Press. In 1999, Hank co-authored with fellow council members Monica V. Arellano, Carolyn M. Sullivan, Concha Rodriguez, Rosemary Cambra, and tribal ethnohistorian Alan Leventhal, a historic narrative for the National Park Service about the history and heritage of the Muwekma Ohlone Tribe titled **The Muwekma Ohlone Tribe of the San Francisco Bay and Alcatraz and Angel Islands** in commemoration of the 30th anniversary of the Native American takeover of Alcatraz Island. He also co-authored other position papers as well and lobbied Bay Area politicians to support the Tribe's reaffirmation.

Hank had fully supported the Tribe's efforts at regaining its federally acknowledged status. In August 2005 and October 2006, Hank joined a tribal leadership contingent along with his sister Dotty Galvan Lameira to Washington, DC to meet with the heads of the Bureau of Indian Affairs. Facing off with the Acting Assistant Secretary of Indian Affairs (AAS-IA), Mr. James Cason. Hank asked him that:

How is it that I was born into a federally recognized tribe, later went off to war in the 101st Airborne Division, came home only to find out that we are no longer federally recognized. My mother wrote to the BIA in 1936 to make inquiries, and the Bureau, decided that although we enrolled with the BIA, we were no longer on the list of federally recognized tribes. How can this legally happen?

Several years later, on June 8, 2009, Hank wrote to Congresswoman Zoe Lofgren informing her of the Tribe's frustration in dealing with AAS-IA James Cason and requesting a letter of support for the Tribe's reaffirmation. Hank wrote:

Mr. Cason assured me in front of our tribal delegation that he would "get to the bottom of this and get back to me with a clear explanation and determination." However, as in the past 200 years the government officials made many promises to Indian people, and here was just another case of these BIA bureaucrats making promises and immediately breaking their word. I never heard from Mr. Cason again, even though we wrote follow up letters to him and the BIA."

Honoring Hank Alvarez's California Indian Heritage

Hank Alvarez, following in the footsteps of his mother Dolores Marine and his grandmother Avelina Cornates Marine, as well as the lineages comprising the Muwekma Ohlone Tribe, continued to serve as a cultural and political bridge between two worlds – the post-transitional world of the neglected Federally Recognized Verona Band of Alameda County – the revitalized and organized Muwekma Ohlone Tribe to which he was indeed a Tribal Elder and Councilman.

A distinct character and a caring family member he fully knew and understood his Muwekma Indian identity.

Hank lived to see a potentially bright future for all of the Muwekma Ohlone families. He also recollected on the history that was made when the title of the Ohlone Indian Cemetery in Fremont where his Marine family relations, and his grandmother Avelina Cornates Marine, and her ancestors are buried, passed from the Catholic Church to the American Indian Historical Society and the back to his tribe.

Hank Alvarez and his family lived to see the Muwekma obtain a formal determination by the BIA of previous unambiguous Federal Recognition, via a successful lawsuit against the Department of the Interior, and a positive determination that 100% of the enrolled membership are directly descended from members of the previously recognized Verona Band, which was also determined to be a historic tribe. Hank and his family also lived to see U.S. District Judge, Ricardo Urbina state in his Federal court order that:

The Muwekma Tribe is a tribe of Ohlone Indians indigenous to the present-day San Francisco Bay area. In the early part of the Twentieth Century, the Department of the Interior (“DOI”) recognized the Muwekma tribe as an Indian tribe under the jurisdiction of the United States.

Hank represented the seventh generation of his paternal line of Ohlone Indians, whose lives were disrupted by the expanding Hispanic Empire and the American Conquest of California. All of Hank’s maternal side of Ohlone ancestors came into the Missions San Jose and San Francisco. On his mother’s side, Hank’s lineage is descended from his great-great grandmother Efrena Quennatole who was born in 1797 and was of the Karkin Ohlone/Napian Coast Miwok Tribe from the North Bay, and his great-great grandfather, Liberato Culpecse who was born in 1787 and baptized at Mission San Francisco in 1801, and who was from the Jalquin Ohlone/Saclan Tribes of the East Bay.

Hank was further descended from Liberato Culpecse’s parents Faustino Poylemja who was born around 1764 from the Saclan Bay Miwok Tribe (Walnut Creek/Concord/Lafayette area) and Obdulia Jobocme who was born around 1766 from the Jalquin Ohlone Tribe from the greater South Oakland/San Lorenzo/San Leandro/Hayward region.

Efrena and Liberato’s daughter was Maria Efrena Yakilamne. She was born in 1832 and was baptized at Mission San Jose, and buried in the Ohlone Cemetery. Maria Efrena had married Panfilo Yakilamne (Ilamne Plains Miwok) and their daughter was Avelina Cornates. Avelina was born in 1863 and was baptized in 1864 at Mission San Jose. Avelina died in 1904, and was buried at the Ohlone Indian Cemetery. Avelina had married Rafael Marine and their first child was Dario Marine who was born in 1888 on the Pleasanton Rancheria, and their second child was Hank’s mother, Dolores Marine who was born in 1890.

Following in the footsteps of his Muwekma ancestors, Hank carried himself with a keen knowledge of his California Indian heritage. Hank’s Muwekma Ohlone tribal ancestors and families have been waiting since 1906 for their rights to be fully recognized and honored by the United States Government. Born into a federally recognized tribe, the Verona Band of Alameda County, Hank had been waiting his entire 100 year life span for full Federal rights to be accorded

to his Muwekma Ohlone Tribe. In his own way, Hank had made his contribution towards the reaffirmation of the Muwekma Ohlone Tribe, and he leaves that legacy for the future generations of his Tribe (**Figure TOC-5**).

Henry Anthony Alvarez's Muwekma Ohlone Ancestry



Muwekma Bay Area California Indian Lineage:

Ohlone Indian (East Bay)

Northern Ohlone/Coast Miwok (Lower Napa Valley/Carquinez Straits)

Plains Miwok (Sacramento Delta)

Bay Miwok (Walnut Creek)



Figure TOC-5: Hank in the 326th Airborne Engineer Battalion, 101st Airborne Div.

Hank lived the past decade years with his grandson, shortly after the passing of his wife Stella Martinez. Go with peace and join your parents, aunts, uncles, relations and ancestors and know that you made this world a better place for your people.

The Muwekma Ohlone Tribal Council wants to honor Hank Anthony Alvarez (Muwekma Tribal enrollment # 005; BIA #'s 28025, 19566), and his family members, his three children Carol Alvarez, Thomas “Woody” Alvarez and Lisa Alvarez and their children and grandchildren.

Hank Alvarez’s Funeral Services was held on Saturday September 10, 2022 at (Mission San Jose) St. Joseph’s Catholic Church, 43148 Mission Blvd., in the City of Fremont, CA. He was buried at the Ohlone Indian Cemetery at 1401 Washington Boulevard, in Fremont.

**Hank Anthony Alvarez, *Muwekma Wa-kai-Ka-te-netc*,
Hank Anthony Alvarez, was a Muwekma Elder,**

***Hu-ya-tu-hus Uik-ani*
and a Bridge to the Past!**

To the family of Hank Alvarez
Sunuuniy makiš ’em-suyya tušwiikne,
makiš kaayi mak-hinnan makkam rokét ’ayye ’em-suyyakma.
Makkam kam mak sai-tak.

**We are sorry your family member has passed, our hearts
are very sad for you and your family.**

You all are in our prayers.

Aho!

Dedication of this Report is also to:

All of the Ohlone and California Indian People who Came Before Us

The authors would also like to dedicate this report to all of the Ohlone/Costanoan and California Indian men, women and children who had perished as a result of the impacts of the European and American colonization of Native American homelands, the majority of whom have remained faceless and nameless. No major monument yet stands to honor these aboriginal peoples who have resided in the San Francisco Bay Area, or the rest of California over these past 10,000 years.

We also want to dedicate this report to the memory of those Muwekma families who had survived into the 20th Century and became members of the **Federally Recognized Verona Band of Alameda County**. Without them we would not have life today and continue the struggle to obtain justice for our people. **Aho! [Figures TOC-6 - TOC-9]**



Figure TOC-6: Ohlone Dancers at Mission San Jose in 1806 (Langsdorff Expedition)



Figure TOC-7: Ohlone Dancer/Warrior Mission Dolores (Kotzebue Expedition 1816)
Note: This Dancer/Warrior is Enshrined on the Muwekma Ohlone Tribe's Flag



Figure TOC-8: Hank Alvarez Enshrined at Ohlone Park in Berkeley



**Figure TOC-9: Hank at the Oak Hill Memorial Park Cemetery in San Jose
Standing by the Graves of his Mother and Brother**

An Ethnohistory of the San Mateo Peninsula, Santa Clara Valley, East Bay, and Adjacent Regions; Historic Ties of the Muwekma Ohlone Tribe of the San Francisco Bay Area and Tribal Oversight on the Burial Recovery Program Conducted at *Wirak Tayyi Trépam Táareš-tak* (Man with the Bird Bone Tubes Site) CA-SMA-309 Located at 303 Baldwin Avenue, City of San Mateo, Within the Ethnohistoric Ssalson Ohlone Tribal Territory
by

Monica V. Arellano, Alan Leventhal, Sheila Guzman-Schmidt,
Gloria E. Arellano Gomez and Charlene Nijmeh

Introduction

This ethnohistory presents a synthesis of primary historical documents, Bay Area mission records, ethnohistorical research, and tribal oral traditions about the history and heritage of the Muwekma Ohlone Tribe of the San Francisco Bay Area, and their oversight on their ancestral heritage site which the Tribe has named *Wirak Tayyi Trépam Táareš-tak* (Man with the Bird Bone Tubes Site) CA-SMA-309.

As presented elsewhere in the final archaeological report on this site, the Muwekma Ohlone Tribe of the San Francisco Bay had oversight as the Most Likely Descendant (MLD) Tribe on the burial recovery/mitigation program conducted on the Tribe's ancestral heritage site *Wirak Tayyi Trépam Táareš-tak* CA-SMA-309 located at 303 Baldwin Avenue, in the City of San Mateo. The City of San Mateo provided funding to complete this mitigation program that included: 1. the monitoring of the remaining subsurface excavations; 2. the completion of the Burial and Archaeological Data Recovery Program.; and, 3. the analysis and writing of the Skeletal Inventory/Osteological Report on the ancestral burial remains recovered from the *Wirak Tayyi Trépam Táareš-tak* CA-SMA-309 site which was completed on October 20, 2021 by Mr. Christopher Conzonieri, Lead Biological Anthropologist and Project Archaeologist from Basin Research Associates, Inc.

Furthermore, as stated in the Tribe's **Most Likely Descendant (MLD)** recommendations dated April 19, 2021 for this project, the Tribe had elected to rename the site in the Muwekma San Francisco Bay Costanoan/Ohlone language, and is submitting this Ethnohistory report on Muwekma's ethnohistoric relationship with the greater San Francisco Bay Area tribes.

The Muwekma Ohlone Tribal leadership has over the past 43 years continuously exercised its stewardship over the Tribe's ancestral heritage village and cemetery sites, and the ancestral human remains discovered within its aboriginal ethnohistoric territory. The Tribe's leadership and members were involved as co-authors in this Ethnohistory report on this ancestral heritage cemetery site which the Tribe has renamed *Wirak Tayyi Trépam Táareš-tak* CA-SMA-309 -*tak* which translates as **Place of the Bird Bone Tube Man Site**.

Ethnographic, Ethnohistoric and Ethnogeographic Setting

In this present ethnographic study, we provide an ethnohistoric overview of the greater **San Francisco Peninsula, Santa Clara Valley, East Bay**, and surrounding geographic regions. This section also explores the complex historic interrelationships between the aboriginal Ohlone tribal groups from the greater San Francisco Bay region at the time of contact and the ensuing impacts resulting from the advent of the expanding late 18th century Hispanic Empire; the establishment of the Catholic Church missions and the effects of missionization; the mid-19th century American conquest of California; the Gold Rush and theft of California Indian lands; the effects of the

emergent State of California; and the Federal Recognition of California Indian tribes and specifically the **Verona Band of Alameda County** [the Bureau of Indian Affairs' (BIA) formal designation of the Muwekma Tribe from 1906-1927; see details below]. These topics are introduced and explored through discussions involving Contact-Period regional and ethnohistorical tribal ties to the present-day Muwekma Ohlone Tribe and by presenting aspects of the survival strategies and continual cultural and political identity of this historic tribe.

The *Wirak Tayyi Trépam Táareš-tak* [Place of the Bird Bone Tube Man Site] CA-SCL-309 was recorded as a “San Mateo Shellmound # 10,” 3 feet high, covering approximately 1.5 acres, and located along the west bank of San Mateo Creek (J. Hamilton 1936; B. Bocek 1990) in the tribal region that the Mission Santa Clara fathers designated as the northernmost portion of the **San Bernardino District**, a region to the west/northwest of the mission (Milliken 1995; Byrd et al. 2023) (**Map 1**).

The *Wirak Tayyi Trépam Táareš-tak* Site is located within the contact-period ethnogeographic territory of the **Ssalson San Francisco Bay Costanoan/Ohlone**-speaking tribal group on the western side of the San Francisco Bay. Randall Milliken described the **Ssalson** Ohlone Tribe, their northern neighbor, the **Yelamu**, and their southern neighbors the **Lamchin** and **Puichon** Ohlone Tribes in his 1995 published doctoral dissertation ethnographic study titled **A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area 1769-1810** as follows:

Ssalson. The Ssalson lived in at least three main villages along San Mateo Creek, near the west shore of the San Francisco Bay and in the San Andreas Valley (Brown 1973:9-12). The villages of Altagmu, Aleitac, and Uturbe were said to be along branches of the Arroyo of San Mateo in numerous baptismal entries (SFR-B 173m 175, 176, 177, 213). Tribe members were baptized at Mission San Francisco from 1780 through 1793 (Milliken 1995:255).

To the north of the Ssalson Ohlone were the Yelamu who held the area of the city of San Francisco and its surrounding creeks and shoreline. The Yelamu people who were first baptized at Mission San Francisco were from four “villages of Chutchui, Sitlintac, Amuctac, and Petlinuc. Milliken further noted that “Fathers Palóu and Cambón called the San Francisco people “Aguazios” in one report. “They [the Ssalsons] have married among those of this place, who are called Aguazios [which translates as “Northerners] (Milliken 1995:200).

To the south of the Ssalson Ohlone tribal territory were their **Lamchin** Ohlone tribal neighbors which Milliken offered the following information:

Lamchin (Costanoan language). A tribe that held the portion of the bay shore of the San Francisco Peninsula from present day Belmont south to present day Redwood City, and adjacent interior valleys to the west. Their most important village, Cachanigtac, alias Las Pulgas” was probably on Pulgas Creek in the present city of San Carlos. Other villages mentioned in the Mission San Francisco Libro de Bautismos were Usséte, Guloisnistac, Oromstac, and Ssupichom (Milliken 1995:246-247).

South of the Lamchin Ohlone tribal territory were their **Puichon** Ohlone tribal neighbors who spoke the **Thámien** San Francisco Bay Costanoan/Ohlone dialect, about whom Milliken wrote the following information:

Puichon (Costanoan language). A tribe on the west shore of the San Francisco bay between lower San Francisquito Creek and lower Stevens Creek, now the areas of Menlo park, palo Alto, and Mountain View. Puichons went to Mission San Francisco between 1781 and 1794. Their San Francisquito Creek village Ssipùtca was mentioned six times in the Libro de Bautismos at Mission San Francisco. Being equidistant between Mission San Francisco and Mission Santa Clara, they appeared at both missions. They went to Mission Santa Clara from 1781 to as late as 1805. There they were noted as being from the “San Bernardino” district. Some of them were said, more specifically, to be from “San Francisquito” (SCL-B 1463, SCL-D 1065) (Milliken 1995:252).

To the south/southeast of the Puichon Ohlone were the related **Thámien Ohlone-dialect** speaking tribal groups whose village settlements were situated in an area surrounding the newly established Mission Santa Clara (1777). These tribal groups, village communities and districts included: **San Jose Cupertino, San Francisco Solano, Our Patron San Francisco, Our Mother Santa Clara, San Juan Bautista and San Carlos or Matalan Tribal Group/Districts**, and the bilingual **Alson Thámien/Chochenyo Ohlone-speaking** tribal group.

The **Thámien** Ohlone-dialect speaking tribal groups/villages/districts were named after Catholic saints by the Mission Santa Clara priests (see C. King 1994, Milliken 1991, 1995, 2004; Hylkema 2007 [CA-SCL-690 Tamien Station]; Milliken et al. 2009). The **San Juan Bautista** Tribal District, not to be confused with the **Mission San Juan Bautista** established about 20 years later in 1797 (located further south within **Mutsun** Costanoan-speaking territory in San Benito County), was identified by the priests from Mission Santa Clara as being located to the south of Mission Santa Clara that included a portion of the Coyote Creek Corridor. To the east of the Puichon Ohlone, and directly across on the southeastern side of the bayshore, were the **Thámien-Ohlone Alson**, and north of them, the East Bay Chochenyo Ohlone-dialect speaking **Tuibun** Ohlone tribal group (**Map1**).

The **Thámien** Ohlone-dialect speaking tribal groups/villages/districts were named after Catholic saints by the Mission Santa Clara priests (see C. King 1994, Milliken 1991, 1995, 2004; Hylkema 2007 [CA-SCL-690 Tamien Station]; Milliken et al. 2009). The **San Juan Bautista** Tribal District, not to be confused with the **Mission San Juan Bautista** established about 20 years later in 1797 (located further south within **Mutsun** Costanoan-speaking territory in San Benito County), was identified by the priests from Mission Santa Clara as being located to the south of Mission Santa Clara that included a portion of the Coyote Creek Corridor. To the east of the Puichon Ohlone, and directly across on the eastern side of the bayshore, were the **Thámien-Dialect Speaking Alson Ohlone** Tribe, and north of them, the East Bay Chochenyo Ohlone-dialect speaking **Tuibun** Ohlone tribal group

1. Since 1982, the Muwekma Tribal leadership and Language Committee has worked with the East Bay Regional Park District administration and staff in naming parks, trails and places. In January of 2015, the Muwekma Language Committee proposed translating **Coyote Hills** into the Chochenyo language and presented the staff with *Máyyan Šáatošikma*. In 2018, EBRPD staff requested a translation for a sign at Coyote Hills EBRPD. The Muwekma Language Committee recommended '*Akkoyt Mak Muwékma Hiswi Warep Máyyan Šáatošikma* meaning **Welcome to Muwekma's Ancestral Homeland Coyote Hills**. However, the EBRPD staff suggested otherwise, and limited the signage to read '*Akkoyt Máyyan Šáatošikma* meaning **Welcome to Coyote Hills**.
2. **CA-ALA-329** is one of the four major constructed mortuary "Shellmounds" located in the *Máyyan Šáatošikma - Coyote Hills*. Originally named the Ryan Mound, CA-ALA-329 was excavated by Stanford and San Jose State Universities in the 1960s. The Muwekma tribal leadership renamed CA-ALA-329 *Mánni Muwékma Kúksú Hóowok Yatış Túnnešte-tka* which means **Place Where the People of the Kúksú (Bighead) Pendants are Buried Site** The mortuary population spanning 1800 years of funerary-related activities was analyzed by Leventhal (1993);
3. **CA-SCL-732** located along Coyote Creek in south San Jose and was renamed *Kaphan Umux (Three Wolves) Site* [recently corrected to *Kaphan Húunikma*] in 1995 (Cambara et al. 1996);
4. **CA-SCL-38** located in Milpitas located to the north of CA-SCL-950 consisting of a very large mortuary earth mound that was renamed the *Yukisma ("at the Oaks") Site* in 1996 (Bellifemine 1997);
5. **CA-SCL-867** which is located in the Willow Glen area of San Jose was renamed the *Ríipin Waréptak Site* which means **"(in the) Willows Area"** in 2006 (Leventhal, et. al 2007);
6. **CA-SCL-869** located in south San Jose was renamed *Katwáš Ketneyma Waréptak (The Four Matriarchs) Site* in 2009 (Leventhal et al. 2009);
7. In 2010 the **CA-SCL-287/CA-SMA-263** site complex was named *Yuki Kutsuimi Šaatoš Inūx* [Sand Hill Road] Sites located to the west of **CA-SCL-623** along San Francisquito Creek on Stanford University lands (Leventhal et. al 2010);
8. At the 3rd Mission Santa Clara Indian Neophyte Cemetery the discovery of at least thirteen individuals whom were buried on top of each other and who had died very close in time to each other (1781-1818), the Muwekma Tribal Language Committee decided upon the name *Clareño Muwékma Ya Túnnešte Nómmo [Where the Clareño Indians are Buried] Site* for **CA-SCL-30/H** (Leventhal et. al 2011; Arellano et al, 2021a);
9. At **CA-SCL-894** (redesignated as **CA-SCL-948** by the Northwest Information Center on August 17, 2016) entailed the recovery of a single ancestral male burial from the rear California Fox Theatre located on South Market Street in downtown San Jose was renamed *Tupiun Táareštak* meaning **Place of the Fox Man Site** (Leventhal et. al 2012a);
10. The Muwekma language committee renamed a site excavated by San Jose State University in 1964 as part of a final archaeological report on site **CA-SCL-895/Blauer Ranch** (McDaniel et al. 2012). The language committee decided to rename this site after the original Mexican land grant **Yerba Buena y Socayre** which translates into the Muwekma language as *Kiriř-smin 'ayye Sokôte Tápporikmatka [Place of Yerba Buena and Laurel Trees Site]*;

11. **CA-SCR-12** on the coast in the City of Santa Cruz was excavated by San Jose State University in 1986 and was renamed by the Tribe as “*Satos Rini Rumaytak*” (**At the Hill Above the River Site**) (Starek 2014);
12. The Tribe renamed **CA-SCL-125** which includes the **Santa Teresa Spring** at the Bernal-Gulnac-Joice Ranch County Park in south San Jose to ‘*Arma ’Ayttakiš Rúmmey-tak*’ (**Place of the Spirit Woman Spring**) (Mabie 2015);
13. The Tribe had renamed **CA-SCL-128 (the Holiday Inn Site)** located in downtown San Jose in the *Chochenyo/Thámien* language to *Thámien Rúmmeytak* meaning **Place of the Thámien [(Guadalupe) River Site (CA-SCL-128/Hyatt Place Hotel)]** (Leventhal et al 2015; DiGiuseppe et al. 2021;);
14. Beginning in 2014, monitoring the construction on the expansion of the **Ronald McDonald House** on Stanford University campus, uncovered, three discrete **Early Bay Period** ancestral Muwekma burials along with several isolated human remains, as well as non-burial features at site **CA-SCL-609**. The Tribe decided to honor the important service offered by the Ronald McDonald House to families by renaming the site *Horše ’Íššéete Ruwwatka* meaning **Place of the Good Health House Site** (Leventhal et al. 2016);
15. In September 2016, while working on a new Rapid Bus Transit platform along with water lines to a fire hydrant located on the eastside of San Jose, **Santa Clara Valley Transportation Authority** construction crews encountered an ancestral Muwekma burial at a site designated as **CA-SCL-950**. During the course of skeletal analysis, the Tribe’s language committee named the site *Cashrishmini ’Awweš ’Írek ’Innutka* meaning **Yellow Salt (Alum) Rock Road Site** in the Tribe’s language (Leventhal et al. 2017a).
16. **CA-SCL-851 (MST Site)** was a recovery project that involved ten primary ancestral Muwekma Ohlone burials which was conducted on behalf of Public Storage on Tully Road in San Jose in 2000. Public Storage failed to allow the Tribe to continue to monitor the rest of the construction project, as well as, did not provide funding for any analysis, final report, or reburial of those remains. The Muwekma leadership decided to rename this site ‘*Utthin Širkeewis Tcitca ’Irekmatka*’ meaning **Two Black Obsidian Rocks Site** (Leventhal et al. 2020).
17. In December 2017 several areas in a housing development located south of the Eastridge Mall in east San Jose yielded evidence of over 20 ancestral Muwekma Ohlone ancestral burials. As a result, during the course of the recovery of the ancestral remains, the Muwekma language committee named this site: *Yakmuy ’Ooyákma-tka* meaning **Place of the East Ridge Site (CA-SCL-215)** (Analysis and report in progress).
18. In the East Bay near the Tribe’s historic Sunol and Alisal Rancherias the tribe had renamed an ancestral cemetery site ‘*Ayttakiš ’Éete Hiramwiš Trépam-tak*’ [**Place of Woman Sleeping Under the Pipe Site**], **CA-ALA-677/H** (Leventhal et al. 2017b; Byrd et al. 2023);
19. The Tribal Language Committee had named a major **Late Period** ancestral Muwekma Ohlone on-going project located at the **Sunol Water Temple (CA-ALA-565)** to *Sii Túupentak* meaning **Place of the Water Round House Site** (Byrd et al 2020);
20. **CA-ALA-704** located between the Town of Sunol and the Sunol Water Temple (site CA-ALA-565/H), was concurrently named *Rummey Ta Kuččuwiš Tiprectak* meaning **Place of the Stream of the Lagoon Site** by the Muwekma Ohlone Tribal leadership and Language Committee in their *Chochenyo/Thámien* dialect [see brief discussion about the background of the origins of the place name *Thámien*, and the use of the Muwekma Ohlone

Chochenyo/Thámien dialects in translating names for these sites as part of the Tribe's language revitalization and ancestral heritage site reclamation below]. The ***Rummey Ta Kuččuwiš Tiprectak*** locality is an ancestral Muwekma Ohlone heritage site that was occupied from 2437 to 177 calibrated years before present, based on 60 radiocarbon dates. It is also the location of the mid-nineteenth-century Mexican Period Suñol Adobe (Byrd et al. 2020).

21. Back in 2010, the Muwekma Tribal leadership was named the MLD for the discovery of ancestral remains discovered on Santa Clara University campus on site **CA-SCL-755** at the location of the construction of the planned **Admissions and Enrollment Services Building**. As a result of this and previous discoveries within the large CA-SCL-755 locality, the Tribe's language committee decided to rename this site ***Sirkeewis Rípin Tiprectak, Place of the Black Willow Marsh Site*** (report in progress);
22. During the late 1950s through the 1960s, Stanford University and San Jose State University ran a series of summer excavations at **CA-ALA-329**, the Ryan Mound located at Coyote Hills, East Bay Region Park District. Over 550 burials were recovered along with several having the distinctive N Series "Banjo/Big Head" Kuksu pendants. As a result of the presence of so many of the abalone pendants, the Muwekma Language Committee renamed this ancestral heritage mortuary mound ***Mánni Muwékma Kúksú Hóowok Yatiš Túnnešte-tka*** which translates as **Place Where the People of the Kúksú (Bighead) Pendants are Buried Site** (Leventhal 1993).
23. In 2017, the Tribal leadership recovered an adult male ancestor at a site located in southwest San Jose along the upper reaches of the Guadalupe River. The individual was discovered laying on a bed of blue mussel shells, and as a result, the Tribe's Language committee, named the site ***Táareš Tunnešte 'Ullaaštak Chitcomini Šaro-tka*** meaning **Place of the Man Buried on a Bed of Blue Mussel Shells Site CA-SCL-967** (Leventhal et al. 2020).
24. In November 2020, at a construction site located to the west of the San Jose Airport, ancestral burials were encountered during mechanical excavation. The site, **CA-SCL1070** yielded AMS dates on the burials that range from 8934 to 10,400 cal B.P. and AMS dating test results on the non-burial features range from 9557 to 10,043 cal B.P. The Tribal leadership renamed this site ***Mánni Húyyú Muwékma Yatiš Túnnešte-tka*** meaning **Place Where the Ancient People Are Buried Site**.

For the present study, site **CA-SMA-309** was named ***Wirak Tayyi Trépam Táareš-tak*** which translates as **Place of the Bird Bone Tube Man Site** based upon the fact that this ancestral young man was recovered with the following grave associated cultural artifacts: 3 incomplete **bird bone tubes** and four fragments with two of the bone tubes exhibiting ground edges at one end; 1 small clam shell bead; and 1 small *Haliotis* (abalone) pendant.

Naming *Wirak Tayyi Trépam Táareš-tak* meaning Place of the Bird Bone Tube Man Site and the *Wirak Tayyi Trépam Táareš* - Bird Bone Tube Man Burial

Wirak Tayyi Trépam Táareš-tak
Place of the Bird Bone Tube Man Site

The recovered burial was named ***Wirak Tayyi Trépam Táareš* = Bird Bone Tube Man.**

Phonetic Pronunciation:

Wirak Tayyi Trépam Táareš-tak
Wee-rahk T(r)ah-ye Treh-pahm T(r)ah-reshtahk

Muwekma Ohlone Language Utilized For This Translation - Chochenyo and Thámien Translation Breakdown and Sources:

- ❖ **Bird** = **Wirak** (*JP Harrington 1920's/1930's – East Bay/Chochenyo Dialect*)
- ❖ **Bone** = **Tayyi** (*JP Harrington 1920's/1930's – East Bay/Chochenyo Dialect*)
- ❖ **Tube (Pipe)** = **Trépam** (*JW Powell 1877 Thámien/Tamyen - Santa Clara Dialect*)
- ❖ **Man** = **Táareš** (*JP Harrington 1920's/1930's – East Bay/Chochenyo Dialect*)
- ❖ **Site** = **Use** -tka after vowels; **-tak** after a consonant
(*JP Harrington 1920's/1930's – East Bay/Chochenyo Dialect*)

Note: The locative definition of the -tka and **-tak suffix endings** also includes ‘At, Place, **Place Of**, Location, Area, **Site**, By The, Into The...’

Muwekma Ohlone Tribe and Our San Francisco Bay Costanoan/Ohlone Language and Our Interrelated Ohlone Dialects

Brief Linguistic Background

Between 1904 and 1914 renowned Berkeley anthropologist Alfred L. Kroeber at the invitation of Phoebe Apperson Hearst visited the Muwekma rancherias at Pleasanton and Niles to interview the Elders of the Tribe for our Native vocabularies. In 1910, Kroeber published his study titled **The Chumash and Costanoan Languages**. Therein, he identified the sources for the Costanoan/Ohlone dialects where he noted that the **San Jose vocabulary** was collected by himself “the author.” The very first English word listed in the published vocabulary was “**Person**” which he had only three words for in the Costanoan language: Monterey – **Ama**; Soledad – **Mue**; and San Jose - **Muwe-kma** (Kroeber 1910:242-243; 1904-1914 Field Notebooks 24, 52, 57. A. L. Kroeber Papers (BANC Film 2049).

In 1910, biologist and ethnographer C. Hart Merriam traveled to the **Alisal Rancheria** writing that:

On November 5, 1910 I visited the rancheria between Pleasanton and Mrs. Phoebe Hearst's Place. ... There is also here Mrs. Angela Colos, a so-called “Costano,” whose mother came from San Lorenzo on the San Francisco Bay and whose father was a Ko-re-ak'-ka. Her language is the same as was native to Santa Clara” (Merriam 1967:368-369).

In 1914, Kroeber's anthropology colleague, Edward W. Gifford, interviewed **Maria de los Angeles Colos** and he too recorded at Pleasanton the word for people as “**Muwekma**,” which he classified as “**San Lorenzo Costanoan**” (Unpublished Ethnological Documents Collection of the Department and Museum of California Berkeley, Bancroft Film 2216, Item 194.2).

In January 1916, anthropological linguist John Alden Mason, visited Pleasanton and interviewed “an elderly woman from San Lorenzo and from her a vocabulary of a hundred odd words was secured” (Mason 1916:470). The woman who he interviewed was also **Maria de los Angeles Colos** whose direct descendants are enrolled in the Muwekma Ohlone Tribe. Mason recorded and published the word for “people” as “**muekma**” (Mason 1916:471).

Several years later, John Peabody Harrington from the Smithsonian Institution's Bureau of American Ethnology periodically visited the Pleasanton, Sunol, Niles and Livermore settlements and residences and he interviewed and mentioned at least eighteen members of the Muwekma tribal community between 1921 and 1930 in his field notes. Two of Harrington's principal consultants were **Maria de los Angeles Colos** who Harrington referred to as "**Angela**," and **Jose Guzman** who he referred to as "**Guz**" in his field notes. In his interviews with Angela she informed him in 1929 that the Costanoan dialects of **Mission Santa Clara** and **Mission San Jose** were basically identical by stating:

The Clareños were much intermarried with the Chocheños [Indians of Mission San Jose]. The dialects were similar (Harrington 1921-29:14).

Based upon the Missions Santa Clara and San Jose baptismal and marriage records one of Angela's husbands was a Mission Santa Clara Indian named Raymundo Bernal, and that she also had uncles by the surname of Santos, who were from the **Luecha Ohlone Tribe** of the Livermore Valley region and who were missionized into Mission Santa Clara. Furthermore, one of her daughters Francisca deployed the tribal name **Luecha** as her surname as she appears in the mission records.

Milliken, Shoup, and Ortiz writing about Harrington's interviews in their comprehensive 2009 San Francisco Bay Area ethnographic study for the National Park Service noted the following:

The word **Muwekma**, a term used by a modern descendent organization, appears in the notes with the meaning "person" and "people."

Ménem hishmetr múwékma, tu eres buena gente (Harrington 1921-29:247).
holshe wáka muwékma, bonito es esa gente (Harrington 1921-29:297).
'rí'te muwékma jakájin, hay mucha genta enfermos (Harrington 1921-29:362)
(Milliken et al. 2009:287).

Years later, in his 1969 publication titled **Native Americans of California and Nevada: A Handbook** by Dr. Jack Forbes, a renowned professor of Native American Studies and Anthropology at U.C. Davis, who was also of **Powhatan-Renapé** and **Lenape** Native American descent, employed the ethnonym "Ohlone" and "Ohlonean" in lieu of Costanoan in that publication. Forbes deployed native terms that he found preferable to non-native ones for native languages. In his publication, Forbes embraced Ohlonean after the Ohlone tribal identifier "that descendants of the Mission San Jose people called themselves" (Milliken et al. 2009:45). Therein, Forbes divided the Ohlonean languages into a grouping of related **Northern Ohlone Dialects** which he called the **Muwekma Division**, and a grouping of related **Southern Ohlone Dialects** which called the **Mutsun-Rumsen Division**. Forbes published his linguistic relationship and classification relative to the proposed Costanoan dialects which Milliken et al. revisited in their 2009 study:

Ohlonean (Costanoan) Branch

1. Muwekma Division [Northern Ohlone Dialects]

- a. Ohlone/Costanoan (San Francisco, Santa Cruz, Santa Clara, San Jose) dialects
- b. Huichun-Karkin (San Pablo) dialects

2. Mutsun-Rumsen Division [Southern Ohlone Dialects]

- a. Mutsun (Humontwash, San Juan Bautista) dialects
- b. Rumsen (Monterey) dialects
- c. Chalón (Soledad) dialects (Forbes 1969:184)

Forbes also contributed the following statement about the **1969 Indian Occupation of Alcatraz** in **Alcatraz is Not an Island** :

... Now in 1969, modern-day Native Americans are attempting to claim Alcatraz Island in order to both obtain facilities for educational programs, and to publicize the desperate circumstances under which Indian people live.

... There is little question but that the **Muwekma** Indian people of San Francisco and the Hukueko [Coast Miwok] of Marin County, were, in the old days frequent visitors to all the islands in the San Francisco Bay (Blue Cloud 1970:44).

In his 1995 published dissertation **A Time of Little Choice**, under the subheading **Mission San Francisco In Yelamu Lands**, Milliken discussed the cross-bay intermarriages and interrelationships between the **Yelamu Ohlone** of San Francisco and the intermarried **Huchiun/Jalquin** Ohlone and other East Bay tribal groups stating that:

The Yelamus were tied by marriages on the **east side of San Francisco Bay**; two of the three wives of Yelamu tribal captain Guimus [aka Xigmacse], for example, had been born on the east side of the San Francisco Bay (Milliken 1983:146). The Yelamu tribe probably played a key role in regional trade, moving obsidian and other goods, from the north and east across the Bay and down the Peninsula, while bringing coastal shells to the East Bay (Milliken 1995:62).

In their 2009 publication titled **Ohlone/Costanoan Indians of the San Francisco Peninsula and their Neighbors, Yesterday and Today**, published for the San Francisco National Park Service and the Golden Gate National Recreation Area, the principal authors Milliken, Shoup and Ortiz noted the following about the **San Francisco Bay Costanoan Language Area**:

San Francisco Bay Costanoan is a language represented by three dialects – Ramaytush, Chochenyo and Tamyen – that were considered to have been separate languages until recently. The precise pre-mission distribution of the dialects can only be guessed, because existing language samples were gathered after the native people moved to the missions. The Ramaytush dialect may have been reached down the Peninsula from the Golden Gate to Point Año Nuevo. The Chochenyo dialect was spoken along the southeast shore of San Pablo Bay, on the east shore of the San Francisco Bay, and in the interior Livermore Valley on the East Bay. The Tamyen dialect was spoken in the Santa Clara Valley and in the surrounding hills (Milliken et al 2009:6).

Those authors continue their linguistic discussion on page 33 of their 2009 publication noting that recent linguistic evidence supports the position that the three distinguished Bay Area Costanoan languages was determined to be a single language, presenting the following discussion:

A Single San Francisco Bay Costanoan Language

Recent publications and encyclopedic websites regarding California Indian ethnography follow the conclusions of Kroeber, Beeler, and Levy to the effect that three separate Costanoan languages—Ramaytush, Tamyen, and Chochenyo—were spoken in adjacent areas around San Francisco Bay at Spanish contact. Over the past few years, however, three linguists actively working on the problem—Catherine Callaghan, Victor Golla, and Juliette Blevins—have concluded that Ramaytush, Tamyen, and Chochenyo are **dialects of a single San Francisco Bay Costanoan language**. We consider acceptance of that conclusion to be a key tenet of the current report. As of 1997, Callaghan was beginning to move away from the commonly accepted stance of three separate languages. She wrote:

According to Maria de los Angeles Colos—Harrington’s Chocheño consultant— Ramaytush, Chocheño, and Tamyen were similar dialects. ...

In 2009, Callaghan concluded that the Ramaytush, Chochenyo, and Tamyen idioms were mutually intelligible and should therefore be considered three dialects of a single language on the basis of a new comparative study of the various San Francisco Bay Costanoan vocabularies. She described her method and results in an email to Milliken, as follows:

I decided to re-examine the Ramaytush and Tamyen vocabularies to determine their relationship to Chochenyo, and I have come to the conclusion that they are all dialects of the same language. ...(Milliken 2009:33).

These authors continue their discussion on Page 87 of that 2009 study by presenting the following information about the Ohlone tribal groups of the San Francisco Peninsula under the heading:

First Contact for the Native People of the Peninsula

Local Tribes of the San Francisco Peninsula

At the time of Spanish entry, eight independent local tribes held lands entirely within the present counties of San Francisco and San Mateo, the area essentially equivalent to the San Francisco Peninsula. Four of the eight groups were from the San Francisco Bay shore and four were from the Pacific Coast. The bay shore groups were the Yelamu of San Francisco, Urebure of San Bruno, **Ssalson of San Mateo**, and Lamchin of Redwood City. The coastal groups were the Aramai of San Pedro Valley, Chiguan of Half Moon Bay, Cotegen of Purisima Creek, and Oljon of San Gregorio. The lands of these eight tribes are mapped in classic ethnographies as belonging to speakers of the San Francisco (Kroeber 1925:Plate 1) or Ramaytush language (Levy 1978a:485) of the Costanoan language family. **Ramaytush is now considered to be a dialect of the San Francisco Bay Costanoan language.**

Another three local tribes held lands that were partially in San Mateo County and partially in more southerly counties, lands that might be considered the geographic boundary zone between the Peninsula and the Santa Cruz Mountains/Santa Clara Valley. One of those groups, the Puichun, lived along the bayshore at San Francisquito Creek, where the Peninsula gives way to the open Santa Clara Valley. Another of the three groups, the Olpen (alias Guemelento), lived in the mountains at the headwaters of San Francisquito Creek, southwest of the Puichuns. The third border group, from the point of view of the San Francisco Peninsula study area, was the Quiroste, of the coast in the Point Año Nuevo area. Kroeber (1925:Plate 1) mapped Puichun and Olpen lands within the San Francisco [Ramaytush ed.] language area and he mapped Quiroste lands within the Santa Cruz [Awaswas ed.] language area, while Levy (1978a:485) placed the lands of all three groups within the Ramaytush language area, which, as we pointed out above, **is now recognized as a dialect of San Francisco Bay Costanoan**.

It is also possible that the **Puichun, Olpen, and Quiroste** spoke the **Tamyen [Thámien]** dialect recorded at Mission Santa Clara. All three groups eventually sent members to both Mission Dolores and Mission Santa Clara. It is really impossible to determine where the Ramaytush dialect ended and the more southerly Tamyen [**Thámien**] dialect began, because the only Ramaytush sample ever recorded came from an Aramai man from the north, and the precise homelands of the individuals who supplied the information for surviving Tamyen vocabularies and texts have not been documented. It is likely that the Puichuns and Olpens spoke San Francisco Bay Costanoan dialects along a clinal path between Ramaytush and Tamyen, while the coastal Quirostes may have spoken a dialect of San Francisco Bay Costanoan influenced by the Awaswas language of the Santa Cruz region. (Milliken et al. 2009:87-89).

These authors also noted the following based upon Harrington's interviews with **Maria de los Angeles Colos** and linguist Richard Levy creating the "**Ramaytush**" language classification in 1978 which was based upon **Angela Colos' Chochenyo word "rámai"** for the San Francisco Bay:

It must be remembered that Coast Miwok and Patwin, as well as the Ramaytush dialect of San Francisco Bay Costanoan, may have been spoken in San Francisco at the time of Angela Colos' youth, whereas the Tamyen dialect of San Francisco Bay Costanoan and Yokuts were the languages of the historic people at Mission Santa Clara.

One note provides the term that led **Richard Levy** (1978a) to call the San Francisco dialect **Ramaytush**:

They call the lado de San Francisco rámai', All the side (lado) where the San Francisco is ([illeg.]) – San Mateo, etc., = rámai. Call the people **rámaítush** (Harrington 1921-29:368).

Continuing their discussion of the interrelationships between the Yelamu and Huchiun Ohlones of the East Bay, Milliken et al. presented the following discussion:

First European Vessel on San Francisco Bay, 1775

The first documented entry into San Francisco Bay was made by the 58 foot long two-masted brig **San Carlos** on August 6, 1775. The ship maintained a number of anchorages off of the Marin Peninsula and Angel Island during its 48 day stay, while ship's boats were sent out to chart San Francisco Bay and San Pablo bays. The remarkable notes maintained by the captain and chaplain of the San Carlos are rich with information about interaction with the [**Coast Miwok**] **Huimens** of the southern Marin Peninsula and the [Chochenyo Ohlone-speaking] **Huchiuns** of the Point Richmond vicinity in the East Bay (Galvin 1971, excerpted by Milliken 1995:40-51). None of the San Carlos diarists' notes concern the native San Francisco Peninsula people. But valuable ethnographic material pertaining to the Huchiuns, San Francisco Bay Costanoan speakers **who were intermarried with the Yelamus**, is presented below. ... (Milliken et al. 2009::92-93)

... On the following morning, August 25, the same group of Huchiun men came back on board the San Carlos. Santa María wrote that the ship's crew spent some time learning their Costanoan words and writing them down. Santa María also wrote down the names of the men, "Their chieftain was called Sumu; the second chieftain, Jausos; the others, Supitacse (1); Tilacse (2); Mutuc (3); Logeacse (4); Guecpostole (5); Xacacse (6)" (Santa María [1775] in Galvin 1971:67). Twenty years later, four of those men would move from their East Bay villages to Mission Dolores ... (Milliken et al. 2009::94).

Intermarriage Patterns

Earlier in their study, Milliken et al. provided the following information on the marriage and death of **Yelamu** Captain Guimas [Xigmacse] and one of his three wives who was **Huchiun**:

.... An example of a citation that will occur in this report is SFR-B 365, the Mission San Francisco (Dolores) baptismal entry in 1784 for Romualdo Guimas, the headman of the Yelamu people of the northern San Francisco Peninsula. Another example is SFR-D 3516, the Mission Dolores death register entry in the year 1814 for Romualdo Guimas' wife, Viridiana Huitanac, a **Huchiun** from the east side of San Francisco Bay (Milliken et al. 2009:12).

Continuing their historic overview about Capitan Guimas and his family:

The year 1778 began with the baptism of seven young people, among them three children of Yelamu headman Guimas (SFR-B 44, 46, 49). Altogether, 40 tribal people were baptized in 1778, of whom 38 were from the local Yelamu villages (Milliken et al. 2009:98).

The present authors of this Muwekma ethnohistoric study deploying the online **Huntington Library's Early California Population Project** database and search engine of the mission baptism records, found the following information about Guimas's son Christoval **Lalexse** who was baptized by Father Francisco Palou on January 31, 1778 (SFR-B 44). Lalexse (Lalecse) was 20 years old and was born at a place named Zitlintaj (Sitlintac). His father was identified as **Xigmacse (aka Guimas)** (SFR-B 365) and his mother was Totpete (Tolpete) Maria de la Mercedes (SFR-B 434). Lalexse died two years later on September 21, 1780 (SFR-D 27). Totpete was one of Guimas' three wives and she was baptized on October 16, 1785 by Pedro Bonito Cambon. She died three days later on October 19, 1785 (SFR-D 156). ...

Xigmacse's Huchiun wife Viridiana Huitanac (SFR-B 366) was the mother of Lorenzo (SFR-B 46) whose Indian name was Huyupa and he was baptized by Francisco Palou on January 31, 1778. Given the fact that Yelamu captain Xigmacse had married two East Bay women prior to Spanish contact supports the argument that the Yelamu "Ramaytush" dialect and the Huichiun/Jalquin "Chochenyo" dialect were mutually intelligible and therefore represents a single San Francisco Bay Costanoan/Ohlone language.

In their 2009 report, Milliken, Shoup, and Ortiz continued their discussion on inter-tribal marriages stating that:

Only Bay Miwoks and Coast Miwoks, of all the Miwokan language speakers, intermarried with San Francisco Bay Costanoans prior to the Mission Period. ... The original Saclans were one of the two westernmost Bay Miwok local tribes. They were intermarried with their San Francisco Bay Costanoan neighbors of the Oakland-Richmond region, the Huchiuns, with whom they moved to Mission Dolores in the winter of 1794-95. Southwest of the Saclan homeland, in the San Leandro Creek area, was a group of seemingly bi-lingual Bay Miwok-San Francisco Bay Costanoan people who went to Mission Dolores under the name Jalquin and to Mission San Jose under the name Irgin (Milliken 1995:244-246). They and other Bay Miwoks of the current Contra Costa County area were intermarried with San Francisco Bay Costanoans of the Livermore Valley prior to the Mission Period.

Two specific Coast Miwok local tribes were inter-married with San Francisco Bay Costanoans, the Huimens and Abastos of the southern Marin Peninsula. They were inter-married with their San Francisco Bay Costanoan-speaking neighbors across a narrow stretch of the northern San Francisco Bay estuary to the east, the Huchiuns of the Oakland-Richmond region ... (Milliken et al. 2009:40),

Milliken et al. continued by presenting additional information about intertribal marriage patterns and spheres of direct social interaction stating under the sub-heading **Social Interaction Spheres** that:

Members of local tribes in west-central California participated in intensive spheres of direct social interaction with their immediate neighbors, and spheres of maximum social interaction with more distant groups up to 26 miles away. The spheres of direct social interaction are reflected in patterns of exogamy (group out-marriage to neighbors). Mission registers provide evidence for the patterns of exogamous marriage for many local tribes in Costanoan language family territory.

Mission baptismal and marriage records explicitly document many couples who renewed their marriages at the mission and originally came from two different local tribes. The intermarriage data suggest that small groups of 40-50 people, such as Urebure and Pruristac on the San Francisco Peninsula, were as much as 80% exogamous, that is to say, that in eight out of ten marriages, one of the spouses derived from a surrounding group. In groups with larger populations of 200-300 people, such as the **Ssalsons** and Lamchins of the Peninsula, about half the couples had spouses from neighboring groups, making them 50% exogamous (Milliken 1983:122-124). The exogamy pattern for the largest Peninsula group, the Puichons of the Los Altos/Palo Alto area (who may have had 420 members), is masked because half of them moved to Mission Santa Clara, where the people from lands east, south, and west of Los Altos/Palo Alto were not identified by their local tribe affiliation in the mission records. The Puichon exogamous marriages that can be documented are with Oljons, Olpens, Lamchins, and **Ssalsons**, with enough examples to suggest that even they were at least 20% exogamous to neighboring groups.

Once the San Francisco Peninsula people reached out to a pool of 500 people for marriages, there seems to have been little incentive to reach out farther. However occasional longer-distance marriage links are documented in the mission registers. For instance, a marriage between a coastal Oljon man (SFR-B 588) and a bayshore **Ssalson** woman (SFR-B 1202) is documented in their child's baptism record (SFR-B 808); the heartlands of those two groups was about 18 miles apart. The longest distance of documented San Francisco Peninsula marriages involved spouses from places 26 miles apart. A woman from the Yelamu village of Chuchui and a man from the Cotegens on the Pacific Coast, 26 miles to the south, were already married when they were baptized in 1786 (SFR-B 534, 535). Another Yelamu woman, this time said to be from Sitlintac, had been living with her husband Caronon among the Chupcans [from the East Bay] in the Concord region, 26 miles to the east in the Diablo Valley, prior to the baptism of their child at Mission Dolores in 1779 (SFR-B 119, 401) (Milliken et al. 2009:66-67).

The records show that Yelamu couples at Mission Dolores and Rumsen couples at Mission Carmel often had offspring born at two or three different villages of the group (Milliken 1983). Additionally, one Mission Dolores baptismal entry describes the seasonal movement of a **Ssalson** family from the San Mateo vicinity:

I baptized...a girl of about six months age... Her father...and mother...are native of the village of Olestura, who, like all the aforesaid [baptized on this day], live without partiality, now along the tributaries of the **San Mateo River**, again at the aforesaid village, as well as at Sycca, and they come as far as Guriguri [Urebure] and San Bruno (SFR-B 178 in 1778) (Milliken et al. 2009: 65).

The Yelamu Tribal Group of San Francisco

As briefly described above, based on various ethnohistoric studies as well as the Muwekma Ohlone Tribe's research, the Yelamu tribal group of Ohlone Indians controlled the region comprising the City and County of San Francisco. According to the comprehensive mission record and ethnogeographic studies conducted by anthropologist Randall Milliken, it appears that the first four people from Yelamu were baptized by Father Cambon, and the others of the tribe were baptized by Fathers Palou and Santa Maria between 1777 - 1779.

Mission San Francisco records indicate that the first converts from the "**rancheria de Yelamu**" into the Mission also had relations with the neighboring rancherias (villages) of Sitlintac (located about 2.6 miles northeast of Mission San Francisco), Chutchui, Amuctac, Tubsinte, and Petlenuc all located within the present boundaries of San Francisco. Sitlintac and Chutchui were located in the valley of Mission Creek. Amuctac and Tubsinte were established in the Visitation Valley area to the south. The village of Petlenuc may have been near the location of the Presidio. The Ohlone people from the Yelamu territory, as well as other tribal groups to the south, and across the East Bay, were missionized into Mission San Francisco between 1777 to 1787. According to Fathers Palou and Cambon, the **Ssalsones** (the Ohlone tribal group located on the San Mateo Peninsula to the south), were intermarried with the Yelamu and called the Yelamu **Aguazios**, which means "Northerners".

Based upon the genealogical information derived from the Mission San Francisco records, the Yelamu Ohlone people of San Francisco were intermarried with other Ohlone tribal groups to the south and across the East Bay, prior to contact with the Spaniards. For example, Fathers Palou, Cambon, and Noriega over a period of time as mentioned above, baptized the family of Yelamu Captain named Xigmase (a.k.a. Guimas) who was identified by Palou as the "Captain of the village of this place of the Mission."

Milliken, in his 1991 doctoral dissertation wrote the following under the subheading **San Francisco Vicinity Conversions, 1780-1784** that addresses the process and effects of missionization at Mission San Francisco, and the state of warfare and reconciliation between the Ssalson and Yelamu tribal groups:

At Mission San Francisco competition between tribes was an element in conversions during the early 1780s, just as it had been at Mission Santa Clara. However, the San Francisco area dynamic involved villages spread over greater distances and the movement of multi-generational family groups to the mission. A wave of adult baptisms in 1782, 1783, and 1784 brought most of the Yelamu tribe and all the people of the small independent Urebure and Pruristac groups into the Mission San Francisco community.

Most of the under-twenty population of the local Yelamu villages had gone through the baptismal ritual at Mission San Francisco prior to 1780. Five old Yelamu married couples had also converted, but many of the key elders had not. Young **Ssalsons**, their recent past enemies from the south, began to appear to be baptized in 1780. **Ssalsons** represented seventeen of the forty-one converts that year.

Again in 1781, children came to Mission San Francisco from the south. Some from as far away as the Puichon villages on San Francisquito Creek, halfway between San Francisco Mission and Santa Clara Mission. But as of the end of 1781 no adult married couples had been converted at Mission San Francisco from any group south of Yelamu.

The state of warfare between the Yelamu and Ssalson that had led to village burnings in August of 1776, was brought to an end through traditional tribal means. Two marriages took place at Mission San Francisco between young people from the two tribes at the end of 1781. Maria Francisca of Chutchui, who was a the Yelamu girl baptized back in 1777 and the sister of the very first convert at the mission, married Mariano, son of Guascan, a Ssalson widow. The wedding took place on December 19, 1781 (SFR-M 27). A week later, Mariano's sister, Maria de los Remedios of the Ssalson married Jacome de la Marca, son of the captain of the Yelamu village of Petlenuc (SFR-M 28).

... Many young adults from the **Ssalson** villages, from Urebure, and from Pruristac joined Mission San Francisco during the next year, 1782, as did a few older couples from Urebure and Pruristac.

At the end of 1782 the San Francisco missionaries mentioned that they allowed non-Christian parents to keep their baptized children with them in their villages, a policy also documented at Mission Santa Clara.

... A flurry of married couples from areas south of Yelamu joined Mission San Francisco in 1783. They included the intermarried head families of the nearest groups south of Yelamu, the independent villages of Urebure and Pruristac. Xoyoxse [Xoyocse], captain of Urebure, and his son were baptized with their young wives in March (SFR-M 58, 59). Both of their wives were daughters of Pruristac captain Mossués. Captain Mossués and another important Pruristac man, Liquique, were baptized with their wives in June (SFR-M 62, 63). By the end of 1783 Pruristac and Urebure adults were beginning to pull equal with Yelamu adults among the established families in the Mission San Francisco community (Milliken 1991:142-145).

The Thámien Tribal Groups/Villages/Districts Surrounding Mission Santa Clara

The tribal groups/districts surrounding the location of the first **Mission Santa Clara de Thámien (Our Mother Santa Clara)** which were so named by the Mission Santa Clara priests (see C. King 1994, Milliken 1991, 1995, 2004; Hylkema 1995, 2007 [CA-SCL-690 Tamien Station]).

Milliken in his published 1995 dissertational study observed that "Fathers Murguiá and Peña of Mission Santa Clara noted in the title page of their **Libro de Bautismos** (Book of Baptisms), and again in a letter of 1777, that the mission was built in an area known as "Tamien" (Milliken 1995:256).

Although Winter, Milliken (and others) have spelled Tamien without the letter “h,” Mission Santa Clara archivist and historian Arthur Spearman, however in his 1963 publication titled **The Five Franciscan Churches of Mission Santa Clara**, provided the following historic excerpt from a letter from Father Peña to Father Serra:

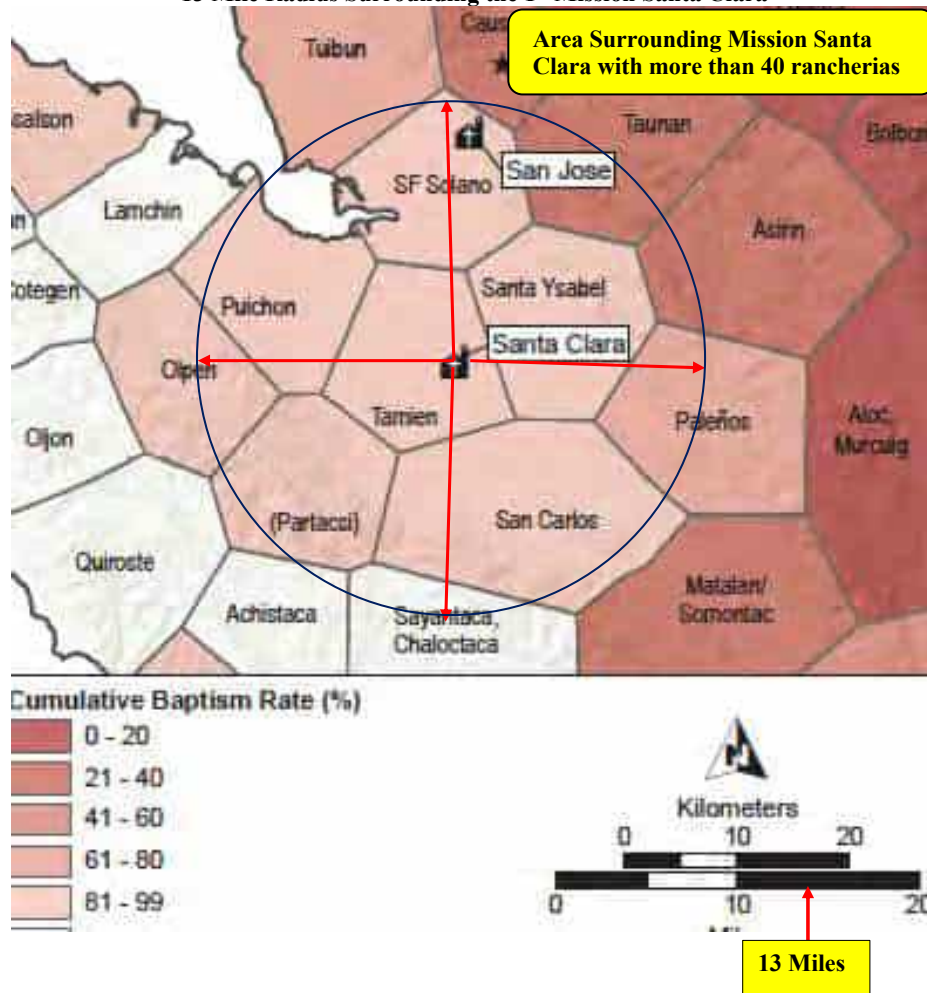
Letter to Padre Presidente Junipero Serra
From Padre Tomas de la Peña
Mission Santa Clara de Thámien

December 31, 1777

The site of the Mission, which in the language of the natives is called **Thámien**, is a plain stretching more than three leagues in every direction, pleasant to behold, with much land for irrigation of crops, and extensive areas for raising cattle. There is abundance of Ash, Alders. White Poplar, and Red, Willow, Laurel, black and live Oaks. At the distance of four leagues to the west is much redwood, so-called, from which we have already obtained some boards. A large population of Gentiles surrounds the site, such that we judge there are **more than forty rancherias within a radius of five leagues**, of a people that we may call Tares, since this is the name they give to the men (Spearman 1963:15). [Cited from Hylkema 2007: iii].

***Note:** a Spanish League was approximately 2.6 miles. This means that there were “more than 40 Ohlone villages within a 13 mile radius of the first mission (**Map 2**).

13 Mile Radius Surrounding the 1st Mission Santa Clara



Map 2: Thámien Tribal Groups within a 13 Mile Radius of Mission Santa Clara
(after Milliken 2010, Byrd et al. 2020)

The following tribal groups/districts/villages were located within the 13 mile radius of the location of the 1st Mission Santa Clara as indicated by Father Peña in 1777. Information derived from Milliken 1995 and other sources):

From North, East, Central, South and West directions:

[North]

1. San Francisco Solano/Alson/Santa Agueda/Estero/Alameda (Newark, Milpitas, Alviso, Coyote Creek, Mission Santa Clara and San Jose).
2. Tuibun/Santa Agueda/Estero/Alameda (Alameda Creek, Coyote Hills, Missions San Jose and Santa Clara).
3. Causen/Patlan/Pelnen/Caburan Tuibun (Sunol Valley, Pleasanton, Dublin, Mission San Jose).
4. Taunan/Santa Agueda/Santa Ysabel/Este (Arroyo del Valle, Alameda Creek, Livermore Valley, Missions Santa Clara and San Jose).

[East]

5. Asirin/Taunan/Santa Agueda/San Antonio
(Alameda Creek, Arroyo del Valle, Colorado Creek, Missions San Jose and Santa Clara).
6. Santa Ysabel (Coyote Creek, Penitencia Creek, Calaveras Creek, Mission Santa Clara)
7. Paleños/San Antonio (East side Santa Clara Valley, Mission Santa Clara).

[Central]

8. Thámien (10+ Villages: 1) Our Mother Santa Clara, 2) Our Patron San Francisco, 3) San Jose Cupertino, 4) San Antonio, 5) Santa Ysabel, 6) San Juan Bautista, 7) San Carlos/Matalan, 8) San Bernardino, 9) Santa Agueda/Alson, 10) Pala, 11) Ritocsi, Central Santa Clara Valley, Guadalupe River, Mission Santa Clara).

[South]

9. San Carlos/Matalan
(Santa Clara Valley corridor, Morgan Hill, Chesbro Reservoir, Laguna Seca, Coyote Lake east of San Martin, Mission Santa Clara)
10. Sayantaca/Chalotaca
(Zayanta Creek, Scotts Valley, Sant Cruz Mountains, Mission Santa Cruz)

[West]

11. Achistaca/Acsaggis (Saratoga Gap/Upper San Lorenzo River Santa Cruz Mountains)
12. Partacsi/Paltrastach/Pornen/Lamaytu/Muyson/Solchequis "San Bernardino"
(Saratoga Gap/Stevens Creek/Saratoga Creek (Mission Santa Clara and Santa Cruz)
13. Olpen/Guemelentos (Santa Cruz Mountains/La Honda Creek/San Gregorio watershed/Corte de la Madera Creek of the San Francisquito Creek watershed in the "San Bernardino" District.
(Mission Santa Clara and San Francisco).
14. Puichon/Ssipùtca "San Bernardino"
(San Francisquito Creek, area split between Missions Santa Clara and San Francisco)

Conversion of the Santa Clara Valley and East Bay Tribes

The area of the lower Guadalupe River was noted by Father Junipero Serra in 1777 as being called **Thámien**. The second church of Mission Santa Clara was established in 1779 at a place called by the Indians **Socoistaca** or **Tshaitaka**, which may have referred to the grove of laurel trees that once stood there. The area of the third church (the Murguía Mission) was called **Gerguensun** (also spelled **Werwersen**), which refers to "Valley of the Oaks" (Spearman 1963:18).

[Note: **Werwersen** is actually in reference to rabbits = *weeren*].

In the *Informe* for 1777, Father Serra states that:

A large population of gentiles surround the site, such that we judge there are more than forty rancherías within a radius of five leagues, of a people that we may call **Tares**, since that is the name they give to the men [Spearman 1963:15].

Milliken also noted the following for Mission Santa Clara:

A few adult married couples were converted in the years 1780 and 1781, including most of the adults from the first mission site called Santa Clara and San Francisco (these were districts). During the 1780s a trickle of adults were baptized at the mission from the surrounding larger villages on the Santa Clara Valley floor, but the majority of baptisms during the 1770s and 1780s were of young children and newborn infants. Unlike the converts at most California missions, most of these children and their parents continued to live in their native villages [Milliken in Huelsbeck n.d.].

However, all of the first 25 converts at Mission Santa Clara were infants and children from the villages from the central area surrounding the mission including: **Our Patron San Francisco** along the Guadalupe River, **San Juan Bautista** to the south of the mission, **San Jose Cupertino** to the west, **Santa Ysabel** to the east, and **San Francisco Solano (Alson)** to the north of the mission. The notation on their baptismal records states “enfermos...en caso de necesidad” – “sick in case of need,” and “lo trajeron enfermo” – “they brought him sick.” By the time of the founding of Mission Santa Clara major diseases were already affecting the local population with many dying shortly after baptism.

If the conversions were mostly of children, then who built the mission and by what incentive? Evidently, by 1781 native contact with the mission was motivated by mutual economic gain. Milliken’s 1991 dissertation focuses on this relationship and he found that the presidio at Monterey regularly employed gentiles to perform a range of tasks and that in 1779 several families of non-Christianized Indians had moved to Mission Santa Clara to gain access to material goods provided by the Spaniards- without the obligations facing the Christianized neophytes. As mentioned above, the Pueblo of San Jose and the Monterey Presidio made use of Santa Clara Valley Indian labor with the Indians gaining blankets, beads and other items new to their world.

Shell beads found within and near the neophyte cemetery of the Murguía Mission (3rd Mission Santa Clara 1781-1818) were analyzed and discussed in Hylkema 1995, Leventhal et al. 2011, Panich 2014, 2018, and 2020). Hylkema stating in his 1995 report that:

The villagers closest to the mission and pueblo profited by the newly developed economic system which, in turn, attracted other more distant villagers. This precluded the need for forced conscription until after 1795 when most of the local groups were assimilated into the mission.

Nonetheless, the military did enforce Spanish law.

By 1800 the Indians in the hills east of Santa Clara Valley and the East Bay began to feel the pressure of the changed economic system.

Their western neighbors, from whom they had heretofore received shells and other materials from the coast, were consolidated under Franciscan direction at Mission Santa Clara. The hill people also needed these neighbors as allies to retain parity in conflict situations with people further east. Marriage had been the basis of trade and warfare alliance, and marriage with missionized people could be had only by joining the mission community [Milliken in Huelsbeck, n.d].

Furthermore, Milliken (1991) also noted the following observation by the Spanish priests whom had established the First Mission San Clara to the northwest of **CA-SCL-128 [Thámien Rúmmeytak [Thámien (Guadalupe) River Site]** located downtown San Jose:

Mission Santa Clara in Thámien Lands

... The Santa Clara Mission settlement lay at the northeastern edge of the **Thámien** tribal district, very near to lands of three other tribes. Three large villages of over 120 inhabitants each lay within four-mile radius of the Santa Clara Mission site. The native names of those villages are not known. The missionaries at Mission Santa Clara gave each of them a Spanish designation; San Francisco Solano village of the Alson tribe a mile or two downstream at the mouth of the Guadalupe River, Santa Ysabel village of a different, unnamed tribe east of San Francisco Solano on the lower Coyote River, and San Joseph Cupertino village of the Thámien tribe in the oak grove about three miles to the southwest of the mission site.

Still nearer to the site were two tiny hamlets, **Our Mother Santa Clara** within a few hundred yards of the first mission site, and **Our Patron San Francisco** perhaps another mile upstream on the Guadalupe River” (Milliken 1991:116-117).

Elsewhere, Milliken states that “**Our Mother Santa Clara**, which was probably west of the Guadalupe River within a few yards of one of the Mission Santa Clara sites” and was part of the core villages that comprised the Tamien tribal district (Milliken in Hylkema 2007:52). He also suggests that “the villages of **San Jose Cupertino**, **Our Mother Santa Clara**, and **Our Patron San Francisco** formed a single tribelet that controlled most of the Guadalupe River system, and therefore, the core of the Santa Clara Valley” (ibid).

Milliken noted in his **Ethnohistory of the Ohlone People** section (published in Hylkema ed. 2007: **Santa Clara Valley Prehistory: Archaeological Investigations at CA-SCL-690, The Tamien Station Site**; Chapter 4) about the reconstructed location of the identified interrelated **Thámien Ohlone** tribal groups:

Santa Ysabel, probably established on the lower Coyote Creek or Penitencia Creek,
...

... **Our Patron San Francisco**, probably placed on the Guadalupe River near **Our Mother Santa Clara** and Santa Ysabel east of the present-day town of San Jose.

... **San Juan Bautista**, probably located on the Guadalupe River in the Willow Glen area south of present-day downtown San Jose

Previous Ethnohistoric Studies

Very little ethnohistoric and mission record studies had been conducted specifically focusing on the **Ssalson** Ohlone and their tribal region, with the exception of what Milliken et al. 2009 had presented in their study. However, pertinent to the history and heritage of the Muwekma Ohlone Tribe, studies conducted with regards to the missionization of Native people at Missions San Francisco, Santa Clara, and San Jose have contributed to a deeper understanding and reconstruction of Ohlone lifeways in the San Francisco Bay Area.

Meaningful **Contact Period** (post-1769) ethnohistoric studies focusing on the demographic and geopolitical distribution of the different Ohlone/Costanoan tribal groups that came under the influence of Mission Santa Clara in 1777 were conducted by Chester King in the 1970s (1974, 1977, 1978a, 1978b, and 1994) and continued by Milliken (1983, 1991, 1995, 2004 and 2007 [in Hylkema 2004, 2007]); Cambra et al. 1996; Leventhal et al. 2011, 2020); Panich 2020; Arellano et al. 2023; and others.

These studies helped lay the foundation for reconstructing the geopolitical and linguistic boundaries of those tribal groups and districts that were brought into each Bay Area mission, as well as providing information about the transformation and the cultural and political adaptation and responses of those surviving Ohlone/Costanoan tribal groups who adjusted to the disruption caused by the expanding Hispanic colonial empire, the impacts of missionization and ensuing spread of diseases and malnutrition.

The Santa Clara Valley and adjacent areas supported fairly large populations of Native peoples for upwards to over a period spanning the past 10,000 years. During the Early to Late Periods (past 4000 years) this is evidenced by the prevalence of large pre-contact cemeteries within the San Francisco Bay region [see reports on Emeryville (CA-ALA-309); Ellis Landing (CA-CCO-295); Santa Rita Village (CA-ALA-413) [Wiberg 1984]; Patterson Mound (CA-ALA-328) [Davis and Treganza 1959]; Ryan Mound (CA-ALA-329) [Leventhal 1993]; CA-SCL-732, Three Wolves Site (Cambra et. al 1996); CA-SCL-38 (Bellifemine 1997); CA-SCL-690 Tamien Station (Hylkema 2007); CA-SCL-674 Rubino Site (Grady et al. 1999); University Village (CA-SMA-77) [Gerow 1968], CA-SCL-6W Lick Mill Boulevard (Cartier); CA-SCL-128 (Winter 1978a, 1978b; Leventhal et al. 2015); CA-ALA-565/H CA-ALA-704 (Byrd et al. 2019, 2020b); and others].

The preliminary data derived from comparatively similar mortuary patterning and associated grave assemblages identified from Late Period cemetery sites factored in conjunction with the similarities of tribal personal name-endings derived from the mission records such as “-tole” and variations of “-mayen” for females, and “-cse” (as in the cases of the **Yelamu Captain Xigmacse**, the **Huchiun** headmen who visited the ship **San Carlos** in 1775 **Supitacse**, **Tilacse**, **Logeacse**, and **Xacacse**, Muwekma direct ancestor **Liberator Culpecse**, or a variant thereof e.g., “**csi**”) for males that are found amongst the different linguistic groups within the same macro-geographical area as the **Big Head/Kuksu** pendants, supports the contention that the South and East Bay regions had very strong cultural ties, via trade, intermarriage, ceremonial interaction and shared religious belief systems as well as other cultural influences with the Central Valley interior, including the Sacramento and San Joaquin Delta (Stockton) regions (Lillard, Heizer and Fenenga 1939; Heizer and Fenenga 1939; Gifford 1947; Bennyhoff 1977; (CA-ALA-329) Leventhal 1993; Milliken 1995; Jones and Klar 2007; also see CA-SCL-128, Holiday Inn Site, Winter 1978; (CA-SCL-38) Bellifemine 1997; (CA-SCL-128) Leventhal et al. 2015; DiGiuseppe et al. 2021; (CA-ALA-565/H) Byrd et al., 2020; Hedges 2019).

Those Kuksu practicing tribal groups ranged from the Hokan-speaking Salinans to the south (southern Monterey County); to the San Francisco Bay Penutian-speaking Ohlone and interior Bay Miwok and North Valley Yokuts tribal groups (Contra Costa and San Joaquin Counties), to the Penutian-speaking Coast Miwok and Patwin (Marin, Napa, Yolo, and Colusa Counties); to the Penutian-speaking Plains Miwoks and Konkow-Nisenan (Maidu-speaking groups) in the

Sacramento and Central Valley foothills of the Sierra Nevada; to the Hokan-speaking Pomoan tribal groups (Sonoma, Lake and Mendocino Counties), Yukian-speaking Yukian tribal groups (northern Mendocino) and the Athabascan-speaking Cahto tribe located to the north of Fort Bragg. (Loeb 1932, 1933; Du Bois 1939; Gifford 1947; Bennyhoff 1977; Winter 1978a; Bean and Vane 1978; Leventhal 1993; Hylkema 2007).

The evidence of a **far-flung ceremonial and economic interaction sphere** further suggests that the Thámien Ohlone-dialect speaking tribal groups, including the **Our Mother Santa Clara** tribal/village/district catchment region and their further neighbors (i.e., **San Antonio** tribal district), were significantly involved within this larger religious and ceremonial interaction network that was partially influenced through mechanisms of trade, economic, military and marriage alliances with those tribal groups located to the east and north (Delta region) of the South Bay region – a region that at the time of Spanish contact had already cross-cut several major linguistic boundaries (including San Francisco Bay Ohlone, North Valley Yokut, Patwin, Coast Miwok, Bay Miwok and Plains Miwok) whom were also missionized into the three Bay Area missions as well.

Limited detailed ethnohistoric (Contact Period) information about the aboriginal lifeways of the different San Francisco Bay Ohlonean-speaking tribal groups who resided within this mega-sphere of socio-cultural-economic interaction, tends to be restricted to the various accounts written by early Spanish explorers, missionaries, soldiers, and visiting European travelers. Other historical records written after the cataclysmic impact caused by missionization, colonialism and the ensuing American conquest continuing through the 20th century includes research conducted by more formally trained ethnographers, ethnohistorians, and linguists as well as by other chroniclers to the greater Bay Area.

Early Spanish Expeditions in the San Francisco Bay Region: The San Francisco Peninsula

Milliken, Shoup and Ortiz, presented information on the ethnohistoric distribution of San Francisco Bay Area tribes in their 2009 study stating:

At the time of Spanish entry, eight independent local tribes held lands entirely within the present counties of San Francisco and San Mateo, the area essentially equivalent to the San Francisco Peninsula. Four of the eight groups were from the San Francisco Bay shore and four were from the Pacific Coast. The bay shore groups were the Yelamu of San Francisco, Urebure of San Bruno, **Ssalson** of San Mateo, and Lamchin of Redwood City. The coastal groups were the Aramai of San Pedro Valley, Chiguan of Half Moon Bay, Cotegen of Purisima Creek, and Oljon of San Gregorio. The lands of these eight tribes are mapped in classic ethnographies as belonging to speakers of the San Francisco (Kroeber 1925:Plate 1) or Ramaytush language (Levy 1978a:485) of the Costanoan language family. Ramaytush is now considered to be a dialect of the San Francisco Bay Costanoan language.

...

The Portolá Expedition 1769

The first documented contact between Spanish explorers and people of the greater San Francisco Bay Area took place when the expedition of Gaspar de Portola arrived from the south at the Quiroste village of Mitenne, near Point Año Nuevo,

on October 23, 1769. Portola, governor of Spanish Lower California, had just established a Presidio at San Diego in July of 1769. His party, including 49 Spanish citizens and 15 Baja California Indians, was probing up the coast in search of Monterey Bay, where he intended to establish a second presidio. The party first encountered Ohlone/Costanoans just south of Salinas on September 29, 1769; ... (Milliken et al. 2009:88-89).

According to ethnohistoric research conducted by Milliken and others, an expedition led by Gaspar de Portola and Father Juan Crespi had traveled north along the California coast north of Monterey and on October 23, 1769 had encountered the **Quiroste** Ohlone village of **Mitenne** near *Punta de Año Nuevo* (New Year's Point). The **Quiroste** were located on the Pacific coast between Bean Hollow Creek and *Año Nuevo* and approximately 25 miles to the southwest of the Puichon. Milliken citing Crespi [1769] noted that:

The friendly Quiroste showered the Spaniards with foods and gifts. They brought two or three bags of the (wild) tobacco they use, and our people took all they wanted of it. One (old) heathen man came up smoking upon a very large (and well carven) Indian pipe made of hard stone. The Indians almost all carry tall red-colored staffs, some with many feathers; they presented four of these to Sergeant Don Francisco Ortega (Milliken 2007:87)

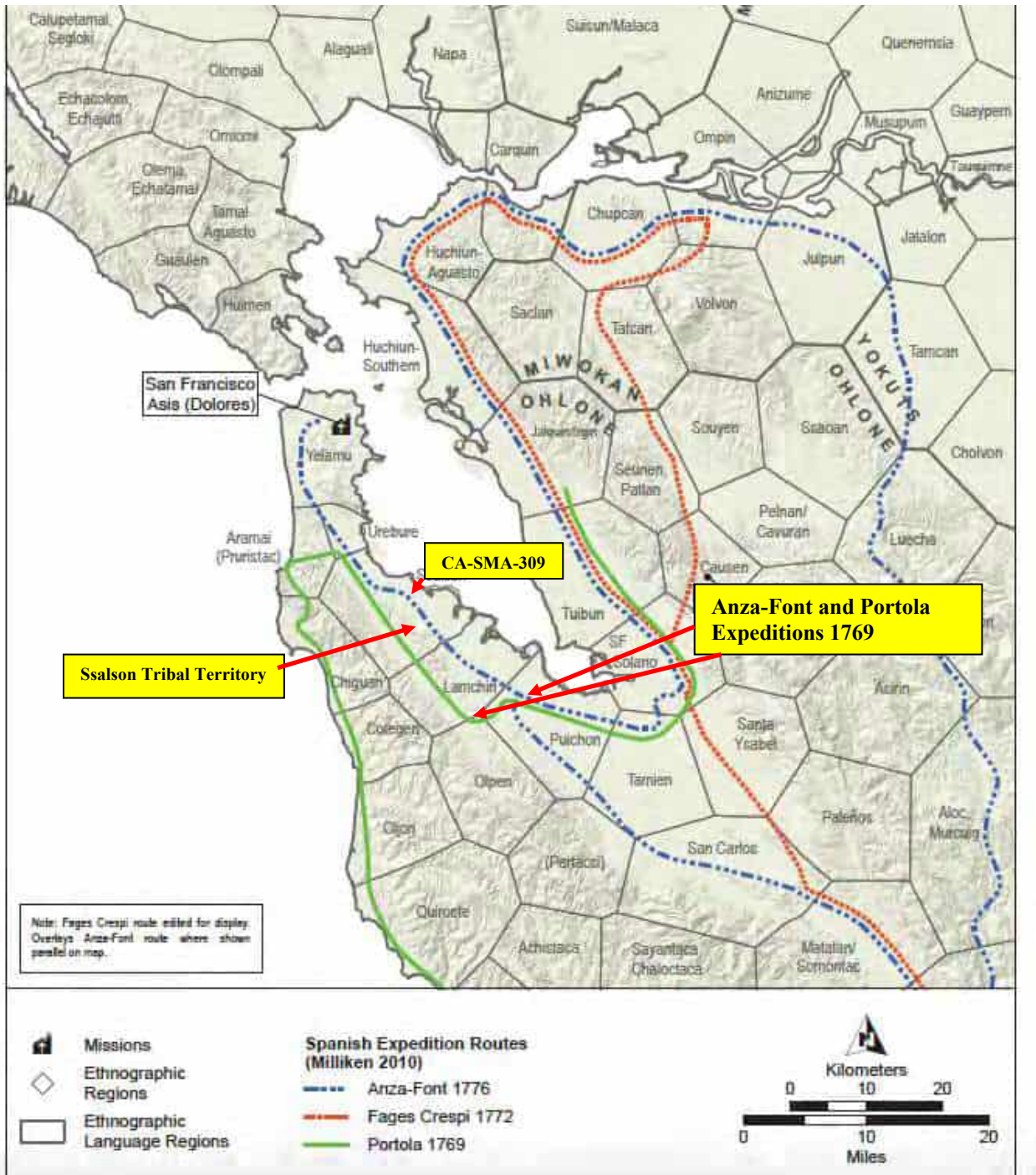
Sometime around mid-November the Portola expedition traveling south along the east side of the San Francisco peninsula eventually entered the territories of the **Ssalsons**, Lamchins and Puichons (**Map 3**). The Lamchin Ohlone-speaking tribal group was the immediate northern neighbor of the Puichon and their territory spanned from Belmont to Redwood City. As mentioned above, the **Ssalson** tribal group was located north of the Lamchin. Milliken indicated that the expedition "camped in the Palo Alto area" (2007:88).

In 1770 Captain Commander Pedro Fages, was perhaps, the first Spanish exploration to travel through the northern part of the **San Juan Bautista** and **San Carlos/Matalan** tribal districts (Thámien Ohlone-speaking territory) within the greater Santa Clara Valley. The **San Juan Bautista** and **San Carlos** (aka **Matalan**) Thámien Ohlone-speaking groups occupied the areas of south San Jose to perhaps Morgan Hill. Milliken commented on and noted in his 1991 doctoral study on the San Francisco Bay tribal groups such as the "**Matalans** and **Thámiens**" (whom were also intermarried with the neighboring **San Antonio** rancherias) at the time of contact (1770-1810) in the following historical account derived from Captain Fages' diary:

The **Matalans** and **Thámiens** of Santa Clara Valley watched a small Spanish party pass north through their lands in November of 1770. The party, under Pedro Fages, continued north along the east shore of San Francisco Bay (until) (sic) it reached a plain opposite the Golden Gate (presently North Oakland). ... Fages wrote of only one encounter:

‘Up close to the lake we saw many friendly good-humored heathens, to whom we made a present of some strings of beads, and they responded with feathers and geese stuffed with grass, which they avail themselves of to take countless numbers of these birds [Fages 1770 in Bolton 1911].’

The goose hunters were **Tuibuns** or **Alsons** at a lake on the Fremont Plain just south of Alameda Creek (Milliken 1991:78).



Map 3: Spanish Expeditions with San Francisco Bay Costanoan Tribal Territory
[From Byrd et al. 2023; after Milliken 2010]

Captain Commander Fages apparently at a later date again passed through the Thamien-Ohlone-dialect speaking region in 1772 and explored the interior of the East Bay (see Crespi in Bolton 1926:336; Hylkema 1995). However, it was not until 1774 that the first intensive exploration of the Santa Clara Valley region occurred, which was led by Captain Fernando Rivera y Moncada who was accompanied by Fray (Father) Francisco Palóu. Writing of this expedition, Milliken made note of one of Rivera y Moncada's accounts:

The next Spanish expedition into the Bay Area, in the late fall of 1774, came for the purpose of scouting locations for a possible mission and military base on the San Francisco Peninsula. ... Near the town of Coyote (south San Jose), in **Matalan** territory, a group of local people were startled, but not terrorized.

‘We passed a patch of willows and cottonwoods, and now found running water in the creek. Here all at once there were heathens standing with their weapons in hand [though] they made no show of them. In people such as these, who have no knowledge of others and live like wild beasts at bay, it is a second nature to snatch them up’ (Rivera y Moncada [1774] quoted in Milliken 1991:80-81).

Milliken commenting on the Fernando Rivera y Moncada expedition going through the Puichon Ohlone territory noted that:

The new Spanish party intended to document the nature of San Francisco Bay and scout a location for a Spanish presidio and mission near its mouth. Passing through the Santa Clara Valley, the party arrived among the **Puichons** on San Francisquito Creek on November 28, 1774, where it was warmly received. Here, Father Palou commented about similarities between the local language and that of the natives at Mission Carmel (Milliken 2007:89)

Three years later, Mission Santa Clara was established on January 12, 1777. Collectively, with the establishment of Mission Dolores in 1776, Mission Santa Clara in 1777, and later Mission San Jose in 1797, located east of the Fremont Plain, the various Ohlone tribal groups within the San Francisco Bay region began to experience the cataclysmic disintegration from this newly imposed colonial system of indenture and peonage. Milliken in doctoral dissertation offered the following explanation of the circumstances under which the Ohlone tribal people agreed to enter into these missions:

Through the ritual of baptism some young people from the **Yelamu** tribe began to exchange their independence for a subservient role of "neophytes" at Mission San Francisco in the spring of 1777. During the summer and fall local **Alson** and **Thamien** teenagers joined the Mission Santa Clara community. Francisco Palou wrote that the first converts came to the missions out of interest in cloth, trinkets, and Spanish foods.

‘They can be conquered first only by their interest in being fed and clothed, and afterwards they gradually acquire knowledge of what is spiritually good and evil. If the missionaries had nothing to give them, they could not be won over’ [Palou 1786].

Most scholars have agreed with Palou's assessment that a material impulse brought the first Indian converts to be baptized. Sherburne Cook [1943:73] wrote that "ceremony, music, processions" and "inducements of clothing, shelter, and food" attracted large numbers of converts over the first twenty years. Malcolm Margolin [1989:28] pointed out "the dazzle of Spanish goods" (Milliken 1991:109-110).

Panich in his 2020 study titled Narratives of Persistence: Indigenous Negotiations of Colonialism in Alta and Baja California contributes to this discussion that:

The Spanish clearly abhorred Indigenous beliefs, but they typically approached their initial face-to-face interactions with native people very differently. These were facilitated by gift exchanges that served as potent social lubricants among people of widely divergent worldviews. Like Native Californians throughout the region, Ohlone people often presented the Spanish with gifts of food and gladly received foreign objects in return – particularly glass beads and cloth that the Spanish purposefully brought along for just these kinds of occasions. There is little doubt the Spanish viewed these exchanges through an ethnocentric lens (Panich 2020:58).

While these limited interpretive perspectives offer an explanation from the contemporary “dominant society” perspective, which suggests at its foundation that “lesser complex indigenous cultures” were unilaterally influenced by the “more complex European colonizing cultures,” perhaps as an alternative perspective we need to consider and explore possible other explanations, especially when viewing these dynamics through the social rules and mechanisms of late 18th century California Indian world view rather than through the colonial lens. Such alternative explanations should consider those pre-existing and established Native protocols and socio-cultural-political rules of social conduct, interaction and integration accorded to strangers, visitors, and distinguished guests as practiced by central California tribal groups.

For example, in cases when elites and notable families from neighboring tribal groups made arrangements to visit, and/or those who were invited to ceremonies, funerals, and/or economic exchange functions (e.g., Mourning Anniversaries, ceremonial dances, weddings, trade feasts, and etc.), there were specific rules that these groups would follow as social protocols. These same social principals and rules that were enacted between tribal groups and elite families would have no doubt been in effect at the time when the Spanish expeditions made their presence known.

After the period of contact had been established between the Indian tribal communities and the newly settled Spanish colonizers, no doubt, those established elites and their families desired to have their children associated (to some degree) with these newly established powerful and (relatively) wealthy Spanish entities and power brokers.

Some of these aboriginal social rules and protocols probably included:

1. Marriage arrangements of eligible teenagers for purposes of establishing and/or strengthening inter-tribal and/or intra-tribal alliances especially between and amongst powerful elite families;

2. The attempt by these powerful elites and/or families of specialists to establish formal ties with these newly emergent Spanish power brokers through “apprenticeships” -- by having their children enter into the missions through the ritual of baptism-- and by doing so, creating and thus perpetuating, an extant belief system that this “apprenticed relationship” would continue to maintain their own power brokerage with the extant and transformed communities and provide them additional prestige within this new order.

By acting in conformance with these older socio-political-economic rules for establishing and maintaining military alliances, trade networks, and marriage alignments with neighboring tribal groups, villages and the with newly established Spanish colonial settlements, these elites were probably under the belief that by exercising this formal process, partially through the ceremony of baptizing themselves and/or their children, it was done as a continuation of their aboriginal power brokerage (see Bean 1978). For example, there was a reciprocal ceremonial practice of purifying with water (ritual washing) persons of the opposite moiety (deer vs. bear or land vs. water) amongst central California tribal groups especially during and after the handling of the dead and their personal property. Therefore, the use of water in baptism had some pre-existing analogous practice and meaning in aboriginal purification ceremonies (Gifford 1955).

Initially, the "official policy" of the Spanish Empire was to develop the missions into self-supporting agricultural centers whereby Indians would be "civilized" and become peon laborers for the civilian pueblos and presidios. Ultimately it was expected that the Indians would themselves become citizens of the crown and help further colonize the region for Spain (see Rawls 1986, Hurtado 1988 and Monroy 1990).

Nonetheless, the colonial experience resulted in the decimation of the California Indian tribes who were exposed to European diseases, unsanitary living conditions, and malnutrition while residing at and around the missions (Cook 1976; Milliken 1995). Although the Native population was severely depleted after the first 40 years, by the time of the secularization of the missions during the mid-1830s, the surviving missionized Ohlone/Costanoan Indians continued to live and work in several Post-Contact Indian communities within the Santa Clara Valley as well as on the various rancherias and Californio ranchos surrounding each of the other greater Bay Area missions.

Distribution of Ohlone Tribal Groups of San Francisco Peninsula, Santa Clara Valley, and Adjacent West and East Bay

At the time of European contact in 1769, the Spanish explorers called the Indians living along the Monterey coast "Costeños," referring to people of the coast. After the missions were established, the Indians and the Spanish priests referred to the Mission Santa Clara Indian people as "Clareños" (Harrington 1921-1934) During the mid-19th century, scholars anglicized the term Costeños into "Costanoan"¹ to encompass all those tribal groups whose aboriginal territories spanned from

¹ More recently, various authors have suggested that the present-day descendants prefer to be called "Ohlone"; however, there are three surviving historic BIA-documented tribal groups with ancestral ties to 1) Missions San Jose, Dolores, Santa Clara, 2) Missions San Juan Bautista and possibly Santa Cruz, and 3) Missions San Carlos (Carmel) and Soledad, who have formally organized (in accordance with the 1934 Indian Reorganization Act). These three historic tribal communities whose ancestors spoke their respective Costanoan/Ohlone languages as late as the 1930s, have since revitalized and organized themselves as tribal governments and communities. All three are presently listed with the BIA's, Office of Federal Acknowledgment (OFA) as: Muwekma Ohlone Tribe of the San Francisco Bay

greater Monterey Bay, Soledad, Santa Cruz, Santa Clara, San Francisco, East Bay and the Carquinez Straits, and who spoke cline of distinctive, but related languages (Heizer 1974; Levy 1978; Milliken et al 2009).

Very little information about the aboriginal Thámien/Chochenyo-Ohlone-dialect speaking tribal groups who once occupied the lower Guadalupe River, Coyote Creek and Alameda Creek drainages was recorded by Contact Period Spanish missionaries who first established Mission Santa Clara in 1777. Apparently some of these missionaries did not record the names of the many Thámien tribal rancherias and villages, as was practiced at the other neighboring Costanoan linguistic area missions (e.g., Missions San Jose, Dolores, San Juan Bautista and others). Instead, the mission Fathers had simply assigned names of Saints to the various villages and "districts" surrounding Mission Santa Clara, rather than documenting the specific tribal villages from where the newly recruited and baptized Indians came from (see C. King 1994).

Milliken (1983, 1991, 1995, and 2007) and C. King (1978, 1994) have to date, conducted the most comprehensive geopolitical reconstructive ethnohistoric studies using the available Santa Clara Mission records (also see Winter 1978a and 1978b). Their studies clearly demonstrate that both the Thámien-Ohlone-dialect-speaking tribal groups of Santa Clara Valley (**Santa Agueda/Alson**) and the neighboring East Bay Chochenyo-Ohlone-dialect speaking tribal groups (**Tuibun**) of the Fremont Plain were brought under the sphere of influence of Mission Santa Clara and many of these Indians were baptized, married and had died at this mission. Chester King in his 1994 study entitled **Central Ohlone Ethnohistory** noted:

The area between San Jose and San Juan Bautista [mission] and extending from Santa Cruz to the San Joaquin Valley has proven to be difficult map by village or tribe. At Santa Clara Mission only the closest villages were given separate names. The more distant were grouped by region.

The closest villages to the mission were given the names “**our mother Santa Clara**” (north San Jose), “**our father San Francisco**” (downtown San Jose), **San Juan Bautista** (San Jose south of Hillsdale), **San Jose Cupertino** (Cupertino), **Santa Ysabel** (east San Jose), and **San Francisco Solano** (Milpitas-Alviso).

The next four groups recognized in the Santa Clara Mission registers are very large and include people from villages located in particular directions from the mission. The four groups were **Santa Agueda** (villages north of Milpitas), **San Bernardino** (villages west of Cupertino), **San Carlos** (villages south of San Jose), and **San Antonio [Paleños]** (villages east of San Jose), northeast of San Antonio were the **Luechas** and southeast of San Antonio were **Tayssen**. (King 1977; Milliken 1991) [Cited by King 1994:203].

Region, Amah-Mutsun Ohlone Tribal Band of San Benito County, and Ohlone/Costanoan-Esselen Nation of the greater Monterey Bay Area respectively. The tribal name *Muwekma* is actually the aboriginal term referring to "la Gente" meaning "the People" in the San Francisco Bay Costanoan languages (Thámien and Chochenyo dialects) spoken in the South and East Bay (Kroeber 1910; Harrington 1921-1934; Milliken et al. 2009).

Milliken, in his 1995 published doctoral study **A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area 1769-1810**, provides a more detailed location for the neighboring Matalan or San Carlos group:

The Matalan tribe held the Santa Clara Valley corridor from the present town of Coyote south to the present town of Morgan Hill. (1995:248)

In the 2007 **Tamien Station (CA-SCL-690)** site report, Milliken also provides reconstructed information regarding the geographical distribution and inter-relationships between the Tamien Ohlone-speaking tribal groups within the region surrounding Mission Santa Clara:

... Four of the seven towns near Mission Santa Clara supplied enough converts to suggest that they originally contained more than 100 inhabitants:

San Bernardino, probably located on lower Stevens Creek, at what is now Mountain View (44 adult married converts 1778-1800).

San Francisco Solano, probably situated on the lower Guadalupe River at or near present Alviso (44 adult married converts 1778-1800).

Santa Ysabel, probably established on the lower Coyote River or Penitencia Creek, now in north San Jose (40 adult married converts 1794-1802).

San Jose Cupertino, probably found on Calabazas Creek or upper Stevens Creek, now part of Cupertino (50 adult married converts between 1780 - 1797).

The other three smaller villages were:

Our Mother Santa Clara, which was probably west of the Guadalupe River within a few yards of one of the Mission Santa Clara sites

Our Patron San Francisco, probably placed on the Guadalupe River near Our Mother Santa Clara and Santa Ysabel, east of present-day downtown Santa Clara

San Juan Bautista, probably located on the Guadalupe River in the Willow Glen area south of present-day downtown San Jose (Milliken 2004:58-59; 2007:51-52).

In the same study, Milliken also noted that:

The **Santa Agueda [Alson]** district was the source of 90 percent of the Native people who went to Mission San Jose. Thus the Santa Agueda district actually must have been located on the Fremont Plain (2004:61; 2007:54) [**Maps 3 and 4**].

In an earlier study, Milliken (1983) determined that:

The East Bay people at Santa Clara Mission were listed under the district name "**Santa Agueda**". ... The earliest were the "**Estero**," "**Alameda**," "**Palos Colorados**," and "**Este**." Many "Alameda" and "Estero" adults at Mission San Jose had children that had been baptized at Santa Clara under the "Santa Agueda" designation. ... Most of the Santa Clara converts who later married at Mission San Jose were also "Santa Agueda"..., although some were from "San Bernadino"...

... The Mission San Jose priests provided more detailed genealogical information for each person than did those at Mission San Francisco. ... The cross references indicate that people from the "Estero" and the "Alameda" districts came from the **Yrgin** and **Tuibun** tribelets (Milliken 1983:99).

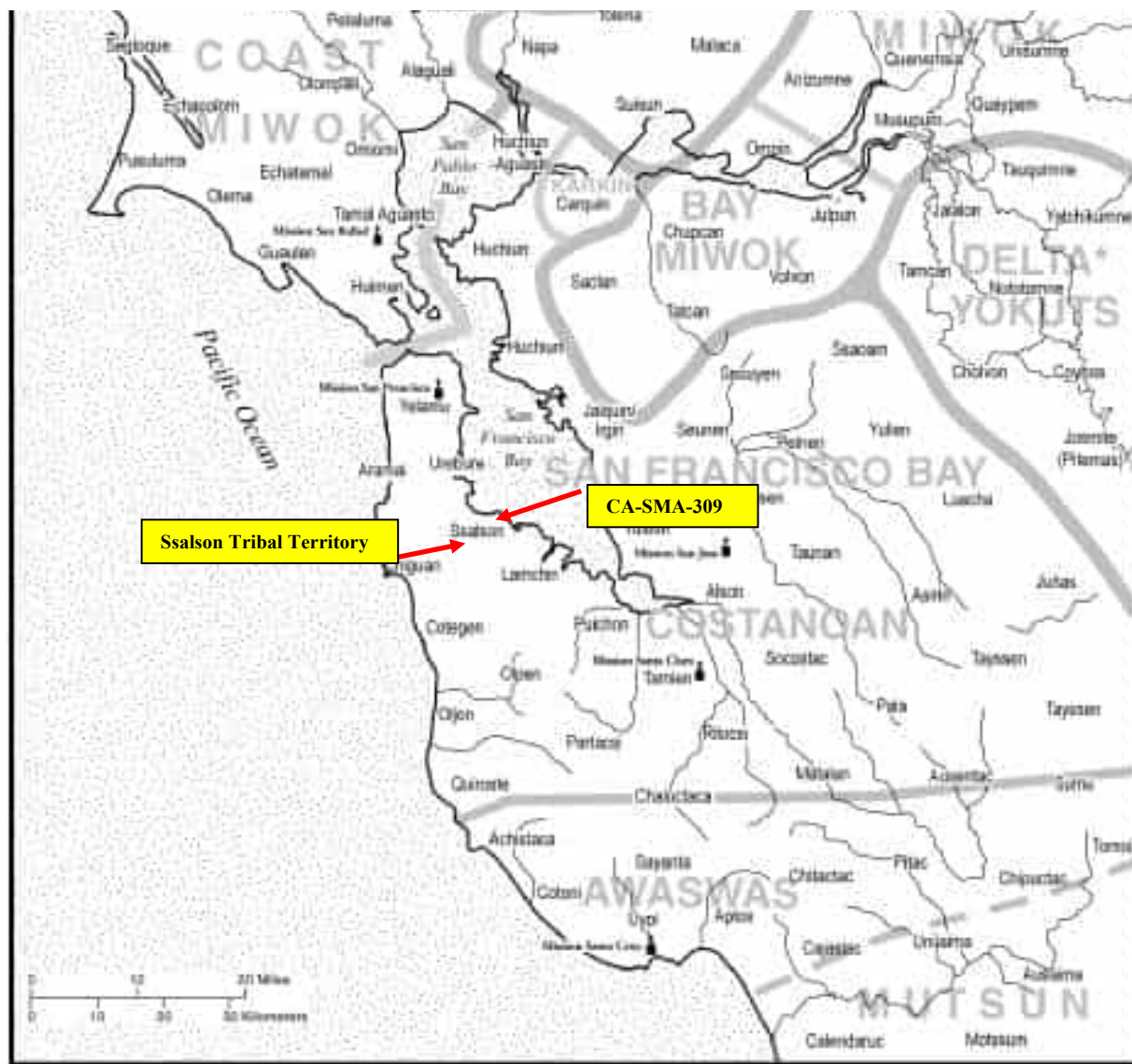
In his 1991 dissertation, Milliken, presented information about the "Santa Clara Valley Conversions, 1780-1784" stating that:

At the start of 1780 the core group of adult Christians at Mission Santa Clara were from the **Alson** village of **San Francisco Solano**, rather than the nearer tiny **Thamien** villages of **Our Mother Santa Clara** and **Our Patron San Francisco**. (1991:139)

Within the Santa Clara Valley and adjacent regions, during the first twenty years since the establishment of Mission Santa Clara, Milliken suggested that "(c)onversion of adult married couples in April (1795) had been concentrated among people from the southern East Bay, **Alson**, **Tuibun**, and perhaps **Jalquin/Yrgin**" tribal groups (1991:224).

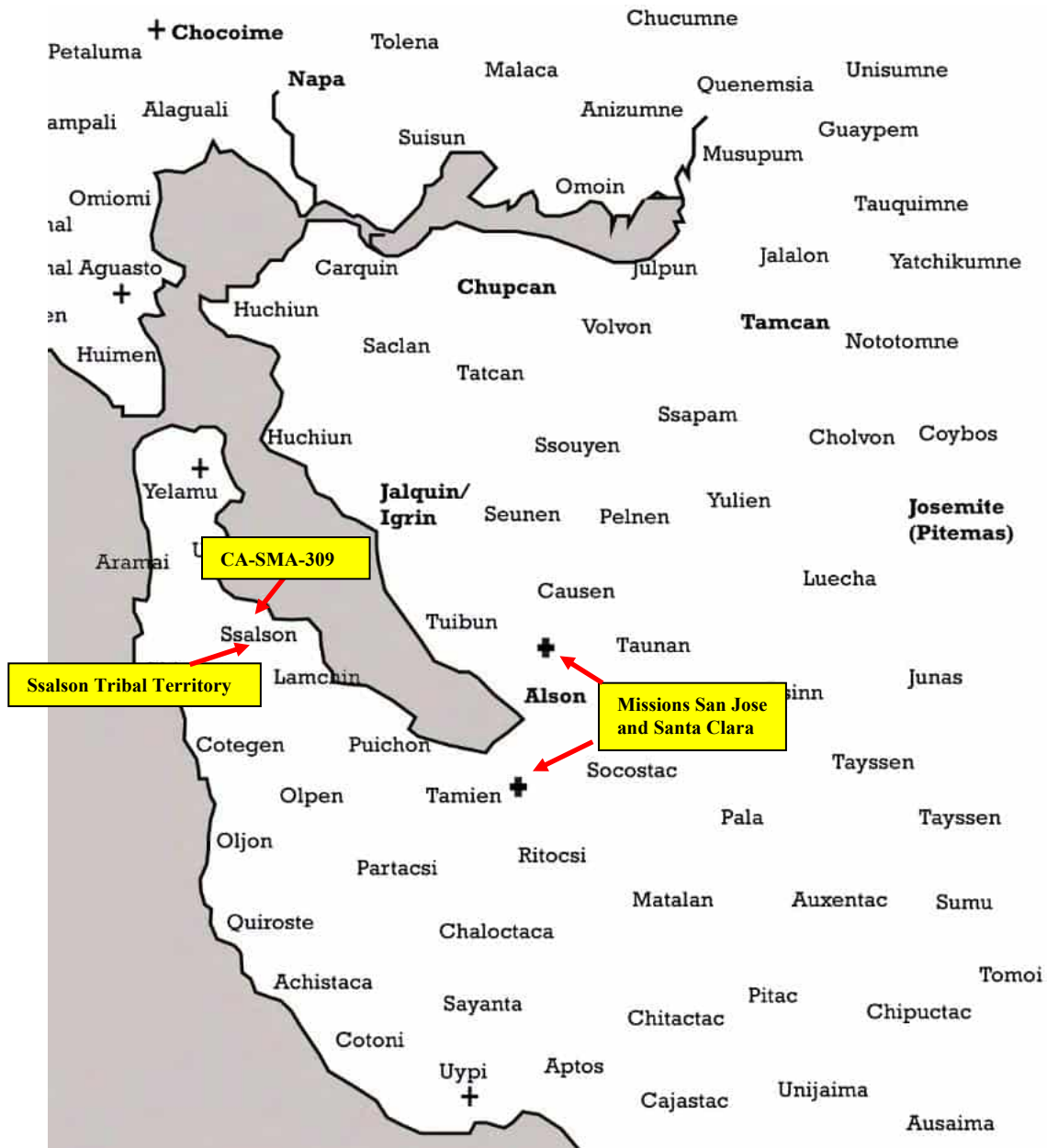
Milliken's research also demonstrated that after the Mission San Jose was established in 1797, that "(i)n January of 1801 twenty-one couples became Christians, ... (t)hey were **Alsons** and **Tuibuns** from the local villages of the Fremont Plain" (1991.:265). These South Bay Thámien and East Bay Chochenyo-Ohlone-dialect-speaking tribal couples were relations to the families from those same tribal groups who were baptized years earlier at Mission Santa Clara.

Furthermore, it is interesting to note that Milliken also pointed out that "(i)n January and February (1802) twenty-one **Jalquin/Yrgin** families moved to Mission San Francisco" and, "they were intermarried with **Seunens** and **Tatcans**" (1991:266); [see **Maps 3** and **4**, and **Figure 1 Ohlone Indians at Mission Dolores** drawn by **Louis Choris** below].



Map 4: Distribution of Ohlone Tribal Groups and Tribal Districts in the San Francisco Bay Costanoan Region

[From Milliken et al. 2009]



Map 5: Distribution of Ohlone Tribal Groups Surrounding the S.F. Bay Region
 [From Milliken 1991]

It is important to note here that many of the lineages enrolled in the Muwekma Ohlone Tribe trace their direct ancestry to the Thámien Ohlone-dialect-speaking **Alson**, and the Chochenyo Ohlone-dialect-speaking **Seunen** and **Jalquin** tribal groups whom were missionized in to Missions San Francisco, Santa Clara, and San Jose.

Milliken noted that the **Alson** was “a tribe that held the low marshlands at the very southern end of the San Francisco Bay, probably both north and south of the mouth of the Coyote River [Creek] now the cities of Newark, Milpitas and Alviso” (1995:235). He also mentions that the **Seunen** were:

A tribe that held a fairly small territory at the northwest side of the Livermore Valley in the hills east of San Francisco Bay. ... Most of the **Seunens** went to Mission San Jose between 1801 and 1804, although four of them went to Mission San Francisco in 1801 and 1802 as part of a large **Jalquin** group” (1995:254).



Figure 1: Indians at Mission Dolores in 1816 (Drawn by Louis Choris)

Milliken stated that the **Jalquins** and **Yrgins** were most probably a single tribal group. He suggested that the Yrgins represented the southernmost community from this tribal group who were missionized into Mission San Jose, while the northern Jalquins came under the influence of Mission Dolores in San Francisco. The Spanish priests at Mission San Francisco heard **Jalquin** differently from the priests at Mission San Jose who heard the same tribal name as Yrgin.

The complex process that brought together West Bay, East Bay and South Bay/Santa Clara Valley Ohlone tribal groups into the mission system, though cataclysmic, these newly emergent mission-based communities had nonetheless maintained vestiges of their languages and culture that survived into the early 20th century. The impact of the Hispano-European colonization and missionization resulted in the first major rupture in the lives of California Indians and especially those along the coastal-interior mission strip.

As mentioned earlier that two of the East Bay Chochenyo Ohlone-dialect-speaking linguistic consultants, **Maria de los Angeles Colos** who was born in 1839, and **Jose Guzman** who was born about 1853, had provided Smithsonian's Bureau of American Ethnology linguist John Peabody Harrington with the observation that "the **Clareños** [Indians of Mission Santa Clara] were very much intermarried with the **Chocheños** [Indians of Mission San Jose], the dialects were similar," and also at this time Harrington recorded the Chochenyo linguistic term – "**mu'e'kma, la gente**" [meaning the people] (Harrington 1929 field notes [1921-1934]).

Milliken (1991) based upon his comprehensive study of the mission records, conducted ethnogeographic reconstructions of tribal, village and district locations surrounding Mission Santa Clara for inclusion in his doctoral dissertation and had noted that:

The Santa Clara Mission settlement lay at the northeastern edge of the **Thamien** tribal district, very near to the lands of three other tribes. ...

The missionaries at Mission Santa Clara gave each of them a Spanish designation; **San Francisco Solano** village of the **Alson** tribe a mile or two downstream at the mouth of the Guadalupe River, Santa Ysabel village of a different, unnamed tribe east of San Francisco Solano on the lower Coyote River, and San Joseph Cupertino village of the **Thamien** tribe in the oak grove about three miles to the southwest of the mission site (1991:117).

Chester King's Almaden Valley Ethnohistoric Study

In 1978 Chester King contributed an important ethnohistoric study focusing on one of the first major Thámien Ohlone tribal groups to be brought into Mission Santa Clara. This study entitled ***Almaden Valley Ethnohistory*** was published in **The Archaeological Mitigation of 04-SCL-132, Alamitos Creek** by Archaeological Resource Management (1978). The following subsection presents excerpted information from King's study that principally focuses on the San Carlos Thámien Ohlone-dialect speaking tribal group from the greater Almaden Valley, south to Morgan Hill, and adjacent areas that were brought into Mission Santa Clara beginning in 1781:

Relations Between the Spanish and Indians from 1782 to 1802

Militarism and Baptism:

In January of 1783, Pedro Fages, Governor of Alta California, led a military expedition against *rancherias* in the vicinity of Mission Santa Clara. Father Palou of the mission reported:

He came back again to chastise some heathen in the neighborhood of Santa Clara who had killed some mares belonging to the settlers of the Pueblo de San Jose. The heathen took up arms, and our soldiers killed two of them without having one of ours even wounded, and being frightened by this they voluntarily gave up some of their children for baptism (Bolton, 1926: 224).

The increase in baptisms in the San Carlos tribe [**Matalans** in the Santa Clara Valley] in 1783 ... may have been an effect of this expedition. On May 15, 1783, Fages sent a letter saying, among other things, that "the Indians of the *Sierra de San Jose* (Almaden hills) and those around Monterey are very peaceful as a result of the threat made to them, and many have been baptized at Santa Clara Mission" (California Archives 23: 99).

... Brutality on the part of the missionaries was both a symptom and a cause for resistance by the Ohlone. When Father Peña of Mission Santa Clara was tried in 1786 for beating four

Indians to death, he cited the behavior of Spanish soldiers against the Indians in his own defense. It was probably the Fages expedition of 1783 to which Peña referred:

... it has already been two years since the same Captain Dn Nicholas Soler has told and published to the whole province that the Governor (Pedro Fages) had killed with lashes and had commanded the **two Sargeants at the Monterey Presidio and the San Francisco Presidio to kill more than twenty heathen Indians**. On occasions soldiers use their weapons against the heathen without having encountered resistance. At times the heathen have been left abused by the cruel punishment of being hung in the trees by a foot, by scarifying their buttocks with swords, the soldiers hang them and then beat them with staffs alternating until they have all had a turn (AGN Prov. Internas, Vol. 1, No. 6: 46).

Military Policy in the Pueblo:

A series of dispatches written by Pedro Fages from Monterey and Ygnacio Vallejo, *Commandante* of the Pueblo de San Jose, indicate the 1785 to 1788 policy of the military. This policy was to keep all unbaptized Indians out of the settlement of San Jose, to not trade with the unbaptized Indians, to not allow the Indians to ride horseback, and to maintain an alert guard at the Pueblo because of potential attacks by the surrounding Indians, and **to punish any neophyte who came to the Pueblo without passes** (California Archives 44: 5-8).

... The first year in which non-Christian Indians recruited from the San Jose area worked for the Monterey Presidio was 1790. Indians who lived in the Almaden Valley were probably among those providing services at Monterey, though it seems that the San Carlos tribe was not extensively involved in the labor program. After 1795, it appears that the San Antonio tribe [from the hills to the east of San Jose] provided the Presidio with most of the day laborers and harvesters of hemp.

Men were given a blanket or other payment and provisions of grain in return for working for the Presidio. In correspondence concerning Indian day laborers, *Capitancillos* are mentioned. It is possible that the name *Los Capitancillos*, associated with the Land Grant in the Almaden Valley, was derived from "sub-chiefs" discussed in Fages' May 31, 1790 letter to Macario Castro:

... neither hatchets nor other types of tools or arms are to be given to the Indians or their *Capitancillos* who struck the Indian woman. They should be admonished that if they repeat their act, they will be punished (California Archives 44: 37).

... Abandonment of the Almaden Valley:

The mission registers seem to indicate that most of the members of the **San Carlos [Matalan]** tribe left the Almaden Valley and were baptized sometime around 1795. Abandonment of the valley and joining the Church was probably a result of military expeditions in 1794, which were in reprisal to the Ohlone's slaughtering of Spanish stock

animals. In late 1794 to early 1795, following the military action, an increase in the baptisms of adults occurred. Later baptisms listed for the San Carlos tribe are of people who were probably coming from the Coyote Valley and other areas more distant from the mission than the Almaden Valley. The pattern of baptisms from more distant areas seems to indicate that most of the Ohlone had been removed from the Almaden Valley by 1795 (cited from King 1978:39-46 in Archaeological Resource Management 1978).

Distribution of Costanoan/Ohlone Dialects

Ohlone/Costanoan-related languages were spoken over a considerable geographic area, stretching from the San Francisco Peninsula, Angel Island and the Carquinez Strait to the north (e.g., the bilingual Karkin/Carquin) to a less well defined southern boundary near or inland around Soledad and just south of Monterey Bay on the coast bordering Esselen and Esselen-Costanoan (e.g., the bilingual Sargentaruc) speaking tribal groups.

The interpretive linguistic literature, which includes Kroeber (1910, 1925), Beeler (1961), Levy (1976; 1978), and Milliken (1991) diverges concerning the extent to which the variation between what language was spoken from place to place should be differentiated as either **dialects** of one idiom or as completely separate languages. Levy (1976; 1978) categorized eight distinct Ohlone idioms/dialects: *Ramaytush* (San Francisco Peninsula), *Awawas* (Santa Cruz area), *Rumsen* (Monterey Bay and Carmel Valley), *Mutsun* (San Juan Bautista), *Chalon* (Soledad), *Thámien* (Santa Clara Valley), *Chochenyo* (East Bay), and *Karkin* (southern and northern shores of Carquinez Strait and possibly up to lower the Napa Valley).

Perhaps the most-weighty first-hand study in this regard was initiated by Father Felipe Arroyo de la Cuesta, who was perhaps the first literary person to describe the regional variation and interrelatedness of Costanoan/Ohlone languages. In his May 1, 1814 reply to the Interrogatory of 1812 regarding the languages spoken around Mission San Juan Bautista, Father Arroyo de la Cuesta stated the following about the Costanoan/Ohlone languages:

Though they appear to speak distinct languages this is only accidentally true; that is, some of the words are different only because of the manner of pronunciation, in some cases rough, in others agreeable, sweet, and strong. **Hence it is that the Indians living in a circumference of thirty or forty leagues* understand one another** (Arroyo de la Cuesta [1814] in Geiger and Meighan 1976: 20-21).

[***Note:** a league equals about 2⅔ miles or 4.3 kilometers, therefore 30 leagues = approximately 75 miles and]40 leagues = approximately 100 miles]

Aided by the linguistic interviews and records written by Father Arroyo de la Cuesta, Milliken (1991) concluded that people who lived in neighboring villages and regions likely would have spoken mutually comprehensible dialects, but that those who lived at the farthest extremes of the Costanoan/ Ohlone area probably would not have been able to understand one another. If, in fact, language variation occurred as smooth clines in this way, then the southern Santa Clara Valley was one of the regions of transition from one dialect to another. The Mission San Juan Bautista Mutsun-speaking dialect, bordered on the south of the centrally located Santa Clara Valley dialect

Thámien-Ohlone speaking language area, likely making the Coyote Creek corridor south of present-day Morgan Hill a place where dialectic differences merged or overlapped [see Forbes 1969:184 for the **Muwekma (northern)** and **Mutsun-Rumsen (southern)** divisions of Ohlonean languages above; Levy 1976; 1978].

Ortiz (1994a) in her study entitled **Chocheño and Rumsen Narratives: A Comparison** points to this difference by employing Costanoan personal names generated by Milliken from the mission records centering around the terms **Kaknú** (Prairie Falcon) from the Santa Clara Valley area, East Bay, and the San Francisco Bay Area, and **Ka-kun** (Chicken Hawk) which was used in Costanoan speaking tribal groups to the south of Santa Clara Valley in San Benito County and south (**Mutsun/Rumsen** –dialect-speaking areas within the greater Monterey Bay region).

The existence of the **Mutsun** and **Thámien** linguistic boundary was also noted by 19th century historian Frederic Hall in his 1871 publication **The History of San Jose and Surroundings:**

... The tribe of Indians which roamed over this great valley, from San Francisco to near San Juan Bautista Mission, (known a century ago as the valley of San Bernardino,) were the Olhones (sic) or (Costanes.)

Their language slightly resembled that spoken by the Mutsuns, at the Mission of San Juan Bautista, although it was by no means the same. (1871:40)

Although Levy strongly implied that language areas were coterminous with areas of ethnic identity, e.g., that those people who spoke the Chochenyo dialect self-identified as the Chochenyo people, there is no evidence to support such a view. To the contrary, regional cultural identities in native California clearly overlapped language boundaries. Moreover, based upon pre-contact inter-marriages, especially among elites, natives (especially women due to village exogamy and patrilocal residential patterns) were more than likely multi-lingual speakers (see Blackburn 1976; Milliken 1983:70; 1991), which again in the case of the Coyote Creek corridor seems particularly likely amongst the Thámien-dialect-speaking **San Carlos/Matalan** tribal group due to their strategic location bordering north of the Mutsun-dialect-speaking tribal groups [**Note:** As mentioned above, for an updated re-classification of the circum-San Francisco Bay Ohlone languages as a single language identified as **San Francisco Bay Costanoan** as determined by linguist **Catherine Callaghan** see, above, Milliken et al. 2009].

Evidence of Social Stratification and Hereditary Leadership in the S.F. Bay Area

Clearly, the basic political unit for native Californians, including those of the Thámien Ohlone-speaking tribal groups, was the sedentary residential village (representing one of many within the larger geo-political tribal territory). Pre-contact and contact-period central California tribal geopolitical boundaries, social structures, subsistence-settlement patterns and ceremonial and economic institutions were very complex and social interactions and ritual obligations between lineages went beyond the residential village community (Goldschmidt 1951; Blackburn 1976; Bean 1978; Bean and Vane 1978; T. King 1970, 1974; Wiberg 1984; Luby 1991; Leventhal 1993; Bellifemine 1997; Panich 2020; Byrd 2020a; and others).

Because of the seasonality of subsistence-related activities covering a wide range of the micro-ecosystems (e.g. fresh water creeks and streams, inland lagoons and marshes, bay shore wetlands, coastal, and estuarine resources, hardwood and mixed chaparral forests, grasslands, etc.) that were

all possibly located within a single tribal territory, Native families and small multi-family groups may have moved about during the course of a year from one harvesting locality to another all within a half day's trek from sedentary villages or resource-base camps.

These temporary resource-based sites and camps, possibly composed of several temporary house-shelters, contrasted with the larger, permanent (or semi-permanent) strategically situated principal ceremonial village. Thus each tribal group actually occupied a territory dotted with seasonal resource-related occupational and specialized task sites, lesser villages, as well as, semi-sedentary and sedentary villages. The Coyote Creek corridor, with its mostly year-round water supply and mixture of seasonally variable riparian, fresh water marshes, foothill, upland and valley habitats, fits this description well. Father Palóu, in 1774, described his encounter with this riparian habitat:

[We] came to a large bed of a river [Coyote Creek], well grown with cottonwoods, alders, and willows, but without water. We followed this bed along its bank, which was very high and steep, and we made out across the river on a hill to the north of a village of heathen.

We followed the bed of the river and came to a thick wood of several kinds of trees and blackberry bramble which it was necessary to cross, and in it we found some little houses of the heathen, who at the noise we made, left their things and concealed themselves in the thick woods. We crossed, near a village, a good brook of running water, which we soon saw no more, and we judged that it sank into the sand (in Bolton 1926: 260).

Encompassing the territorial areas of each tribal group and its macro-resource harvest (catchment) zone were larger regions composed of several villages and their outliers (ceremonial shrines, cemeteries and specialized task sites). The Spanish explorers called these territorial units *rancherías*. Anthropologists have described these larger regions variably. Kroeber (1939, 1962) used the term "tribelet" to denominate rather small multi-village regions that he asserted composed the largest political units in native California.

C. King's (1977) description of pre-contact conditions in the southern Santa Clara Valley offers an early assessment of the political geography of what he calls the **Matalan** tribelet, who inhabited the Coyote Creek corridor, Almaden Valley and environs just south of the Santa Teresa Hills area to just south of Morgan Hill. Perhaps unsurprisingly, King conflated language boundaries with the political borders of Kroeberian defined tribelets. There is also some confusion between the extent to which villages and multi-village regions composed units of kinship, such as clans, moieties, lineages, or residence groups, which are not equivalent.

Milliken (1991) recognized that villages were residential units composed of several non-related kin groups in the Ohlone/Costanoan areas generally, and the Santa Clara Valley specifically, as well as those tribal groups of the San Francisco Peninsula such as the Ssalson and Puichon (Milliken 2004; 2007). He also described the larger multi-village regions as political groups that defended large territories. Bean (1976) has shown that intermarriage between village elites constructed regional elites, also described by King (1977) specifically for the **Thámien**-Ohlone speaking **Matalan** tribal territory. Through trade fairs and feasts, marriages and funerals, and other important ceremonial events were part of widespread ritual complexes such as the **Kuksú** religion, such elites were able to intermarry across considerable distances, effectively integrating even larger zones of complex interaction.

As far as these elites and the social hierarchy are concerned, many early explorers made clear that institutions of authoritarian leadership existed among native Californians in the San Francisco Bay area. While Father Arroyo de la Cuesta erroneously wrote "they neither had nor recognized any captain or superior," (Arroyo de la Cuesta [1814] 1976:115), he nonetheless described charismatic individuals who were instrumental in organizing both warfare and peacemaking with neighboring groups.

Milliken (2004) quoting Father Narciso Duran from Mission San Jose:

They recognize neither distinction nor superiority at all. Only in war do they obey the most valiant or the luckiest, and in acts of superstition they obey the sorcerers and witch-doctors. Outside of these they do not recognize any subordination, either civil or political (Duran quoted in McCarthy 1958: 274).

C. King, by contrast, quoting Father Amoros' description of the natives near Mission San Carlos (Carmel/Monterey Bay) noted:

The prominent Indians are the **captains or kings**. There is one for each tribe. They command obedience and respect during their lifetime. This office is hereditary, or, in default of an heir by direct descent, it goes to the closest relative. This chief alone among the pagans could retain or desert a number of unmarried women; but if he had children by one of them, she was held in higher esteem and he lived permanently with her (King 1977 quoting Heizer 1974: 41).

Bean (1976) concurs that chiefs (often referred to as *capitanes* (captains) by the Spaniards) utilized their kin-ties with neighboring elites to facilitate trade relations that acted as insurance against periods of relative resource deprivations, as well as possessing the power to collect and redistribute food surpluses in their own territories.

The power of chiefs and the elite families that controlled chiefly positions were symbolized by the possession of treasure goods which passed down through families over considerable lengths of time. King's ethnohistory of the Matalan (the **San Carlos** Thámien Ohlone-dialect-speaking tribal group) describes leadership and social stratification that accords with Bean's framework.

Milliken's view (1983, 1991), while tending more toward a strictly charismatic rather than stratified view of chiefs, also makes clear the importance of leadership among the pre-contact Ohlone/Costanoan peoples. He (Milliken 1983: 55-56) cites **Father Vicente de Santa Maria** who was chaplain on the Spanish ship **San Carlos** in 1775, who wrote:

We noticed an unusual thing about the young men: none of them ventured to speak and only their elders replied to us. They were so obedient that, notwithstanding we pressed them to do so, they dared not stir unless one of the old men told them to; ... [Santa Maria in Galvin 1971 [1775]: 31].

Leventhal (1993a:155-157) in his archaeo-mortuary study entitled **A Reinterpretation of Some Bay Area Shellmound Sites: A View from the Mortuary Complex at CA-ALA-329, the Ryan Mound** also considered the first-hand ethnohistoric observations made by Father Santa Maria in 1775 concerning Native political authority and military capability recorded among the **Carquin** (Karkin) Ohlone tribal group residing on both sides of the Carquinez Straits, in the southern vicinity of the Town of Martinez. Father Santa Maria noted:

On the 15th of August the longboat set out on a reconnaissance of the northern arm [of the bay] with provisions for eight days. On returning from this expedition, which went to have a look at the rivers, José Cañizares said that in the entranceway by which the arm connects with them [Carquinez Strait] there showed themselves fifty-seven Indians of fine stature who as soon as they saw the longboat began making signs for it to come to the shore, offering with friendly gestures assurances of good will and safety.

There was in authority over all these Indians one **whose kingly presence marked his eminence above the rest**. Our men made a landing, and when they had done so the Indian chief addressed a long speech to them

... After the feast, and while they were having a pleasant time with the Indians, our men saw a large number of heathen approaching, all armed with bows and arrows.

... This fear obliged the sailing master to make known by signs to the Indian chieftain the misgivings they had in the presence of so many armed tribesmen. The *themí** (chief) (sic), understanding what was meant, at once directed the Indians to loosen their bows and put up all their arrows, and they were prompt to obey. The number of Indians who had gathered together was itself alarming enough.

There were more than four hundred of them, and all, or most of them, were of good height and well-built [Santa Maria in Galvin 1971:51-53].

[*Note: The term *themí* might be in the root of the place-name **Thámien** in reference to *Capitans* or Chiefs as in the case of the 1842 land grant to Justo Larios' **Rancho Cañada de los Capitancillos** meaning **Valley of the Little Captains** or **Sub-Chiefs** located near New Almaden in South San Jose.]

Captain Commander Fages (governor of Alta California) in 1775 also contributed first-hand descriptive accounts about aspects of aboriginal contact-period political authority, social structure, and redistributive economy among the Costanoan-Esselen groups in the Monterey Bay region:

Besides their chiefs of villages, they have in every district another one who commands four or five villages together, the village chiefs being his subordinates.

Each of them collects every day in his village the tributes which the Indians pay him in seeds, fruits, game, and fish. ...

The subordinate captain is under obligation to give his commander notice of every item of news or occurrence, and to send him all offenders under proper restraint, that he may reprimand them and hold them responsible for their crimes. ... Everything that is collected as the daily contribution of the villages is turned over to the commanding captain of the district, who goes forth every week or two to visit his territory. The villages receive him ceremoniously, make gifts to him of the best and most valuable things they have, and they assign certain ones to be his followers and accompany him to the place where he resides (Priestley 1937:73-74).

Material Culture and Subsistence

The Spanish explorers encountered in central coastal California modes of living which were alien to their sensibilities. While the soils were clearly fertile, the native peoples did not cultivate (with the exception of Native tobacco). The numbers and diversity of wildlife astounded such early writers as Pedro Fages and Fray Juan Crespi, yet through their eyes such faunal abundance connoted untrammelled wilderness; everywhere they traveled they encountered villages and substantial populations of Native peoples. It is only recently that anthropologists have been able to pierce the incomprehension that the Spaniards and other European evinced about native Californian peoples before the latter's ways of life were destroyed by the activities of the former.

The material culture -- in other words the technologies for producing goods and products [technomic, sociotechnic and ideotechnic products (after Binford 1962, 1971)] -- that native Californians created are clearly derived from their adaptation to the landscapes they inhabited and the resources they utilized. Native Californians were sedentary-to-semi-sedentary gathering, hunting and fishing peoples living in an extraordinarily rich biotic habitat who, by their subsistence activities, tended to increase rather than deplete the resources upon which they depended. Lewis (1973), Bean and Lawton (1976) and Blackburn (1976) were among the first to demonstrate that natives' use of controlled burns augmented the growth of wild grains eaten both by humans and herds of herbivores who congregated around areas humans altered in this way. These practices have been referred to as "quasi-agriculture" and "incipient game management." Fire management also helped to create concentrations of oak trees in specific areas from which harvests of acorns played an important seasonal role in native diets (Lewis 1973; Bean and Lawton 1976; Weigel 1993; Anderson 2006; Lightfoot and Parrish 2009).

Tools manufactured by natives were thus utilized to process the foods obtained from native resource management. Hunters, mostly male (women did engage in rabbit and possibly antelope drives and fishing; (see E. Wallace 1978), flaked ultra-sharp chert and obsidian arrow points, dart points, knives, chopping tools, scrapers, etc., found at the sites of their hunting camps, hunting blinds, and village sites. Such tools could also be used by women to process and cook meat, fish, and shellfish. Both sexes likely contributed to the weaving of string, cordage, rope, fishing nets and the construction of basketry traps for fish and small animals. But women clearly excelled in fiber manufactures: California is renowned as the locus of the finest and most diverse basketry in the world, and the macro-Ohlone/Costanoan region was no exception in this regard. Women utilized porous baskets to leach acorn meal in order to remove toxic tannic acid, and water-tight baskets to cook a variety of meals from different plants, animals and fish. Baskets were used in fishing, for hauling abalone and other mussels from the waterside, and for winnowing wild grain. Very large woven baskets on stilts acted as granaries and very small baskets were used to store jewelry and other commodities (Elsasser 1978b; Shanks and Shanks 2006).

Both genders may have worked *Haliotis* (abalone), *Olivella* shells, and colorful feathers were integrated into elaborate necklaces, ear, nose and hair ornaments, and beads woven into dance skirts, headdresses and other ceremonial regalia (Bates 1982). While men and children commonly virtually wore no clothing during the warmer summer months, women used plant fibers and deer skin to fashion skirts and aprons. Ritual regalia and the finery of the social elite were also manufactured from the pelts of rabbits, deer, elk, antelope, bear and wild cat or, in coastal and bay areas, from sea otter and sea lion fur.

Residential shelters were basically round grass or tule and bulrush thatched structures built on willow pole frames, while the larger, excavated semi-subterranean ceremonial buildings utilized for assembly or dance houses and sweat lodges, probably used boughs of hardwood or redwood trees (especially on the West Bay) as center posts for structural support. The sweat lodges and dance houses (*túupentak* in the Chochenyo dialect, but more commonly referred to in the literature by the Mexican term “temescal”) may also have been earth covered as elsewhere in California.

Ritual Practices and Ceremonial Sites

Of all aspects of pre-contact native Californian culture, religion and ritual evoked the most hostility from Spanish colonial invaders whose observations accordingly are difficult to assess for accuracy. It is clear that performances which in Western discourse are referred to as dancing were central aspects of religious ritual and reenactment of Creation Time, not only in the sense of worship, but also as activities which could themselves positively affect the balance of forces in the world and universe (Bean and Vane 1978).

From the reports and diaries of Fages, Font, Paloú, Crespi, Arroyo de la Cuesta, and others it is also apparent that each region's rituals may have varied in details of procedure, regalia, and song. However, given the view that these rituals were perhaps practiced within a larger framework or ceremonial interaction sphere among neighboring tribal groups, Milliken's caution (2004) that one ought not to draw excessively direct conclusions about the nature of ritual in the Santa Clara Valley from what is known about dance ceremonies conducted by West and East Bay Ohlones or the peoples of the Monterey region that may be useful, but not necessarily conclusive. Notwithstanding that proviso, San Francisco Bay Area Ohlone tribal groups likely danced world renewal ceremonies and paid a great deal of attention to funerary and mourning rituals as can be ascertained by Late Period mortuary sites [e.g., **CA-SCL-30/H – (3rd Santa Clara Mission Indian Neophyte Cemetery - *Clareño Muwékma Ya Túnneste Nómno* “Where the Clareño Indians are Buried Site;” CA-SCL-128 - *Thámien Rúmmeytak* “Place of the Thámien (Guadalupe) River Site;” CA-SCL-38 - *Yukisma* Mound “at the Oaks” Site; CA-SCL-690 - Tamien Station Site; CA-ALA-329 - *Mánni Muwékma Kúksú Hóowok Yatiš Túnneste-tka* “Place Where the People of the *Kúksú* (Bighead) Pendants are Buried Site;” and more recently CA-ALA-565/H - *Sii Túupentak* “Place of the Water Round House Site” located in Sunol; (see Byrd et al. 2020a).**

Dance enabled participants to open and travel through doors between the conscious world and an ongoing supernatural world where the beings who had initiated the creation of the world and of human beings continued to enact mythic dramas. Dancers' regalia were imbued with the power of these rituals, and certain natural locations, such as springs, rock formations, trees, etc. marked nodal points and served as shrines where ritual performance became particularly effective (see Bean 1975; Bean and Vane 1978, Bates 1982, Davis 1992).

Humans could also hallow sacred places through the burial of their ancestors in locations that even the Spanish identified as cemeteries (Leventhal 1993; Font in Bolton 1933 below). This is of note specifically in the case of the analysis conducted at the ***Clareño Muwékma Ya Túnneste Nómno Site (CA-SCL-30/H – 3rd Mission Santa Clara)*** which contained at least several thousand burials that bridged traditional Ohlonean world view and the transformed/emergent Hispano-Catholic Clareño world view of cemeteries as “sacred places” (Leventhal et al. 2011; Panich 2015, 2018, 2020).

Father Pedro Font traveling through different parts of the Santa Clara Valley made several observations about the nature of Contact Period Ohlone cemeteries. Near modern-day Gilroy, Font noted:

On passing near the village I mentioned on the road we saw on the edge of it something like a cemetery. It was made of several small poles, although it was not like the cemeteries which we saw on the Channel [between Santa Barbara and the Channel Islands]. On the poles were hung some things like snails and some tule skirts which the women wear. Some arrows were stuck in the ground, and there were some feathers which perhaps were treasures of the persons buried there (in Bolton 1933: 322).

Even closer to the 3rd Mission Santa Clara Indian Neophyte cemetery *Muwékma Ya Túnneste Nómmo Site (CA-SCL-30/H)*, Father Font described the following scene within the nearby Coyote Creek corridor located approximately 7 miles southeast of the mission. From his description, it can be understood that the use of feathers and other regalia hung from poles and related structures may not have been exclusive to cemeteries but were established as a kind of shrine:

At this place we found still standing the poles of the little bower erected in the journey which in September of last year was made by the ship captain Don Bruno de Hezeta and Father Paloú We found that the Indians had made a fence of little poles around them, and in the middle had set up a thick post about three spans long, decorated with many feathers tied in something like a net, as if dressed, and with an arrow stuck through them.

On one pole many arrows were tied and from another were hung three or four balls of grass like tamales, filled with pinole made of their seeds and of acorns, or of others of their foods which we did not recognize. In the middle of a long stake there was hung a tuft of several goose feathers, but we were unable to understand what mystery this decoration concealed (Font 1930 [1776]:321-322).

While the priests of the San Francisco Bay Area missions attempted to contain, if not eradicate native Ohlone belief systems and rituals through the regimen of structured Catholic doctrine and discipline, they never attempted to try to gain an understanding of the Ohlone religion, cosmology and symbolism as it manifested especially in dance feathered regalia, body paint and tattoos. Although native religious expression was frowned upon, and in all likelihood, became crypto especially at the missions, nonetheless Ohlone dancers were allowed to perform “secular” non-apostate dances for distinguished European visitors.

These above ethnohistoric observations potentially provide some of the parameters of the ceremonial activity and ritual performance that were carried on at the *Wirak Tayyi Trépam Táareš-tak (CA-SMA-309)* site locality (within the ancestral Ssalson-Ohlone speaking tribal territory) when this ancestral Ohlone young man, *Wirak Tayyi Trépam Táareš (Bird Bone Tube Man)*, died and was buried at this ancestral Muwekma Ohlone heritage cemetery site.

The Transformation of Costanoan/Ohlone Societies Resulting from the Impact of the Spanish Empire's Expansion into Alta California (1769-1836)

Based upon the research of many Californian anthropological scholars (e.g., Kroeber 1932, 1939, Goldschmidt 1951; Gifford 1955; T, King 1970, 1974; Fredrickson 1973; Bennyhoff 1977; Chartkoff and Chartkoff 1984; Moratto 1984; Bean and King, eds. 1974; Bean and Blackburn, eds. 1976; and others), prior to the time of contact with the expanding Spanish empire, central California Indian societies had already developed complex social, political, economic and ceremonial institutions that interconnected neighboring tribal groups and regions. This is evidenced by the wide distribution of artifact assemblages, traits and burial patterns found in central California mortuary mounds (sometimes referred to as Shellmounds in the San Francisco Bay Area) especially during **Phases I and II of the Late Period (Dating Scheme B1: Bennyhoff and Hughes 1987)** or during the Augustine Pattern post-**AD 1020** (Groza 2011; Byrd et al. 2017 the **Dating Scheme D2 Late Phase 1 (L1) AD 1265 –AD 1520** and **Late Phase 2 (L2) AD 1520 – AD 1770** (Groza et al. 2011; Byrd et al. 2019), and also demonstrated by the even wider distribution of the **Kuksú** religion which as stated above geographically ranged from the Salinan tribal groups to the south in Monterey County to the Cahto and Yuki to the north in Mendocino County; (see Mason 1918; Loeb 1932, 1933; Bennyhoff 1977; Bean and Vane 1978; Winter 1978a; Leventhal 1993; Bellifemine 1997; Hedges 2019; Byrd et al. 2020a).

These inter-regional linkages were principally integrated through mechanisms of trade, kinship (especially through marriage alliances of elites), the performance of shared rituals and ceremonial obligations (e.g., Kuksu ceremonies, trade feasts, funerals and mourning anniversaries [see Blackburn 1976]).

Among village elites, for example, the political world clearly did not stop at the boundaries of their own territory. Elites from villages throughout the territory of Ohlone/Costanoan-speaking peoples (and neighboring linguistic groups) married their children into other elite families from important neighboring villages, villages in which Ohlone/Costanoan-related languages may or may not have been spoken by neighboring tribal groups (see Milliken 1993; Milliken et al. 2009).

Intermarriage gave rise to extended kinship networks of multi-lingual elite families and communities, whose wealth and status represented the accumulation of economic surpluses from territories much larger than the village community itself (Bean 1978; Milliken 1990, 1991; Brown 1994). Through elite intermarriage, larger regions were integrated which overlapped and crossed linguistic boundaries (Bean and Lawton 1976; Bean 1992; Byrd et al. 2020).

Elite intermarriage patterns also facilitated and underscored other regional integrating forces such as trade and ritual obligation (see Blackburn 1976). People from different villages, often distantly related, struck up personal trading relationships, called “special friendships,” which often lasted whole lifetimes (Bean 1976). Through networks of “special friends” different foods, tools, and treasure goods were traded from village to village over long distances.

Networks of ritual and ceremonial obligation called together large numbers of diverse peoples for particular occasions, such as the funerals of significant inter-village elite personages (Blackburn 1976). On such occasions, trade fairs also occurred where elites likely arranged the future

marriages of their children. Taken all together, the trading of subsistence and treasure goods, the exchanges of marriage partners, and the cycles of ritual and ceremony tied together constellations of kin-based village communities into integrated political, economic and cultural fields led by a small, inter-village elite strata (see Fages 1775; Bean 1992). These elite-ruled realms might be described as quasi-chiefdoms or ranked chiefdoms (Service 1962, 1975; Fried 1967; for an archaeological perspective on evidence of social ranking within the San Francisco Bay see T. King 1970, 1974; Wiberg 1984; Luby 1991; Leventhal 1993; Bellifemine 1997; Milliken et al. 2007, Byrd et al. 2020a, 2020b, 2023; and others).

The paradox of a bountiful environment, large populations, and lack of recognizable cultivation confounded the Spaniards, the first Europeans determined to control what is now the state of California. Elsewhere in Latin America, particularly in the Andes and Meso-America (see Salomon 1981, Rappaport 1990, Smith 1990, many others), indigenous structures of governance and processes for manufacturing commodities were more familiar to European eyes. Therefore, at least for a time following the initial conquest of indigenous civilizations, the Spaniards harnessed indigenous political and economic organization for their own purposes. Because the Spaniards could not cognitively apprehend a civilization whose productive base, economic surplus, and sources of wealth were fundamentally alien, their domination of Californian natives hinged upon completely re-molding their cultures and societies into forms that were comprehensible to European sensibilities.

The Franciscan missions, the method the Spanish Empire used to lay claim to California, may be seen as the process of implanting European political and economic systems. This process required that Native American religions and cultural practices be restricted and eventually forbidden, and later, the destruction of the economic and environmental foundations of native life (Cook 1976b; Castillo 1978).

The missionized Native peoples of the Bay Area and elsewhere in coastal California became a labor force for an emergent agricultural and pastoral economy which obliged natives to leave aside most indigenous ritual and ceremonial practices, as well as the manufacture of many aspects of aboriginal material culture. As agricultural laborers, missionized Indians were largely separated from the seasonal rhythms of their own food production practices, while the growth of mission farms and rangeland for cattle initiated an environmental transformation of the Bay Area and the entire coast that destroyed much of the resource base of the indigenous economy.

Demographic collapse of the Ohlone/Costanoan populations held captive at Mission Dolores at the tip of the San Francisco peninsula, Missions Santa Clara and San Jose in the South and East Bay respectively; Mission San Juan Bautista farther to the south (San Benito County), and the Esselens at Mission San Carlos on the Monterey peninsula occurred because of the horrendous effects of European-introduced diseases, exacerbated by the unhealthy diet and over-crowded living conditions at the missions. Birth rates plummeted from a psychological phenomenon now recognized as post-traumatic stress (Cook 1976a; Rawls 1986; Hurtado 1988; Jackson 1992).

As the populations of Ohlone/Costanoans both inside and surrounding the missions contracted diseases, survivors tended to congregate around the missions, seeking solutions to their seemingly unsolvable problems from the missionaries and colonists who were causing those same problems.

Under the circumstance of socio-cultural “holocaust” which took approximately forty years (1769-1810) to unfold, many Bay Area Ohlones may have identified with their oppressors, who seemed to have overthrown and taken control of all of the old systems of spiritual and earthly power, although others may have fled and sought protection with the interior tribes to the east (see Milliken 1991, 1995, and 2008 for a different interpretation that partly exonerates the missions).

In response to the diminution of their labor-force, the Franciscan fathers and civil authorities directed Spanish soldiers to bring in new converts from outlying tribal areas. The neighboring Coast Miwok, Bay and Plains Miwok, Yokut, Patwin, and Esselen speaking peoples from villages located east, north and south of the Bay Area missions became the new cohort of neophytes as laborers, and they intermarried with the surviving “*viejos Cristianos*” Ohlone-speaking peoples (Harrington 1921-1939; Milliken 1978, 1982, 1983, 1990, 1991, 1995, 2007, 2008; Milliken et al. 2009; and others).

Such intermarriage patterns were, as emphasized above, already established between neighboring North Valley Yokuts, Coast Miwok, Bay Miwok and Plains Miwok, Patwin and Ohlone/Costanoan-speaking elites during the late pre-contact and contact periods. Milliken (1991) discussing common female name suffixes amongst the **Huchiun-Aguastos** Ohlone/Costanoan-speaking tribal group of the southeast shore of the San Pablo Bay region noted:

The Huchiun-Aguastos spoke a Costanoan dialect most similar to their Huchiun neighbors, and also very similar to the Carquins, if female personal names suffix clusters are good reflections of language. “Maen/main” [mayen] was the most common female name suffix at thirty-one percent, higher than any other Bay Area group.

... Huchiun-Aguastos, Huchiun, and Carquin personal names contains numerous root and suffix syllable clusters common to Coast Miwok, and Bay Miwok names, such as “eyum,” “joboc,” “ottaca,” “saquen,” and “tole”, suggesting extensive culture sharing in the San Pablo Bay area across language boundaries. (1991:427)

At the missions, intermarriage apparently continued to subtly reinforce sociopolitical hierarchies and older surviving elite families. Even under the triple assault of religious conversion, ecological and economic transformation, and demographic collapse, indigenous political leadership and resistance did not disappear.

The missions struggled against frequent desertions by neophytes, and armed rebellions occurred at Missions Dolores, San Jose and Santa Clara (Milliken 1983, 1991). Led by **Pomponio** and **Charquin** at Mission San Francisco (early 1820s), by the famous **Estanislao** at Mission San Jose (1828-1829), and by **Cipriano** and **Yozcolo** at Mission Santa Clara (late 1830s), indigenous guerrilla armies combined the forces of both runaway neophytes and natives from villages the Spanish had not yet dominated (Holterman 1970; Brown 1975; Rawls 1986; Milliken 2008). Yet the Spaniards mostly succeeded in destroying the ecological basis for the indigenous economy, and in transforming the Bay Area peoples and their close neighbors into an exploited, impoverished soon-to-be landless working class.

It was as indebted peons that the direct ancestors of the Muwekma, the Ohlone people of the San Francisco Bay Area and elsewhere in Hispanic California confronted the next two stages of European domination, with the secularization of the missions and the ensuing conquest of California by the United States.

West Bay Ohlone Tribal Groups and the Last of the Puichon Descended Indians - The Evencio Family of San Mateo County

As discussed elsewhere in this report, Randall Milliken, Lawrence Shoup and Bev Ortiz (2009) had conducted a comprehensive ethnohistoric study for the Golden Gate National Park on the Indians of the San Francisco Bay Area, wrote the following historic account on the **Evencio** family. Descended from the **Lamchin/Puichon Ohlone**-speaking tribal groups of the West Bay around San Francisquito Creek area, and the **Saclan** Bay Miwok speaking tribal group of the East Bay, Pedro Evencio and his children were the last of the **Doloreño** Indians who had aboriginal descent from the West Bay. Milliken wrote:

A four year old boy named Yaculo, who was to found the only San Mateo county Indian extended family documented into the twentieth century, was baptized at Mission Dolores on October 31, 1790. He was brought to the mission by his father Gesmon ("The Sun" [also spelled Exmon]) and his mother Ssapiem, San Francisco Bay Costanoan speakers from either the **Lamchin** or **Puichon** local tribe, and he was christened Evencio. Four years later, Evencio's future parents-in-law were baptized. They were Sacalinchí and his wife Uimusmaen, who led the first group of adult **Saclan Bay Miwoks** [from the East Bay] through the baptismal ceremony at the mission in December of 1794; after fleeing in 1795 they returned with a son who was christened Juan Diego in 1798. Their mission-born daughter Geronima, Evencio's future wife, was baptized in June of 1800. Geronima and Evencio were married in about 1826 and had at least eight children between that year and 1844. Their oldest son, **Pedro Evencio**, was the man whose testimony in federal court in 1869 about the eviction of the Indians from Rancho San Mateo

... Pedro Evencio's paternal grandparents, Rosendo Exmon and Osana Ssapiem, were baptized at Mission Dolores in 1793 (SFR-B 1231, 1248), three years later than their son Evencio Yaculo. Evencio Yaculo grew up in the Mission Dolores community and married Salaverba, a Huchiun San Francisco Bay Costanoan, in 1804 (SFR-M 953, SFR-B 2747). Evencio and Salaverba had five children before she died in 1820 Evencio Yaculo then married Geronima sometime during the mid-1820s, although no record of the wedding has been found. The seven children of Evencio and Geronima who appear in the Mission Dolores baptismal record were baptized between 1828 and 1844. Since none of them was named Pedro, we presume that he was born in 1826 and that Evencio Yaculo and Geronima were also married that year.

Evencio Yaculo and Geronima raised their children during the Rancho Era at the mission outstation of Rancho San Mateo. Pedro Evencio stated in 1869 court testimony that his father had been the leader of the San Mateo Indian community when Pedro was young. ...

Pedro Evencio married Pastora at Mission Dolores in December of 1846. She was a Churuptoy **Patwin** from the present Woodland, Yolo county area by way of Mission San Francisco Solano (SFS-B 1166). The marriage entry lists Pedro as 20 years old and the bride as 18 (SFR-M 2162). Pedro Evencio and Pastora had four children who were baptized at Mission Dolores between 1852 and 1862. Those children were typical mixed-ancestry Doloreños, having as they did a Puichon San Francisco Bay Costanoan/Saclan Bay Miwok father and a Churuptoy Patwin mother.

The Evencio family did not appear as individuals in the 1860 census. In the 1870 census of San Mateo County, however, the "Abensio" family was listed as follows:

- _ Abensio, Padro, 45, male, Farm laborer
- _ " Pastora, 38, female, Keeping home
- _ " Maria, 17, female
- _ " Casusa, 8, male
- _ " (no name listed) 4, female
- _ Diago, John, 68, male (U.S. Census Bureau 1870a)

Later evidence indicates that the Evencio family also had a son Joseph, about 10 years old in 1870, whom the census taker apparently missed. . . .

... John Diego, the 68-year-old man living with Pedro Evencio and Pastora in 1870, has an interesting story of his own. In the 1869 Rancho San Mateo court case Pedro Evencio had stated that "John Diego" was his uncle and that the two of them were the only original San Mateo County Indians still alive (Land Case 178 ND). Mission register evidence shows that Juan Diego was the brother of Pedro Evencio's mother Geronima; he was the child that Sacalinchi and Uimusmaen had brought for baptism when they returned to Mission Dolores in 1798 after the Saclan flight of 1795 (Milliken 2008).

Pedro Evencio and his family were also listed on the **1880 Census for San Mateo County**, Township 1. He was identified as **Pedro Abencio**, age 58, (b. ca. 1822), Indian, Farm Laborer; Mary, wife, age 58, Indian; Mary, daughter, age 25, Indian; Refuga, daughter, age 16, Indian; Paul Jose (Joseph), son, age 22, Indian is crossed out [he was residing elsewhere]; Thomas, son, age 5, Indian. All were born in California. The family was living next to a farmer named Louis Doff and family who were from France.

Living nearby in the **Milbrae Township** in San Mateo County was Pedro's son, **Jose Abencio**. He was listed as Jose Abencio, age 22, [b. ca. 1858], Indian, and working as a stableman for Peter Leyton, who was a hotel proprietor originally from Holland.

In 1894, Mary Sheldon Barnes a faculty member at Stanford University interviewed Pedro Evencio and she published a portion of that interview in the **The Sequoia** magazine. Barnes wrote:

There lives in San Mateo, an old Indian, Pedro Evancio by name, the last of all the... Indians born and bred at the Mission Dolores. Don Pablo Vasquez of Spanish town put us on his track one day when we were asking if there were still any living descendants of the old inhabitants of the valley. "His father was my father's man," he said. "When my father was vaquero of the Mission Dolores, just before the Americans came in."

When we went to see Pedro, we found him in a little white-washed house, neat within and without, the garden full of pinks and stocks, and all sweet, bright flowers, with a dog haunting about it. His wife, a dark Spanish woman, showed us into a neat living room; in one corner of it stood the bed; various ornaments adorned the walls, and on the table stood a great bunch of flowers.

"Could we see Mr. Pedro Evancio?" "Si, si," and there appeared in the kitchen-door Pedro Evancio; a well-built, well-proportioned man, dignified though shy, with a dark beard, an observant eye, dressed in workman's clothes.

We advanced with ardor; but he met our advance with a grave and questioning reserve... Spanish was his native tongue, and our first interview consisted mostly of surprise, friendliness, and a little embarrassment. But in a later interview through his son, an intelligent young workman, we were able to carry on a second-hand conversation, and to obtain photographs of Pedro Evancio. He could not say to what tribe he belonged,—he knew himself only as a Mission Indian; but the old Indian trails, especially that trail by which the Mission Indians used to drag redwood to the Mission Dolores, were all fresh in his mind, and his son Joseph could make us a clear map of the whole Santa Clara Valley with all its old trails.

Pedro's general appearance, and especially his rather full beard, made us doubt the purity of his Indian descent. But in Palou's diary of 1774, full descriptions of our Santa Clara valley Indians are given; "well-formed and tall many of the bearded like a Spaniard..." (Barnes 1894:277) **[Figures 2 and 3]**.



Figure 2: Pedro Evancio (Photo taken by Barnes in 1894)

Pedro Evencio died on either January 19 or 20, 1896 and he was buried at St. John's Cemetery in San Mateo.

Pedro's eldest son, Joseph Evencio was identified on the 1900 Census living in the City of San Mateo. He was identified as Joe Evencio, age 40, born March 1860, Black, laborer, and single. Jose was listed as a "roomer" residing in the house of C.C. Moore, an engineer from New York and his family.

Milliken's research on the Evencio family brought to light the death of one of Pedro's other sons named Joseph Evencio in 1907:

Joseph Evencio, son of Pedro Evencio, was himself killed by an electric railroad car near Millbrae in early November, 1907. The newspaper report called him "Indian Joe," said that he was full blooded, and stated that he had earned his living doing odd jobs. This was the article that noted that his father had also been killed by a railroad train about ten years earlier (San Mateo Leader, November 6, 1907:4)

... The burial of Joseph Evencio, who was 47 or 49 years old when he died in 1907, is not the end of the Evencio family story. In 1963 historian Frank M. Stanger stated in his book **South From San Francisco** that one "Indian Joe" was living in a "crude shelter" at Coyote Point during the late 1930s, adding that "... his real name, it seems, was Joseph (Jose) Evencio" (Stanger 1963:32). Alan K. Brown (1973b: 16) reproduced a photograph of him, supposedly taken in the early 1920s at Coyote Point. The man seemed to be about 40 years old in the photograph. Perhaps he was a son or nephew of the Joseph Evencio who died in 1907. With the disappearance of the younger Joe Evencio, "the San Mateo County Indians have vanished from among us as completely as any people could," wrote Brown (1973b:23).



Figure 3: Joseph Evencio "Indian Joe" at Coyote Point circa 1920

Unfortunately, with the passing of the Evencio family, there are no other known living descendants from either the Puichon Ohlone or other West Bay Ohlonean tribal groups that survived into the late 20th century. There are however enrolled members of the Muwekma Ohlone Tribe, who are descendants of Doloreños, Ohlone Indians who were brought into Mission Dolores, during the early part of the 19th century from the East Bay. Mission records attest that there was intermarriage between elites from the **Yelamu** Ohlone of San Francisco and the **Huchiun/Jalquin** East Bay Ohlones during the early Contact Period (Milliken 1991:111; 1995:62). Also on January 9, 1798, there was a marriage between a Huchiun/Saclan woman (SFR B #1670) whose husband was killed by the Saclan in 1795 and her second husband who was a **Ssalson** (SFR B # 470) (Milliken 1995:140), further supports that West Bay and East Bay dialects were mutually intelligible and constitutes a single San Francisco Bay Costanoan/Ohlone language.

Milliken presented additional information in his 1995 doctoral study discussing the “Mission San Francisco men killed by the Suisuns in January of 1804, baptismal numbers of their widows, and information regarding the widows’ subsequent husbands,” demonstrating some cross-bay intermarriages between tribal groups at the mission (Milliken 1995: Table 3:182). Employing the baptismal numbers published by Milliken, specific names of these individuals were obtained by the present authors via the on-line **Early California Population Project Database** at the Huntington Library.

These ancestral Ohlone include an East Bay **Saclan** woman Anacaria Elucmaiem (SFR-B #1568) who married a West Bay **Lamchin** man Miguel de los Santos Ytcos (SFR-B #1198); another **Saclan** woman Teodorica Teginme (SFR-B #1714) who also married a **Lamchin** man Eduardo Saclí (SFR-B #874); a **Jalquin** woman Maria Francisca Eimute (SFR-B #2331) who married a **Lamchin** man Liborio Lachi (SFR-B #892); another **Jalquin** woman Nicasia Masquite (SFR-B #2435) who married a **Ssalson** man Albaro Ojoni (SFR-B #498); and lastly, a **Saclan** woman Camila Yuquipame (SFR-B #2264) who married a **Puichon** man Juan Regis Asùlis (SFR-B #610).

A question arises about language and communication between these newly married individuals. Clearly the use and fluency of the colonial Spanish language was, no doubt, limited versus Native speech, due to several factors: 1. Spanish, no doubt, took a long time to learn and understand, if at all, this alien tongue; 2. Catechism instruction was conducted in Latin, therefore, represented yet another language; 3. The argument that San Francisco Bay Costanoan was a single language with dialectic variations, appears to be supported by these and other cross-bay intermarriages.

Regarding the Cordero family who until recently (after 2016) created the entity called **Association of Ramaytush Ohlone** (whereas Muwekma is a continuously documented historic tribe of the Bay Area). It is our understanding that sometime around 2009, Mr. Cordero and his family discovered their genealogical connection to an ancestor who appears to be from the Aramai, however, prior that discovery, the family for multiple generations had nothing to do with Indian affairs at all. Furthermore, the Cordero family had the opportunity to present information about their history when various Ohlone groups, entities, families and individuals were interviewed by Randall Milliken and his colleagues for inclusion in the publication titled **Ohlone/Costanoan Indians of the San Francisco Peninsula and their Neighbors, Yesterday and Today** published by the National Park Service, Golden Gate National Recreation Area in June, 2009. The families comprising the recently created Association of Ramaytush Ohlone did not participate because at this period of time, they never existed as any entity.

Milliken et al, wrote in 2009 the following information about the Cordero family:

Until recently, it was believed that the last known descendent of a native Peninsula group died in the 1920s. We have now learned that Jonathon Cordero, sociology professor at California Lutheran University, traces his family's roots back to Francisca Xavier, a San Francisco Bay Costanoan from the Aramai village of Timigtac, on the Pacific Coast just south of San Francisco (Milliken et al. 2009:239)..

Only one descendent family of San Francisco Peninsula Ohlone/ Costanoans can now be identified. The family descends from Francisca Xaviera of the Aramai local tribe (of modern Pacifica) and her husband Jose Ramos (from Tulanzingo, Mexico), who married at Mission Dolores in 1783. Their children and grandchildren considered themselves to gente de razón [not Indians], and were so considered within the hierarchal world of early Hispanic California. Their modern descendants, who carry the surnames **Cordero**, Robles, and Soto, among others, **have not participated as Indians in the modern cultural or political arenas** (Milliken et al. 2009:239).

1834-1846 Secularization of the Missions and its Aftermath

In the last decades of Mission San Jose's existence, between 1800 and the 1830s under Franciscan administration, the population of Ohlone peoples from the East, South and West Bay had endured such steep demographic declines that, as mentioned above, the mission's fathers were obliged to seek further afield for native people for conversion and to provide the labor to maintain the mission's farmlands, ranches and extensive herds.

As discussed above, many Indians from the Coast Miwok, Bay and Plains Miwok, to the north and east of the missions, and from the North Valley Yokut and Patwin tribal groups as well, were converted at Missions San Francisco, Santa Clara, Santa Cruz, and San Jose (Cook 1957, 1960; McCarthy 1958; Bennyhoff 1977; Milliken 1982, 1991, 1995, 2008; Milliken, Leventhal and Cambra 1987). Also as noted previously, marriage exchanges between these tribal peoples followed extremely old and established kinship traditions in central California; intermarriage and strong relations of kinship continued within the setting of the mission, albeit under circumstances Indian peoples found alien, harsh and objectionable.

Notwithstanding the enormously destructive changes missionization wreaked upon indigenous culture and society, the missions themselves were vulnerable to the winds of political change. Situated at the very northern edge of the Spanish empire, central California's history was really a part of a larger Latin American history until the late 1840s.

The Spanish crown had decided to secularize the missions as early as 1813, but the struggle for Mexican independence intervened. Between 1834 and 1836, the Mexican Republic enacted legislation that terminated the missions and proposed to divide mission properties among the missionized indigenous peoples. Yet this division of land and resources did not fully occur in the San Francisco Bay region. Instead, the local families of Spanish-Mexican descent, known as **Californios**, proceeded to make formal claims upon most of the property owned by missions Santa Clara and San Jose. Large cattle ranchos were created and the **Californios** established themselves as neo-feudal lords (Phillips 1981; Milliken 2008; Milliken, Leventhal and Cambra 1987).

Milliken et al., conducting research with the Muwekma Tribe for the **Interpretive Recommendations and Background Report for the East Bay Regional Park District**, noted:

Under Spanish law, Mission lands were to be held in trust for the Indians until the government felt that they had become enough like Europeans to be considered "people of reason". The Mexican government came under strong pressure during the 1820's to ignore the Indian land rights and open up mission lands to settlement by the families of ex-soldiers and by new settlers from Mexico. The government of Mexico finally gave in to these pressures with a series of secularization acts between 1834 and 1836. On paper these acts protected the Indian land rights. Administrators were to divide mission properties among the Indians, with the left over lands to be allocated to Mexican immigrants through petition.

A veritable landrush began among local Mexican families from San Jose when Jose Jesus Vallejo became administrator of Mission San Jose in 1836. Within a two-year period, an instant feudal aristocracy was formed, complete with a population of Indian serfs. Families such as the Vallejos, Pachecos, Alvisos, Castros, and Bernals gained control of the mission lands and herds. These new land owners continued to live in San Jose, while former Mission San Jose Indians did all the labor on various ranchos (Milliken, Leventhal and Cambra 1987:11).

Thus, the ancestors of the Muwekma Ohlone experienced a second abrupt and catastrophic shift in their lives when the Mexican government secularized the Franciscan Missions. Although, as stated above, Mexican law decreed that half of all the mission held lands were to be issued to the newly patriated neophytes, no such lands were formally granted with the exception of four individual land grants to several Clareño Ohlone Indian families. Most Indians left the missions to become manual laborers, domestics and vaqueros on neighboring Californio-owned ranchos as in the case of the parents of Muwekma ancestor **Maria de los Angeles Colos** and her parents who worked for the Bernal, Pico and Sunol families in Santa Teresa Rancho and Rancho El Valle de San Jose that included Pleasanton and Sunol.

Mexican Land Grants Issued to Secularized Clareño Indians

Rancho Ulistac

Around the area of **Mission Santa Clara**, however, several (**Clareño – Mission Santa Clara Indians**) Ohlone families were fortunate to be granted land grants by the Mexican government. In 1845, Governor Pio Pico granted the **Rancho Ulistac** land grant near Alviso in Santa Clara to **Marcello, Pio, and Cristóbal**. **Marcello** was baptized on June 15, 1789 at age 4 (SCL-B #1360) and a year later, his older sister Cira Maria, age 6, was baptized on July 15, 1790 (SCL-B #1724). His father was identified in the Santa Clara Baptismal records as Alexandro **Séunes** who was baptized on July 21, 1804 at the age of 44 (SCL-B #4577) and his mother's name was Maria del Pilar **Pacanagua**/Pacsim who was baptized on July 21, 1804 (SCL-B #4580); it was noted that she was from the **San Bernardino Rancheria District** located to the west/southwest from the mission. Alexandro Séunes and Maria del Pilar Pacanagua were also married on July 21, 1804 after they were baptized at the mission (SCL-M #1096).

As mentioned above, the Rancho Ulistac land grant was also issued to two other Mission Santa Clara Indian men named **Pio Guatus** (SCL-B # 4805; baptized June 21, 1805 at age 12 and he died November 21, 1846); and **Cristobal** (SCL-B # 6157; baptized November 7, 1813 at age 3 days) who were from the **Tayssen Thámien** Ohlone-speaking tribal group. Cristóbal's father was **Audito Lataig** (SCL-B # 4737), and his mother was **Audita Petsilate** (SCL-B # 4838) both were identified as being from "**Rancheria de los Tayssenes.**" At present we do not know what the relationship was between Marcello, Pio and Cristóbal who must have had a close relationship in order to obtain their land grant.

The Tayssen tribal group's territory was located in the uplands of Hamilton Range to the east of the large territory centered around Hall's Valley of the **Paleño** Tribal group which was named by the missionaries after their powerful Capitan/Chief Pala.

Rancho **Ulistac** measured half a league (2270 acres) and included the bay shore of the present-day cities of Santa Clara and Alviso. Milliken et al. noted the following about the Tayssen tribal group:

Tayssen (Costanoan Language). The people identified by the Santa Clara missionaries as Tayssens comprised a very large group (274 people) that seems to have inhabited a large area of the central and eastern Coast Ranges east and southeast of the Santa Clara Valley. The Tayssens were baptized at Mission Santa Clara between 1803 and 1811, most of them in 1805 and 1806. A small number of Sumus [possibly a Capitan/Chief's name], baptized at Mission Santa Cruz in 1806 and 1807, cross-tie to the Tayssens at Mission Santa Clara . . . (Milliken 1995:257).

After a large number of San Carlos district (southern) people went to Santa Clara in 1802 (83 adults), a two year cooling off period ensued. Then, between 1805 and 1810, the last of the Costanoan speakers from the hill country went to Mission Santa Clara, including the Juñas of the San Antonio Valley (67 adults), the Luechas of Corral Hollow (72 adults) and the **Tayssenes** of a large area far to the southeast in the upper Coyote River and Orestimba Creek watersheds (194 adults). Mission Santa Clara reached its peak as a purely Costanoan mission in 1808, with a population of 1,410 people (Milliken et al. 2009:141)

Rancho Posolmi y Pozitas de las Animas (Little Wells of Souls).

Earlier, on February 15, 1844, another Clareño Ohlone Indian named **Lope Yñigo**, was issued title to 1695.9 acres (2.64 square miles) around present-day Moffett Field near Mountain View by Governor Micheltorena (Brown 1994). This land grant was called **Rancho Posolmi y Pozitas de las Animas (Little Wells of Souls)**. The root of the name Posolmi comes from the word "*posol*" meaning "painted" or "colored," and "*mi*" as a suffix indicating something beneficial to a person. Apparently, Yñigo was recognized as a chief or *capitan* of the "San Bernardino" Ohlone-speaking people who originally occupied this region. He was baptized at Mission Santa Clara in 1789 (SCL-B # 1501).

The Posolmi land grant was also referred to as **Yñigo's grant**, **Yñigo Reservation** (Thompson and West 1876 Historical Atlas Map of Santa Clara County) and **Pozitas de las Animas**, or **Little Wells of the Souls**. In the recent publication titled Historic Bay Area Visionaries there is a photograph of Mission San Jose, with a caption stating "Mission San Jose, where Inigo studied music, is sixteen miles from Mission Santa Clara where Inigo spent half of his life" (Chapman 2018).

Although reduced to approximately 400 acres, Yñigo's claim came under review in the U.S. Land Commission of 1852 (Walkinshaw vs. the U.S. Government, Posolmi, 125, Land Case 410) and he retained this small portion of his land until his death on March 2, 1864. Yñigo was buried somewhere on his land which is now occupied by Moffett Field and Lockheed Corporation. After Yñigo's death, it appears that his descendants may have afterwards moved to the Alviso Rancho [(see U.S. Land Commission Index to land Grants 1852, U.S. General Land Office, Posolmi, 125, Land case 410); Bancroft 1886; Harrington 1921-1934; Arbuckle 1968; see: Thompson and West 1876 Map identifies Yñigo Reservation (Moffett Field); Yñigo Rancho by Pat Joyce; Obituary of Yñigo in San Jose Patriot].

Recently, MidPen Housing Corp. requested of Muwekma to help in naming a newly constructed affordable housing development called Posolmi Place in the City of Sunnyvale (**Figure 4**).

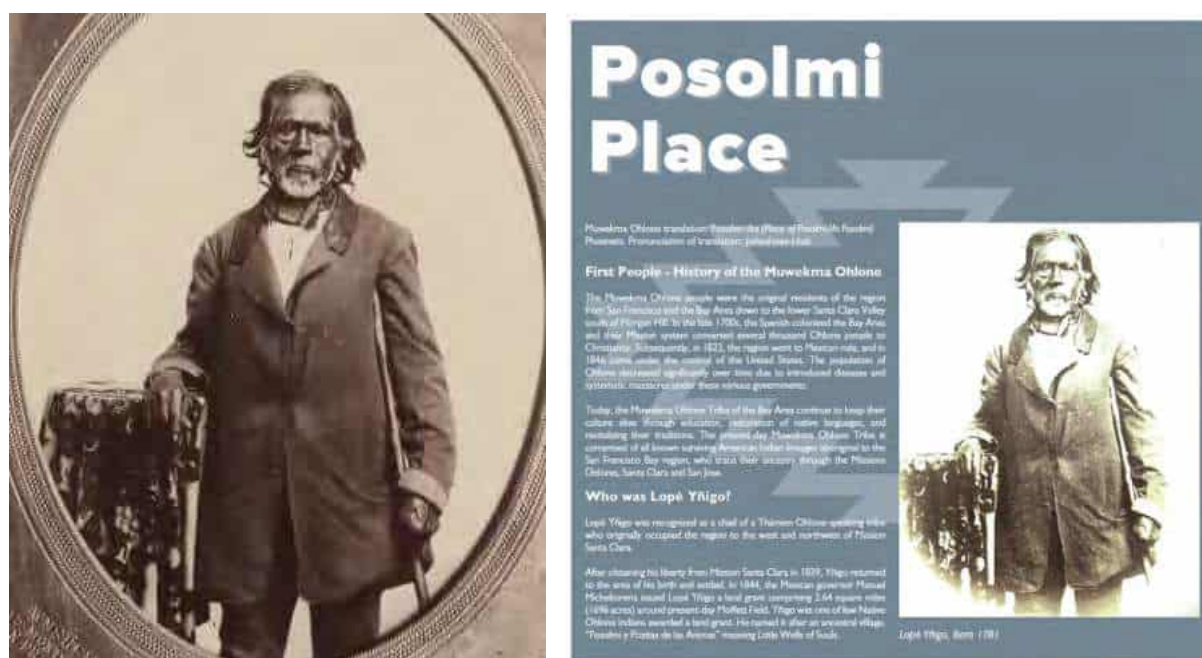


Figure 4: Clareño Ohlone Indian Lopé Yñigo

Rancho de los Coches

Also in 1844, Governor Manuel Micheltorena formally granted **Rancho de los Coches (the Pigs)**, totaling 2219.4 acres, to a Mission Santa Clara (Clareño Ohlone) Indian named **Roberto Antonio Balermينو**². Since 1836 Roberto had occupied this land west/southwest of the confluence point where the Guadalupe River and Los Gatos Creek meet in downtown San Jose.

It is interesting to note that Rancho San Juan Bautista borders on the southeastern side of Rancho de los Coches and the **Clareño Muwékma Ya Túnnēšte Nómmo Site (CA-SCL-30/H)**, includes the **Third Mission Santa Clara Indian Neophyte Cemetery**) are located approximately three miles to the northwest of Roberto's adobe/homestead.

² Note: on March 7, 2015, the Muwekma Ohlone Tribal leadership participated in a ribbon cutting ceremony for the newly named **Roberto Antonio Balermينو Park** on Almaden Road in San Jose. The Tribal Leadership wanted to honor Roberto by naming the park after him.

Roberto was baptized **Roberto Antonio** on September 26, 1785 at the age of 3 years old (SCL-B # 0791). He was identified as being from the **San Juan Bautista (district)** Tamien Ohlone-speaking tribal group. Roberto's father was Juan Jose, who was baptized on December 4, 1802 at the age of 40 years (SCL-B. #4384). Juan Jose was also identified as being from the San Juan Bautista (district) Ohlone tribal group. Juan Jose's Indian name was **Guascaí** and he died on February 7, 1825 (MSC death register #5808). Roberto's mother's name was identified as **Sulum** but there was no additional baptism information.

Rancho de los Coches was adjacent to the aboriginal territory of Roberto's tribal homeland that included the district that the Spanish Priest called **San Juan Bautista** (again not to be confused with Mission San Juan Bautista located south near Hollister). At the age of nineteen (around 1801) Roberto had married his first wife Maria Estefana (this date is based upon the birth of one of their children).

Roberto's marriage to Maria Estefana connected him to the **San Francisco Solano** district located to the north of Mission Santa Clara (Milpitas/Alviso), and also connected him to the **Santa Ysabel** district to the east hills above San Jose (Brown 1994; C. King 1994).

Maria Estefana was baptized on August 8, 1785 (5 days old) and she was identified as coming from the **Santa Ysabel (district)** Costanoan/Ohlone-speaking tribal group (SCL-B. #0773). Maria Estefana's mother was **Micaelina Antonia** who was baptized at Mission Santa Clara on June 18, 1780 at the age of 18 years. She was identified as belonging to the **San Francisco Solano (district)** Costanoan/Ohlone tribal group (SCL-B #0181).

Maria Estefana's father was named **Francisco Gil** by the Spanish priests and was baptized on April 21, 1782 at the age of 20 years (SCL-B #0347). His Indian name was Gilan. Francisco Gil was identified as coming from the **Santa Ysabel (district)** Costanoan/Ohlone tribal group. Roberto had died on October 26, 1847 (MSC death register #8053).

[**Note:** between the summer of 2009 to its grand opening on March 7, 2015, the Muwekma Tribal leadership and Language Committee, brought the history and heritage of **Roberto Antonio Balermينو** and his family back to visibility by naming a public park located at 1527 Almaden Expressway in his honor as a major Clareño Muwekma Ohlone Indian historic figure.]

Rancho La Purisima Concepcion

On the West Bay, a land grant was issued to another Clareño Ohlone Indian man named **Jose Gorgonio** and his family. **Jose Gorgonio** and his son, **Jose Ramon**, were granted **Rancho La Purisima Concepcion** by Governor Juan B. Alvarado on June 30, 1840. This rancho comprised 4,440 acres or 1 square league around the present day Palo Alto/Los Altos Hills area (Brown 1994). **Jose Gorgonio** was probably baptized as **Gorgonio** (SCL-B #1721; baptized July 15, 1790 at age 1½ years). His father's Indian name was **Lulquecse** (possibly a *Capitan*) and his mother's name was **Seguem**. Lulquecse was identified as **Chrisostomo Lulquesi** (SCL-B #2672; baptized November 27, 1794 at age 42 and had died November 5, 1801). He was listed as being from the **San Bernardino** district located to the west/northwest of Mission Santa Clara. Although Gorgonio was identified as being from the San Bernardino tribal district, the location of his land grant possibly places his homeland within the Puichon tribal territory..

Other Indian Settlements

During the post-secularization period (after 1836), there were at least six Indian rancheria settlements established areas surrounding **Pueblo de San Jose**. One major rancheria was located on the **Santa Teresa Rancho** (Bernal's property) south of the Pueblo San Jose near the Santa Teresa Hills. Another was located in the valley east of San Jose called **Pala Rancho**, while a third was established along the Guadalupe River above Agnew on the **Rinca de los Esteros Rancho** (City of Santa Clara).

In the present-day City of Cupertino was the **Quito Rancho**. In **Pueblo de San Jose**, there was a settlement of "free Indians" on the east side of Market Street, and the sixth community was located further west along the banks of the Guadalupe River near Santa Clara Street (King 1978; Winter 1978a).

No formal land grants were issued to emancipated Indians from either **Mission San Francisco** or **Mission San Jose**.

Establishment of the East Bay Rancherias and Muwekma Tribal Descendancy: Setting the Stage for the Historic Verona Band of Alameda County and the Muwekma Ohlone Tribe

After secularization of the missions, many of the Mission Santa Clara (Clareño) Ohlones, including the **Luecha**, **Santos** and other families, found refuge with their familial cousins residing in the East Bay on rancho lands owned by Californios, especially near the present-day towns of **Pleasanton**, **San Leandro/San Lorenzo**, **Livermore**, **Sunol**, **Niles** and **Alviso** (Harrington 1921-1934).

During the years 1841-1842 some of the surviving Bay Area Mission Indians left the missions and found work on many of these neighboring ranchos as domestics, field laborers, farm hands and vaqueros (cowboys). During this period of time there appears to have been a free and independent Indian community working (and possibly owning) land between the San Leandro and San Lorenzo Creeks located within the aboriginal **Jalquin/Yrgin Ohlone**-speaking tribal territory near the present-day City of Hayward (see Nicholas Gray Survey Map of 1855; also see Harrington 1921-1934 interviews with Susanna Nichols, Jose Guzman and Maria de los Angeles Colos).

Based upon Mission San Jose record studies, the Muwekma Ohlone Tribe has documented that **Efrena Quennatole** [who was the great-grandmother of Dario, Dolores, Isabelle, Ramona, Mercedes, Victoria, Lucas and Trina Marine, grandmother of **Avelina Cornates Marine** and **Francisca Nonessi Guzman**, and the mother of **Liberato Nonessi**] was recalled by Verona Band/Muwekma Ohlone consultants **Jose Guzman** and **Maria de los Angeles Colos** during one of their interviews with Harrington (see below). Mission records suggest that Efrena Quennatole and her third husband **Ybon Uacu-uga**, were living at "**de Rancho de San Lorenzo**" at the time of the birth and baptism of their son Ybon in 1838 (Mission San Jose baptism dated March 31, 1838). Years later, Ybon (Jr.) went through life by the name of Miguel Santos Pastor and he had married Celsa Santos³. The following is Ybon's Mission San Jose 1838 baptismal record:

³ On the **1880 Census**, **Miguel Santos** (age 40); Maria (Celsa), wife, age 35; Hosa S. (Jose Santiago), son, age 15; Maria (Antonia), daughter, age 7; Vincent (Jose Antonio), son, age 5; and Pappoose, son, age 5/12, (born January 1880), were residing in Brooklyn

1838 Mar 31,	Ybon , "de Rancho de San Lorenzo"
Born:	Mar 16, 1838 (15 days old)
Father:	Ybon
Mother:	Efrena

Based upon his research, Milliken also discovered that during this period of time:

One group of Indians established an independent community somewhere along the road north from Mission San Jose toward Alameda Creek during the 1840's. The head of the community was Buenaventura, one of the few survivors of the original villages from the local "Estero" area, or bayshore.

Buenaventura had been baptized as a two-year old at Mission San Jose in 1798 (JOB 161). Father Miguel Muro granted a license to Buenaventura, six other adult males and their families on 2 November 1844. His wife Desideria was of a family that had moved to the mission from the Jalalon area, now eastern Contra Costa county. Buenaventura died in 1847. Desideria sold the group's license to an American in 1849. The U.S. Land Commission of the 1850's did not recognize the license as a valid land title .[Land Case 290 n.d.:11] (Milliken, Leventhal and Cambra 1987).

The "Estero" area along the bayshore included the probable *Chocheño/Thamien* Ohlone-speaking (bilingual) **Alson** tribal group located along the lower Guadalupe River and the Chocheño Ohlone-speaking **Tuibun** tribal group of the Fremont Plain. As discussed above both of these groups were first missionized at Mission Santa Clara (Milliken 1983, 1991, 2007, 2008).

1846 - 1870s American Invasion and Post-Conquest Period

Many of the missionized Indians, who had previously labored in the mission's fields and cared for the livestock, were hired on as vaqueros by the new Californio estate-owners, who continued the tradition of controlling indigenous peoples on and near the old mission lands. Yet, many of the formerly missionized Indians who worked on these ranchos opted in some cases to move to the most remote areas of the back-country within their old homelands. At least a thousand former mission Indians lived in the vicinity of Mission San Jose in the early 1840s, and it is likely that more Indians came to the area from the Mission Santa Clara region (History of Washington Township 1904). During this historic period, the part of the East Bay extending north of Mission San Jose up to San Leandro became a region of refuge (especially after the American invasion and conquest of California), to which the missionized Indian peoples of the East and South Bay migrated and in which communities of mission survivors coalesced.

During this period, invasion of the tribal territories throughout California accelerated dramatically and created the third major rupture to the lives of California Indians. Losses of land due to the Bear Flag Revolt of 1846-47 (American Conquest under **John C. Fremont** [Figure 45, Gold Rush of 1848-49, and indifferent enforcement of the Treaty of Guadalupe Hidalgo of 1848 cut off any traditional means of subsistence, and forced the ancestors of the Muwekma Ohlones residing on the East Bay rancherias and surrounding ranchos into even greater dependence on the non-Indian economy.

Township, north of the San Leandro Creek near the old San Lorenzo Rancheria, possibly near the old town of Fitchburg (now Oakland).



Figure 5: John C. Fremont

[Note: Sent by his Father-in-Law Senator Thomas Hart Benton to Seize California in 1846]

The transition of power during the Gold Rush years and California Statehood witnessed great changes in policies towards Native Americans in California. One of the major figures to emerge during this period was **Peter Hardeman Burnett** (November 15, 1807 – May 17, 1895) (**Figure 6**) was an American politician who briefly served as the territorial civilian governor of California in December 1849. Burnett was the first elected state Governor of California, who served from December 20, 1849 to January 9, 1851. He was also the first California governor to resign from office.



Figure 6: Governor Peter Burnett

On September 9, 1850, California became the 31st state in the Union and with tensions rising between the newly established American settlers as they claimed more and more Indian lands and committed depredations against tribal groups. Four months later, on January 7, 1851, in Governor Peter Burnett's first address to the California State legislature, he opined that **"a war of extermination will continue to be waged between the races until the Indian race becomes extinct"** (California State Senate Journal, 1851; Hurtado 1988:135).

Peter Burnett's legacy is largely mixed. While regarded as one of the “fathers” of modern California, Burnett's openly racist attitudes towards Black people, Chinese, and Native Americans has left a tarnished legacy for himself and California's treatment toward minority groups. Furthermore, while Burnett was serving in the Oregon Territorial Legislature (1848) his attitude toward minorities especially African Americans helped facilitate the exclusion of Black people from that state until 1926. Also, his open hostility to foreign laborers influenced a number of federal and state California legislators to push legislation, such as the Chinese Exclusion Act of 1882. As mentioned above Burnett was also an advocate of exterminating California Indian tribes, a policy that continued with successive state administrations over the ensuing decades. The State at one point offered a bounty ranging from 25 cents to 5 dollars for Indian scalps.

After California statehood, in 1850, the United States Congress appropriated \$100,000 and President Millard Fillmore appointed three commissioners to enter into treaty agreements with the Indians of California for the purpose of ceding and quit claiming all lands identified within the 18 treaties which were negotiated between 1851 and 1852. In return for quit claiming their acknowledged aboriginal title to all of California, the tribes of California were to receive, as a set-aside, reservation lands totaling approximately 8.5 million acres along with food, supplies and services. Although reaching Washington, D.C. in 1852, these 18 treaties were never ratified by the United States Senate (Heizer 1972; Hoopes 1975, Heizer 1978, Stewart 1978). Under the terms of these treaties, the ancestors of the Muwekma Ohlone Tribe were to be the intended beneficiaries of two of the treaties: E. Treaty of Dent's and Ventine's Crossing, May 28, 1851; and M. Treaty of Camp Fremont, March 19, 1851 **[Figure 7]**.

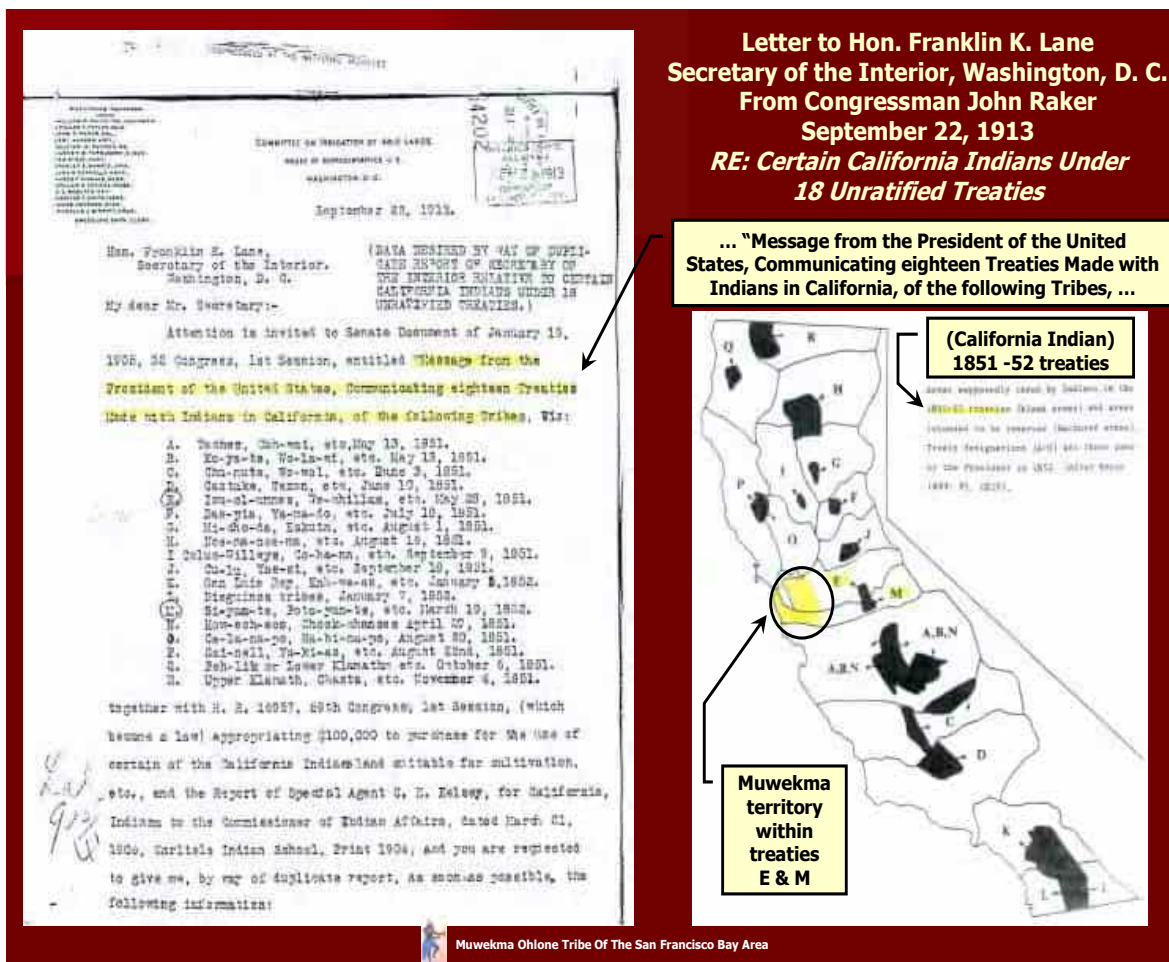


Figure 7: Eighteen Unratified Treaties of California

In a **Daily Alta California** article about The Indian Commissioners published on January 24, 1851 the author noted that:

We happen to know something about the commission, something of its members, something of its intentions. Of the commissioners, we can tell the Legislature and Gov. McDougall, what they already probably know that is has ample powers to treat, and form treaties, with the Indians, that they have a *carte blanc* [sic] for that purpose, that they are prepared with proper goods for presents, and can draw upon U.S. officers here for such funds as are necessary. In reference to the members of that commission we may say that we have full confidence in their ability and integrity to consummate their mission in a manner honorable to their government, advantageous to our citizens, and for the best future for the Indians.

As to their intentions and movements. Their intentions are peaceable treaties and extinguishment of Indian titles, if it can be peacefully effected. For this relinquishment of course they are empowered to secure the native occupants for the soil a remunerative consideration in the way of installments or some other equally satisfactory and protective, which shall amply pay the Indians for the rights which they yield, and secure to them the means of subsistence (published in Exterminate Them! by Trafzer and Hyer 1999.)

Trafzer and Hyer also noted that:

... [T]he federal government dispatched three commissioners – Redick McKee, George Barbour, and O. M. Wozencraft – to negotiate agreements with the indigenous inhabitants of California. They negotiated 18 treaties with California's tribes, which the United States Senate rejected. At one time, California's tribes controlled all of the land, water, minerals, and other resources of the region, but under the treaties of the 1850s, they would have lost most of their estate. However, they would have retained for themselves approximately one-seventh of the state as Indian reservations. Even this was too much for whites in California, and the California delegation worked feverishly to scuttle the treaties, so that the native people had little formal relationship with the federal government, so that the state could assert its powers over the Indians. As a result, California allowed whites to steal Indian land, enslave Indian children, rape native women, and murder indiscriminately Indian men, women, and children (1999: 135-136).

As stated above, the newly elected senators from California, argued that the Indians should get nothing, and as a result the 18 unratified treaties were submerged under a seal of secrecy. No one was to know that the United States Government recognized the aboriginal title of all of California, belonged to the Indians facing genocide.

Under the terms of these treaties, the ancestors of the Muwekma Ohlone Tribe were also to be the intended beneficiaries of two of the treaties: **E. Treaty of Dent's and Ventine's Crossing**, May 28, 1851 and **M. Treaty of Camp Fremont**, March 19, 1851.

During this transformative American Conquest period between the late 1840s and 1860s, the small steps that the Indian rancherias of the San Francisco Bay, the ancestors of the contemporary Muwekma Ohlone, had taken to revitalize their communities and culture suffered a series of severe blows. The military invasion of California by the United States in 1846 and the subsequent Gold Rush (1849), followed by statehood in 1850, ushered in a new period of genocide against indigenous Californians.

A war of involuntary servitude and extermination was launched against indigenous peoples by the first legislators of the state (Hoopes 1975; Rawls 1986). Laws barred Indians from voting, from giving testimony in court, or from bringing lawsuits (Rawls 1986; Hurtado 1988). At the same time, American laws in most cases refused to recognize the validity of the land titles for the Californios' ranchos (1853 land cases). Coupled with a crippling drought afflicting central California during the 1860s, most of the Californios could not afford to maintain their land bases and were driven off their South and East Bay estates (Wood 1883). New American owners most likely expelled the Indian vaqueros and their families from the land (Milliken 2008; Milliken, Leventhal and Cambra 1987).

Between the decades spanning 1840 and the early 1860s, for reasons that are still not completely clear, many if not most of the remaining Indian people from Mission San Jose, perhaps many from Mission Santa Clara and elsewhere, gathered at several refuges which included the **Alisal (the Alders) Rancheria**, located just southwest of the city of Pleasanton on **Rancho El Valle de San Jose** which was granted to Antonio Maria Pico, Antonio Suñol and Augustin and Juan Bernal on

April 10, 1839. The Alisal Rancheria appears to have been established in the vicinity of a large pre-contact ancestral Muwekma Ohlone village, now underneath or near the Castlewood Country Club where N-series "Big Head" shaped Kuksú abalone pendants were collected (Gifford 1940, 1947; Leventhal 1993:230-232)

One historic account about the establishment of some of the East Bay rancherias has recently come to light via the oral recollections of Mary Ann Harlan Smith which was recorded by her daughter Emma Smith. Mary Ann Harlan was the daughter of George Harlan who was a wagon master on the ill-fated Donner Party expedition and who led his group successfully into California in 1846/47. Mary Ann Harlan had married Henry C. Smith in 1847 and was living at Mission San Jose at the time of the removal of the Indians to Alisal located between Sunol and Pleasanton. Emma Smith recorded the following account from her mother:

My husband was appointed the first Alcalde or justice of the peace by Gov. Riley, Military Governor of California. He could speak Spanish very fluently and the Spaniards came to him with their difficulties. My husband and his brother remained in partnership for a couple of years, then his brother sold his interest to E. L. Beard and moved to Martinez. Beard and my husband continued in business for a short time. My husband purchased tract of land two and a half miles from the Mission, and also 800 acres on the Arroyo De Alameda, where he afterwards laid out and named the town of Alvarado. My second daughter, Emma was born in Mission San Jose. . . .

I grew very tired of living there, so we built a house on the rancho, near the Mission and moved there. We engaged in farming and stock raising. In the summer of 1850, my father who was living in Mission San Jose died from typhoid fever at the age of forty-eight.

. . . . **The Mission Indians had a rancheria on our rancho and we often watched them performing their religious ceremonies.** They had a large room dug in the ground and covered with brush and earth, with one door to enter. This place was called a sweet house. The Indians decorated themselves with feathers and all sorts of ridiculous costumes. A fire was built in the center of the room and the Indians danced around it. When one made a trip in those days from Oakland to San Jose, one would see millions of cattle and quite a lot of wheat which was raised by the Indians.

Cholera broke out among the Indians, and a number of them died. Their crying and howling and moaning were almost unbearable. My brother Joel, was obliged to take his family and go away where they could not hear the dreadful noise. When I found out that he was going, I had our men take me and my family along. I was very much afraid of the disease. My husband was away at the time. **When he returned and found us gone, he immediately had all the Indians moved to the Alisal, located where Pleasanton now is.** (Emma Smith, 1923). [Emphasis added]

The Alisal Rancheria appears to have been established in the vicinity of a large pre-contact ancestral Muwekma Ohlone village, now underneath or near the **Hearst Mansion/Castlewood Country Club** where **Kuksú** pendants were found (Gifford 1947). The Bernal's, who, unlike many of their Californio neighbors, were able to hold onto their rancho lands, continued to maintain their economy with the help of Indian labor. The Bernal's also had a long history of sponsoring Indian children as godparents and apparently had children with some of the ancestors of the Muwekma Ohlone.

Furthermore, Muwekma Elder **Maria de los Angeles Colos** (Angela), one of J. P. Harrington's principal Chocheño speaking and cultural consultants, stated that she was born on the Bernal rancho located at the Santa Teresa Hills (near the Tribe's ancestral heritage site '**Arma 'Ayttakiš Rúmmey-tak (Place of the Spirit Woman Spring) CA-SCL-125**) in south San Jose located approximately nine miles southeast from the Third Mission Santa Clara (Harrington 1921-1934; Ortiz 1994a).

From the Santa Clara and San Jose Mission records research conducted by the Muwekma Ohlone Tribe, it was discovered that Maria de los Angeles' parents were Zenon and Joaquina Pico whom were married at Mission Santa Clara in 1838.

Examples of interrelationships with the Bernal and Sunol families are found in the mission records, censuses and historic documents. In the Alisal Rancheria community there was a **Clareño Ohlone** man named Raymundo Bernal, who was also identified in San Jose Mission records as Raymond Sunol. **Mission Santa Clara** baptismal records identifies a child by the name of **Jose Raymundo (Bernal)** who was baptized on April 10, 1842 (MSC Baptism # 10219). He was identified as the son of Domingo Bernal and Maria Tacia Sunol who were both listed as "neofitos" (baptized Indians). His godparents were **Antonio Bernal** and Eusebia Valencia.

Raymundo Bernal (Sunol) was married to a Mission San Jose woman named Angela Cornelia (Angela Colos) and they had a child named Joaquino Guadalupe Sunol who was baptized at Mission San Jose on May 15, 1872.

1872 May 15, #1046, Page 211, **Joaquino Guadalupe Sunol** (Indiei) [Indians]

Born: Jul 7, 1872 (probably 1871)
Father: Raimundi Sunol (Bernal)
Mother: Angela Cornelia (Colos)

A year later, on May 30, 1873, Maria de los Angeles and Raymundo Bernal (Sunol) joined with other Indian couples of the Muwekma community to renew their marriage vows at Mission San Jose. Interestingly, this was done during the height of the 1870 Ghost Dance religious movement.

1873 May 30, #212, Page 62, Jose cum Refugia - This entry holds three marriages.
Die 30, May 1873, coram Maria Selio et Raimundo consentium renovavares J.o Jose cum Rafaela; 2. **Reimendums Bernal (Sunol) et Maria de los Angeles** 3. Maria con Selso.

In 1875, Raymundo Sunol (Bernal) and Maria had their third son, Eduardo Sunol who was baptized at Mission San Jose on December 19, 1875:

1875 Dec 19, #1378, Page 262, **Eduardo Sunol**

Born: Oct 13, 1875

Father: Raymundo Sunol

Mother: Maria (de los Angeles)

Godparents: Philip & Maria Catharina Gonzales*

[*Note: Philip and Maria Catherina Gonzales were Indians from the Alisal community]

On the 1880 Census for **Murray Township**, Alameda County (District 26), **Angela Colos** was identified as **Sincion, Anchaline**, (Asuncion, Angeline) Indian, age 30. She was listed as a **widow** and living with her daughters, **Francisca (Luecha)**, Indian, age 14 (born ca. 1866), Juana, Indian, age 11 (born ca. 1869), Louisa (Aloisia?), Indian, age 6, Rita (Aloisia?), Indian, age 2. Angela Colos and her family were living eight houses away from **Antonio Bernal, Jr.**

Also on the 1880 Census for **Murray Township**, Alameda County (District 26), was **Ramon Sinol** (Sunol), estimated age 22 (born ca. 1858), he was listed as a farm hand in the household of John Kottenger. He was also living not too far from Angela Colos and her daughters. Ramon was most likely Angela and Raymundo's son Joseph who was born in 1862. Raymundo Sunol (Bernal) and his half-sister, **Francesca Luecha** appeared as godparents for another Indian couple in 1882.

Raymundo Bernal was remembered by Muwekma Ohlone Elder **Dario Marine** when he was interviewed in 1965 by members of his sister's family during the time when the Tribe was involved in saving the **Ohlone Indian Cemetery** from destruction located in Fremont. Dario was born in 1888, and in that 1965 interview he identified the Ohlones who were members of the Muwekma/Verona Band/Mission San Jose Indian community. Dario remembered Raymundo and Guadalupe Bernal [Sunol] stating:

Raymundo Vernal [Bernal/Sunol] was Great grandfather people, so were Lupe Vernal [Guadalupe Bernal] and Jose Vinoco [Binoco] an uncle" (Avelina Family History, Dario Marine Interview 1965).

The Bernals, who, unlike many of their *Californio* neighbors, were able to hold onto their rancho lands, continued to maintain their economy with the help of Indian labor. The Bernals also had a long history of sponsoring Indian children as godparents and apparently had children with some of the ancestors of the Muwekma Ohlone. In 1894, Antonio Bernal (died 1924) and Muwekma ancestor, **Magdalena Armija Marshall Thompson** (b. 1878 – d. 1931) had a daughter named Rosa Bernal who was identified as an Indian and baptized at Mission San Jose on January 26, 1895:

1895 Jan 26, **Rosa Bernal** (Indian)

Born: Nov 20, 1894

Father: Antonio Bernal

Mother: Magdalena Armina (Armija)

Godparents: Manetta Cosmo* & Petra Igo (Phoebe Inigo)

[*Note: Rosa's Godfather was either Daniel Cosmos or Manuel Santos]

The Alisal Rancheria was one of the most prominent and important communities of Ohlone Indians from the 1860s onward into the early twentieth century, and constituted one of the first known post-American conquest Indian revitalization center within the Bay Area. The people of Alisal and surrounding rancherias revived many dance ceremonies during the early 1870s, which strongly implies that other traditional arts and kinds of cultural knowledge, about ceremonial regalia, songs, sacred language, and crafts also experienced a resurgence. But more than revival took place at Alisal and the other rancherias.

The available evidence depicts a constant ebb and flow of people, of surviving Indians from all over the Bay Area (including Clareño Ohlones from the Mission Santa Clara area) and central California moving into and out of Alisal, Niles, Sunol, San Lorenzo and Livermore rancherias (Gifford 1926, 1927; Gayton 1936; Kelly 1978; Harrington 1921–1934). Thus, many surviving fragments of knowledge and ritual were brought together in this one place, from the many Ohlone peoples, each with their own varying customs and ways of thinking, as well as from the intermarried and neighboring Miwoks, Yokuts, and other more distant tribal peoples brought under the sphere of influence of the missions. Inevitably, a blending of older forms took place, a fusion of traditions and religious beliefs that together generated a new cultural vitality (Gifford 1926, 1927; DuBois 1939).

Perhaps, as a consequence of these factors and familial interrelationships between the Bernal and Sunols and the ancestors of the Muwekma Ohlone, the Bernal family was willing to allot a portion of their rancho lands to the Muwekma Indian community which became the Alisal Rancheria.

In other areas throughout the East Bay, small groups of formerly missionized Indians also settled at lesser known rancherias in nearby Livermore (**Arroyo del Mocho**), Niles (**El Molino**), San Lorenzo (**The Springs**) and Sunol (Harrington 1921-1934). All of these rancherias maintained close ties with their Plains Miwok, Bay Miwok, and Coast Miwok and North Valley Yokut neighbors and Ohlone blood-relations as well (Kroeber 1904; Gifford 1926, 1927; Kelly 1932).

1870 Religious Revitalization Movement: The Ghost Dance at the Pleasanton Rancheria

During the 1870s, a religious messianic-oriented revitalization movement referred to as “**the Ghost Dance**” spread throughout central California. This first Ghost Dance originated in Nevada beginning around 1869, involved a Paiute prophet named Wodziwob who taught that by dancing certain dream inspired dances, Indian people could end the domination of their land and destruction of their lives by the whites, and usher in a new golden age for all Indian peoples (Du Bois 1939).

At Alisal, the ancestors of the contemporary Muwekma Ohlone combined elements and doctrine from the imported Ghost Dance with the ancient **Kuksú** Religion, regalia and compliment of dances, the World Renewal Ceremonies as well as other rites practiced throughout central and northern California (Gifford 1926; Loeb 1932, 1933; DuBois 1939; Bean and Vane 1978). So potent was the syncretic combination derived by the people of Alisal (and the surrounding rancherias) that non-Christian Native American missionaries were sent out from there to preach the new religious doctrine to other indigenous peoples to the east, south, and north of the Pleasanton (Alisal) Rancheria (Gifford 1926, 1927, 1955; Kelly 1932, 1991; Gayton 1936; Field et al. 1992).

Berkeley Anthropologist Edward W. Gifford visited the Livermore and Pleasanton region in 1914 and the Alisal Rancheria in particular. Still later, as a result of field work conducted in the interior amongst neighboring central California tribes, Gifford reported in his **Miwok Cults** (1926) and **Southern Maidu Religious Ceremonies** (1927) that his principal cultural consultants recollected that the songs, dances and regalia were brought to them by three non-Christian missionaries from the Pleasanton region. These three teachers were **Sigelizu**, who taught the following dances to the Central Miwok: *Tula*, *Oletcu*, *Kuksuyu*, *Lole*, *Sunwedi*, *Sukina*, *Kilaki*, *Mamasu*, and *Heweyi*. Another man named **Yoktco**, from Pleasanton, introduced similar dances to Southern Maidu, while a third, named **Tciplitcu** taught these dances to Miwoks and North Valley Yokuts at Knight's Ferry.

Interestingly, all three teachers had non-Hispanic or non-Anglo names, thus perhaps representing through a revitalized religious doctrine a rejection of the colonial (alien) order. Knight's Ferry is on the Stanislaus River, in **Lakisamne** North Valley Yokut tribal territory (see information relating to Estanislao), showing continuous ties to the area throughout the 1870s.

The Lakisamne tribal region is also where Muwekma Elder Jose Guzman's maternal grandmother, Nimfadora, originally came from in the early 19th century (Milliken, Leventhal and Cambra 1987; Milliken 1991; see MSJ baptismal record # 4276, September 26, 1820).

Ethnographic information from the Coast Miwok region on the Marin Peninsula recorded by Isabel Kelly 1931-1932 (1932, 1978, and 1991) provided other accounts about how important the Pleasanton/San Jose Mission [**Verona Band**] region was to the Coast Miwok and demonstrates the ebb and flow of contact between Marin and Pleasanton areas during this period of time. Tom Smith and Maria Copa were two of Kelly's principal Coast Miwok linguistic and cultural consultants. Kelly inquired from them "Did they dance Kuksui at San Jose?" Maria Copa's response was:

I should say so. My grandmother said that the people here had to buy Kuksui Dance from the San Jose people. All of those songs are in the San Jose language (Kelly 1991:354).

There were also specific references to Mrs. Martha Guzman (herself a Coast Miwok and Costanoan descendant) from Marin regarding the *kawai-yoyolomko* (horse eaters) [Costanoans]:

This is what the people around Redwood City were called. Mrs. Guzman's father belonged to those people. I saw Mrs. Guzman last night. Her father came from Santa Clara, although once before she said Redwood City (Kelly 1991:355).

Jose Guzman (born around 1853) was one of the last knowledgeable singers from the Muwekma community until his death in 1934 (Harrington recorded 27 songs at Niles in 1930). He recollected songs that he and his father were introduced to while visiting other Indian communities to the south at Missions San Juan Bautista and San Antonio (and possibly San Carlos/Carmel) during the time the 1870 Ghost Dance was in its full height.

Although not mentioned by name, Cora Du Bois attempted to interview Jose Guzman in 1934 as part of her 1870 Ghost Dance Study:

In the central portion of California which lies to the north and south of the Sacramento delta there occurred during the 1870's an interchange of dances and ceremonies.

Gifford described a portion of these movements when he presented data concerning the Pleasanton revival. One man from Pleasanton, called Yoktco, took the Kuksui and other dances to the Nisenan of Ione; while Sigelizu, also of Pleasanton, imported a series of dances to the Central Miwok of Knights Ferry. Gifford is inclined to attribute the Pleasanton "revival" and the spread of dances from there to the 1870 Ghost Dance. ...

Unfortunately, the last survivor of the Pleasanton period is unable to throw light on the tentative suggestions of Gifford and Gayton. Repeated attempts to elicit information were useless because his physical disabilities and senility. (1939:114)

U. C. Berkeley ethnographer Edward W. Gifford during the early twentieth century interviewed various Maidu and Miwok elders who remembered aspects of the 1870 Ghost Dance religious revitalization when they were young. These interior Miwok elders recollected that "there appeared... teachers of dances who came from the west" (Gifford 1926:400). As mentioned above, based upon Gifford's interviews with both Miwok and Maidu elders they identified the names of three such missionaries: **Yoktco**, who preached among the Southern Maidu; **Sigelizu**, himself a Plains Miwok, who came to the Central Sierra Miwok; and **Tciplitcu**, a Costanoan/Ohlone man who taught the dances to the Plains Miwok were known to have come from the Pleasanton area (ibid).

Also as mentioned above, all of these men's names are in their respective indigenous language, whereas after missionization, Costanoan/Ohlones, Miwoks, Yokuts, and their descendants were given either Hispanic or Anglo Christian names when baptized. A more generalized revival of indigenous names may have also taken place at Alisal as well as on the other rancherias in order to "reject" the older imposed colonial system. Although the Ghost Dance did not achieve its full objectives, its fluorescence at Alisal and at the other rancherias demonstrates the depth and conviction of indigenous identity and culture in the East Bay during the late nineteenth and early twentieth centuries.

Stuart in his 1966 book noted that the 1870 census included 110 Indians in Murray Township, which includes that portion of Alameda County east of the East Bay hills. Many of these Indians lived at the Pleasanton Rancheria, but there were also small settlements of one or two families at Las Positas, Sunol, the San Ramon Rancho, and at the Agustin Bernal property just north of the rancheria (Stuart 1966:11).

Furthermore, cultural ties to the interior tribes continued to be maintained during the 1940s and later years, especially by Dario Marine and his son Lawrence Domingo Marine who had married Pansy Potts (daughter of Marie Potts) who was from one of the Maidu tribal groups. Dances that were exported from Pleasanton continued to be danced by members of the Miwok, Nisenan and Maidu tribal communities into the present-day (DuBois 1939; Gifford 1926, 1927). The children of Lawrence Domingo Marine (Lawrence Mason Marine, Jr. and Marvin Lee Marine) were taught

tribal dances and continued the tradition of dancing with these interior tribal communities to present-day and some of these dances have been recently reintroduced back to the Costanoan/Ohlone area (News from Native California, Vol. 7 No. 3, 1993). More recently Marvin Lee Marine (Maidu/Muwekma) has reintroduced traditional dances back to the Costanoan/Ohlone region, with the Amah-Mutsun tribal band now learning some of the dances from him. Muwekma tribal member, Joseph Torres who is the great-grandson of Muwekma Elder Dolores Sanchez who was born on the Sunol Rancheria in 1911, is training with the Valley Miwok dance groups and has helped reintroduce the traditional dances and regalia that were exported from the Muwekma rancherias in the 1870s back to Muwekma tribal members.

A number of published and unpublished documents also record the lifeways and linguistic complexity of the Alisal Indian community or as it also came to be known after the construction by Western Pacific of the Verona Railroad Station nearby, the “**Verona Band of Alameda County.**” In 1879/1880, French linguist Alphonse Pinart recorded a detailed North Valley Yokuts vocabulary from Maria Trinidad Gonzales at Alisal (Kroeber 1908; Merriam 1955). Other languages were also spoken, particularly the Plains Miwok **Ki'k** (meaning “water”) language, as well as the *Chocheño* and *Thamien* Ohlone dialects as well as other Costanoan idioms (Curtin 1884, Kroeber 1910; Gifford 1914; Mason 1916; Harrington 1921-1934; Milliken, Leventhal and Cambra 1987).

Late 19th Century: East Bay Rancherias

Muwekma Community Identified as the “Nusbaumer Indians” by the News Media

During the 1880s the Muwekma Ohlone tribe and members of the community occasionally appeared in the various Bay Area newspapers. Other than referring to them just as Indians, they were at times referred to as the **Nusbaumer Indians** because the **Alisal Rancheria** was located on the land purchased by **Carl Duerr** and **Louis Nusbaumer** that was part of the old Bernal-Sunol-Pico **Rancho El Valle de San José (Map 6)**. Furthermore, in one newspaper the San Francisco Call published on December 29, 1889 caricatures some of the notable people of the Pleasanton area including one of the “Nusbaumer Indians” (**Figure 8**)

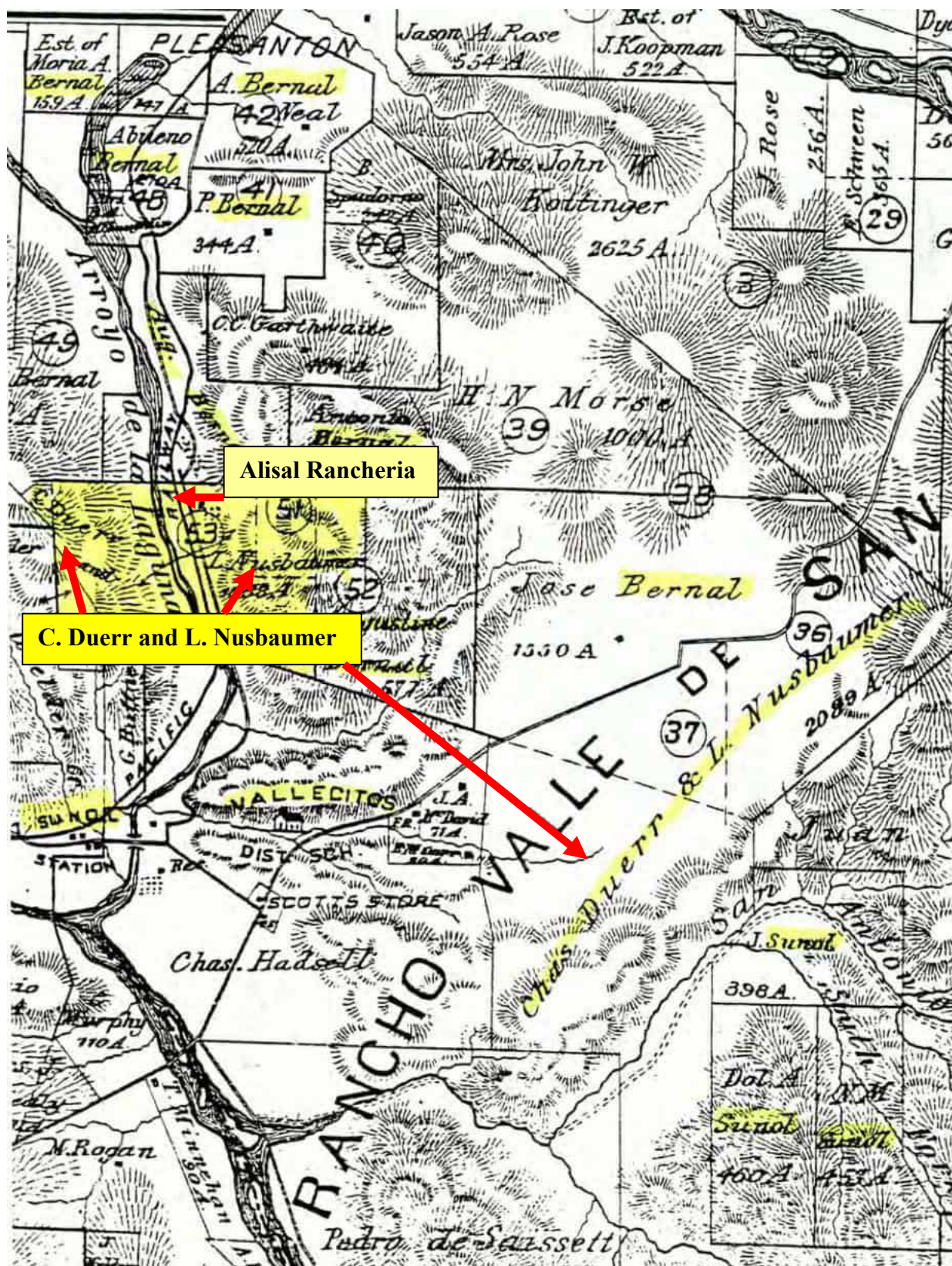
Brief Background on the Nusbaumer Family (1856-1878)

Louis Nusbaumer and his wife Elizabeth (Roth) Nusbaumer lived in San Francisco until the fall of 1856, when they moved on an eighty-acre farm on Dry Creek, Washington Township, Alameda County, which was purchased by Carl (Charles) Duerr for Nusbaumer and himself. In October, 1857 Duerr and Nusbaumer (**Figure 8**) had rented the estate of John W. Kottinger, which was situated in Murray Township, embracing the larger part of the present town of Pleasanton. Their business consisted of merchandising and sheep-raising. At the expiration of their lease in 1862, they bought a joint interest in the old Bernal-Sunol-Pico **Rancho El Valle de San José** consisting of some three thousand acres, where they made their permanent home.



Figure 8: Portraits of Carl Duerr and Louis Nusbaumer

Years later on the 10th day of July, 1878, Louis Nusbaumer's youngest son Emil became the Deputy District Attorney of Alameda County. He was born in San Francisco, February 13, 1856. He first attended school six miles from home, in Dublin, afterwards in Pleasanton, when a school was first established there about 1865, and later in Vallecitos (Sunol) from 1868 to 1872 (**Map 6**). In 1873 he became a clerk in Sunol, in a general store [Scott's Store] which had also the post-office and express office. After two years being employed, he entered the University of California, of the class of 1879, but prior to that, in 1877 entered the law school at the University of Michigan, at Ann Arbor, graduated from there in 1879, and was admitted to practice in the courts of that State. Returning to his home in Alameda County, he worked in the office of District Attorney E. M. Gibson. Emil later became a Judge of the Superior Court, where he remained until his election as Justice of the Peace for Oakland Township in 1882. From January 1, 1883, to December 31, 1888, he served as Justice, and in 1889 was appointed Deputy by George W. Reed, District Attorney. Emil married Miss Elsie H. King in May 3, 1883, they had two children—Emil, Jr. born December 3, 1884, and Louis, born March 1, 1890.



Map 6: 1878 Map of the Duerr and Nusbaumer Properties and Alisal Rancheria
(1878 Thompson and West)

In the early 1880s, U.S. Senator George Hearst and Phoebe Apperson Hearst purchased a large parcel of land from either Duerr and Nusbaumer or the Bernal's that included the Alisal Rancheria, and they allowed the approximately 125 Indians to maintain their community for a time being and some worked for the Hearsts and Appersons. There they built their mansion named Hacienda del Pozo de Verona and later the Western Pacific Railroad built the Verona Train Station adjacent to the Hacienda. A slow decline in the Verona Band community during the late nineteenth century, however, is apparent in light of later events. Pressures of assimilation, an increasingly large number of white Americans settling in surrounding towns and farmlands and taking over the old *Californio* ranchos, the precarious economics of seasonal ranch work, and some out-migration, as well as death due to infectious diseases all contributed to the waning of the indigenous revival at Alisal (Olsen et al., 1985; Milliken 1994 in Davis et al. 1994).

According to several historic documents, the last Kuksú dances were held at Alisal in 1897 (Womens' Research Committee of Washington Township 1904; Marine Family History 1965; Galvan 1968). Writing in 1904, the authors of the History of Washington Township wrote about such ceremonial events:

The dance in September was a very serious, ceremonial dance, lasting several days. Their dresses, worn for the dance, were very elaborate and well made, of feathers. Upon one day, the Coyote dance, a rude sort of play, was given, one of the favorite characters being Cooksuy [Kuksu]—a clown.

There must have been some meaning of a memorable character to this dance, because when asked why they danced, they always replied: "**Because our fathers are dead**" (1904:52).

Earlier that year, on January 6, 1897, the last recognized *Capitan* of the Alisal Rancheria, **José Antonio**, died. Noted in Book of Funerals at Mission San Jose 1859-1908 (p. 147):

Josephus Antonius, Indian DOD: 6 Jan 1897, Age: about 70 [60]. Buried: Indian Cemetery, Mission San Jose, D.A. Rapora, Astt. Mission San Jose

In 1904, the **Northern Association for California Indians**, a philanthropic group of concerned citizens who advocated on behalf of the dying and landless Indians submitted a "**Memorial of the Northern California Indian Association, Praying that Lands be Allotted to the Landless Indians of the Northern Part of the State of California**" to President Theodore Roosevelt. The Memorial was signed by Mrs. T. C. Edwards, President, and **Charles E. Kelsey**, Secretary for the Association. Attached to the **Memorial** was a "Schedule" identifying the landless Indian bands/communities and their estimated population which were scattered throughout northern California (meaning north of Los Angeles County).

In Alameda County, the Schedule identified the Indians living at **Pleasanton** (Verona Band) as having a population of 70, at **Niles** [Figure 9], there was a community with a population of 8, and in Contra Costa County in the towns of Danville and Byron having a population of 5 and 20 people, respectively [Figure 9].

All four communities were identified as “Costanoan.” (Sen. Doc. No. 131, 58th Cong., 2d Sess., 1904, 1-16 (reprinted in Robert Heizer's Federal Concern about Conditions of California Indians 1853 to 1913: Eight Documents 1979) [see **Figure 10**].

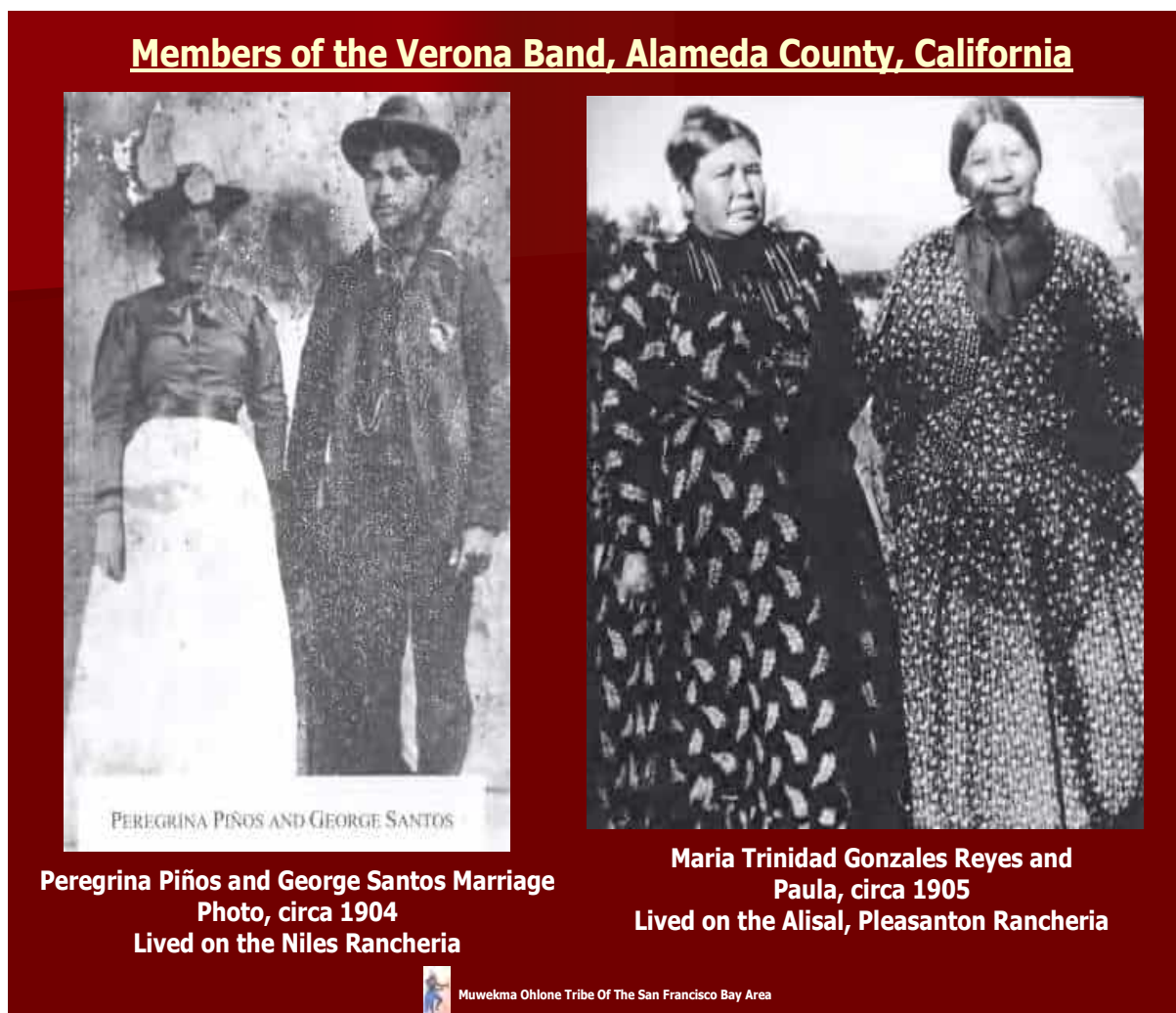


Figure 9: Muwekma Indians at the Niles and Pleasanton Rancherias

In the History of Washington Township published in 1904, the authors provided the following commentary about the Mission San Jose/Verona Band/Muwekma Indians residing at the nearby rancherias:

The only remaining Indian villages today in this part of the state are in this township. They are in the native tongue, El Molino, the mill near Niles, and Alisal near Pleasanton, with perhaps half a hundred persons in each village. In the former, the last full-blooded Indian chief died some three years ago. In Alisal, the wife of the chief still lives, and six others of full blood. ... Alisal is on Mrs. Phoebe Hearst's property, and that lady has always a kindly hand ready to help them when necessary.

...

All of the information appearing in these papers concerning the old Indian history and customs has been gleaned from these seven full-blooded Indians, one being the widow [Jacoba] of the last chief, whose name was **Jose Antonio**. (History of Washington Township, 1904:53).

From the interviews conducted between 1925-1930 with Muwekma Elders Jose Guzman and Maria de los Angeles Colos, Bureau of American Ethnology linguist John Peabody Harrington, was able to learn that **Capitan Jose Antonio's** Indian name was **Hu'ská** (Harrington Field Notes 1921-1934). Jose Antonio was a great-great-grand relation to some of the current generation of the Muwekma Elders and ex-council members such as Lawrence Marine, Jr. and his younger brother (Dance Leader) Marvin Lee Marine are directly descended from him and Jose Guzman. Jose Guzman had married Jose Antonio's daughter Augusta Losoyo.

After his death in 1897, Jose Antonio's wife Jacoba, who was the *mayen* (meaning the wife of a captain or a female chief) of the tribe, directed that the ceremonial round house/sweat-lodge (or **túupentak** in the Chochenyo dialect) be torn down, in keeping with tradition (Galvan 1968). A new **túupentak** was not constructed, as it would have been in previous times, because the community did not formally select a new captain. Apparently, the political power was inherited by Jacoba through marriage as well as her descendency from her parents **Capitan** Taurino and Joaquina.

According to Muwekma oral tradition, it was Raphael Marine, husband of Avelina Cornates Marine who was tasked to take down the old ceremonial **Túupentak** roundhouse. Interestingly, just two years prior to his death, **Capitan** Jose Antonio and his wife Jacoba served as godparent to Raphael and Avelina Marine's fourth daughter, **Mercedes Marine** (co-authors Monica V. Arellano and Gloria Gomez's great-grandmother) who after the death of her mother Avelina in 1904, was raised on the Alisal rancheria by Jacoba. (1910 Federal Indian Population Census, "**Indian Town**," Pleasanton Township, Alameda County).

Also raised by Jacoba was **Catherine Guzman Peralta** one of Jose Guzman's granddaughters. who was identified on the **1900 Federal Indian Census** (Washington Township); **Kelsey's 1905-1906 Special Indian Census**; (Heizer 1971); and the **1910 Federal Indian Population Census** (Pleasanton Township) as an Indian resident of the Alisal Rancheria in Alameda County. . She had first married Avelina Cornate's son Dario Marine, and later Dario's brother Lucas Marine. Catherine Peralta and Dario Marine were Lawrence Mason Marine and Dance Leader Marvin Lee Marine's grandparents.

Just before the turn of the 20th century (1897) there were still at least eleven casitas (houses) and the **Túupentak** (temescal/round house) still standing on or near the Alisal Rancheria. During this critical period of time, the Guzman, Armija, Santos, Pinos, Marine, Nichols, Inigo (Alaniz), and other interrelated Muwekma (**Verona Band**) families remained in Pleasanton or near the original Alisal Rancheria until fire destroyed the remaining houses due to work along the Western Pacific Railroad tracks sometime around 1916.

On the 1910 Indian Census for Pleasanton Township **Mercedes Marine**, age 15, was listed along with her son **Albert Marine** (coauthors Monica V. Arellano and Gloria E. Arellano Gomez's grandfather and great grandmother,) and her Mercedes brother **Dario Marine** living at "**Indian**

Town.“ Also listed as residing on the Alisal Rancheria were the following Muwekma Ohlone Indians: First household: **Angela Colos**, age 71, widowed and **Joseph Garcia**, grandson, age 20, single. Next house: Ocavio (Jacoba) Antonio (*mayen*), age 60, widowed, **Catherine Peralta**, age 19, single, Beatrice Peralta (Marine), age 1 and 4 months, and Frank Guzman, age 12 (who served in the U.S. Marine Corps in France during WWI).

The house of **Catherine Peralta** (granddaughter of Jose Guzman) and **Dario Marine** (eldest son of Avelina Cornates Marine) which was originally owned by Jacoba and Jose Antonio had burned down as a result of that railroad fire in 1916. Prior to the fire, Catherine and Dario had raised their first four children, Beatrice (born 1909), Josephine (b. 1911), Evelyn (b. 1914) and Filbert Marine (b. 1915) on the rancheria.

By the time their fifth child, Lawrence Domingo Marine was born in 1919, they had moved to 544 Alvarado-Centerville Road in Centerville now part of the City of Fremont (see 1900 and 1910 Indian Censuses and 1920 Census, Washington Township; Harrington field notes; Olsen, Leventhal and Cambra 1985; 1928-1933 California Enrollment Applications # 10298 and 10675; 1910, 1920 and 1930 Federal Censuses).

Washington Township (Niles Rancheria) Indian Population Census - June 4, 1900
Alameda County, California

Sheet A

TWELFTH CENSUS OF THE UNITED STATES
SCHEDULE No. 1.—POPULATION
INDIAN POPULATION

NAME	AGE	SEX	RELATION	PERSONAL DESCRIPTION	REMARKS
1. Jose Guzman	12	M	Grandson		
2. Angela Colos	71	F	Widowed		
3. Ocavio (Jacoba) Antonio	60	M	Widowed		
4. Catherine Peralta	19	F	Single		
5. Beatrice Peralta	1	F	Infant		
6. Frank Guzman	12	M	Single		

SCHEDULE No. 1.—POPULATION
SPECIAL INQUIRIES RELATING TO INDIAN POPULATION

Sheet B

TWELFTH CENSUS OF THE UNITED STATES
SCHEDULE No. 1.—POPULATION
INDIAN POPULATION

NAME	AGE	SEX	RELATION	PERSONAL DESCRIPTION	REMARKS
7. Dario Marine		M			
8. Avelina Cornates Marine		F			
9. Josephine		F			
10. Evelyn		F			
11. Filbert Marine		M			
12. Lawrence Domingo Marine		M			

SCHEDULE No. 1.—POPULATION
SPECIAL INQUIRIES RELATING TO INDIAN POPULATION



Jose Guzman and Family



Catherine Peralta

Figure 10: 1900 Federal Indian Population Census, Niles, Washington Township, Alameda County

After the Alisal Rancheria was abandoned, the various surviving Muwekma families continued to work locally in the East Bay, residing on ranches, vineyards, hopyards and renting homes in Niles (e.g., Shinn property), Newark, Centerville, Fremont, Milpitas, Pleasanton, Sunol, Livermore, Alameda and elsewhere. The Muwekmas continued to live peaceably near the Alisal Rancheria as long as they could and had continued to visit and use the locality as best they could. Avelina Marine's children [Dario, Dolores, Elizabeth (Belle), Ramona, Mercedes, Victoria, Lucas and Trina Marine] along with the Nichols, Guzman, Binoco, Pinos, Santos, Inigo, Juarez, Armija and other Muwekma families, had to readapt and relocate to other nearby residences in order to work and maintain their families. Some of the men worked for Southern Pacific Railroad, Spring Valley Water Company, Leslie Salt, and on the local orchards, ranches, and farms.

During the 20th century Muwekma families continued to marry and baptize their children at Mission San Jose, St. Augustine's Church in Pleasanton, Corpus Christi in Niles, and St. Edwards in Newark. Photographic and other records showing life around the Alisal Rancheria and neighboring areas from the early 1900s, WW I, the depression, and WW II survive.

Kelsey Special Indian Census 1905-1906, Congressional Homeless California Indian Act of 1906, and the Federal Recognition of the Muwekma/Verona Band of Alameda County

In 1905, as a result of the discovery of the **18 unratified California Indian Treaties** (which were negotiated between 1851-1852) from the U. S. **Senate Secret Archives**. Mr. **Charles E. Kelsey**, a lawyer who resided on S. 12th Street in San Jose, was serving at that time as the Secretary for the philanthropic **Northern Association for California Indians (Figure 11)**. In 1905 he was appointed **Special Indian Agent to California** by the Commissioner of Indian Affairs (**Indian Service Bureau/Bureau of Indian Affairs**) in Washington, D.C. Agent Kelsey was charged by the BIA to conduct a Special Indian Census and identify all of the landless and homeless California tribes and bands residing from north of Los Angeles to the Oregon border who were to come under the jurisdiction of the BIA and the ensuing Congressional Homeless Indian Acts.

Based upon the partial results of Kelsey's Special Indian Census which was initiated by the discovery of the 18 unratified California Indian treaties in 1905 from the Senate archives, Congress passed multiple Appropriation Acts beginning in 1906 on through 1937, for the purpose of purchasing "home sites" for the many surviving, but landless, California Indian tribes and bands.

One of the bands officially identified by Special Indian Agent Kelsey was identified as the **Verona Band of Alameda County** residing between Pleasanton, Sunol and Niles (as well as living in other adjacent towns, areas and ranches surrounding Mission San Jose). The direct ancestors of the present-day Muwekma Tribe who comprised the Verona Band became **Federally Acknowledged** by the U.S. Government through the **Appropriation Acts of Congress** beginning in 1906.



Figure 11: Special Indian Agent Charles E. Kelsey

As mentioned above, the Western Pacific Railroad constructed a rail line to serve the Hearst estate in 1910 and named the station Verona (after the Hearst mansion Hacienda del Pozo de Verona). Between the years 1906 and 1927, the Verona Band fell under the direct jurisdiction of the Indian Service Bureau in Washington, D.C., and by 1914, the Tribe's jurisdiction was transferred to the Reno Agency, and later again, transferred over to the Sacramento Agency (sometime after 1923). During this time, federal government Indian Service Bureau agents attempted to purchase land for many of the federally recognized, but still landless, California Indian tribes and bands.

While Kelsey was working out details of his Special Indian Agent assignment in Washington D.C., after he completed his Special Indian Census (1905-1906), Acting Indian Commissioner Charles F. Larrabee forwarded the following letter to President Theodore Roosevelt:

May 23, 1908 Letter from Acting Commissioner C. F. Larrabee to President Theodore Roosevelt

"Doctor [Stanford's President David Starr] Jordan commends, and justly, the services of Special Agent C. E. Kelsey, who during the past few years has been engaged in an attempt to secure them fixity of tenure in their homes, security of legal rights and additional lands on which the homeless Indians can be placed from an appropriation granted by Congress under the act of June 21, 1906 (34 Stat. L 325, 335).

Among the resolutions passed by the conference was one pledging the members of the conference ... to assist in the upholding and continuance of this work until every landless Indian in California shall be secured land upon which he can maintain a home; ...

...

When California was ceded to the United States by the treaty of Guadalupe Hidalgo, the Indian occupants of that state had certain rights to the lands which they occupied and under the law then existing could not be legally ejected therefrom.

...

Also treaties which had been concluded with the various bands or tribes were overlooked or ignored and failed of ratification, the Indians claimants never being paid for their land.

It is believed that Congress realizes this fully and if the money which has already been appropriated is insufficient **to give every landless Indian a place he may call his own**, that later it will grant additional appropriation for their benefit.

It is the intention of the Office to persist in the work that is now going on until every Indian has been cared for, and while it is impossible now to undo all that is past and restore the original owners of the soil to their possessions, the Congress will be asked from time to time, if necessary, to do what seem reasonable and enable the homeless Indians to have a fair start in life even at this late day (Letter dated May 23, 1908; pages 1-4).

Between the years 1906 and 1927, the Verona Band fell under the direct jurisdiction of the Indian Service Bureau in Washington, D.C., and by 1914, the Tribe's jurisdiction was transferred to the **Reno Agency**, and later again, transferred over to the **Sacramento Agency** (sometime after 1923). During this time, Federal Government Indian Service Bureau agents attempted to purchase land for many of the Federally Recognized, landless, California Indian tribes and bands.

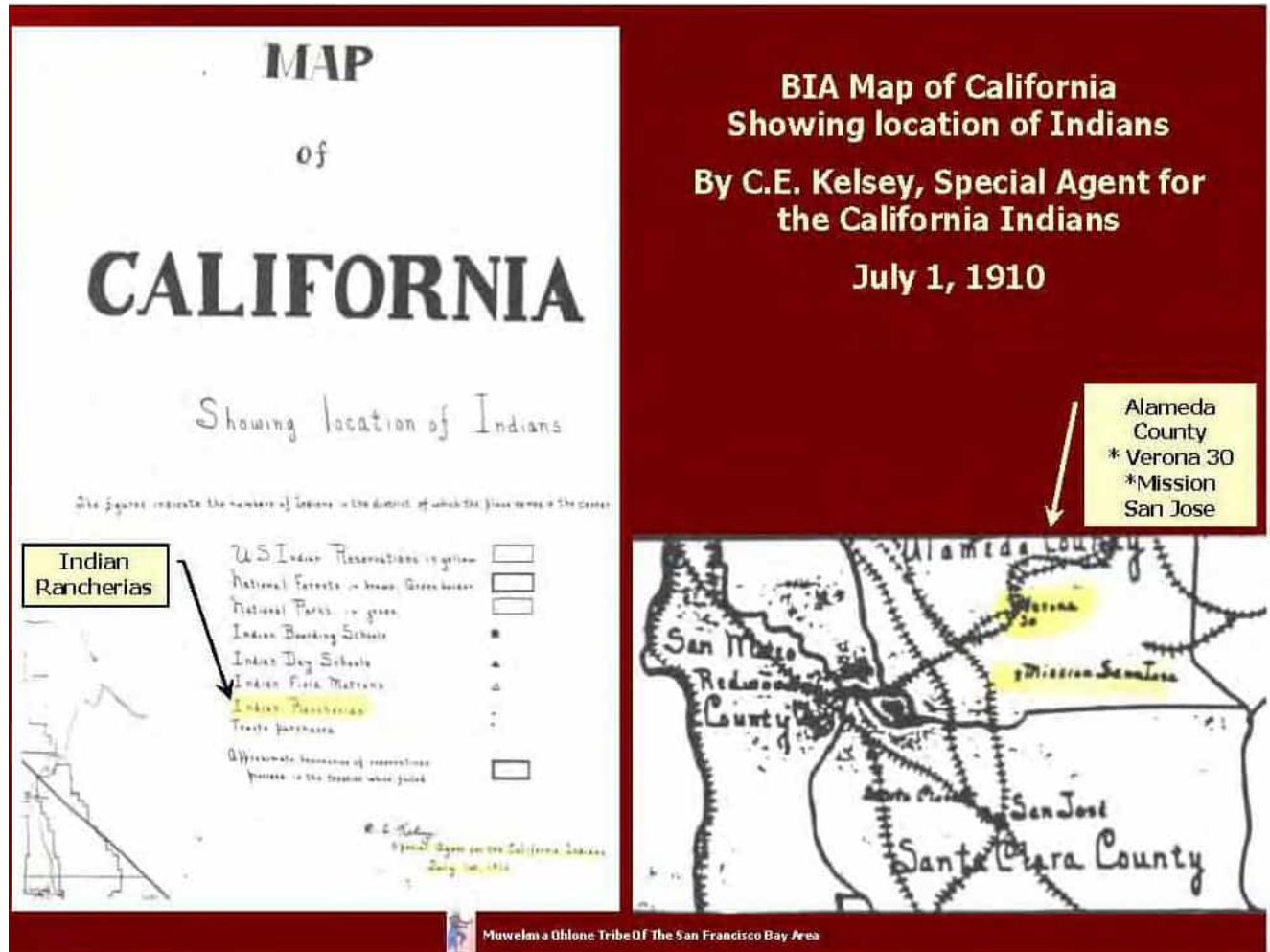
To this effort, both the Indian Service Bureau agents and the Indian bands were faced with two major obstacles:

1. Many Californian landowners did not want Indians living next to or near them, so they would not sell suitable parcels of land.
2. Others who were willing to sell parcels to the government wanted greatly inflated prices, usually at prices much higher than what was either allocated to purchase lands, or above the actual value of the land.

After the Congressional Appropriation Acts of 1906, 1908, and ensuing years (until 1937) many Indians in California obtained trust lands as members of tribes which had not abandoned their respective tribal areas, and these homesites became known as Indian "**rancherias**." [see the Indian Homestead Act of March 3, 1875 (18 Stat. L. 420), 25 U. S. C. 334, 336, Feb. 8, 1887, Ch. 119, Sec. 4, and other statutes, (34 Stat. 325, June 24, 1906 and 35 Stat. 70, April 30, 1908), and using an added set aside of \$10,000 under the Joint Resolution of March 4, 1915 (CR 6122, March 4, 1915)].

The evidence of previous **Federal Recognition** of virtually all the present-day unacknowledged tribal groups in California and especially in this case, the **Verona Band of Alameda County**, is found in the Federal records at the National Archives (Record Group 75. California Consolidated

Files, Cal. Special, file # 12026113-032, filed with 114202-13-032; Map, accompanying Letter of October 4, 1913, Special Indian Agent for California C. E. Kelsey to Commissioner in response to request for information from 2nd Dist. Congressman John Raker, 9/22/1913. See file # 114202) (Map 7 – Special Indian Agent Kelsey’s 1910 Map of Indian Rancherias – Verona Band).



Map 7: Indian Agent Kelsey’s 1910 Map of Indian Rancherias – Verona Band

On October 4, 1913, Special Indian Agent Charles Kelsey wrote a letter to Cato Sells Commissioner of Indian Affairs informing him of the following information relative to the 18 unratified treaties:

1. None of the treaties mentioned in the Senate document were ever ratified. ... It is clear the treaties were never ratified and so never became technically operative. The Government took everything ceded in the treaties and more, i.e., for example the reservations, and paid nothing.
- ...
4. Absolutely no steps or measures have been taken or had to extinguish the rights of the tribes to the lands described in the treaties unratified, in any way, shape, or form.

12. ... The Indian Office did not even have record of the 18 treaties until we dug them out of the secret archives of the Senate.
... About two thousand Indians have still no land. ... It may be necessary to buy land for about 1100 of them. All of these 2,000 Indian still landless are descendants of Indians represented in the 16 [northern California] treaties.

By the end of 1913, being exhausted and personally in debt to the amount over \$18,000, Special Indian Agent C. E. Kelsey tendered his formal resignation. It was not until a year later that a new agent, **Charles H. Asbury** from the Reno Agency, was selected to replace Kelsey.

Writing to the Commissioner of Indian Affairs on Dec. 7, 1914, from the Reno, Nevada Indian Agency, **Charles H. Asbury**, already named Special Indian Agent for California, reported progress in his investigation of the character, location and need of landless California Indians. It is noteworthy that he called on his predecessor C. E. Kelsey for help in locating **30 individuals at Verona**, and then proceeded to suggest that they receive assistance in a land purchase in his report to the Commissioner. However, a thorough investigation of the Indians of California not provided with land would have required a great deal of time and expense.

Being understaffed and located in Reno, Special Agent Asbury was not able to accomplish anything on behalf of the landless California Indian bands and he was reassigned to the Indian Agency in the Southwest sometime in 1915. **John Terrell** was then selected as a replacement as Special Indian Agent for most of northern and central California by May 1915 and he continued to conduct on-site inspections and make censuses of many the bands that were under his jurisdiction.

However, during Terrell's tenure between 1915 and 1919, his efforts were oriented towards "needy" tribes and bands that were located in northern California counties (e.g., Mendocino and north) as well as the Sacramento Valley and the Sierra. Those tribes that were located within the northern "**mission area**" including the Muwekma (Verona Band of Alameda County), Amah Mutsun (San Juan Bautista Band), Esselen Nation (Monterey Band of Monterey County), the Salinan Indian tribal communities (Pleyto, Milpitas and Jolon) centering around Missions San Miguel and San Antonio, as well as the Coast Miwok located at the towns of Bodega Bay, Marshall, and Fishman were all but ignored and neglected.

A Call to War: Muwekma Men Enlist in all Three Branches of the U.S. Armed Forces Before and During World War I [1914 – 1920]

Even before California Indians legally became citizens in 1924, prior to and during America's entrance into World War I on April 6, 1917, at least seven Muwekma men joined 17,000 other Native Americans and served in the United States Armed Forces in the Army, Navy, and Marine Corps. The following Muwekma men enlisted through the San Francisco Presidio and Mare Island and four of them are buried at the **Golden Gate National Cemetery** and one in the **Riverside National Cemetery**.

Antonio (Toney) Guzman, U.S. Army, Private, **166th Field Artillery Brigade, Battery F, 347th Field Artillery, 91st Division**. Toney Guzman was born on March 27, 1890 either in Centerville or on the Niles Rancheria. He was the son of Muwekma Indians Francisca Nonessa and Jose

Guzman. Toney enlisted in the U.S. Army and he fought in the **Meuse-Argonne** (September 26 to October 8, 1918), **Ypres-Lys**, and **Lorraine** campaigns in France. Toney served in the Army from April 29, 1918 and was honorably discharged at the **San Francisco Presidio** on April 26, 1919 (**Figure 12**).

The **91st Division** was known as the "**Wild West Division**." The Division's shoulder patch was a green fir tree referring to its origin at Camp Lewis in the Pacific Northwest. The Division was deployed to France in August, 1918 and fought with great distinction. In the **Ypres-Lys** campaign, the Division served in the **Flanders Army Group**, under the command of the **King of Belgium**. The Division was headquartered adjacent to Flanders Field. Five members of the Division earned the **Congressional Medal of Honor**. The **347th Field Artillery Regiment** was assigned 4.7" inch guns, and the 91st Division received the following medals and campaign honors: **Victory Medal Clasps: Ypres-Lys, St. Mihiel, Meuse-Argonne, and Defensive Sector**.

Twelve days before the end of World War I, the division, as part of the VII Corps of the French Sixth Army, helped drive the Germans east across the Escaut River. The division was awarded separate campaign streamers for its active role in the Lorraine, Meuse-Argonne and Ypres-Lys campaigns.

In October 1931, Toney Guzman and his brothers enrolled with the **Bureau of Indian Affairs** under their mother's **BIA Application #10293**. On his WW II Registration Card dated April 27, 1942, Toney was identified as "**Indian**". Toney passed away on **October 8, 1948** and was buried on October 12, 1948 at the **Golden Gate National Cemetery** (Section J, Grave 254).



Figure 12: Toney Guzman (1934)

Alfred (Fred) Guzman, U.S. Army, Private, **Company "C," 110th Infantry, 28th Division** under Brigadier General T. W. Darrah. Alfred Guzman was born on the Pleasanton Rancheria on June 27, 1896 to Francisca and Jose Guzman. Prior to the declaration of War, Fred Guzman had served in the **National Guard at Fort Mason in San Francisco in 1917**. Afterwards he enlisted in the U.S. Army, and served in the **28th Division, 55th Brigade Infantry, 110th Infantry, Company "C"** and fought in the major battles at **Ourcq-Vesle** (July 28, 1918), **Second Battle of the Marne** (July 15-August 5, 1918), **Meuse-Argonne Offensive** (September 26 to October 8, 1918), and **Havrincourt** (October 8 – November 11, 1918) in France.

The 28th Division fought in the following **campaigns**: Champagne-Marne, Aisne-Marne, Oise-Aisne, Meuse-Argonne, Champagne (1918), and Lorraine (1918). **The cost in lives of these six campaigns was 4,183 casualties including 760 dead. The six fleurs-de-lis on the regimental insignia commemorates their World War I service.** The **28th Infantry Division** was a unit of the United States Army formed in 1917 at the outbreak of World War I. It was nicknamed the "Keystone Division", as it was formed from units of the Pennsylvania Army National Guard; Pennsylvania is known as the "**Keystone State**". It was also nicknamed the "Bloody Bucket" division by German forces in WWII, after its red insignia. Fred Guzman served from **July 28, 1917** and was honorably discharged at **San Francisco Presidio** on May 31, 1919. On his WW II Registration Card dated April 25, 1942, Fred was identified as **Indian**. Fred Guzman died on **November 3, 1961**, was buried at **Golden Gate National Cemetery** (Section Y, Grave 1059).

Joseph Aleas, U.S. Army, Sergeant, Company D, 21st MG BN, 7th Division. Joseph Aleas was born on the Alisal (Pleasanton) Rancheria on May 11, 1893 and was the son of Margaret Armija. He enlisted in the US Army on **June 30, 1916**. According to Armija-Thompson family recollections, he was a good horseman and wanted to fight against Pancho Villa, who had led approximately 1,500 Mexican raiders in a cross-border attack against Columbus, New Mexico, in response to the U.S. government's official recognition of the Carranza regime. Villa's troops attacked a detachment of the 13th U.S. Cavalry, seized 100 horses and mules, burned the town, killed 10 soldiers and eight of its residents, and made off with ammunition and weapons. President Woodrow Wilson responded by sending 6,000 troops under General John J. Pershing to Mexico to pursue Pancho Villa and his troops. This military mobilization was called the Punitive or Pancho Villa Expedition.

Later, Joseph Aleas served in France with the **21st Machine Gun Battalion, 7th Infantry Division** (its Hourglass insignia dates back to 1918). Organized originally to serve in the American Expeditionary Forces (AEF) during World War I, the U.S. Army's 7th Infantry Division was created at Camp Wheeler, Georgia on December 6, 1917 and the 7th fought in **Alsace-Lorraine**, France during the war. The division also served as an occupation force during the post-war period.

On October 10-11, 1918 the 7th was shelled for the first time and later it encountered gas attacks in the **Saint-Mihiel** woods. Defensive occupation of this sector continued from October 10th to November 9th during which the infantry regiments of the 7th Division probed up toward **Prény** near the Moselle River, captured Hills 323 and 310, and drove the Germans out of the **Bois-du Trou-de-la-Haie** salient. After 33 days in the line of fire, the 7th Division had suffered 1,988 casualties, of which three were prisoners of war. Thirty Distinguished Service Crosses were awarded members of the 7th Division.

Joseph Aleas was honorably discharged at **Camp Funston**, Riley, Kansas on July 9, 1920 and was awarded the **World War I Victory Medal** and the **Bronze Victory Button**. Joseph Aleas enrolled with the **Bureau of Indian Affairs** in October 1931 (**BIA Application # 10299**). On May 24, 1955 Joseph enrolled during the second enrollment period with the **Bureau of Indian Affairs**. Joseph Francis Aleas passed away **July 13, 1964** and was buried at the **Golden Gate National Cemetery** Plot Z, grave 2597 (**Figure 13**).

Henry Abraham Lincoln Nichols, U.S. Navy, Fireman 1st Class, **Battleships *USS Arizona* and *USS Oklahoma***. Henry Nichols was born in Niles on February 12, 1895 to Charles Nichols and Muwekma Ohlone Susanna Flores Nichols. Henry enlisted on May 23, 1917 and first served on the *USS Albatross*. By December 31, 1917 he was transferred to the Battleship *USS Arizona*, and later on March 26, 1918 he was transferred again to the Battleship *USS Oklahoma*. During World War I Henry Nichols served in the North Atlantic and was on escort duty in December 1918 when the *Oklahoma* was serving as escort during President Woodrow Wilson's arrival in France at the end of the war (November 11, 1918). The *Oklahoma* returned to Brest, France on June 15, 1919 to escort President Wilson back home who was transported on the *USS George Washington* during his second visit to France.

Henry Nichols was honorably discharged at Mare Island on August 14, 1919 and was issued the **World War I Victory Medal**. On Henry Nichols' WW II Draft Registration Card dated April 27, 1942 he is identified as **Indian**. Henry Nichols died on January 5, 1956 and buried at the **Golden Gate National Cemetery** (Section L-5, Grave 7455).



Figure 13: Grave Stones of Joseph Aleas, Fred Guzman, Toney Guzman, Henry Nichols

Franklin P. Guzman (Service # 87843) Sergeant, U.S. Second Marine Corps Division, Fourth Marine Infantry Brigade, Sixth Machine Gun Battalion, 81st "D" Company. Franklin was born on the Alisal Rancheria on January 15, 1898 and was the son of Pleasanton Indians Teresa Davis and Ben Guzman (who later died in 1907). He was also the nephew of Toney and Fred Guzman. Franklin was listed on the **1910 Federal Indian Population Census** at "Indian Town", Pleasanton Township. He enlisted on October 20, 1916 while working near Sacramento, reported for duty on October 25, 1916 and was assigned to **Company "B" Marine Barracks, Navy Yard, Mare Island**. On May 28, 1917 Franklin was promoted to the rank of Corporal. By March 31, 1918, he earned an **Expert Rifleman Badge** and a **Marksman Badge** and by April he was assigned to the **111th Company, 8th Regiment**. In May, Franklin was transferred to the **150th Company 1st Machine Gun Replacement Battalion** at Quantico, Virginia, and he was promoted to Sergeant on May 22, 1918.

The 1st Machine Gun Replacement Battalion sailed on May 26, 1918 on the *USS Henderson* and disembarked in France on June 8, 1918. The 1st Machine Gun Battalion was later renamed the 6th Machine Gun Battalion in France. From September 12 to 16, 1918 the brigade was engaged in the **St. Mihiel offensive** in the vicinity of **Remenauville, Thiaucourt, Xammes, and Jaulny**.

On September 16, 1918, Franklin was wounded in the left thigh and from September through December he was placed in various Field and Base Hospitals in France, and finally transferred back to the States on December 16, 1918. Franklin remained in recovery at the US Navy Hospital at Norfolk, Virginia until he was honorably discharged from service as a Sergeant on June 27, 1919.

Franklin's Battalion participated in the **Chateau-Thierry** sector (capture of Hill 142, Bouresches, Belleau Wood) from June to July, 1918; **Aisne-Marne** (Soissons) offensive from July 18th – 19th, 1918; **Marbache** sector, near Pont-a-Mousson on the Moselle River from August 9th – 16th, 1918; **St. Mihiel** from September 12th – 16th, 1918; and later the **Meuse-Argonne** offensive (October 1st – 10th, 1918, and November 1st - 10th, 1918). Franklin passed away on May 30, 1979 and was buried in the **Riverside National Cemetery** (Section 8, Grave 2826) (**Figure 14**).



Figure 14: Veteran Headstone for Franklin Guzman

John Michael Nichols was a Muwekma Ohlone Indian from the San Francisco Bay Area. He was born on September 29, 1893 in Niles, California and was baptized at Mission San Jose. John was the older brother of Henry Nichols who had served in the Navy on the battleships *Arizona* and *Oklahoma* during WWI (May 1917 – August 1919).

John enlisted in the US Army on **October 27, 1914** and was stationed at **Fort McDowell on Angel Island**. He fought in France serving with the **59th Coast Artillery Corps (CAC)**. In 1913, the defenses of individual harbors were renamed coast defenses, as in “the **Coast Defenses of San Francisco**.” Coast artillery districts were retained, but the term now had a different meaning. Three continental coast artillery districts were created within the geographic departments. The Pacific Coast Artillery District (ranging from San Diego to Puget Sound) was established in the Western Department. Beginning in December 1917 and continuing into 1918, Regular Army and National Guard companies were combined, creating the **54th through the 71st Artillery Regiments, CAC**.

The 59th was engaged in the **St. Mihiel** offensive and the **Meuse-Argonne** offensive and earned a Service Clasp (WWI Victory Medal for: **St. Mihiel Offensive, France** (September 2nd – 16th 1918), and **Meuse-Argonne Offensive, France** (September 26th - November 11th 1918). John was discharged at **Fort Winfield Scott** at the **SF Presidio** on June 4, 1920. John's artillery unit was later attached to **Battery C, 67th Field Artillery, 42nd Infantry Division**, at the time when he returned back to the United States with his unit..

John M. Nichols was listed as an **Indian** on the 1930 Federal Census along with his son Alfred while living in Santa Cruz County, California. On John Nichols's WWII Draft Registration Card dated April 27, 1942 he was identified as residing at the Veteran's Home in Napa (Yountville), California, where he had resided from 1941 to 1953. John Nichols died in April 1968 while living in Stockton, California and was buried in the veterans section of the Highland View Memorial Gardens, near the Town of Farmington, San Joaquin County (**Figures 15 and 16**).

The regiments in France were largely demobilized as soon as possible after returning to the states, typically by March 1919. However, 12 regiments that had served in France were retained in active service at the end of the war for training purposes. This number was shortly reduced to 10: 42nd, 43rd, 52nd, and 53rd Artillery, CAC (Ry) formed the 30th Brigade, posted at Camp Eustis, VA. The 31st Brigade, consisting of the 55th, 57th, and **59th Artillery, CAC (TD)**, was initially posted at **Fort Winfield Scott, CA**, before moving to Camp Lewis, WA, in the later months of 1919



Figure 15: Veteran Headstone for John Nichols and a World War I Victory Clasp

John “Jack” Paul Guzman was a younger brother of Toney and Fred Guzman who was born on the Alisal (Pleasanton) Rancheria on February 6, 1902 to Francisca Nonessa and Jose Guzman. He was baptized on April 20, 1902 at St. Augustine's Church in Pleasanton. Jack also appears on his mother's 1930 BIA Application (#10293) along with his two brothers Toney Guzman and Paul Hernandez. Jack Guzman (Service # 521 608) enlisted in the US Army on February 6, 1918, and was identified as a “Cavalry Unassigned Recruit” on the USS Sheridan Troop Transport's manifest embarking from Fort Mason, San Francisco on March 5, 1918 to Honolulu, Territory of Hawaii, that included a “list showing names of enlisted men of Army, Navy and Marine Corps on board.”

John was later listed as a Private, “D” Troop, 4th Cavalry Regiment on the USS Sherman Troop Transport manifest sailing from Honolulu to San Francisco on December 15, 1918. Previously, the 4th Cavalry served on the Mexican border in Texas from 1911 to 1913. Afterwards, during the ensuing six years, the regiment served at Schofield Barracks in the Territory of Hawaii, and did not participate any campaigns during World War I. In 1919, the 4th Cavalry Regiment returned to the Mexican border and patrolled the area near Brownsville, Texas.

Jack Guzman was honorably discharged from the Army on June 2, 1919 (based upon the on-line US Veterans Administration Master Index List 1917-1940). He may have re-enlisted in the US Navy (Service # 375 10 53) on August 8, 1922, however the Administration Master Index List is not clear about this date.

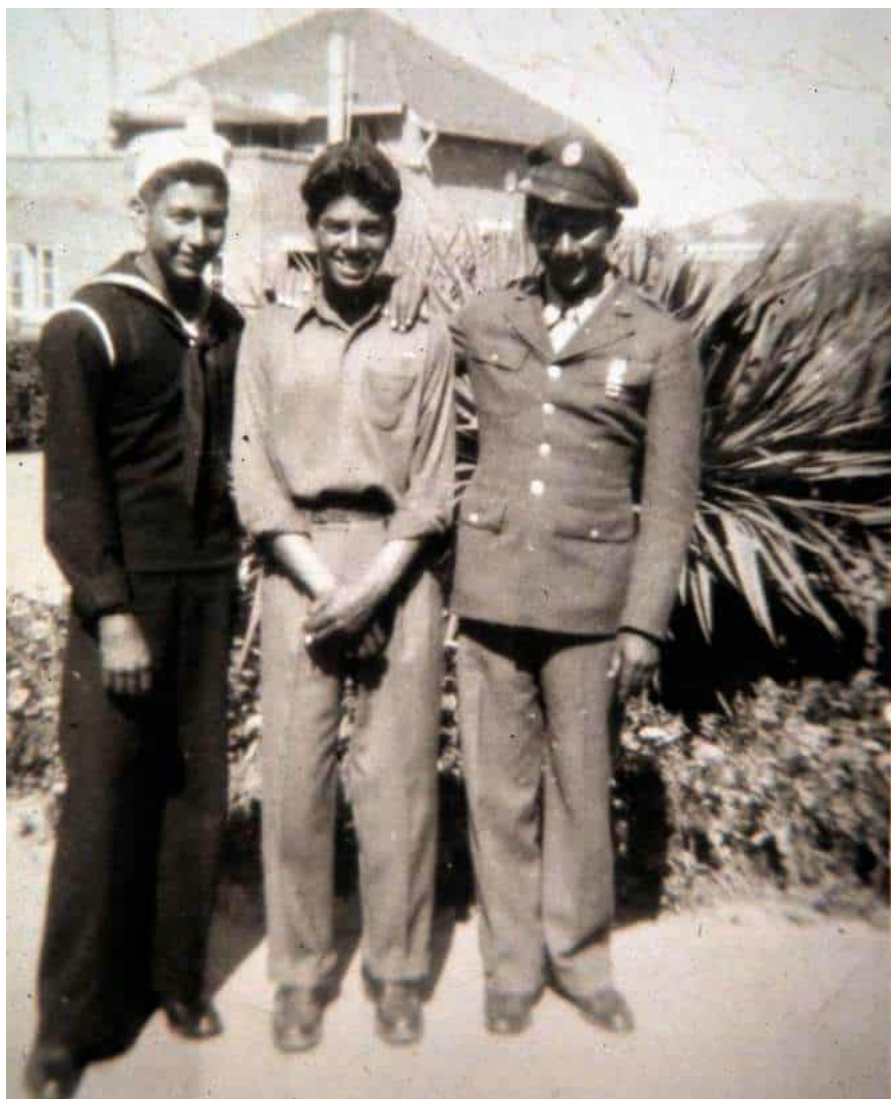


Figure 16: Henry Nichols (left) Franklin Guzman (center), John Nichols (right) [ca. 1918]

Muwekma Tribe Honors the Native American Code Talkers Who Served During WWI

Excerpted from two websites on the implementation and use of Native American code talkers on the front lines during World War I. Even though the Muwekma men who enlisted did not serve as code talkers, nonetheless, the tribal leadership thought it important to honor those Native men by including information of their service to the U.S. Those website authors provide the following information on line:

In France during World War I, the 142nd Infantry Regiment, 36th Division, had a company of Indians who spoke 26 languages and dialects. Two Indian officers were selected to supervise a communications system staffed by 18 Choctaw. The team transmitted messages relating to troop movements and their own tactical plans in their native tongue. Soldiers from other tribes, including the Cheyenne, Comanche, Cherokee, Osage, and Yankton Sioux also were enlisted to communicate as code talkers. Previous to their arrival in France, the Germans had

broken every American code used, resulting in the deaths of many Soldiers. However, the Germans never broke the Indians' "code," and these Soldiers became affectionately known as "code talkers" (**Figure 17**). (https://www.army.mil/americanindians/code_talkers.html)

When the United States entered [World War I](#) in April 1917, it had not yet granted citizenship to all Native Americans, and government-run boarding schools were still largely attempting to stamp out their languages and cultures. Nonetheless, several thousand Native Americans enlisted in the armed forces to fight the Central Powers. Nearly 1,000 of them representing some 26 tribes joined the 36th Division alone, which consisted of men from Texas and Oklahoma.

(<https://www.history.com/news/world-war-is-native-american-code-talkers>)



Figure 17: Native American Code Talkers During WWI

After serving overseas during World War I, the over 17,000 Native American servicemen were offered a path to citizenship if they wanted to apply. On November 6, 1919, the United States Congress granted citizenship to the honorably discharged Indian veterans of World War I who were not yet citizens.

BE IT ENACTED . . . that every American Indian who served in the Military or Naval Establishments of the United States during the war against the Imperial German Government, and who has received or who shall hereafter receive an honorable discharge, if not now a citizen and if he so desires, shall, on proof of such discharge and after proper identification before a court of competent jurisdiction, and without other examination except as prescribed by said court, be granted full citizenship with all the privileges pertaining thereto, without in any manner impairing or otherwise affecting the property rights, individuals or tribal, of any such Indian or his interest in tribal or other Indian property.

The 1919 American Indian Citizenship Act did not grant automatic citizenship to American Indian veterans who received an honorable discharge. The Act merely authorized those American Indian veterans who wanted to become American citizens to apply for and be granted citizenship. Few Indians actually followed through on the process, but it was another step towards citizenship.

It was during President Calvin Coolidge's Administration that the United States Congress finally granted citizenship to Native American servicemen and their respective tribes on June 2, 1924,

(**Figure 18**). However, the Native American tribes of Arizona and New Mexico would have to wait another 24 years before full citizenship and voting rights were granted in 1948 after their service in the Armed Forces during World War II.



Figure 18: President Calvin Coolidge with Four Osage Indian Leaders

Thomas Grillot in his recently published book titled **First Americans: U.S. Patriotism in Indian Country after World War I** wrote that:

The years between 1918 and the end of the 1940s were crucial ones in recent Indian history. Beginning in the 1920s, reservation groups were allowed to claim reparation for broken treaties from the American government in the U.S. Court of Claims. A few years later, they were encouraged to write constitutions for their tribal governments. The New Deal saw the first major attempt to reverse the most undesirable effects of the assimilation policy the federal government had followed since the last decades of the nineteenth century. World War II occasioned the massive reenlistment of yet another generation of Indian soldiers. Finally, at the end of the 1940s, the major assault on the existence of reservations as separate territories known as “termination” began.

The Muwekma/Verona Band under the Jurisdiction of the Indian Service Bureau: Reno and Sacramento Agencies 1923 – 1927 and the Removal of 135 Landless Tribal Bands

After Terrell left the Indian Service, the jurisdiction fell to **James Jenkins**, Superintendent of the Reno Agency. Writing his Annual Report to the Commissioner of Indian Affairs in 1923, Superintendent Jenkins commented:

The jurisdiction of Reno Agency comprises the following named reservations and colonies, villages, camps, etc., in addition to all scattered bands of Indians in Nevada and California not under the jurisdiction of any other superintendency; also Indians whose allotments, homesteads, etc., are carried at the land offices located at Stockton, Sacramento, Visalia, San Francisco, Los Angeles, and Independence and Marysville, California, and Carson City and Elko, Nevada. ...

... Other Indians in California under this jurisdiction but not occupying government lands are found in the localities named below:

<u>County</u>	<u>Communities</u>	<u>Estimated</u>
Alameda	Verona	30
(Jenkins:1923 Annual Report: 3-5)		

Sometime around 1923, the jurisdiction of the landless Indians of northern central California had shifted to the Sacramento Agency under the aegis **Colonel Lafayette A. Dorrington**, who was said to be a prison warden in the Philippines during the American occupation. Dorrington, who was probably a political appointee to the Sacramento Superintendency and was probably rewarded for his military service as a prison warden in the Philippines during the post-Spanish American War period of occupation.

It is interesting to note that Dorrington's on-line Military Burial record provides the following information: He was identified as a **1st Lieutenant Company H, 2nd Nebraska Infantry – 4/29/98 to 10/24/98; 2nd Lt., Company L, 2nd U.S. Infantry; 10/27/98 to 6/22/99 which served in Cuba. His last rank was 1st Lieutenant, Company A, 34th U.S. Volunteer Infantry.**

Dorrington's last appointment was 7/5/99 and he was discharged on 6/30/1901. Dorrington died on October 8, 1934 and was buried at Arlington nation Cemetery on January 13, 1937. His grave is located in Section 3, Grave No. 3947 (document from Ancestry.Com).

In January 1927, Sacramento Superintendent **Col. Lafayette A. Dorrington** (1918-1930) received a detailed office directive from **Assistant Commissioner E. B. Merritt** for him to list by county all of the tribes and bands under his jurisdiction that had yet to obtain a land base for their "home sites." This directive was issued so that Congress could plan its allocation budget for fiscal year 1929. Dorrington, who was not an advocate for California Indians, was chronically derelict in his duties and he decided not to respond to this directive. He also decided not to respond to many of the other requests issued by the Washington, D. C. Office. By May 1927, under threat of investigation, Dorrington yet again received another strongly worded directive from the Assistant Commissioner E. B. Merritt (**Figure 19**).

To this second directive, Dorrington reluctantly responded on June 23, 1927 by generating a report, which in effect, illegally, unilaterally, and administratively "**terminated**" the existence and needs of approximately 135 tribes and bands throughout northern California from their **Federally Acknowledged** status. He did this by completely dismissing the needs of these identified homeless and landless tribal groups. The very first casualty on Dorrington's "**hit list**" was the **Verona Band of Alameda County**. Without any benefit of any on-site visitation or needs assessment, which he was charged to conduct by the Assistant Commissioner, Dorrington opined:

There is one band in Alameda County commonly known as the Verona Band, ... located near the town of Verona; these Indians were formerly those that resided in close proximity of the Mission San Jose. **It does not appear** at the present time that there is need for the purchase of land for the establishment of their homes. (Report dated June 23, 1927)

The fact that Dorrington makes mention that the Verona Band resided “near the town of Verona” clearly indicates that he never visited the Muwekma Tribal community. There is no town of Verona in Alameda County. Thus, with the stroke of a pen and without benefit of any due process, on-site needs assessment, or direct communication with the tribe, the Muwekma/Verona Band along with the other 134 tribes and bands of California, were removed from the list of landless tribes in need of land, thusly all of these tribe were illegally removed from the list of federally recognized tribes. They are sometimes referred to as the previously federally recognized Dorrington Tribes.

Although not formally “terminated” by any policy decision or act of Congress these tribes were essentially knocked off the “radar screen” of the Bureau of Indian Affairs and as landless tribes were considered **ineligible** to organize as tribes under the 1934 Indian Reorganization Act.

During the 20th Century, no other state within the United States had experienced the massive **illegal “termination”** of so many Federally Recognized tribal groups whose rights were extinguished by crass neglect.

This massive dismissal and removal of recognized landless tribes was deliberate and due as a result of the callous actions and dereliction of duty by an incompetent **Bureau of Indian Affairs** agent. Three years later, Dorrington, still being prodded by BIA officials in Washington, D.C. about the needs of the landless and homeless Indians in California under his jurisdiction, offered insight to his actions and his personal beliefs in a letter he wrote to **Commissioner Rhoads**. In that letter dated April 23, 1930, Dorrington wrote:

...Kindly be respectfully advised that the matter of land purchase for homeless Indians has really been given constant and diligent attention throughout the current fiscal year to date and an earnest effort has been made to fully meet the needs of the Indians to the fullest extent without unnecessary or unjustified expenditure of funds, believing that to be the spirit of the law and your wishes in the premises. ...

It has been my opinion, and therefore my belief, for several years that the best interests of the Indians will be served through an arrangement whereby those concerned may be settled on the already acquired land **instead of procuring additional which cannot be turned to beneficial use and occupancy by the Indians** in mind because of their inability financially to establish themselves thereon.

...In its final analysis, Mr. Commissioner, kindly understand and know that **additional land for homeless Indians of California is not required and therefore further demands on the appropriation for the fiscal year 1930 are not**

warranted or justified (Dorrington Letter to Commissioner Rhoads April 20, 1930). [Emphasis added]



Figure 19: Sacramento Superintendent Lafayette A. Dorrington October 21, 1926

By July 1931, **Dorrington** had either quit the Indian Service or was transferred or was fired and he was replaced by **Oscar H. Lipps** as Superintendent of the Sacramento Agency. **Lipps**, responding to an inquiry written by Assistant Commissioner J. Henry Scattergood offered specific concerns about the **conditions of the homeless California Indians** for whom land was purchased:

Receipt is acknowledged of your letter, dated June 30, 1931, relating to the matter of purchasing land for homeless Indians of California. ...I am addressing this letter to you personally and calling the subject matter thereof to your special attention for the reason that there **appears to be a grave lack of understanding in the Office regarding this whole matter of providing homes for homeless California Indians.**

I think it is all the more important that this matter be brought to your personal attention at this time in view of your recent visit to California with the Senate Committee and your familiarity with the sentiment and feeling in this State with respect to the past administration of the affairs of the California Indians.

The conditions on some of these rancherias are simply deplorable. No one can view many of them and observe the conditions under which the Indians are trying to exist without the feeling that someone is guilty of **gross neglect** or **inefficiency** and that a **cruel injustice** has been meted out to a helpless people under the name of beneficent kindness... And yet there are those who say that I will never do to let the

local authorities have charge of the affairs of the Indians lest the Indians be neglected and abuse.

...I have not yet seen a single instance where the federal government has done anything like so much for the improvement of the homes and living conditions of the Indians under this jurisdiction as has been done by Sonoma County for the Indians residing on the Stewart's Point Rancheria.

Now it seems to me that the thing for us to do is to look at the facts in the face and admit that in the past the Government has been woefully negligent and inefficient, and then start out with the determination, as far as possible, to rectify our past mistakes.

It is difficult to locate the blame, but somewhere along the line there appears to have been **gross negligence** or **crass indifference**. If Congress has been honestly and fully advised of conditions and has refused or failed to give relief asked for, then the Indian Bureau is not responsible for the neglect of the Indians. **On the other hand, if Congress believed and intended by appropriating funds for the purchase of lands for homeless Indians and improvements thereon that good and suitable lands would be purchased and houses constructed and improvements made, then we have neglected to do our duty** [Emphasis added].

Although left completely landless, and in some instances completely homeless, between 1929 and 1932 **all of the surviving Verona Band/Muwekma lineages enrolled with the BIA under the 1928 California Indian Jurisdictional Act** which were approved by the Secretary of Interior in the pending claims settlement. Concurrently, during the last decades of the 19th century and first three of the 20th century (between 1884 and 1934), renowned anthropologists and linguists such as Jeremiah Curtin, Alfred Kroeber, E. W. Gifford, James Alden Mason, C. Hart Merriam, and John Peabody Harrington interviewed the last fluent speakers of the "Costanoan" and other Indian languages spoken at the East Bay rancherias. It was during this time period that **Verona Band Elders** still employed the linguistic term "**Muwekma**" which means "**la Gente or the People**" in Chocheño and Tamien Ohlone language spoken in the East and South San Francisco Bay region.

Muwekma Enrollment with the Bureau of Indian Affairs (1928-1932): The California Indian Jurisdictional Act of 1928

As a result of the passage of the Indian Citizenship Act of 1924, also known as the Snyder Act, California Indians and Allied Indian Associations started to advocate looking into claims against the federal government for lands illegally taken under the 18 unratified treaties of California. Under the 1924 Act indigenous people did not have to apply for citizenship, nor did they have to give up their tribal citizenship to become a U.S. citizen. Most tribes had communal property and in order to have a right to the land, Indians must belong to the tribe.

In 1928, the United States Congress passed the **California Indian Jurisdictional Act**, which created a census of all eligible Indians who could prove that their ancestors resided in California

at the time when the 18 unratified treaties were negotiated between 1851-1852. Between the years 1928 and 1932 a little over 17,000 California Indians filled out applications and almost all were approved by the Indian Service Bureau.

During this time period almost all of the Muwekma Indian head of households enrolled as “**Ohlones**” and/or as “**Mission San Jose Tribe**” under this act and their applications were approved by the Secretary of Interior, the BIA and Federal (**Figures 18 to 37: Muwekma Ohlone BIA 1928-1932 Applications**).

Enrolling were members of the Marine-Peralta, Marine-Alvarez-Piscopo-Galvan, Marine-Sanchez, Marine-Arellano-Garcia, Marine-Munos, Marine-Armija, Armija-Thompson, Armija-Aleas, Armija-Nichols, Guzman, Binoco, Bautista-Armija, Inigo-Gonzalez-Alaniz, Santos-Pinos-Colos-Saunders-Pena-Corral, and Pinos-Juarez families. All of these Muwekma families were living in the Pleasanton, Sunol, Niles, Newark, Livermore as well as other areas within the East Bay and Santa Clara County.

DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS

Application Number 10298

Application for enrollment
with the Indians of the State of California under
the Act of May 18, 1928 (45 Stat. L. 602)

The Secretary of the Interior,
Washington, D. C.

Sir:

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

1. State the full names, ages, sex, and dates of birth of yourself and your minor children living on May 18, 1928.

English Names	Relationship in Family	Ages in 1928	Sex	Dates of Birth Month Day Year	Degree of Indian Blood
Marine, Lucas	Head	38	M	10-18-1900	1/2
" , Ernest	Son	2	M	1-26-1926	3/4

Note: * See application of Katie Marine, wife, Centerville, Alameda County, California. App. No. 10675

2. Residence on May 18, 1928 Centerville, Alameda County, California.

3. Post Office Centerville Alameda California.
Town or City, Box Number or County State
Rural Route Number.

Note: * Does not live on Trust Lands.

4. Place of birth of yourself and each of your minor children
Near Sunol, Alameda County, California. My child was born
in Alameda County, California.

Name Marine, Lucas
Application Number 10298
Action taken
Approved, FAB

Figure 20: Lucas Marine BIA Application # 10298

5. Where have you and your children resided since birth?
In Alameda and Mendocino Counties, California.

6. Are you married? Yes.

7. If a married woman, give your name before you were married.

8. Name and exact date of birth (Month, Day, and Year) of your wife (or husband).
Katie Marine, nee Peralta-- Age about 35 years.

9. Is he (or she) of Indian blood? If so, state the name of the Tribe or Band, and degree of Indian blood.
Yes 4/4 Ohlones, (Tribal name unknown)
Alameda County, California.

10. What is your degree of Indian blood and to what Tribe or Band of Indians of the State of California do you belong?
1/2
Ohlones (?) Tribal name
Unknown, Alameda County, California.
 Degree of Indian Blood Name of Tribe or Band

11. To what Treaty or Treaties were you or your ancestors a party, and where did you (or they) reside on June 1, 1852? Where and when were said Treaties negotiated?
I do not know.

12. Give the names of your California Indian ancestors living on June 1, 1852, through whom you claim, who were parties to any Treaty or Treaties with the United States. If you claim through more than one ancestor living on that date, set forth each claim separately. State your descent from said ancestor or ancestors setting forth your relationship to them.

<u>Names</u>	<u>Tribe or Band</u>	<u>Relationship by Blood</u>
<u>Evalina Marine</u>	<u>Ohlones, Tribal name unknown,</u> <u>Alameda County, California.</u>	<u>Mother.</u>

(See Nos 15 and 26)

Ohlones

Figure 21: Lucas Marine BIA Application Identifying his Tribe as "Ohlones"

DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS

Application Number 10293

Application for enrollment
with the Indians of the State of California under
the Act of May 18, 1928 (45 Stat. L. 602)

The Secretary of the Interior,
Washington, D. C.

Sir:

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

1. State the full names, ages, sex, and dates of birth of yourself and your minor children living on May 18, 1928.

English Names	Relationship in Family	Ages in 1928	Sex	Dates of Birth Month Day Year	Degree of Indian Blood
Guzman, Francisca	Head	65	F	10-11-1863	4/4
" , Tony J.	(Separated) Son	37	M	10-11-1891	4/4
" , Jack	Son	25	M	2-6-1903	4/4
Hernandez, Paul	Son	21	M	1-14-1907	1/2

2. Residence on May 18, 1928 Niles, Alameda County, California.

3. Post Office Niles Alameda California.
Town or City, Box Number or County State
Rural Route Number.

Note: * Does not live on Trust Lands.

4. Place of birth of yourself and each of your minor children
Alameda County, California.

Application Number 10293
Name Guzman, Francisca

Action taken

Approved, FAB

Figure 22: Francisca Guzman and Children BIA Application # 10293
[Councilwoman Sheila Guzman Schmidt's Great-Grandmother]

DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS

Application Number 10301

Application for enrollment
with the Indians of the State of California under
the Act of May 18, 1928 (45 Stat. L. 602)

The Secretary of the Interior,
Washington, D. C.

Sir:

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

1. State the full names, ages, sex, and dates of birth of yourself and your minor children living on May 18, 1928.

English Names	Relationship in Family	Ages in 1928	Sex	Dates of Birth Month Day Year	Degree of Indian Blood
Alaniz, Phoebe	Head	51	F	8-1-1877	4/4
Garcia, Thomas	Adopted Son	11	M	1-1-1917	4/4
Gonzales, Trinidad *	Mother	72	F	11-28-1856	4/4
* (Died October 28, 1928)					

Note:- The husband of the applicant was a Mexican.

2. Residence on May 18, 1928 Livermore, Alameda County, California.
General Delivery,

3. Post Office Livermore, Alameda California
Town or City, Box Number or County State
Rural Route Number.

Note: * Does not live on Trust Lands.

4. Place of birth of yourself and each of your minor children
Between Sunol and Pleasanton, Alameda County, California.

Adopted son born near Sacramento, California.

Application Number 10301
Name Alaniz, Phoebe

Action taken

Approved, F&B

Figure 23: Phoebe Alaniz, Mother and Adopted Son BIA Application # 10301
[Mercedes Marine's son Thomas Garcia]

gick,

DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS

Application Number 10296

Application for enrollment
with the Indians of the State of California under
the Act of May 18, 1928 (45 Stat. L. 602)

The Secretary of the Interior,
Washington, D. C.

Sir:

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

1. State the full names, ages, sex, and dates of birth of yourself and your minor children living on May 18, 1928.

English Names	Relationship in Family	Ages in 1928	Sex	Dates of Birth Month Day Year	Degree of Indian Blood
Thompson, Magdalena	Head	51	F	5-27-1877	4/4
Thompson, Amalia (Emily)	Dau	18	F	10-31-1910	1/2
" , Ernest	Son	16	M	4-21-1912	1/2
" , Eduardo (Edward)	Son	14	M	7-21-1914	1/2
" , Lorenzo (Lawrence)	Son	10	M	9-9-1918	1/2

Note: * The husband of the applicant is not of Indian blood.

2. Residence on May 18, 1928 Alameda County, California.
P.O. Box 3,
3. Post Office Newark Alameda California.
Town or City, Box Number or County State
Rural Route Number.

Note: * Does not live on Trust Lands.

4. Place of birth of yourself and each of your minor children
Alameda County, California.

Name Thompson, Magdalena
Application Number 10296
Action taken
Approved. TAB

Figure 24: Magdalena Thompson and Children BIA Application # 10296
[Former Tribal Councilman Karl Thompson's Grandmother]

DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS

Application Number 10294

Application for enrollment
with the Indians of the State of California under
the Act of May 18, 1928 (45 Stat. L. 602)

The Secretary of the Interior,

Washington, D. C.

Sir:

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

1. State the full names, ages, sex, and dates of birth of yourself and your minor children living on May 18, 1928.

<u>English Names</u>	<u>Relationship in Family</u>	<u>Ages in 1928</u>	<u>Sex</u>	<u>Dates of Birth Month Day Year</u>	<u>Degree of Indian Blood</u>
Martel, Flora Emma Thompson	Head	19	F	3-7-1909	1/2
Martel, Laura May	Dau	2 Mos	F	3-2-1928	1/4

Note:- The husband of the applicant is a white man.

2. Residence on May 18, 1928 Newark, Alameda County, California.
General Delivery,

3. Post Office Newark Alameda California,
Town or City, Box Number or County State
Rural Route Number.

Note:- Does not live on Trust Lands.

4. Place of birth of yourself and each of your minor children
Newark, Alameda County, California.

Application Number 10294 Action taken Approved. FAB
Name Martel, Flora Emma Thompson

Figure 25: Flora Emma Thompson Martel and Daughter BIA Application # 10294

DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS

Application Number **10676**

Application for enrollment
with the Indians of the State of California under
the Act of May 18, 1928 (45 Stat. L. 602)

The Secretary of the Interior,
Washington, D. C.

Sir:

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

1. State the full names, ages, sex, and dates of birth of yourself and your minor children living on May 18, 1928.

English Names	Relationship in Family	Ages in 1928	Sex	Dates of Birth Month Day Year	Degree of Indian Blood
Juarez, Maggie	Head	43	F	6-17-1885	$\frac{4}{4}$
(Marguerite)					
Santos, Daniel	Grand Nephew	11	M	1-3-1917	$\frac{4}{4}$
X { Corral, Erolinda	Head	33	F	1895	$\frac{4}{4}$
" Arthur	Son	3	M	1925	$\frac{4}{4}$
" Robert	Son	1	M	1927	$\frac{4}{4}$
XX { Tongales, Eulario	Single	66	M	1862	$\frac{4}{4}$

2. Residence on May 18, 1928 Newark, California

3. Post Office San Benito Newark, Alameda Co., Calif.

Town or City, Box Number or Rural Route Number. County State

4. Place of birth of yourself and each of your minor children does not live in trust lands

X Maggie & Maggie Juarez

XX uncle & " " " -1-

Figure 26: Maggie Pinos Juarez and Family BIA Application #10676
[Councilwoman Carol Sullivan's Grandmother and Great-Aunt]

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS

Application Number 10297

Application for enrollment
with the Indians of the State of California under
the Act of May 18, 1928 (45 Stat. L. 602)

The Secretary of the Interior,
Washington, D. C.

Sir:

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

1. State the full names, ages, sex, and dates of birth of yourself and your minor children living on May 18, 1928.

English Names	Indian Names	Ages	Sex	Dates of birth			Deg.
				Month	Day	Year	
Andrade, Chona	Head	50	F	11	27	1878	4/4

Note:- The husband of the applicant is a white man (Portuguese).

2. Residence on May 18, 1928 San Quentin, Marin County, California.

3. Post Office San Quentin, # 30036 Marin California.
Town or City, Box Number or County State
Rural Route Number.

Note: * Does not live on Trust Lands.

4. Place of birth of yourself and each of your minor children
Niles, Alameda County, California.

Figure 27: Chona Bautista Armija Andrade BIA Application # 10297

DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS

Application Number **10681**

Application for enrollment
with the Indians of the State of California under
the Act of May 18, 1928 (45 Stat. L. 602)

The Secretary of the Interior,

Washington, D. C.

Sir:

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

1. State the full names, ages, sex, and dates of birth of yourself and your minor children living on May 18, 1928.

English Names	Relationship in Family	Ages in 1928	Sex	Dates of Birth Month Day Year	Degree of Indian Blood
<i>Dolores (Lola)</i>	<i>Daughter</i>	<i>33</i>	<i>F</i>	<i>3-2-1895</i>	
<i>Ernest, Junior</i>	<i>Son</i>	<i>21</i>	<i>F</i>	<i>1-7-1907</i>	
<i>Marion, Jessie</i>	<i>Daughter</i>	<i>20</i>	<i>F</i>	<i>5-20-1908</i>	
<i>Alfred, John</i>	<i>Son</i>	<i>14</i>	<i>S</i>	<i>5-24-1914</i>	
<i>Marion, Bettie</i>	<i>Daughter</i>	<i>13</i>	<i>D</i>	<i>12-13-1915</i>	
<i>Ernest, Randolph</i>	<i>Son</i>	<i>9</i>	<i>S</i>	<i>9-6-1919</i>	
<i>Ernest, Henry</i>	<i>Son</i>	<i>6</i>	<i>S</i>	<i>2-27-1922</i>	
<i>Piscopo, Salvador D.</i>	<i>Son</i>	<i>5</i>	<i>S</i>	<i>10-1-1923</i>	
<i>Ernest, Philip</i>	<i>Son</i>	<i>2</i>	<i>S</i>	<i>1-18-1926</i>	
<i>Ernest, Benjamin</i>	<i>Son</i>	<i>1</i>	<i>S</i>	<i>6-23-1927</i>	
<i>Ernest, Dolores</i>	<i>Daughter</i>	<i>0</i>	<i>D</i>	<i>12-19-1931</i>	

2. Residence on May 18, 1928

3. Post Office

Town or City, Box Number or Rural Route Number.

County

State

4. Place of birth of yourself and each of your minor children

Figure 28: Dolores Marine Alvarez Piscopo Galvan and Children, BIA Application #10681
[Former Councilmembers Hank Alvarez and Dolores Galvan Lamiera's Mother]

DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS

Application Number **10677**

Application for enrollment
with the Indians of the State of California under
the Act of May 18, 1928 (45 Stat. L. 602)

The Secretary of the Interior,
Washington, D. C.

Sir:

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

1. State the full names, ages, sex, and dates of birth of yourself and your minor children living on May 18, 1928.

English Names	Relationship in Family	Ages in 1928	Sex	Dates of Birth Month Day Year	Degree of Indian Blood
Marine, Dario J.	Head	40	M	12-18-1888	1/2
"	Beatrice Daw	19	F	1-15-1909	3/4
"	Josephine Daw	17	F	11-5-1911	3/4
"	Emeline Daw	15	F	1-15-1913	3/4
"	Tilbert Son	13	M	12-31-1915	3/4
"	Domingo Son	9	M	5-4-1919	3/4

Note: See application of Lucinda Arriaga Marine, wife, App No 10637.

2. Residence on May 18, 1928 *Excelsior, San Joaquin Co.*

3. Post Office *Excelsior, Pop 1424, Stanislaus Co.*
Town or City, Box Number or Rural Route Number. County State

4. Place of birth of yourself and each of your minor children

San Joaquin County, California

Figure 29: Dario Marine and Children, BIA Application #10677
[Former Councilmember Lawrence Mason Marine's Grandfather]

DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS

Application Number **10680**

Application for enrollment
with the Indians of the State of California under
the Act of May 18, 1928 (45 Stat. L. 602)

The Secretary of the Interior,

Washington, D. C.

Sir:

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

1. State the full names, ages, sex, and dates of birth of yourself and your minor children living on May 18, 1928.

English Names	Relationship in Family	Ages in 1928	Sex	Dates of Birth Month Day Year	Degree of Indian Blood
Sanchez, Dolores	Sister	14	F	- 1914	
Sanchez, Augusta	Sister	13	F	- 1915	
"	Brother	11	M	- 1917	
"	Sister	9	F	- 1919	
"	Brother	16	M	- 1912	

2. Residence on May 18, 1928

3. Post Office

Town or City, Box Number or
Rural Route Number.

County

State

4. Place of birth of yourself and each of your minor children

Figure 30: Dolores Sanchez and Siblings, BIA Application #10680

[Muwekma Chairwoman Charlene Nijmeh's Grandmother Born on the Sunol Rancheria]

DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS

Application Number **10679**

Application for enrollment
with the Indians of the State of California under
the Act of May 18, 1928 (45 Stat. L. 602)

The Secretary of the Interior,

Washington, D. C.

Sir:

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

1. State the full names, ages, sex, and dates of birth of yourself and your minor children living on May 18, 1928.

English Names	Relationship in Family	Ages in 1928	Sex	Dates of Birth Month Day Year	Degree of Indian Blood
Arrellano, Albert	Single	20	M	- 1908	-
"	Edwina	19	F	- 1909	-

2. Residence on May 18, 1928 *Wasco, near Fresno, Calif*

3. Post Office *Wasco* *Fresno* *California*
Town or City, Box Number, or County State
Rural Route Number.

4. Place of birth of yourself and each of your minor children
Wasco, near Fresno, California

Figure 31: Albert Arellano and Sister, BIA Application #10879
[Vice Chairwoman Monica V. Arellano's Grandfather Born on the Alisal Rancheria]

DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS

Application Number **10678**

Application for enrollment
with the Indians of the State of California under
the Act of May 18, 1928 (45 Stat. L. 602)

The Secretary of the Interior,
Washington, D. C.

Sir:

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

1. State the full names, ages, sex, and dates of birth of yourself and your minor children living on May 18, 1928.

English Names	Relationship in Family	Ages in 1928	Sex	Dates of Birth Month Day Year	Degree of Indian Blood
Redondo, Mary Muñoz	Head	20	F	7 - 1908	
" , Joseph	Son	1	M	6 - 1927	
Munoz, Flora	Sister	10	F	- 1918	

2. Residence on May 18, 1928

Alameda Co. Calif.

3. Post Office

Mountain View

Contra Costa Calif.

Town or City, Box Number or
Rural Route Number.

County

State

4. Place of birth of yourself and each of your minor children

Alameda Co. Calif.

Figure 32: Mary Munoz and Sister Flora and Son, BIA Application #10678
[Muwekma Councilmembers Joann Brose and Richard Massiatt's Grandmother]

DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS

Application Number **10682**

Application for enrollment
with the Indians of the State of California under
the Act of May 18, 1928 (45 Stat. L. 602)

The Secretary of the Interior,
Washington, D. C.

Sir:

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

1. State the full names, ages, sex, and dates of birth of yourself and your minor children living on May 18, 1928.

English Names	Relationship in Family	Ages in 1928	Sex	Dates of Birth Month Day Year	Degree of Indian Blood
<i>Marina Trina</i> (Trina)	<i>Single</i>	<i>27</i>	<i>F</i>	<i>2-27-1901</i>	<i>1/2</i>

2. Residence on May 18, 1928 *San Leandro, Calif*

3. Post Office *Box 438 Fruitwood Contra Costa Calif*
Town or City, Box Number or
Rural Route Number. County State

4. Place of birth of yourself and each of your minor children
note does not live on trust lands
Bennington, California

Name *Marina Trina*
Application Number **10682**
Action taken
Approved.

Figure 33: Trina Marine, BIA Application # 10682
[Councilmember Frank Ruano's Mother Born on the Alisal Rancheria]

DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS

Application Number 10299

Application for enrollment
with the Indians of the State of California under
the Act of May 18, 1928 (45 Stat. L. 602)

The Secretary of the Interior,

Washington, D. C.

Sir:

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

1. State the full names, ages, sex, and dates of birth of yourself and your minor children living on May 18, 1928.

<u>English Names</u>	<u>Relationship in Family</u>	<u>Ages in 1928</u>	<u>Sex</u>	<u>Dates of Birth Month Day Year</u>	<u>Degree of Indian Blood</u>
Aleas, Joseph Francis	Single	35	M	5-11-1893	1/2

2. Residence on May 18, 1928 Newark, Alameda County, California.

3. Post Office Box 3, Newark Alameda California.

Town or City, Box Number or Rural Route Number. County State

Note: * Does not live on Trust Lands.

4. Place of birth of yourself and each of your minor children

Pleasanton, Alameda County, California.

Application Number 10299 Name Aleas, Joseph Francis Action taken Approved, FAB

Figure 34: Joseph Aleas, BIA Application #10299
[World War I Veteran, U.S. Army]

DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS

Application Number 10637

Application for enrollment
with the Indians of the State of California under
the Act of May 18, 1928 (45 Stat. L. 602)

The Secretary of the Interior,

Washington, D. C.

Sir:

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

1. State the full names, ages, sex, and dates of birth of yourself and your minor children living on May 18, 1928.

English Names	Relationship in Family	Ages in 1928	Sex	Dates of Birth Month Day Year	Degree of Indian Blood
Marine, Cecelia Armija	Wife	F	11-27-1900	1/2	

*Note: See application of Dario J. Marine,
husband, #10677*

2. Residence on May 18, 1928 Escalon, California.

Route 1, Box 142-A
Oakdale

3. Post Office Stanislaus California.

Town or City, Box Number or County State

Rural Route Number.

Note: * Does not live on Trust Lands.

4. Place of birth of yourself and each of your minor children

Niles, Alameda County, California.

Figure 35: Cecilia Armija Marine BIA Application #10637

DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS

Application Number **10675**

Application for enrollment
with the Indians of the State of California under
the Act of May 18, 1928 (45 Stat. L. 602)

The Secretary of the Interior,

Washington, D. C.

Sir:

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

1. State the full names, ages, sex, and dates of birth of yourself and your minor children living on May 18, 1928.

English Names	Relationship in Family	Ages in 1928	Sex	Dates of Birth Month Day Year	Degree of Indian Blood
Marina Catherine	Wife	35	F	11-22-1893	4
(Catherine)					4

Husband, Lucas Marina, Sp. No
10298

2. Residence on May 18, 1928 *Conterville California*
 3. Post Office *Conterville* *Alameda Calif*
 Town or City, Box Number or County State
 Rural Route Number.

4. Place of birth of yourself and each of your minor children
Alameda County
California

Figure 36: Catherine Peralta Marine BIA Application #10675
[Granddaughter of Linguistic Consultant Jose Guzman]

Name *Marine, Catherine*
 Application Number **10675**
 Action taken
 Approved.

tion Number 8419
Blanco, Jose

Action taken

Approved, March 20, 1931.

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

<u>English Names</u>	<u>Relationship in Family</u>	<u>Ages in 1928</u>	<u>Sex</u>	<u>Dates of Birth Month Day Year</u>	<u>Degree of Indian Blood</u>
Bianoco, Jose	Single	86	M	10-8-1842	4/4
	(Widower)				

- Note:- Does not live on Trust Lands.

4. Place of birth of yourself and each of your minor children
Mission San Jose, Alameda County, California.

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DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS

Application Number 10300

Application for enrollment
with the Indians of the State of California under
the Act of May 18, 1928 (45 Stat. L. 602)

The Secretary of the Interior,

Washington, D. C.

Sir:

I hereby make application for the enrollment of myself (and minor children living on May 18, 1928) as Indians of the State of California in accordance with the provisions of the Act of Congress of May 18, 1928 (45 Stat. L. 602). The evidence of identity is herewith subjoined.

1. State the full names, ages, sex, and dates of birth of yourself and your minor children living on May 18, 1928.

<u>English Names</u>	<u>Relationship in Family</u>	<u>Ages in 1928</u>	<u>Sex</u>	<u>Dates of Birth Month Day Year</u>	<u>Degree of Indian Blood</u>
Nichols, Belle	Wife	38	F	2-19-1890	1/2

Note: * See application of Joseph Nichols, husband, Niles,

Alameda County, California. App. No. _____

2. Residence on May 18, 1928 Niles, Alameda County, California.

3. Post Office Niles, Gen. Del. Alameda California.
Town or City, Box Number or County State
Rural Route Number.

Note Does not live on Trust Lands.

4. Place of birth of yourself and each of your minor children _____
Niles, Alameda County, California.

Name Nichols, Belle
Application Number 10300

Action taken

Approved. KAB

Figure 38: Belle Nichols BIA Application #10300
[Married to Muwekma Ohlone Joseph Nichols]

5. Where have you and your children resided since birth?
Alameda County, California.

6. Are you married? Yes.

7. If a married woman, give your name before you were married.
Belle Stokes

8. Name and exact date of birth (Month, Day, and Year) of your wife (or husband).
Joseph (Joe) Nichols, ---- Age 48 years.

9. Is he (or she) of Indian blood? If so, state the name of the Tribe or Band, and degree of Indian blood.
Yes 1/2 Olanian Tribe, Alameda County,
California.

10. What is your degree of Indian blood and to what Tribe or Band of Indians of the State of California do you belong?
1/2 Olanian Tribe, Alameda County,
California.
Degree of Indian Blood Name of Tribe or Band

11. To what Treaty or Treaties were you or your ancestors a party, and where did you (or they) reside on June 1, 1852? Where and when were said Treaties negotiated?
I do not know.

12. Give the names of your California Indian ancestors living on June 1, 1852, through whom you claim, who were parties to any Treaty or Treaties with the United States. If you claim through more than one ancestor living on that date, set forth each claim separately. State your descent from said ancestor or ancestors setting forth your relationship to them.

<u>Names</u>	<u>Tribe or Band</u>	<u>Relationship by Blood</u>
<u>Margarita Armijo</u>	<u>Olanian Tribe, Alameda County,</u> <u>California.</u>	<u>Mother.</u>

(See Nos 15 and 26)

Ohlone

Figure 39: Belle Nichols BIA Application #10300 "Olanian Tribe" (Page 2)

Muwekma Children Attend Indian Boarding Schools

During the Great Depression years (1930s through the beginning of World War II), the Muwekmas continued to adjust to the economic hardships facing the families. Although at times moving around as farm hands, fruit pickers and laborers, the family heads still maintained important social kinship networks, religious, economic and political ties with each other.

Just prior to the outbreak of World War II, the youngest son of Dario Marine (BIA Application # 10677) and Catherine Peralta Marine (BIA Application # 10675), **Lawrence Domingo Marine** was sent to the Bureau of Indian Affairs' Indian boarding school at **Sherman Institute**, Riverside County in southern California from 1931-1940 and there he met his future wife, Pansy Lizzette Potts (daughter of Marie Potts Mason, Maidu Tribe). Lawrence and Pansy's first three children Lawrence Mason Marine, Marvin Lee Marine and Suzie Marine were born and raised in Quincy, California (Maidu territory) and later they lived in Sacramento. Both Lawrence and Marvin Lee became traditional California Indian dancers with the help of their grandmother Marie Potts and Nisenan/Miwuk tribal elder, Bill Franklin (see Bibby article in News for Native California Vol. 7, No. 3, Summer 1993:21-36).

Two of the children of Jack Guzman and Flora (Marine) Munoz, John Guzman, Jr. and his sister Rena Guzman were sent to the BIA boarding school at **Chemawa**, in Salem, Oregon from 1944 - 1947. At this time, leadership was still in the hands of Muwekma adults and elders: Phoebe Alaniz (Petra Inigo) [died 1947], Margarita Pinos Juarez, Francisca Nonessi Guzman (died 1942), Dolores Marine Galvan, Dario Marine, Lucas Marine, and Trina Marine.

John Peabody Harrington's Ethnographic and Linguistic Field Work: Interviews with the Muwekma Tribal Community

During the late 1920s and early 1930s, anthropological linguist John Peabody Harrington from the Bureau of American Ethnology conducted interviews with members of the Muwekma tribal community (e.g., Susanna Nichols, Jose Guzman, Francisca Nonessi, Maria de los Angeles Colos, Catherine Peralta and others) who were still residing in the Niles, Centerville, Newark, Pleasanton and Livermore areas.

Harrington's principal linguistic and cultural consultants are direct biological ancestors of the Muwekma Ohlone families many of whom are presently living in the Oakland/Livermore/Hayward/Castro Valley/Fremont/Newark/Niles/San Jose/Tracy areas. Also during this period of time sound recordings made by Harrington of twenty-seven songs sung by Jose Guzman in 1930 and later in 1934 photos were taken by C. Hart Merriam of Jose Guzman and his family members which attest to the Tribe's presence within their historic homeland (See **Figure 40: John P. Harrington, Muwekma Elders Jose Guzman and Maria de los Angeles "Angela" Colos**).

J. P. Harrington's field notes (dated October 12, 1929, and October 1934) provides information about the culture, history and languages spoken by the **Verona Band**/Mission San Jose Indians. Jose Guzman and Angela Colos shared the following information with him:

- The San Jose Indians were of many tribes gathered at the mission. They are called Chocheños.
- I asked inf. how to say Abajeños, but inf. never heard the term. But inf. knows how to say arribenos.... when I asked if these were the Indians of Oakland, Inf. said no, that they were from [Martinez].
- Inf. does know one tribe, Halkin. It is the name of a tribe up San Rafael way. Liberato here was a Halkin, or was said to be one. [inf.] told him he was a Halkin, and Liberato got mad, denied it.... He [Jose Guzman] made a map, showing the location of "Hacienda Station" for Mrs. Hearst's place.
- From Sunol, ... he drew a line, indicating the former location of "Barona" [Verona] Station north of the San Jose Mission. Then, he noted under Roundhouse/Dancehouse:
- Was a big temescal just up the road from here. Until recently could see the place. Door inside and a big hole & also a smaller hole in the roof. Tu'pentak, temescal. Used to have fiestas here.

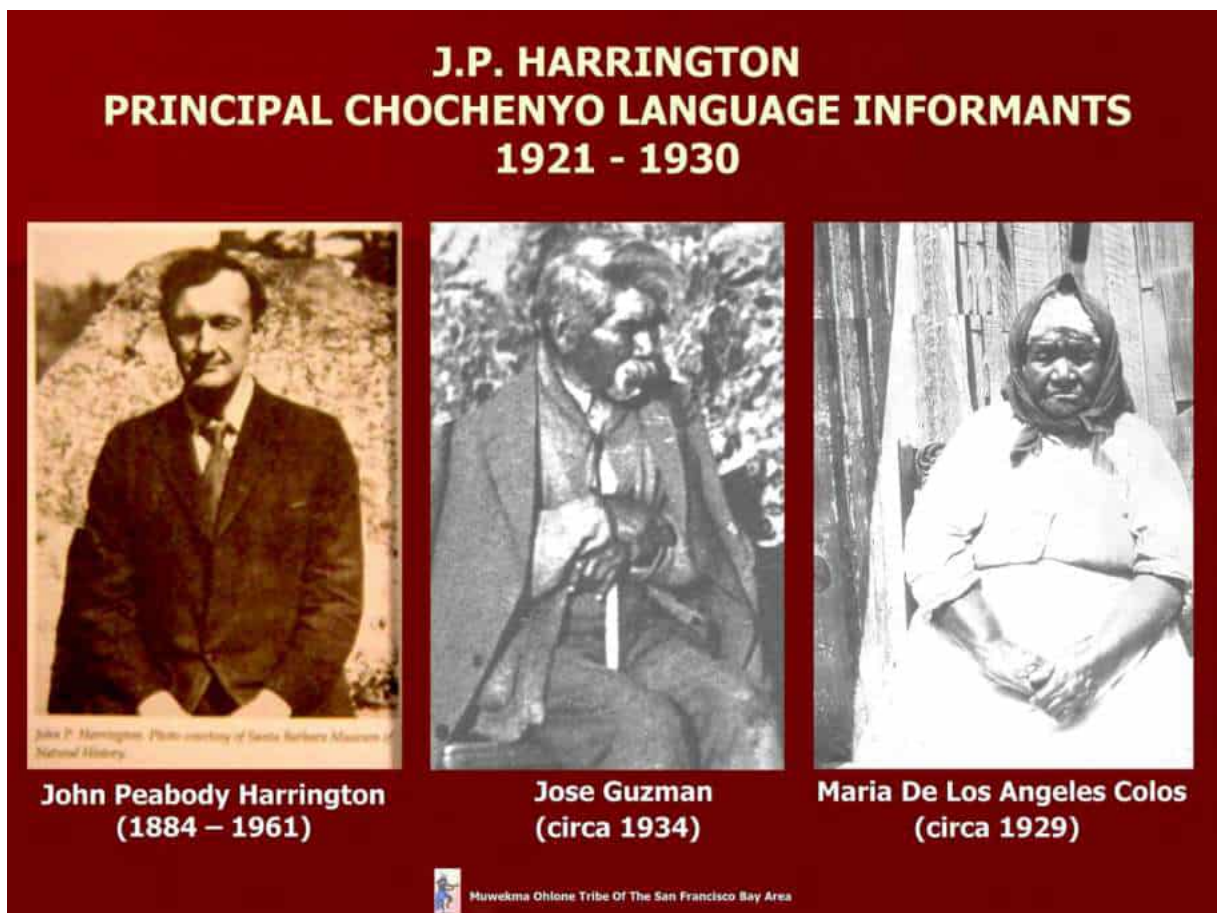


Figure 40: J. P. Harrington, Muwekma Elders Jose Guzman and Angela Colos

The Outbreak of World War II: Muwekma Men Again Answer the Call to War

During **World War II**, almost all of the Muwekma men served in the United States Armed Forces both in the Pacific and European theaters and stateside. Five brothers enlist in the Armed Forces.



- **Hank A. Alvarez, Pfc. U.S. Army, 101st Airborne Division landed Utah Beach Normandy.** Hank was born on February 27, 1922 in San Jose. He spent his childhood in Santa Cruz, Alvarado and Brentwood. While living in Brentwood, on March 18, 1932, his mother Dolores Marine enrolled herself and her children with the **Bureau of Indian Affairs** (BIA Application # 10681; see **Figure 26** above).

Hank enlisted at the San Francisco Presidio and served from December 28, 1942 to December 15, 1945 in the 101st Airborne Division. He returned home from Europe with the 82nd Medical Battalion, 12th Armored Division. While serving in the **101st Airborne Division** he landed at Utah Beach in Normandy, he was later reassigned to the **106th Infantry Division, 423rd Infantry Regiment, Company B** and continued to fight in France, Belgium, Luxembourg and Germany. His regiment saw action at Saint Laurent sur Mer and Saint Nazaire, France, and near Malmedy, Belgium. Later, Hank was reassigned to the **326th Engineer Battalion** during the **Battle of the Bulge** at **Bastogne** and at the **Ramagen Bridge** crossing the Rhine River in Germany. After landing in Europe Hank's units fought in the following campaigns with the 101st Airborne Division: **Ardenne, Rhineland (GO 40 WD 45), and Northern France (GO 33 WD 45).** Hank was issued the following medals and badges: **Sharpshooter M1, WWII Victory Medal, and European African Middle East Campaign Medal.** The 101st Airborne Division and the 106th Infantry Division earned **Presidential Unit Citations.** Hank was honorably discharged at Camp Beale, California on December 15, 1945.



Hank enrolled himself and his family with the **BIA** on April 26, 1950 during the second enrollment period. During the early 1960s Hank served in a leadership position along with his brothers and sister to save the Tribe's **Ohlone Indian Cemetery** from destruction. Hank has served on the Muwekma Tribal Council since 1992 and is presently the oldest surviving member of the Verona Band of Alameda County and oldest veteran in the Tribe.



- **John (Johnnie) Abraham Alvarez** was the older brother of Hank Alvarez. John Alvarez was born on May 24, 1914 in San Jose and spent most of his life living in Santa Cruz. He was enrolled with his siblings with the **BIA** in March 1932. John enlisted in **U.S. Army** on October 22, 1941 just prior to America's Declaration of War against Japan, Germany and Italy and he served as a Pfc. in the **U.S. Army Air Corps** in the **Pacific Theater**. A letter was sent to Dolores Marine Alvarez Piscopo Galvan that her son John while serving overseas was **missing in action**, however, although the details are now clouded he was either liberated or saved and he continued to serve. John was honorably discharged on November 20, 1945 and received the **American Defense Service Medal, American Campaign Medal, WWII Victory Medal, and Honorable Service Lapel Button WWII**. John Alvarez died on March 6, 2002.



- **Francis Salvador "Sal" Samuel Dominic Piscopo, Sergeant Technical [E-7] U.S. Army, European Theater**. Salvador was born in San Jose on October 1, 1923 and was a younger brother of Hank and John Alvarez. He went by the name of Samuel Dominic by the time he enlisted in the US Army. Sal was enrolled on March 18, 1932 with the **Bureau of Indian Affairs** with his siblings under his mother Dolores Marine's **BIA Application # 10681**. Sal spent his younger years in Brentwood and San Jose.

Sal enlisted in the **U.S. Army** on January 25, 1943. He attained the rank of **Sergeant Technical (E-7)** and served in the **14th Mechanized Cavalry Group, 18th Cavalry Squadron**. On 28 August 1944, the 14th Cavalry Group sailed for Europe, where it landed on **Omaha Beach** on 30 September and pressed east. On 18 October 1944, the unit was split into the **18th Squadron**, attached to the **2nd Infantry Division**, and the 32nd Squadron, attached to the 83rd Infantry Division. The unit regained its autonomy on 12 December 1944 and began guarding the Losheim Gap in Belgium. On 16 December, the 14th Cavalry Group received the full brunt of the German winter counteroffensive in the **Battle of the Bulge**. After two days of savage fighting, the unit reassembled at Vielsam, Belgium and was attached to the **7th Armored Division**.

On 23 December, the unit secured the southern flank of the perimeter, which allowed friendly troops to withdraw to safety. On 25 December, the unit was reequipped, attached to the **XVIII Airborne Corps** and moved back into the Bulge to push back the German Army. After the bloody and brutal fight in the Ardennes, the regiment was assigned to the **3rd US Army**.



2nd Infantry Division



7th Armored Division



XVIII Airborne Corps



3rd Army

In December 1944, the **18th Cavalry Squadron** was “chopped” to the **106th Infantry Division** still in sector. The tasks for these squadrons were the traditional cavalry missions of screening to the front and reconnaissance. On 12 December, the 32nd Squadron was returned to Group control and passed lines to the rear for refitting. The 18th Squadron also returned to Group control but continued its screening mission in the Ardennes region of Belgium.

At 0630 on 16 December 1944, Von Rundstedt launched the final German bid for victory - the now famous ‘Ardennes Offensive’ or better known as the ‘Battle of the Bulge’. After a terrific artillery and rocket barrage designed to destroy communications and disrupt our organization, the German attack was launched. The full weight of this drive was felt early that morning when more than half of the **18th Cavalry Squadron became surrounded, and were captured** or killed by 10:00 hours.

Patton’s Third Army Division had begun the Lorraine Campaign by August 1944 and reached the Moselle River near Metz, France. By December 1944, Salvador’s tank division turned north to relieve the surrounded and besieged **101st Airborne Division at Bastogne** in the Ardennes during the **Battle of the Bulge**. By February 1945 the Third Army moved into the Saar Basin in Germany and later crossed the Rhine River at Oppenheim on March 22, 1945.

On Salvador Piscopo’s uniform at the time when his photograph was taken he had four **service bars** representing **two years of overseas service** and also one **three-year reenlistment service stripe**. Sal was wounded when his tank was hit by German anti-tank fire. He carried shrapnel in his chest all of his life. He also was captured by the Germans and was issued a medal with five **Bronze Service Stars, European-African-Middle Eastern Campaign, Good Conduct Medal** and **World War II Victory Medal** and participated in the **Rhineland** (15 Sep 44 to 21 Mar 45), **Ardennes-Alsace** (16 Dec 44 to 25 Jan 45), and **Central Europe** (22 Mar to 11 May 45) **Campaigns**. He was hospitalized after being liberated and after he was discharged. His brother Hank Alvarez said that Sal’s nickname was “**Fade Away**” meaning that “no one can find him, one day he’s around and then he would be gone for weeks and then show up again”. Sal was discharged at Camp Beale in 1945. Salvador died on September 21, 1968 and is buried in the Disabled Veterans section of **Oak Hill Cemetery** in San Jose, California.



- **Philip Galvan** Pvt. US Army, Fort Benning, Georgia. Philip was born in September 1926 in Alvarado, Alameda County and was the younger brother of Sal Piscopo. He was enrolled along with his siblings with the **Bureau of Indian Affairs** on his mother Dolores Marine's BIA Application # 10681. Philip enlisted in the **U.S. Army** on April 13, 1944 and was sent to the Monterey Presidio and afterwards he was stationed at Fort Benning, Georgia. Fort Benning was the home of the 2nd Armored Division called "Hell on Wheels". Ft. Benning The core units of the 2nd Armored Division were the 41st Armored Infantry Regiment, the 66th Armored Regiment, the 67th Armored Regiment, the 17th Armored Engineer Battalion, the 82nd Armored Reconnaissance Battalion, and the 142nd Armored Signal Company. The 2nd Armored had three artillery battalions (the 14th, 78th, and 92nd). The Division also had support units, including the 2nd Ordnance Maintenance Battalion, a Supply Battalion, the 48th Armored Medical Battalion, and a Military Police Platoon. Some of the units were attached to the 41st Infantry Division in Europe Philip was honorably discharge at Camp Beale in 1946. During the 1960s Philip and his siblings were responsible for protecting the Tribe's Ohlone Indian Cemetery from destruction. Later, Philip joined the editorial board of the American Indian Historical Society's Indian Historian publication journal. Philip also served as the Secretary for the Ohlone Indian Tribe from 1965 to 1971. Philip Galvan was the caretaker of the Tribe's Ohlone Indian Cemetery, located near Mission San Jose. On June 13, 1982, Phil and his brother Ben Galvan laid the cornerstone for the widely acclaimed reconstruction of the 1809 Mission San Jose adobe Church. Philip Passed away on March 25, 2013 at the age of 87 years.



- **"Ben" Michael Benjamin Galvan**, Merchant Marines, **U.S. Navy – (USS Enterprise)**, **U.S. Army and Army Air Corps**. Ben was born on June 23, 1927 in Alvarado and was the last "formal" member of the Federally Recognized Verona Band of Alameda County. In March 1932, he was enrolled with the Bureau of Indian Affairs under his mother Dolores Marine Alvarez Piscopo Galvan's BIA Application # 10681. After serving in the Merchant Marines because he was under aged, he served in the Navy on board the *USS Enterprise*.

The *USS Enterprise* participated in nearly every major engagement of the war against Japan, including the Battle of Midway, the Battle of the Eastern Solomons, the Battle of the Santa Cruz Islands, various other air-sea actions during the Battle of Guadalcanal, the Battle of the Philippine Sea, and the Battle of Leyte Gulf, as well as participating in the "Doolittle Raid" on Tokyo. *USS Enterprise* has the distinction of earning **20 battle stars** and a **Presidential Unit Citation**, the most for any U.S. warship in World War II. Ben Galvan was awarded six Battle Stars and a Purple Heart.

After being injured during combat on the *USS Enterprise*, Ben requested to be transferred to the U.S. Army/Air Corps. At the end of his service, he reenlisted in the service on January 15, 1946 at Camp Beale, Marysville, California. On December 4, 1951 Ben enrolled himself and his family during the second BIA enrollment period.

During the early 1960s he was involved in saving the Ohlone Indian Cemetery from destruction and in 1965 Ben became the first chairman of the Ohlone Tribe. Ben served as the chairman of the Ohlone Tribe for thirteen years from 1965 to 1978. Ben Galvan passed away on April 13, 1987.



- **Thomas Joseph Garcia, Pfc. U.S. Army, Co. F. 358th Engineers GS Regiment.** Joseph Garcia was born on December 12, 1912 on the Alisal Rancheria near Pleasanton. Both his mother Mercedes Marine and his father Joseph Armijo Garcia were Muwekma Ohlone Indians. After the death of his mother in 1914, Joseph was adopted by his godmother Phoebe Inigo Alaniz who was also a member of the Verona Band Indian Community. He enrolled with the **Bureau of Indian Affairs** with his step-mother **Phoebe Alaniz** on October 7, 1930 (Application # 10301) and spent most of his life in Livermore.

Thomas Garcia enlisted on July 30, 1942 at the **San Francisco Presidio** and he served until November 27, 1945. On January 10, 1943 the **358th Engineers Regiment** was activated at Camp Claiborne, Louisiana and they departed the U.S. for Europe on July 1, 1943. The Regiment landed in France on August 24, 1944 and crossed into Belgium November 27, 1944 and participated in the **Normandy, Northern France, Rhineland, and Central Europe Campaigns**. He was honorably discharged on November 27, 1945. On April 22, 1953, he enrolled during the second **BIA** enrollment period. Thomas Garcia passed away on February 9, 1956 and was buried **Golden Gate National Cemetery** (Section Q, Grave 59).



- **Ben Lewis (Angel) Guzman, Pfc. U.S. Army (Serial # 39112587).** Bennie Guzman was born on October 2, 1920 in Pleasanton, California. His father was Fred Guzman who had served in the 28th Infantry Division during WW I. Ben enlisted on November 5, 1942 at **San Francisco Presidio**. He first went to Camp Niles, and then onto Camp White, Oregon, and was assigned to **Company B, 362nd Infantry Regiment, 91st Infantry Division**, and he served in **North Africa, Sicily, and Italy** campaigns during the war. The 361st, 362nd and 363rd Infantry Regiments were organic elements of the 91st Infantry Division.

The 91st Division was activated in 1942 and landed in Italy in June 1944. During the rest of the war it participated in the **Anzio, Rome-Arno, North Apennines (the Gothic and Caesar Lines)** and **Po Valley** campaigns. After the end of the war the Division was on occupation duty near Trieste until August 1945 when it returned to the U.S. Like his uncle Toney Guzman who also served in the 91st Infantry Division during WW I, Ben Guzman's enlistment record identifies him as an "**American Indian, Citizen.**" Ben attained the rank of Private and was discharged on January 9, 1946 at Camp Beale, California. He was issued the **World War II Victory Medal, WW II Lapel Button, Asiatic-Pacific Campaign Medal, Bronze Star, and Combat Infantry Badge.** Ben Guzman died on March 11, 1995 and he is buried in the **San Joaquin National Cemetery** in Gustin, Ca. (Plot C-3 0 517).



- **Frank Harry Guzman, Pfc. U.S. Army.** Frank was the younger brother of Bennie Guzman and he was born on April 2, 1926 in Pleasanton. Muwekma Ohlone Indians Dario Marine and Cecelia Armija were his godparents. Frank and his brother Bennie were photographed with their uncle Toney Guzman by anthropologist C. Hart Merriam in September 1934.

Frank's enlistment record identifies him as an "**American Indian, citizen**" and that he enlisted at the **San Francisco Presidio**. Frank served from July 21, 1944 to June 1946 as a Light Machine Gunner in the unattached **345th Infantry Regiment, 87th Infantry Division** that was during the war assigned to the **3rd Corps, 8th Corps, 12th Corps of General Patton's 3rd Army** (25 Nov 1944), **15th Corps of the 7th Army, 8th Corps of the 1st Army** and the **8th Corps of the 9th Army** during the European Theater of Operations (October 1944 - May 1945). Frank was also briefly assigned to the **82nd Airborne Division** and received his Parachute Badge.

On December 15, 1944, the **345th Infantry** Regiment was in the vicinity of Rimling, France and by December 17th the regiment took the town of Medelsheim, Germany. By December 26th the Germans had broken through the American defenses along the German-Belgian border between Malmedy, Belgium and Echternach, Luxembourg and create a fifty-five mile salient through the Ardennes Forest. The 345th was sent to the Cathedral city of Rheims to prevent a German breakthrough there and by December 28th the regiment was reassigned to General Patton's Third Army. On 29 December 29th the 345th Infantry Regiment was again on the road bound for an assembly area in the Luchie Woods 19 kilometers southwest of Moiricy, Belgium.

The **Battle of the Bulge** which lasted from December 16, 1944 to January 28, 1945 was the largest land battle of World War II in which the United States participated. More than a million men fought in this battle including some 600,000 Germans, 500,000 Americans, and 55,000 British. At the conclusion of the battle the casualties were as follows: 81,000 U.S. with 19,000 killed, 1,400 British with 200 killed, and 100,000 Germans killed, wounded or captured.

Frank was engaged in the **Rhineland** and **Central Europe** campaigns. He received the **Army Presidential Unit Citation Ribbon, Combat Infantry Badge, European Africa and Middle Eastern Campaign Medal (Three Bronze Stars for Campaigns), Good Conduct Medal, American Campaign Medal, World War II Victory Medal, Army of Occupation Medal (Berlin), Parachute Badge, Marksman Badge** for Machine Gun and Rifle. Frank was honorably discharged at Camp Beale, California on June 27, 1946. Frank Guzman was a member of the V.F.W. Post No. 1537 of Tracy, California; he died on March 17, 1982.



- **Ernest Marine, Pfc. U.S. Army, 58th Field Artillery Battalion, 76th Division.** Ernest Marine was the son of Muwekma Ohlone Indians Lucas Marine and Catherine Peralta. He was born on January 26, 1926 in Centerville. He was enrolled with his father with the Bureau of Indian Affairs on January 11, 1930 (**BIA Application # 10299**) and his mother had filled out a separate BIA enrollment (**Application # 10675**). His father Lucas Marine had identified his mother (Avelina Cornates Marine) and Ernest's mother (Catherine Peralta Marine) as "**Ohlones**" on his BIA Application.

Ernest Marine enlisted on April 13, 1944 at the Monterey Presidio and he served in Europe in the **58th Field Artillery Battalion** and Tank Battalion in the **76th Division** and fought in the **Rhineland** (September 15, 1944 – March 21, 1945), **Ardennes-Alsace (Battle of the Bulge, Bastogne, Belgium, December 16, 1944 – January 25, 1945)** and **Central Europe Campaigns** (March 22, 1945 – May 11, 1945). Ernest enrolled with his father Lucas Marine during the second **BIA** enrollment period on December 23, 1950. Ernest Marine was honorably discharged at Camp Beale on June 15, 1946. After the war he spent most of his life living with his aunt Trina Thompson Ruano in Newark and he passed away on October 20, 1977 in Sacramento.



- **Filbert S. Marine, Technician Fifth Grade (T/5 or TEC 5, U.S. Army, Pacific Theater (serial # 39-089-777).** Filbert was the last child born on the Alisal Rancheria on December 31, 1915. Both of his parents Dario Marine and Catherine Peralta were **Muwekma Ohlone Indians**. His godparents were also Muwekma Ohlone Indians Franklin P. Guzman who served in the Marine Corps during WWI and Francisca Guzman. Filbert and his siblings were enrolled with the Bureau of Indian Affairs on their father's **BIA Application # 10677** on March 11, 1932.

Filbert enlisted in the Army on February 18, 1942 at the Presidio of Monterey. His enlistment record identifies him as "**American Indian, citizen.**" He fought in the Pacific Theater and was assigned to the **226th Field Artillery Battalion, Battery "B."**

His unit was assigned to **XXIV Corps** during the Battle of Leyte in the Philippines. The Marines that took part in the Leyte landings were elements of the VAC Artillery, which had been attached to the XXIV Corps earlier in 1944, while still at Hawaii. The **V Amphibious Corps (VAC)** was a formation of the United States Marine Corps and was composed of the 3rd, 4th and 5th Marine Divisions during World War II. They were the amphibious landing force for the United States Fifth Fleet and were notably involved in the battles for **Tarawa** and **Saipan** in 1944 and the **Battle of Iwo Jima in 1945**.

The Marine complement consisted of the 5th 155mm Howitzer Battalion; the 11th 155mm Gun Battalion, and Headquarters Battery. Army field artillery battalions in the XXIV Corps were the 198th Field Artillery Battalion (155mm Howitzer), the **226th Field Artillery Battalion (155mm Gun)**, and the 287th Field Artillery Battalion (Observation).

The Marine artillery elements assigned to the XXIV Corps, as well as the **226th Field Artillery Battalion** had been formed from former seacoast artillery units; though familiar with heavy artillery, the men had received only rudimentary field artillery training. Prior to the departure of these units from Hawaii, the Marine artillery had undergone intensive field artillery training. Embarkation of personnel from Hawaii was accomplished between 6 and 14 September 1944.

The island of Leyte, lying in the Visayas Group of the Central Philippines, is 115 miles in length and varies in width from 15 to 40 miles. The main mountain range runs the entire length of the island from north to south, leaving a wide coastal plain along the east coast. The Sixth Army troops for Operation KING II, code name for the invasion of Leyte, were composed of the X and **XXIV Corps** and the 6th Ranger Battalion. The X Corps included the 1st Cavalry Division and the 24th Infantry Division; the XXIV Corps consisted of the 7th and 96th Infantry Divisions. After the Leyte (20 Oct 1944) Philippine Campaign ended, the **226th Field Artillery Battalion** continued on and participated in the **Okinawa Campaign** (14 June 1945). Filbert's unit may have gone from Camp Forrest, Tennessee to Fort Oglethorpe Georgia to Fort Sill, Oklahoma to Camp Stoneman, California to Maui to Oahu to Molokai to Eniwetok to Manus to Leyte to Samar and ended up on (Ryukyus) Okinawa in 1945.

Filbert was issued the **Asiatic-Pacific Campaign Medal, Good Conduct Medal, Philippines Liberation Medal, World War II Victory Medal, and Philippine Liberation Medal** and was honorably discharged on November 24, 1945 at the rank of Tec. 5. He died in Sacramento on March 31, 1953 and was buried in the military section (Veteran's Plot) of the City of Sacramento Cemetery.



--**Lawrence Domingo Marine, Staff Sergeant, U.S. Marine Corps** (Serial # 299599). Lawrence was the younger brother of Filbert Marine and he was born on May 4, 1919 in Centerville. He was one of the last Muwekma Ohlone Indians to be baptized at Mission San Jose. He was enrolled with the Bureau of Indian Affairs on his father's BIA **Application # 10677** on March 11, 1932.

Lawrence was sent to **Indian Boarding School at Sherman Institute**, Riverside, California in 1931 and graduated from there in 1939. He also met his future wife Pansy Potts from the Maidu Tribe while attending Sherman Institute.

After leaving Sherman Institute, Domingo returned to the Bay Area and enlisted in the U.S. Marine Corps in January 1940 in San Francisco. He was later assigned to the 2nd Marine Brigade and on August 2, 1942, Lawrence was promoted to a Line Sergeant. He later served in the “**Headquarters and Service Battery, First Battalion, Tenth Marines, Eighth Marines, Reinforced, In the Field**” by authority of Headquarters, Defense Force, Samoan Group secret letter of August 12, 1942 and October 31, 1942.

Lawrence was later assigned to anti-aircraft batteries and was engaged in the following major battles, engagements, and ports from January 2, 1942 – November 8, 1945: **Hawaiian Islands Area, American Samoan Islands, Wellington, New Zealand, Guadalcanal, B.S.I (British Solomon Islands, New Georgia), Eniwetok, Marshall Islands, Ulithi, Caroline Islands, Okinawa, and Ryukyu** (southern Japanese Islands). The **Battle of Eniwetok** was a battle of the Pacific campaign of World War II, fought February 17, 1944 - February 23, 1944 on Eniwetok Atoll in the Marshall Islands.

The invasion of Eniwetok followed the American success in the battle of Kwajalein to the southeast. Capture of Eniwetok would provide an airfield and harbor to support attacks on the Mariana Islands to the northwest. **Battle of Okinawa** was the largest amphibious invasion of the Pacific campaign and the last major campaign of the Pacific War. More ships were used, more troops put ashore, more supplies transported, more bombs dropped, more naval guns fired against shore targets than any other operation in the Pacific. The fleet had lost 763 aircraft. Casualties totaled more than 38,000 Americans wounded and 12,000 [including nearly 5,000 Navy dead and almost 8,000 Marine and Army dead killed or missing], more than 107,000 Japanese and Okinawan conscripts killed, and perhaps 100,000 Okinawan civilians who perished in the battle.

Lawrence Domingo Marine was honorable discharged at **Treasure Island** on November 20, 1946 after having an extended two-year reenlistment. He received the **Presidential Unit Citation, Good Conduct Medal, and Good Conduct Medal Bar No. (1), Honorable Discharge Button, Honorable Service Button**. Lawrence Marine enrolled during the second BIA enrollment period on October 12, 1950. He passed away on May 21, 1988 and was buried in Woodland, California.



- **Henry Vernon Marshall, Sergeant, U.S. Marine Corps** was born in Newark on June 27, 1925. He was the son of Muwekma Ohlone Indian Henry Marshall, Sr. who was the son of Magdalena Armija Marshall Thompson. Henry Marshall, Jr. was a member of the Verona band of Alameda County. His grandmother, Magdalena enrolled her children with the Bureau of Indian Affairs on October 7, 1930 (BIA Application # 10296). Henry Marshall, Jr. enlisted on May 19, 1942 in the United States Marine Corps and was assigned to the **1st Marine Division** (Guadalcanal). He fought in the Pacific Theater of

Operations and was issued the **Navy Presidential Unit Citation** with one **Bronze Star, American Campaign Medal, Asiatic Pacific Campaign Medal, Rifle Sharpshooter Badge**, and a three-tiered **Weapons(?)** qualifying badge. He was honorably discharged on May 19, 1946. His father later enrolled the family during the third BIA enrollment period on May 7, 1969 as part of the California Indian Claims Judgment. Henry passed away on September 24, 1986.



- **Arthur M. Pena, Sergeant, U.S. Army, Company A, 155th Engineers Combat Battalion, Pacific Theater.** Arthur was born in Crockett, California on September 24, 1924. His mother was Erolinda Santos (Juarez/Saunders) Pena Corral who was a member of the **Muwekma Ohlone Verona Band Indian Community**. Arthur was enrolled along with his mother and siblings with the **Bureau of Indian Affairs** on his great-aunt Maggie Pinos Juarez's **BIA Application # 10676** on March 18, 1932. Prior to WWII, Arthur was working for Southern Pacific Railroad.

Arthur Pena registered with the draft board on December 21, 1942 and enlisted in the army on April 13, 1943 at the **San Francisco Presidio** and served in the unattached **155th Engineering Combat Battalion** in the Pacific Theater. He served in the **Southern Philippines** and **Western Pacific Campaigns** (**Leyte** October 17, 1944 – July 1, 1945 and **Western Pacific** June 15, 1944 – September 2, 1945) and his battalion was sent to **Guadalcanal** (August 12 – August 24, 1944). From Guadalcanal, the battalion went on to **Palau, Ulithi, New Caledonia** (February 20, 1945), **Southern Philippines** (May 16, 1945), and **Japan** (September 8, 1944 – September 25, 1945).

Arthur Pena was honorably discharged at Camp Beale, Marysville, California on February 2, 1946 and he was issued the **Philippines Liberation Ribbon, Asiatic Pacific Campaign Medal, American Campaign Medal, Good Conduct Medal** and **World War II Victory Medal**. He reenlisted on August 7, 1946 and served in Germany in Company C 793rd Military Police Battalion and he also went through the European Command Intelligence School. He was honorably discharged on March 25, 1955 and then reenlisted again on March 26, 1955. After serving another two years, Arthur was discharged at Fort Leonard Wood, Missouri on December 9, 1957. Arthur was also issued the **UN Service Medal, National Defense Service Medal, and Army of Occupation Germany Medal**. On December 27, 1957, he enrolled his family with the Bureau of Indian Affairs during the second enrollment period.



- **Robert P. Corral, U.S. Army, Pfc. Infantry, Head Quarters Regiment, Ft. Benning, GA.** Robert was born in Crockett, California on June 1, 1926 and was the younger brother of Arthur Pena. His mother was Erolinda Santos (Juarez/Saunders) Pena Corral who was a member of the **Muwekma Ohlone Verona Band Indian Community**. Robert was enrolled along with his mother and siblings with the **Bureau of Indian Affairs** on his great-aunt Maggie Pinos Juarez's **BIA Application # 10676** on March 18, 1932.

Robert enlisted at the **San Francisco Presidio** on December 18, 1944 and was honorably discharged on November 13, 1946. At Fort Benning, Georgia Robert completed six parachute jumps and was awarded a **Parachutist Badge, World War II Victory Medal, Good Conduct Medal, and American Campaign Medal**. On May 16, 1955 Robert enrolled himself and his family during the second BIA enrollment period. During the third BIA enrollment period on April 30, 1969, Robert enrolled his family as “**Ohlone Indians**” with the BIA as part of the California Indian Claims Judgment (Application # 21123). During the 1990s Robert P. Corral served as a **Muwekma Ohlone Tribal Elder** and he passed away on June 28, 1996 in Stockton.



- **Enos Marine Sanchez, Pfc. U.S. Army, 89th Division, 1st Battalion, Co. M, 354th Infantry Regiment, (39 390 899)**. Enos Sanchez was born on February 1, 1910 near the Alisal Rancheria in Sunol and his birth certificate identified him as “**California Indian**”. Enos and his younger siblings were enrolled with the **Bureau of Indian Affairs** on March 18, 1932 (**BIA Application # 10680**). He along with his mother was Ramona Marine Sanchez were members of the Federally Recognized **Verona Band of Alameda County**.

Enos enlisted on June 29, 1942 in Sacramento and was shipped to Camp Carson, Colorado Springs and later that year served in Greenland and Iceland. The 89th Division was called the “**Rolling W**” standing for MW (Middle West). After landing at LeHarve, France, the 89th received orders to move into Mersch, Luxembourg (March 8, 1945). The 89th was assigned to the **XII Corps of General Patton’s Third Army**. Crossing into Germany the 89th met the German 2nd Panzer Division and seven Volksgrenadier Divisions and by March 26, 1945, the 89th crossed the Rhine River. Enos’ Military Occupational Specialty (MOS) was a Heavy Machine Gunner (605). On April 4, 1945, the 4th Armored and the 89th Infantry Divisions were involved in the liberation of the **Ohrdruf Death Camp**, which was part of the Buchenwald concentration camp network. It was the first Nazi concentration camp liberated by the U.S. Army.

Enos’ unit fought in the **Rhineland and Central Europe (GO WO WD 45) Campaigns** and he was awarded the **Combat Infantry Badge (31), Good Conduct Medal, American Campaign Medal, European, African, Middle Eastern Campaign Medal, World War II Victory Medal (TWX WD 23 Oct 45), and Marksman M1 Rifle Sep 42 (55)**. Enos was honorable discharged on November 15, 1945 and separated from Camp Beale, California. In 1965 Enos was identified along with his family and fellow Tribal members by the American Indian Historical Society on a list of “**Ohlone Contacts and Ohlone Members**”. He died on July 19, 1995 at the age of 85 and was buried at the **Calvary Cemetery** in San Jose California.



- **Robert R. Sanchez, U.S. Army, Technician Fourth Grade, 7th Co. 508th Prcht. Infantry, 82nd Airborne Division.** Robert Sanchez was the younger brother of Enos Sanchez and he was born in Sunol near the Alisal Rancheria on March 26, 1917. Robert and his siblings were enrolled with the **Bureau of Indian Affairs** on March 18, 1932 (**BIA Application # 10680**).

Robert enlisted in October 1942 and he volunteered to join the 82nd Airborne Division, 508th Parachute Infantry Regiment. On June 5-6, 1944, the paratroopers of the 82nd's three parachute infantry regiments and reinforced glider infantry regiment boarded hundreds of transport planes and gliders and, began the largest airborne assault in history. They were among the first soldiers to fight in Normandy, France.

The Division air-assaulted behind **Utah Beach, Normandy, France**, between Saint Mere Eglise and Carentan on June 6, 1944, being reinforced by the **325th Glider Regiment** the next day. The 82nd Airborne Division was reinforced by both the attached 507th PIR and the **508th PIR**.

The **508th Parachute Infantry Regiment** (a.k.a. the Red Devils) whose battle cry was "Diablo!" was originally an organic part of the **2nd (Battalion) Airborne Infantry Brigade** that was attached to the **82nd Airborne Division** through most of its time in combat. Campaigns include **Normandy** (D-Day June 6, 1944), **Rhineland**, **Ardennes-Alsace** (France), and **Central Europe** (Nijmegen-Arnhem Holland, and Belgium).

By July 1945, the 82nd Airborne was moved to Berlin to occupy the American Sector. The 508th which had fought alongside the 82nd since Normandy was sent to occupy Frankfurt, Germany. For his service in the 508th PIR, **Robert Sanchez** was issued the **Distinguished (Presidential) Unit Citation, Combat Infantry Badge, Parachute Badge, European Africa and Middle Eastern Campaign Medal, World War II Victory Medal, Army of Occupation Medal (Berlin), Belgian Citation (Lanyard) and French Citation (Lanyard)**.

The **82nd Airborne Division** and the 508th Parachute Infantry Regiment were issued the Distinguished (Presidential) Unit Citations **for actions during the Normandy Campaign**. "The 508th Parachute Infantry is cited for outstanding performance of duty in action against the enemy between 6 and 9 of June 1944, during the invasion of France. ... The courage and devotion to duty shown by members of the 508th Parachute Infantry are worthy of emulation and reflect the highest traditions of the Army of the United States. The **Netherlands Citation** was issued by the Dutch Government to the 82nd Airborne and its attached divisions (508th PIR) on October 8, 1945 for airborne operations and combat actions in the central part of the Netherlands (**Nijmegen**) during the period from September 17, 1944 to October 4, 1944. The 82nd Airborne Division became the first non-Dutch military unit to be awarded the **Militaire Willems Orde**, Degree of Knight Fourth Class to wear the Orange Lanyard of the Royal Netherlands Army.

The **Belgian Citation** (Lanyard) was issued by the Belgian Government to the 82nd Airborne Division with the 508th Parachute Infantry attached “has distinguished itself particularly in the Battle of the Ardennes” from December 17, 1944 – December 31, 1944. The **French Citation** (Lanyard) was issued to the 508th Parachute Infantry by the Government of France. “The President of the Provisional Government of the French Republic Cites to the Order of the Army: 508th Parachute Infantry Regiment: A magnificent unit, reputed for the heroism and spirit of sacrifice of its combatants and which made proof of the greatest military qualities during the battle of Normandy” (June 6, 1944 – June 20, 1944). This citation includes the award of the ***Croix de Guerre with Palm***.

O. B. Hill from the 508th P.I.R. Association, 82nd Airborne Division wrote: “2,056 men of the 508th Parachute Infantry Regiment (attached to the 82nd Airborne) jumped into Normandy on D-Day, and on July 15, 1,918 returned. The rest had been killed, captured or wounded”.

Robert was honorably discharged on February 2, 1948 and spent most his life in the greater Bay Area. Robert Sanchez was one of the early prime movers and active Elders in the Muwekma Ohlone Tribe. He passed away on April 26, 1999.



- **Daniel G. Santos (Juarez), Technical Sergeant, U.S. Army, 41st Division** – 1941-1945. Daniel Santos (Saunders/Juarez) was born in Sunol near the Alisal Rancheria on January 21, 1917. Both his parents Joseph Saunders and Erolinda Santos were members of the **Verona Band of Alameda County**. Daniel was enrolled with the **Bureau of Indian Affairs** along with his mother and siblings under his great-aunts' **BIA Application (# 10676)** on March 18, 1932.

Daniel Juarez (Santos) received a draft notice dated **March 14, 1941**, from Local Board No. 36 located in Manteca, California. It was addressed to Mr. Dan George Juarez, Route, Box 29A, Tracy, California. The letter stated:

We received a call for 70 men to be inducted from this area on March 27th 1941. ... it is probable that you will be included in the group, and we are therefore taking this opportunity of notifying you, before (?) official order is issued, so that you may make your plans accordingly.

Daniel enlisted on March 27, 1941 at Sacramento before the war was declared. The **Jungleer or Sunset Division** was Federalized on September 16, 1940. By December 7, 1941, the 41st Division was ready. It continued the series of "firsts" by being the first United States Division to deploy to the South Pacific. It became the first American Division sent overseas after Pearl Harbor, the first American Division trained in Jungle Warfare. It spent 45 months overseas (longer than any other Division), and earned the title of "**Jungleers**".

The 41st Division left for Australia in March of 1942. Elements of the division landed January 23, 1943 in **Dobodura, New Guinea**. On the **Island of Biak** (May 27, 1944) the American Forces fought the first tank battle of the war against the Japanese destroying seven without loss. The division also fought in the Philippines (January 9, 1945) and fought on **Palawan** and **Sulu Archipelago** (March 10, 1945) and arrived in **Japan** on October 6, 1945. They participated in 3 campaigns (**New Guinea, Luzon, and Southern Philippines**) and suffered 4,260 casualties.

Former Secretary of Defense Caspar W. Weinberger also served in the 41st Division as an officer. The 41st Division earned three **Distinguished (Presidential) Unit Citations**. Daniel Santos was honorably discharged in 1945.

Daniel enrolled with the Bureau of Indian Affairs during the second BIA enrollment period on May 23, 1955. He also worked at Leslie Salt Company in Newark and spent his life working on and racing cars. Daniel passed away on April 28, 1980.



- **Lawrence Thompson, Sr., Tec Fifth Grade, U.S. Army, 640th Tank Destroyer Battalion**. Lorenzo Thompson, Sr. was born in Newark September 9, 1918. His mother Magdalena Armija Thompson was a member of the **Verona Band of Alameda County**. Lawrence and his siblings enrolled with their mother with the Bureau of Indian Affairs on October 7, 1930.

The **640th Tank Destroyer Battalion** was formed at Camp San Luis Obispo on December 19, 1941 as an element of the **40th Infantry Division**, and served in the Pacific Theater of Operation. The 640th was activated on March 3, 1941 from National Guard Divisions from California and Utah and was sent overseas on August 23, 1942.

The 640th Campaigns included: **Bismarck Archipelago, Southern Philippines**, and Luzon and were issued 3 **Distinguished Unit Citations**; Awards: MH-1; DSC-12; DSM-1; SS-245; LM-21; SM-30; BSM-1,036; AM-57.

Lawrence Thompson enlisted at the age of 23 on September 10, 1941 at the **San Francisco Presidio**. At that time, he was living at 2370 Pine St. in San Francisco. His MOS was Cannons S45 and he fought in the following campaigns: **Aleutian Islands [Attu and Kiska Island with the 7th Infantry Division]**, **Luzon and Southern Philippines** and **Eastern Mandates [Marshall Islands, Kwajalein, Eniwetok]**. Initially deployed to Hawaii in September 1942, the **640th Tank Destroyer Battalion** participated in combat landings at **Guadalcanal** (February 5, 1944), **Cape Gloucester, New Britain** (May 3, 1944), **Lingayen Gulf, Luzon, Commonwealth of the Philippines** (January 9, 1945), and **Los Negros Islands** (March 29, 1945). The **640th Tank Destroyer Campaign Honors** include: **Bismarck Archipelago [islands of New Guinea]** (December 15, 1943 – November 27, 1944), and **Luzon and Southern Philippines [GO 33 WD 45]** (December 15, 1944 – July 4, 1945). “**Seek, Strike, and Destroy**” was the motto of the Tank Destroyers.

Lawrence Thompson was honorably discharged on October 2, 1945 at Camp Beale, Marysville, California and was issued the **American Defense Service Medal**, **Asiatic Pacific Campaign Medal** and **Philippine Liberation Ribbon with Bronze Star**.

After the war Lawrence Thompson, Sr. and his son Lawrence Thompson, Jr. enrolled with the Bureau of Indian Affairs during the third BIA enrollment period on June 24, 1969. Later during the early 1990s Lawrence, Sr. served on the Muwekma Tribal Council. He passed away in November 1999. (Figures 41 and 42)



- **George James (Guzman) Hernandez** was born in Niles on November 13, 1923 to Candeliana (Carolyn/Carrie) Guzman Hernandez (born March 12, 1905) who was the daughter of Muwekma Elder **Francisca Guzman Nonessa** (BIA #10293) and Manuel Hernandez. Manuel Hernandez was working for Elbert Apperson during the early 1900s while living on Glenn Avenue in Sunol (1920 Federal Census). George enlisted on September 12, 1945 at Camp Beale, Marysville, California and had the rank of Private in the United States Army, he was discharged from the service on July 2, 1946. On his June 30, 1942 Draft Registration card he identified Paul Guzman (Hernandez) as his uncle and that he worked on the W. Walton Ranch in Centerville (now the City of Fremont) which was the same employer of his uncle Toney Guzman. He was the nephew of Toney and Fred Guzman, and first cousin to Frank Harry and Bennie Guzman.

George died in the Town of Middleton, Lake County on June 26, 1995 and was buried in the **Golden Gate National Cemetery**, Section K, Site 631.



Figure 41: Some of the Muwekma Men Who Served During World War II



Figure 42: Some of the Muwekma Men Who Served During World War II

From Post-World War II to the 1960s

At the end of the war, the returning Muwekma men had to readjust to the peacetime economy and search for employment throughout the central California region. Work was difficult to find at times, but families helped each other and maintained tribal relations through religious and social mechanisms (e.g., compadrazo/godparenting and witnessing) that have long been established within the Muwekma families.

After World War II, in May 1947, **Ernest Thompson, Jr.** the son of Magdalena Armija Thompson, became a member of the **Bay Area California Indian Council** which represented the contractual interests for over one thousand California Indians residing in the Bay Area as a result of the 1928, 1944, and 1946 Indian Claims Acts and ensuing legal decisions by the Justice Department (**Figure 43**).

After 1950, those surviving Muwekma and other California Indians were issued checks for the sum of **\$150.00** per person as compensation for the value (with interest going back to 1852) for the 8.5 million acres of land and promised services that they never received. Deducted from the final lump sum was the cost of every military operation, Indian services, and bullets spent so that the settlement would not be a burden to the American taxpayer.

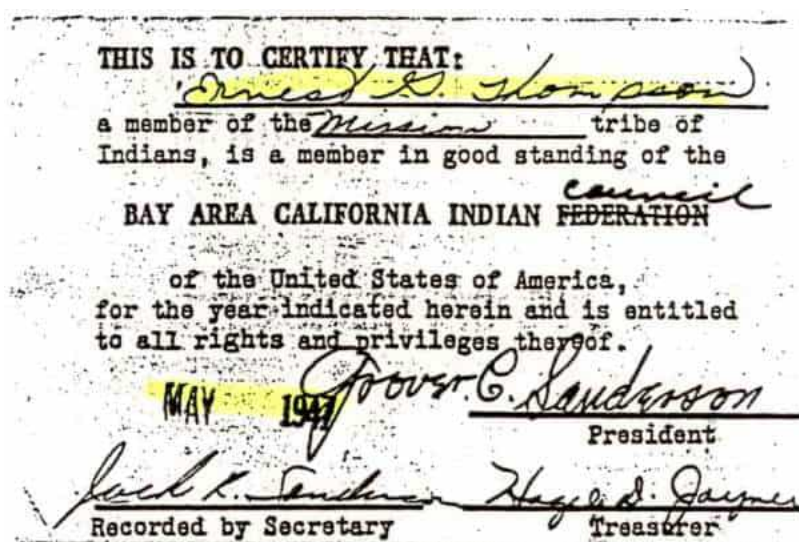


Figure 43: Ernest Thompson Membership in Bay Area California Indian Council

Community and tribal related activities fell under the leadership of Muwekma Elder, **Margarita (Maggie) Pinos Juarez**, and **Dolores Marine Galvan** and her brothers **Dario Marine** and **Lucas Marine** and her younger sister, **Trina Marine Thompson Ruano** (Ernest Thompson, Sr., had married Trina after the death of his first wife, Magdalena Armija Thompson). These tribal activities and revitalization were also spurred by communications with the BIA Sacramento Agency, which notified the Muwekma lineages of the expanded enrollment opportunities under the California Indian Jurisdictional Act for children born after May 28, 1928. Families contacted and helped each other go to Sacramento to enroll their children, nieces and nephews. After the California Indian Roll was approved on November 23, 1951, the Sacramento Area Office published a list of enrollees that identified **forty** Muwekmas as "**Tribe Mission San Jose**" (BIA list 1951).

Also, during this period of time (from 1930s and 1950s), some of the families moved about seeking new employment opportunities and residential stability. The residence of Lucas Marine and Catherine Peralta (before her passing in 1934) on the **Shinn Ranch** in Niles became an important gathering place for the families and relations (see Harrington notes 1921-1934 regarding events between Liberato and Pedro Confessor prior to the turn of the century). Other important households were the residences of Dolores Marine Galvan in Brentwood and San Jose, Dario Marine in Centerville and later Woodland, and Margarita Pinos Juarez and Trina Marine Thompson Ruano in Newark where the families would gather for various occasions.

Continuous Connections to the Tribe's Sacred Sites: The Protection of the Ohlone Indian Cemetery, Located in Fremont, Mission San Jose, California

The **Ohlone Indian Cemetery** located on Washington Boulevard, one mile west of Mission San Jose in Fremont, was used for burial by members of the Guzman, Santos, Pinos, Marine, Armija (Thompson) and Nichols families until 1926, while the original Ohlone burial ground was located under the northern wing of the mission church. Martin Guzman (died October 4, 1925), Victorian Marine Munoz (died November 27, 1922) and her son Jose Salvador Munoz (died 1921) were some of the last Muwekma Ohlone Indians to be buried there. On Jose Salvador Munoz's death certificate it identifies his place of burial as "**Ohlone Cem**"[etery].

During the 1960's Muwekma families under the leadership of **Dolores Marine Galvan**, participated in securing the legal title to the Historic Ohlone Cemetery located on Washington Boulevard in the City of Fremont. In 1971, a board of directors for the Ohlone Indian Tribe, Inc. was established by Dolores Marine Galvan and her children Philip Galvan, Benjamin Michael Galvan and Dolores Galvan Lameira in order to secure title to the tribe's ancestral cemetery.

During this period of time when the **American Indian Historical Society** obtained legal title of the Ohlone Cemetery on behalf of the Muwekma Ohlone community, invitations went out to various families, including the children of Magdalena Armija and Ernest Thompson and the other Marine-related families, to help clean up the run-down cemetery (**Figure 44 – Muwekma Children at the Ohlone Cemetery**). As mentioned above, the Guzman, Marine, Armija-Thompson and Nichols families had loved ones (e.g., Avelina Cornates Marine (died 1904), Elizabeth (Belle) Marine Nichols (d. 1911), Ramona Marine Sanchez (d. 1921), Victoria Marine Munoz (d. 1922), Dario's son Gilbert Marine, Rosa Nichols and Mary Nichols, Salvador Munoz (d. 1922), Charles Thompson and Martin Guzman (d. 1925) and others were buried there during the first three decades of this century (Marine Family History 1965; Leventhal, Escobar, Alvarez, Lameira, Sanchez, Sanchez, Sanchez and Thompson 1995).



Figure 44: Lillian Massiatt, Ramona and Michael Galvan at Ohlone Cemetery (1966)

Benjamin Michael Galvan was born on June 23, 1927 and was the last formal member of the historic Verona Band of Alameda County to be born into the Federally Recognized tribe. Ben was born the same day that BIA Superintendent Lafayette A. Dorrington decided in his report that the landless Verona Band tribe did not need any land. Ben served as the **first chairman** of the Ohlone Indian Tribe between 1965 and 1978.

Since World War II, Dolores Marine's children have married and raised families and presently Henry Alvarez and Dolores "Dotty" Galvan Lameira are Muwekma Tribal Elders and have served as elected council members. Dotty Lameira's son Arnold Sanchez had served as an elected tribal councilman. The family of Benjamin and Jenny Galvan are also enrolled in the Tribe and their son, Albert Galvan, had also served as a tribal council member. The same is the case for the children and grandchildren of Victoria Marine (**1928 BIA Application # 10678**) and Ramona Marine's children (**1928 BIA Application # 10680**). Magdalena Armija had married Ernest Thompson, Sr. and their sons Edward Thompson and Lawrence Thompson, Sr. were elders, and Lawrence was a former elected tribal councilman of the tribe (**1928 BIA Application # 10296**).

The children of Ernest Thompson, Jr. are also enrolled tribal members. As discussed earlier, Francisca Nonessi (**1928 BIA Application 10293**) was married to Jose Guzman, their son Jack Guzman (Sr.) had married Flora Freda Munoz (Victoria Marine's daughter), and their son John Guzman, Jr. (now deceased) and daughter, Rena Guzman Cerda, and their respective children are Muwekma tribal members.

In the late 1890s, George Santos (grandson of Hipolito Santos and Refugia Simon who were one of the founding families of the Niles rancheria) had married Peregrina Pinos (who was the daughter of Benedicta Guerrero and Manuel Pinos). Their eldest daughter, Erolinda Pinos Corral, enrolled with the BIA with her children along with her Aunt, Maggie Pinos Juarez, in 1932 (**1928 BIA Application 10676**). The children and grandchildren Alfonso Juarez, who was the eldest son of Erolinda Santos Juarez Pena Corral are enrolled members of the Muwekma Ohlone Tribe. Presently Carol Juarez Sullivan is a Muwekma tribal councilwoman (**Figure 45**).



Figure 45: Muwekma Elders Maggie Juarez and Erolinda Santos Juarez Corral

Muwekma Families Enroll with the Bureau of Indian Affairs during the Second Enrollment Period (1950-1957)

Under the Act of 1948, almost all of the Muwekma Ohlone “heads of household” enrolled with their families once again with during the **second BIA Enrollment** between 1950 and 1957. These Muwekma include:

Dolores Marine Galvan, October 6, 1950; **Domingo Lawrence Marine**, October 12, 1950, **Dario Marine**, November 1, 1950, **Flora Munoz Carranza**, December 12, 1950, **Lucas Marine**, December 23, 1950, **Henry Alvarez**, April 7 & 26, 1951, **Trina Marine Thompson Ruano**, May 21, 1951 **Maggie Pinos Juarez**, July 19, 1951, **Benjamin Galvan**, December 4, 1951, **Belle Stokes Olivares Nichols** February 25, 1952, **Ernest Thompson**, April 16, 1952, **Thomas Garcia**, April 22, 1953, **Flora Emma Martel Thompson**, February 4, 1954, **Erolinda Santos Juarez Pena Corral**, May 16, 1955, **Robert Corral**, May 16, 1955, **Edward Thompson**, May 21, 1955, **Daniel Santos**, May 23, 1955, **Joseph Francis Aleas**, May 24, 1955, **Albert Arellano**, June 18, 1955, **Dolores “Dottie” Galvan Lameira**, October 3, 1955, and **Arthur Pena Corral**, December 27, 1957.

Third Bureau of Indian Affairs Enrollment Period (1969-1971)

Following the Act of 1964, between 1969 and 1971, the following Muwekma “heads of households” and their families once again enroll during the third BIA Enrollment period with most of the applicants identifying themselves as “Ohlone” on Question # 6: “**Name the California Tribe, Band or Group of Indians with which your ancestors were affiliated on June 1, 1852**”:

Mary Munoz Mora Ramos Archuleta, January 10, 1969, “**Ohlone, Mission.**”
Mary Marine Galvan, January 27, 1969, “**Ohlone.**”
Ernest George Thompson, February 20, 1969, “**Ohlone Tribe, Mission San Jose.**”
Patricia Ferne Thompson Brooks, March 27, 1969, “Mission Indians.”
Madeline Cynthia Thompson Perez, March 27, 1969, “Mission Indians.”
Karl Thompson, March 27, 1969, “Mission Indians.”
Robert P. Corral, April 30, 1969, “**Ohlone Indian.**”
Henry Marshall, May 7, 1969, “**Ohlones.**”
Glenn Thompson, June 11, 1969, “Mission Indian.”
Lorenzo Thompson, June 24, 1969, “Costanoan.”
Lawrence Thompson, Jr., June 24, 1969, “Costanoan.”
Rosemary Juarez Ferreira, July 15, 1969, “**Ohlone Indians.**”
Peter D. Juarez, July 23, 1969, “**Ohlone Indians.**”
Dolores Sanchez Martinez, August 11, 1969, “**Ohlone.**”
Margaret Martinez, August 21, 1969, “**Ohlone Mission Indian.**”
Joan Guzman, August 26, 1969, “**Ohlone Indian.**”
Belle Nichols, September 4, 1969, “Mission.”
John Paul Guzman, September 12, 1969, “**Ohlone Mission Indian.**”
Beatrice Marine, January 5, 1971, “Costanoan.”

Neither the Amah Mutsun tribal community of the greater Mission San Juan Bautista/Gilroy area or the Esselen Nation tribal community of the greater Mission San Carlos (Carmel)/Monterey Bay region ever used the ethnonym tribal identifier “Ohlone” for any of their BIA enrollments (1928 – 1971). It was not until after Malcolm Margolin’s interpretive book **The Ohlone Way** was published in 1978 that non-Indians were informing them that they were Ohlone. Therefore, the broader use of ‘Ohlone’ was later applied by various scholars and archaeological firms to all Costanoan communities after 1978. Only the Muwekma Ohlone Tribe of the San Francisco Bay Area has a history of identifying themselves as Ohlone prior to and after 1978.

The efforts of California Indians to sue the federal government under the Jurisdictional Act of 1928 resulted in the creation of the Federal Indian Claims Commission in 1946. This federal body allowed Indian groups to press for compensation to tribes over the theft of their lands in the 19th century. After 20 years of tortuous maneuvering all separate California Indian claims were consolidated into a single case.

A compromise settlement of **\$29,100,000** was offered for **64,425,000 acres of land**. After deduction of (BIA) attorney's fees (**\$12,609,000**) plus interest the payment amounted to **47 cents per acre!**

Payments of **\$668.51** per eligible person was issued by 1972 (**Figure 46**). What is of great significance here is the fact that the entire claims activities were conducted outside of normal court proceedings protected by the constitution. Thus Indians are the only class of citizens in the United States who are denied constitutional protection of their lands.

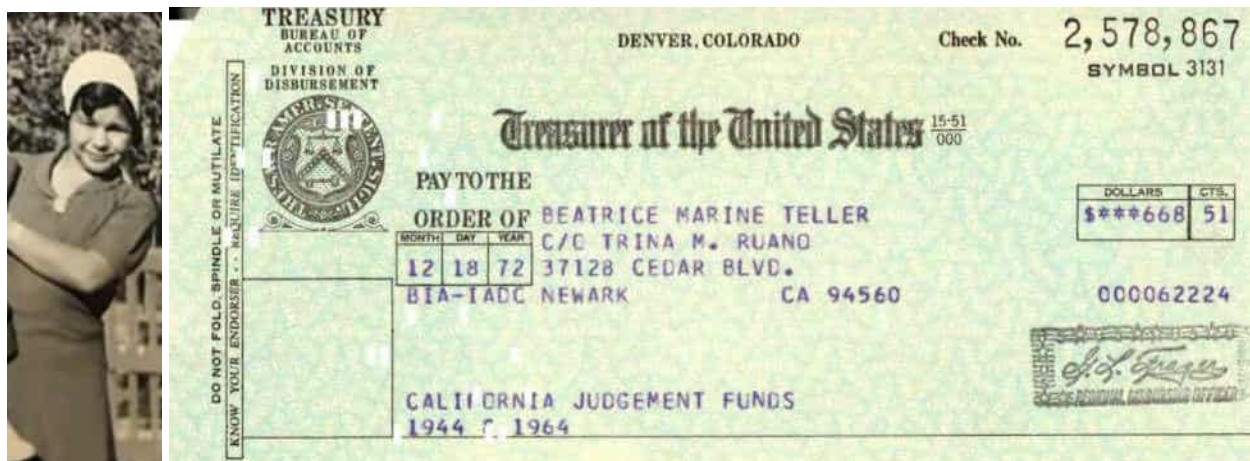


Figure 46: Distribution Check for Muwekma Elder Beatrice Marine for \$668.51 (1972)

Muwekma Service in the United States Armed Forces During the 1950s, Viet Nam War, Desert Storm, Iraq to Present-Day

During the 1950s, 1960s and 1970s Muwekma men served in Korea, Viet-Nam and elsewhere.



Candelario T. Martinez of the **Marine-Sanchez lineage** was the eldest son of Muwekma Verona Band member Dolores Sanchez. Candelario had served in the **United States Marine Corps** during the Korean War.



Ruben Cota Arellano, Sr. of the **Marine-Arellano lineage** was the son of Muwekma Verona Band member Albert Arellano. He was a **Corporal** in the **U.S. Army, Medical Corps, SP4 E4 HQ Battery 1st TGT ACQ Battalion, 25th Artillery, APO 2, July 5, 1960 – July 4, 1966, Korea.** Ruben passed away on March 24, 2006.



Don Gordan Guzman of the **Guzman-Lasoyo** lineage was born on February 5, 1931, and was the son of Verona Band member **Franklin P. Guzman** who had previously served on the Mexican border in the California Livermore National Guard in 1916, and afterwards in the U.S. Marine Corps during WWI in France. Don was also the grandson of Muwekma Indians **Ben Guzman** and Teresa (Nettie) Davis, and the great-grandson of Muwekma Indians **Jose Guzman** and Agustia Lasoyo who was the daughter of **Captain Jose Antonio**. Don enlisted in the U.S. Army on January 10, 1952 at the age of 20. In the early 1960s Don was stationed in Germany. Six years later, he attained the rank of Major in 1966-1967, and based upon a November 23, 1968 news article from a West Virginia newspaper (where Don was stationed) about his third tour of duty in Vietnam, Don had served in Vietnam in the **5th Special Forces Group (Airborne)** during the war.



Lawrence Mason Marine of the **Guzman-Peralta-Marine-Potts** lineage. He was the son of Muwekma Verona Band member WWII veteran Lawrence D. Marine and Maidu tribal member Pansy Potts. Lawrence served in the United States Marine Corps from 1959-1965, and was a **Staff Sergeant** serving in Viet-Nam, **3rd Marine Division, 3rd Tank Battalion**, and in **3rd Force Reconnaissance, Charlie Company (Viet-Nam)** from 1960-1961. Muwekma Elder Lawrence Mason Marine and his family are enrolled members of the Muwekma Tribe. Lawrence also served on the Muwekma Tribal Council. Lawrence passed away in December 22, 2020.



Marvin Lee Marine (younger brother of Lawrence Mason Marine) of the **Guzman-Peralta-Marine-Potts** lineage. Marvin Lee is the son of Muwekma Verona Band member WWII veteran Lawrence D. Marine and Maidu tribal member Pansy Potts. He served as a PFC (E3) in the Vietnam War in the U.S. Army's **173rd Airborne Brigade "Sky Soldiers"** from October 25, 1967 to October 24, 1969. He reenlisted in the Army and was honorably discharged on October 24, 1973. His last assignment was with **5th Battalion, 78th Field Artillery Regiment** assigned to **194th Armored Brigade**. Marvin Lee Marine was issued the **National Defense Service Medal, Vietnam Service Medal, Vietnam Campaign Medal, and Marksman (Rifle) Badge**.



Karl Thompson, of the **Armija-Thompson lineage**. He is the son of Verona Band member George Ernest Thompson. Karl attained the rank of SP5, U.S. Army, **43rd Engineer Bn. 931st Eng. Gp. Armed Forces Expeditionary Medal (Korea)**, May 8, 1968 – May 7, 1971. Karl also served on the Muwekma Tribal Council.



Frank Y. Ruano, Sr., of the **Marine-Elston/Thompson/Ruano lineage**. He is the son of Verona Band member Trina Marine Elston Thompson Ruano. Frank attained the rank of E4, U.S. Army, **56th Artillery**, 1965 – July 25, 1971, **Vietnam**.

Thomas Joseph Marshall of the **Armija-Marshall-Thompson lineage**. He was the son of Verona Band member Henry N. Marshall, Sr. He was born in Niles, on June 21, 1953 and passed away on February 14, 1996. Thomas served in the **U.S. Army, Vietnam Era**. (No Photo or service record available).



Tom M. Alvarez, Sr., of the **Marine-Alvarez/Galvan lineage**. His is the son of Verona Band member and WWII veteran Hank Alvarez. **U.S. Army, Medical Corps, 1965 – 1967, Vietnam**, recipient of **Soldier's Medal**.



Robert C. Martinez, Sr., of the **Marine-Sanchez lineage**. He is the son of Verona Band member Margaret Sanchez Martinez. Robert attained the rank of Sergeant, served in the **Air Cavalry, 14th Armored Cavalry Regiment U.S. Army, European, 7th Army Command**, May 22, 1968 – May 14, 1970.



Ricardo "Rick" Martinez, of the **Marine-Sanchez lineage**. He was the son of Verona Band member Margaret Sanchez Martinez. Rick attained the rank of **SP 5 (T) Sergeant, Company D, 69th Engineer Battalion, USARPAC Vietnam; National Defense Service Medal, Vietnam Service Medal, Vietnam Campaign Medal and Good Conduct Medal**; January 26, 1967 – January 12, 1969, Reenlisted in the Army and Honorably discharged January 24, 1973. Rick Martinez died on **February 8, 2020** and was buried with Military Honors. Rick also had served on the Muwekma Elders Council.



Wayne Gibson, Vietnam, of the **Armija-Marshall-Thompson lineage**. Wayne is the grandson of Verona Band member Henry N. Marshall. He served in the **US Army 1969-1971, 4th Infantry Division**. In August 1966, led by the 2nd Brigade, the 4th Infantry Division's ("Ivy Division"—a play on the Roman numeral IV) headquarters closed in on the central highlands of Vietnam. On September 25, 1966, the division began a combat assignment against the North Vietnamese that would not end until December 7, 1970. By the time the 4th Infantry Division completed their assignment in Vietnam and returned to Fort Carson, Colorado, at the end of 1970, some 2,497 soldiers had been killed, and 15,229 had been wounded. Eleven 4th Infantry Division soldiers earned the Medal of Honor during that period.



Richard A. Juarez, of the **Santos-Piños/Juarez/Colos/Armija lineage**. He is the grandson of Verona Band member Erolinda Santos Saunders Juarez Pena Corral. SP 4 – **E-4, U.S. Army, 589th Transportation Co., Co. B 4H BN 2D BCT BDE, 1st Army**, Fort Eustis, Virginia., served from January 25, 1971 – October 30, 1973.



JayP Massiet, of the **Marine-Munoz lineage**, JayP is the grandson of Verona Band member Mary Munoz Mora Ramos Medina Archuleta. JayP attained the rank of E5/Staff Sergeant, Military Police, **U.S. Air Force Van Nuys Air National Guard**, June 1975 – January 1988



John A. Massiatt, of the **Marine-Munoz lineage**. John is the grandson of Verona Band member Mary Munoz Mora Ramos Medina Archuleta. John was an Airman, **U.S. Air Force**, served from January 1, 1968 - October 1, 1969.



Michael F. Galvan, Jr., of the **Marine-Alvarez/Galvan and Marine-Munoz lineages**. Michael is the grandson of Verona Band member Dolores Marine Alvarez Galvan and grandson Mary Munoz Mora Ramos Medina Archuleta. Michael attained the rank of **Sergeant, U.S. Air Force, 95th Recon Squadron**, 1977 – 1997, and served in the **Desert Storm Campaign**.



Tracie Massiet Lents, of the **Marine-Munoz lineage**. She is the granddaughter of Verona Band member Mary Munoz Mora Ramos Medina Archuleta. Tracie served in the **U.S. Air Force**, 1979 – 1983.

Paul Guzman of the **Marine-Munoz-Guzman lineage** (Service Records n/a)



John J. Cambra, Jr., of the **Marine-Sanchez lineage**. He is the grandson of Verona Band member Dolores Sanchez. John was a Pfc. **U.S. Army Company C, 4th Battalion 30th Infantry Regiment**, and **Company B, 2nd Battalion 159th Infantry**, 1991 – 1994



David J. Splan, of the **Santos-Piños/Juarez/Colos/Armija lineage**. David is the grandson of Verona Band member Alfonso Juarez. David attained the rank of **Lance Corporal, U.S. Marine Corps**, 1993 – 2001.



JayP Massiet, Jr. of the **Marine-Munoz lineage**. He is great-grandson of Verona Band member Mary Munoz Mora Ramos Medina Archuleta. JayP, Jr. served in the **U.S. Army, Second Tour in Iraq**; **Purple Heart** recipient.



Cory Gumersindo Massiet, of the **Marine-Munoz lineage**. Cory is the great-grandson of Verona Band member Mary Munoz Mora Ramos Medina Archuleta. Cory attained the rank of **1st Class, Airman, U.S. Air Force**, 1994 – 1997. Separated from Edwards Air Force Base, Ca. Awards: Air Force Training Ribbon, National Defense Service Medal, Humanitarian Service Medal.



Jesse Calles, of the **Marine-Elston/Thompson/Ruano lineage**, Jesse is the great-grandson of Verona Band member Trina Marine Elston Thompson Ruano. **US Army, November 2004-December 2009, Specialist Grade 4, Field Artillery Automated Tactical Data Systems Specialist** who served the U.S. Army in **Baghdad, Iraq (Operation Iraqi Freedom)** since December 2005 in the **Headquarters and Headquarters Battery Fires Brigade, 4th Infantry Division (Mechanized)**, Awarded the **Army Commendation Medal (2006)**.



Angela Galvan, of the **Marine-Alvarez/Galvan and Marine-Munoz lineages**. She is great-granddaughter of Verona Band member Mary Munoz Mora Ramos Medina Archuleta, and granddaughter of Verona Band member WWII veteran Ben Michael Galvan, and daughter of Desert Storm Veteran Michael Galvan. Angela had served in Iraq in the **U.S. Marine Corps, Corporal/E-4, 1st Marine Logistics Group, 7th Engineer Support Battalion, Support Company Motor Transportation Platoon, May 27, 2003** – She had served in Iraq (twice deployed). **Campaigns and Citations: OIF 2 Fallujah Campaign** in Feb 2004 - Sept 2004 and **OIF 3-6** Sept 2005 - Mar 2006, **Combat Action Ribbon** for operations on Michigan ASR (Alternative Supply Route) and an impact **Navy Marine Corps Achievement Medal** for operations in Haditha (December 2005); also involved during **OIF February 3-6, 2004**.



Aaron Lenci, of the **Marine-Elston/Thompson/Ruano lineage**. He is great-grandson of Verona Band member Trina Marine Elston Thompson Ruano. Aaron enlisted in the **US Navy, rank Ensign**, stationed at Pensacola Naval Air Station (Currently Serving).



David Marroquin, Jr., of the **Marine-Alvarez/Galvan** and **Marine-Munoz lineages**. He is great-grandson of Verona Band member Mary Munoz Mora Ramos Medina Archuleta, and grandson of Verona Band member WWII veteran Ben Michael Galvan. David enlisted in the **California Air National Guard, Airman 1st Class** (Currently Serving).



Isaiah J. Quiroz of the **Marine-Sanchez lineage**, enlisted in the **United States Marine Corps** in October 2021 at the age of 18. His current rank is **Lance Corporal** and he will be stationed at Camp Pendleton, San Diego. Following in the footsteps of his tribal ancestors and relations in the Marine Corps spanning from WWI, WWII, Korea, Vietnam, and Iraq, through Present-Day. Isaiah's great-great grandmother Dolores Marine Sanchez (BIA # 10680) was born on the Sunol Rancheria in the East Bay in 1911, and was a member of the historic Federally Recognized Verona Band of Alameda County that was never terminated by any Act of Congress. His great grandmother Julie Lopez, grandmother Sylvia Lopez Quiroz, and father Joshua Quiroz are enrolled members of the Muwekma Ohlone Tribe.

Muwekma Tribal Stewardship over the Tribe's Ancestral Heritage and Cultural Sites

Since 1980 to the present, the Muwekma families have worked independently to establish the "Most Likely Descendant" (MLD) status of members of the Muwekma Tribe in their area with the Native American Heritage Commission of the State of California. Also in 1984 the Muwekma developed their own Cultural Resource Management firm, Ohlone Families Consulting Services (OFCS), which has been recognized since 1986 by the Department of the Interior as a Native American business under the Buy Indian Act.

Since the establishment of OFCS many of the Muwekmas, as well as Amah-Mutsun and Esselen Nation tribal members, and Pomo, Sioux, Yokuts, Miwok, Wiyot and other tribal people have gone through archaeological training and obtained employment as field crew on various archaeological projects. OFCS has sought alternatives for indigenous people who are concerned about their ancestral past. Under these circumstances, the aboriginal tribal people have taken greater responsibility for their ancestral heritage by becoming fully engaged in the environmental and ensuing scientific processes that affect their ancestral sites as in the cases of the burial recovery

projects previously conducted at the *Clareño Muwékma Ya Túnnešte Nómmo* [Where the Clareño Indians are Buried] Site (CA-SCL-30/H) in 2010 (Leventhal et al 2011); on Stanford Campus at *Yuki Kutsuimi Šaatoš Inūx*” (Sand Hill Road Sites CA-SMA-263/CA-SCL-287); *Horše 'Iššéete Ruwwatka* (Place of the Good Health House Site - Ronald McDonald House CA-SCL-609); and in East Palo Alto at *Loškowiš 'Awweš Táareštak* (Place of the White Salt Man Site CA-SMA-267); and on the present project at the *Wirak Tayyi Trépam Táareš-tak* (Place of the Bird Bone Tube Man Site) CA-SMA-309. Over the past 40 years, all ancestral heritage projects have been under the Muwekma Tribal leadership’s oversight when designated by the California State Native American Heritage Commission as the Most Likely Descendant Tribe.

Muwekma Ohlone Tribe and its Reaffirmation as a Federally Recognized Tribe

In 1989 the Muwekma Ohlone Tribe began the arduous process of petitioning the U.S. Government regarding its status clarification as a Federally Recognized tribe under 25 C.F.R. Part 83. Over the years, interfacing with the BIA’s Office of Federal Acknowledgment has been a very difficult and acrimonious process. However, in face of the “extinction” sentence issued by Alfred L. Kroeber in his 1925 California Handbook, and adversity by the BIA, the Muwekma Ohlone Tribe has nonetheless made great strides forward. In 1996, the Tribe shattered the myth that it was never Federally Recognized.

On **May 24, 1996**, the United States Department of the Interior, Deborah Maddox, Director of the Office of Tribal Services for the Bureau of Indian Affairs, formally concluded in a letter sent to the Muwekma Ohlone Tribe that:

Based on the documentation provided, and the BIA’s background study on Federal acknowledgment in California between 1887 and 1933, we have concluded ... that the Pleasanton or Verona Band of Alameda County was previously acknowledged between 1914 and 1927. The band was among the groups, identified as bands, under the jurisdiction of the Indian agency at Sacramento, California.

The agency dealt with the Verona Band as a group and identified it As a distinct social and political entity (letter in response to the Muwekma Petition, Branch of Acknowledgment and Research, Bureau of Indian Affairs, Washington, D.C.).

In 1998 working with the Congressional created Advisory Council on California Indian Policy (ACCIP) which was legislated in 1992 (HR 2144) the Muwekma Tribe sought formal alternatives to the arduous Federal Recognition process under 25. CFR Part 83. After obtaining a formal positive determination of previous unambiguous federal recognition (under 25 CFR Part 83.8), the Muwekma leadership in concert with the leadership of another northern California Indian tribe, Tsungwe Council requested support from the BIA in Sacramento. Responding to the tribe’s request, Acting Area Director, Michael Smith, wrote:

The Bureau of Indian Affairs, Sacramento area Office, is ready to assist the Tsungwe Council and the Muwekma Ohlone Tribe in seeking administrative Federal recognition on the basis your tribes were never terminated (Letter Michael R, Smith dated January 23, 1998) [Figure 47].



BUREAU OF INDIAN AFFAIRS
Sacramento Area Office
2800 Cottage Way
Sacramento, California 95825

Ms. Dena Magdaleno
Post Office Box 56
Burnt Ranch, CA 95527

JAN 23 1998

Dear Ms. Magdeleno:

This is to acknowledge receipt of your letter dated December 16, 1997 and received in this office on December 22, 1997. Please accept our apologies for the delay in responding.

At your request, I am writing a letter of support for the Tsnungwe Council and the Muwekma Ohlone Tribe in their bid for Federal recognition. First let me state that the Bureau of Indian Affairs, Sacramento Area Office, is painfully conscious of the fact that California Indian tribes and their individual members have suffered numerous atrocities and inequities from the dominant culture through the hands of the United States Government and the State of California. To this day, those tribes who are fortunate to have Federal recognition status continue to suffer inequities in their share of Federal funds compared to funds received by similar tribes in other states. To that end, this office fully supports efforts by Indian groups such as the Tsnungwe Council and the Muwekma Ohlone Tribe in their bids for Federal recognition status.

Along with your request regarding the Tsnungwe Council, you provided a letter signed by the Acting Director, Office of Tribal Services, which acknowledged that you had established evidence that your ancestors were considered as parties to the 1864 Treaty. We concur with the Central Office of this finding and will support your bid for Federal recognition. I believe the Assistant Secretary - Indian Affairs has the administrative authority to reaffirm Federal status to your tribe.

Although the Central Office has noted that the 1851 Treaty did not provide conclusive evidence that the treaty did not establish clear evidence of Federal recognition of your ancestors, I am fully supportive of your efforts to establish "unambiguous" Federal recognition of your ancestral group as a tribal entity.

The Bureau of Indian Affairs, Sacramento Area Office, is ready to assist the Tsnungwe Council and the Muwekma Ohlone Tribe in seeking administrative Federal recognition on the basis your tribes were never terminated.

Sincerely,


Acting Area Director

Figure 47: Letter of Support from BIA Acting Area Director Michael R. Smith

On April 13, 2000 as a result of the submittal of reports to Congress the findings from the Advisory Council on California Indian Policy Act (HR 2144), California Congressman George Miller (D- Pleasant Hill) and his staff drafted a Recognition Bill titled **California Indian Act of 2000** the purpose of which was:

To restore Federal recognition to certain California Indian tribes, address the special land need of the California Indians, establish equitable treatment of California Indians in the programs and services of the Bureau of Indians Affairs, develop adequate California tribal justice systems, and for other purposes. Be it enacted by the Senate and House of Representatives of the United State of American in Congress Assembled ...

Included in that proposed legislation was the legislative reaffirmation/restoration of six previously federally recognized tribes whose legal status was never terminated by any Act of Congress. These six tribes include: 1) **Dunlap Band of Mono Indians**; 2) **Lower Lake Koi**; 3) **Tsungwe Council**; 4) **Muwekma Ohlone Tribe**; 5) **Tolowa Nation**; and 6) **Southern Sierra Miwok (from Yosemite)** [Figures 48-50].

H.L.C.
[DRAFT]

April 13, 2000
106th CONGRESS
2nd Session
H. R. ____

IN THE HOUSE OF REPRESENTATIVES

Mr. George Miller of California introduced the following bill; which was
referred to the Committee on _____

A BILL

To restore Federal recognition to certain California Indian tribes, address the
special land needs of the California Indians, establish equitable treatment of
California Indians in the programs and services of the Bureau of Indian Affairs,
develop adequate California tribal justice systems, and for other purposes.
Be it enacted by the Senate and House of Representatives of the United States of
America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

- (a) Short Title.--This Act may be cited as the "California Indian Act of 2000".
(b) Table of Contents.--The table of contents for this Act is as follows:

- Sec. 1. Short title; table of contents.
Sec. 2. Findings and purpose.
Sec. 3. Policy.
Sec. 4. Definitions.

TITLE I--RESTORATION OF TERMINATED CALIFORNIA INDIAN TRIBES

- Sec. 101. Definitions.
Sec. 102. Restoration of Federal recognition, rights, and privileges of the
Tribes.
Sec. 103. Economic development.
Sec. 104. Transfer of land to be held in trust.
Sec. 105. Membership rolls.
Sec. 106. Interim government.
Sec. 107. Tribal constitution.

Figure 48: Title Page of Congressman Miller's Recognition Bill (2000)

SEC. 2. FINDINGS AND PURPOSE.

(a) Findings.--Congress finds that--

- (1) the Advisory Council on California Indian Policy, pursuant to the Advisory Council on California Indian Policy Act of 1992 (Public Law 10209416; 25 U.S.C. 651 note), submitted its proposals and recommendations regarding remedial measures to address the special status of California's terminated and unacknowledged Indian tribes and the needs of California Indians relating to economic self-sufficiency, health, and education;
- (2) in the Advisory Council on California Indian Policy Extension Act of 1998 (Public Law 10509294), the Congress directed the Council to work with the Congress, the Secretaries of the Interior and Health and Human Services, and the California Indian tribes to implement the Council's proposals and recommendations contained in its report to Congress, including presenting draft legislation to Congress for implementation of the recommendations requiring legislative changes.
- (3) California Indian tribes cannot effectively exercise sovereignty or self-determination without a land base large enough to develop economically and provide for the basic needs of tribal members, including adequate housing, employment, and social welfare services;
- (4) as a result of their uniquely tragic history, California Indian tribes do not have a land base that is adequate to meet their immediate and essential needs for housing, economic development, and cultural and natural resource protection and preservation;
- (5) although a large number of California Indian tribes negotiated 18 treaties with the United States in the early 1850's that would have set aside approximately 8,500,000 acres as their tribal homelands, the United States Senate failed to ratify these treaties;
- (6) the Senate's failure to ratify the California Indian treaties, in conjunction with Congress' passage of the 1851 Land Claims Act which required those claiming interests in California lands to file their claim within 2 years or forever forfeit such claim, denied California Indians any legally cognizable claim to their ancestral lands;
- (7) most California Indians were rendered homeless by these Federal actions, a situation that remained unremedied for many years until the United States

Figure 49: Page 3 of Congressman Miller's Recognition Bill (2000)

and early 1860's by military and volunteer patrols that resulted either in their death, removal to the Hoopa Valley Reservation or hiding in the hills. However, a few years later the Tsnungwe returned to their aboriginal lands where they have remained ever since.

(4) The Muwekma are the aboriginal inhabitants of the southern, eastern, and western regions of the San Francisco Bay Area, including all of what is now San Francisco, San Mateo, Alameda, and Contra Costa Counties, much of what is now Santa Clara County, and parts of Santa Cruz, San Joaquin, Napa, and Solano Counties. The Muwekma Indians are from the following aboriginal tribes: Passasimi/Yatikumne, Tamcan, Josemite, Lacquisemne, Julpun, Napian/Karkin, Jalquin/Yrgin, Alson/Tamien, Suenen, Chupcan, Choquoime, and Nototomne. Spanish missionaries forced the ancestors of the Muwekma Tribe into the Missions Dolores, San Jose, and Santa Clara in the late 18th and early 19th centuries. In the 1830's the Mexican Government secularized the missions and distributed their lands. Many Muwekma left the missions and resettled in other parts of the Bay Area, including on 20a number of rancherias in Alameda County, including the Alisal Rancheria near Pleasanton, the Del Mocho Rancheria in Livermore, the El Molino Rancheria in Niles, as well as on rancherias in Sunol and San Leandro/San Lorenzo until the early part of the 20th century. The Muwekma people continue to reside in their aboriginal territory in the San Francisco Bay Area.

(5) The Tolowa are the aboriginal inhabitants of the present day county of Del Norte, located in the northwestern corner of California. In this area, their villages were scattered along the coastline, at the Lakes Earl and Tolowa, and along the larger tributaries of the Smith and Winchuck Rivers. The Tolowa signed a treaty with the United States on August 17, 1857, and were removed to the Klamath Reservation that same year. They were subsequently moved to the Smith River Reserve until it was discontinued on May 3, 1862, and thereafter moved several more times, including to the Siletz Indian Reservation in Oregon and to the Round Valley, Hoopa, and Klamath Reservations in California. Documents of the Bureau of Indian Affairs from 1915 through 1916 show that 100 acres of land was to be purchased for the Lake Earl (Tolowa) Indians and the Lipps-Michaels Survey of Landless Nonreservation Indians of California, 1919091920, confirms such a purchase of 100 acres of undivided land near Crescent City, Del Norte County, for these Indians.

(6) The Southern Sierra Miwuk Nation is composed of several bands or groups of Indians of the Yosemite/Mariposa area. These bands or groups are mentioned in countless official letters and journals of the United States Commissioners who were charged by Congress to negotiate treaties with the California Indian tribes during the period 1851091852. The first treaty camp was Camp Fremont, just northwest of Mariposa, California. The second treaty camp was Camp Barbour, south of Mariposa in the Millerton Lake area. Some of the Southern Sierra Miwuk bands or groups that signed the treaties or were mentioned in the

Figure 50: Page 15 of Congressman Miller's Recognition Bill (2000)

Another letter of support came from Lieutenant Governor Cruz Bustamante who wrote to the BIA on August 29, 2002:

The Muwekma Ohlone Tribe meets all of the criteria for reaffirmation set by the court as well as the Bureau of Indian Affairs' acknowledgement criteria. The tribe is a previously recognized tribe. It has demonstrated that it has had a trust relationship with the United States from 1906 to the present and Congress has never terminated their relationship. (Letter dated August 29, 2002) [Figure 51]

Even though support from recognition had been formally expressed by Congresswoman Zoe Lofgren, State and County politicians, the Advisory Council on California Indian Policy (1998), and in proposed federal legislation sponsored by Congressman George Miller in 2000, the Bureau of Indian Affairs stated in their Final Determination that they would not look at or consider any evidence after 1985.

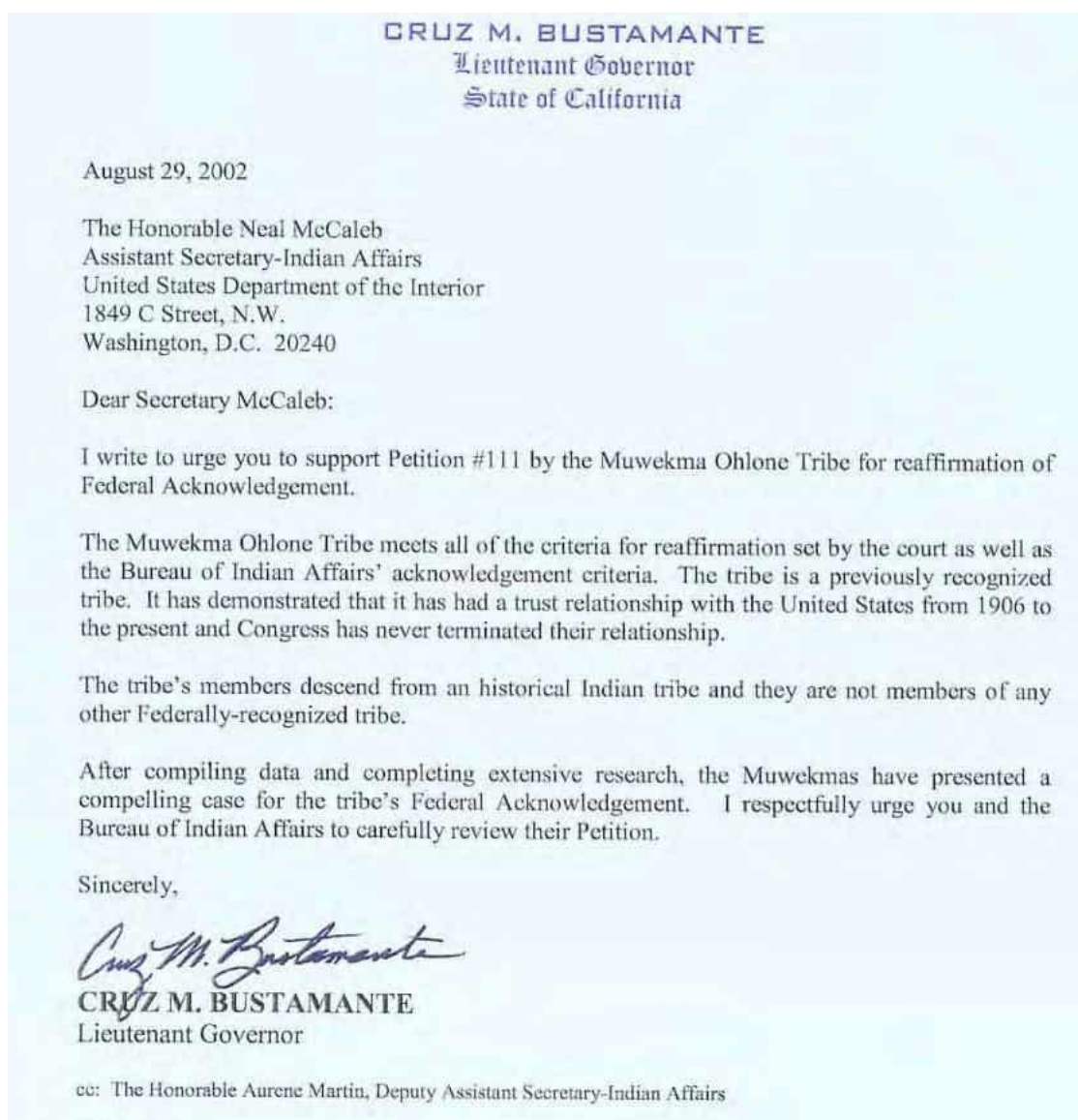


Figure 51: Letter of Support from California Lt. Governor Cruz Bustamante

In 2000 – U.S. District Court Justice Ricardo Urbina wrote in his **Introduction of his Memorandum Opinion Granting the Plaintiff’s Motion to Amend the Court’s Order** (July 28, 2000) and later in his **Memorandum Order Denying the Defendants’ to Alter or Amend the Court’s Orders** (June 11, 2002) that:

The Muwekma Tribe is a tribe of Ohlone Indians indigenous to the present-day San Francisco Bay area. In the early part of the Twentieth Century, the Department of the Interior (“DOI”) **recognized the Muwekma tribe as an Indian tribe under the jurisdiction of the United States.** (Civil Case No. 99-3261 RMU D.D.C.) [Figure 52].

UNITED STATES DISTRICT COURT FOR THE DISTRICT OF COLUMBIA	
MUWEKMA TRIBE,	
Plaintiff,	
v.	Civil Action No.: 99-3261 (RMU)
BRUCE BABBITT,, Secretary of the United States Department of the Interior, and	Document Nos.: 27, 28
KEVIN GOVER, Assistant Secretary for Indian Affairs, United States Department of the Interior,	
Defendants.	

MEMORANDUM OPINION

Granting the Plaintiff’s Motion to Amend the Court’s Order

I. INTRODUCTION

The Muwekma Tribe is a tribe of Ohlone Indians indigenous to the present-day San Francisco Bay area. In the early part of the Twentieth Century, the Department of the Interior (“DOI”) recognized the Muwekma Tribe as an Indian tribe under the jurisdiction of the United States. In more recent times, however, and despite its steadfast efforts, the Muwekma Tribe has been unable to obtain federal recognition, a status vital for the Tribe and its members. Without federal recognition, the Tribe cannot receive the benefits of health care, housing, economic development, and self-governance that the United States provides to federally recognized tribes. See Pl.’s Mot. for Summ. J. at 2; 25 C.F.R. §

Figure 52: Memorandum of Opinion, Justice Ricardo Urbina, U.S. District Court (2000)

On October 30, 2000, the BIA's Office of Federal Acknowledgment and Tribal Services Division responded to Justice Urbina's Court Order regarding the Muwekma Ohlone Tribal enrollment and their descendency from the Verona Band of Alameda County:

... . When combined with the members who have both types of ancestors), **100% of the membership is represented.** Thus, analysis shows that the petition's membership can trace (and, based on a sampling, can document) its various lineages back to individuals *or to one or more siblings of individuals* appearing on the 1900, "Kelsey", and 1910 census enumerations described above (Figure 9-50).

On June 30, 2005, Congressman Richard Pombo, then ranking Republican Chair of the House Resources Committee wrote to Secretary of Interior Gail Norton supporting a settlement of the Muwekma lawsuit against Interior:

Dear Secretary Norton:

As part of my Committee's oversight of the procedures for federal recognition of Indian Tribes, I have heard testimony in a hearing earlier this year of the protracted litigation concerning the recognition of the Muwekma Ohlone Tribe. The Tribe informs me that the Department of the Interior has determined that Muwekma is a previously recognized tribe, federally recognized until **1927**, also that no formal action by the Department and no Act of Congress removed it from recognition and that **99%** of the members of the current tribe are direct descendants of the members of the recognized tribe.

The Muwekma Tribe raises the issue that, in a very similar situation, the Department reaffirmed the federally-recognized status of the Lower Lake Koi Tribe and the Ione Band of Miwok in California by a letter signed by the then Assistant Secretary of the Interior restoring them to recognized status without making them go through formal recognition procedures.

I understand that in December of 2003 the Tribe explored with the Department a possible settlement, including a rehearing that might lead to reaffirmation of the Tribe, or, according to the Tribe, at the suggestion of a Department attorney, the organization of the half-blood members of the Tribe as a new Tribe under the Indian Reorganization Act. Therefore, I would suggest, if possible, that the Department meet with the Tribe to pursue settlement opportunities. (Letter Rep. Richard Pombo dated June 30, 2005).

After the Office of Federal Acknowledgement "declined" to extend, and therefore reaffirm the Tribe's Federally Acknowledged status on September 6, 2002, the Muwekma Tribe had to pursue its second lawsuit against the Department of the Interior.

Muwekma Tribe's Litigation Against the Department of Interior, Bureau of Indian Affairs

On September 21, 2006, U.S. District Court Justice, Reginald B. Walton in **Muwekma Ohlone Tribe v. Dirk Kempthorne, Secretary of the Interior, et al.**, Civil Action No. 03-1231 (RBW) issued a favorable Court Opinion on the side of the Muwekma Tribe stating:

The following facts are not in dispute. Muwekma is a group of American Indians indigenous to the San Francisco Bay area, the members of which are direct descendants of the historical Mission San Jose Tribe, also known as the Pleasanton or Verona Band of Alameda County (“the Verona Band”). ... From 1914 to 1927, the Verona Band was recognized by the federal government as an Indian tribe. ... Neither Congress nor any executive agency ever formally withdrew federal recognition of the Verona Band. ... Nevertheless, after 1927, the federal government no longer acknowledged the Verona Band, or any past or present-day incarnation of the plaintiff, as a federally recognized tribal entity entitled to a government-to-government relationship with the United States ... (alleging that “sometime after 1927 the Department began to simply ignore the Tribe for many purposes and substantially reduced the benefits and services provided to the Tribe”) ... (pages 2-3) [Figures 53].

Specifically, Muwekma contends, inter alia, that the Department violated the Equal Protection Clause and the APA by requiring it to undergo the Part 83 acknowledgment procedures while allowing similarly situated tribal petitioners to bypass these procedures altogether. Compl. ¶¶ 37-39; Points and Authorities in Support of Plaintiff’s Motion for Summary Judgment (“Pl.’s Mem.”) at 22-30. Currently before the Court are the parties’ cross-motions for summary judgment.⁴ For the reasons set forth below, the Court denies both parties’ motions without prejudice and directs the Department to supplement the administrative record.

I. Background

The following facts are not in dispute. Muwekma is a group of American Indians indigenous to the San Francisco Bay area, the members of which are direct descendants of the historical Mission San Jose Tribe, also known as the Pleasanton or Verona Band of Alameda County (“the Verona Band”). Pl.’s Mem. at 4; Defs.’ Mem. at 5; Answer at 6. From 1914 to 1927, the Verona Band was recognized by the federal government as an Indian tribe. Pl.’s Mem. at 4-5; Defs.’ Mem. at 5; Answer at 12-13. Neither Congress nor any executive agency ever formally withdrew federal recognition of the Verona Band. Pl.’s Mem. at 5; Answer at 14.

Figure 53: Justice Ricardo Urbina, U.S. District Court Opinion (2006)

U.S District Judge, Reginald B. Walton further wrote:

Muwekma brought this action on June 6, 2003, seeking reversal of the Final Determination, placement on the Department's list of federally recognized tribes, and other injunctive relief. ... On July 13, 2005, Muwekma moved for summary judgment, alleging, inter alia, that the Department violated the APA and the Equal Protection Clause when it required Muwekma to petition for acknowledgment of its tribal status pursuant to the "lengthy and thorough" regulatory procedures of Part 83, ..., despite administratively reaffirming the status of similarly situated tribes without requiring those tribes to undertake the Part 83 process and without sufficient explanation for the disparate treatment. ... Specifically, Muwekma contends that "[t]he Department returned Lower Lake and Ione to the list of recognized tribes outside of the [Part 83] procedures [while] requir[ing] Muwekma to complete the Part 83 process and then, applying a greater evidentiary burden, denied Muwekma recognition despite [its] significantly stronger case for recognition." ... (pages 10-11) ...

If the Department were compelled to require tribes seeking federal recognition to complete petitions under Part 83—that is, if it had no discretion to exempt certain tribes from the Part 83 procedures—then its argument that "federal acknowledgment regulations specifically take into account demonstrations of previous acknowledgment," ... Here, however, the Secretary of the Interior is **expressly** empowered to "waive or make exceptions to [the Department's regulations] in all cases where permitted by law," if the Secretary makes a finding that "**such waiver or exception is in the best interest of the Indians.**" 25 C.F.R. § 1.2; ... Thus, if the Department is "permitted by law" to waive or except the Part 83 tribal acknowledgment procedures when it is "in the best interest of the Indians," 25 C.F.R. § 1.2, and if it appears that it has waived the acknowledgment procedures in other, ostensibly similar instances, then it is incumbent upon the Department to explain to Muwekma "why it has exercised its discretion in a given manner" in this instance, State Farm, 463 U.S. at 48-49. ... **This it has not done.** (pages 18-20) ...

In addition, the Department's representation to Muwekma that it lacked the authority to confer federal recognition on the tribe outside of the Part 83 acknowledgment process, see Answer at 23 (admitting that "[n]otwithstanding the Department actions to the contrary with respect to the Ione Band and Lower Lake, [Department] staff repeatedly advised [Muwekma] that the Assistant Secretary [of Indian Affairs] lacked authority to administratively reaffirm tribal status"), appears from the Department's own admission to be **patently false**, ... (footnote 12, page 21) ...

Upon remand, the Department must provide a detailed explanation of the reasons for its refusal to waive the Part 83 procedures when evaluating Muwekma's request for federal tribal recognition, particularly in light of its willingness to "clarif[y] the status of [Ione] . . . [and] reaffirm [] the status of [Lower Lake] without requiring [them] to submit . . . petition[s] under . . . Part 83." ... At issue for the purpose of this remand is not whether the Department correctly evaluated Muwekma's completed petition

under the Part 83 criteria, but whether it had a sufficient basis to require Muwekma to proceed under the heightened evidentiary burden of the Part 83 procedures in the first place, given Muwekma's alleged similarity to Ione and Lower Lake. In addition, the Department **shall** express its position regarding whether it is permitted, under 25 C.F.R. § 1.2 or otherwise, to waive or make exceptions to the Part 83 acknowledgment procedures, and whether this waiver or exception imposes a lesser evidentiary burden on petitioning tribes than the completion of a Part 83 petition. (pages 31-32) ...

IV. Conclusion

When an agency provides a statement of reasons insufficient to permit a court to discern its rationale, or states no reasons at all, the usual remedy is a 'remand to the agency for additional investigation and explanation.'" ... Here, the Court is unable to discern the Department's rationale for requiring Muwekma to proceed through the Part 83 tribal acknowledgment procedures while allowing other tribes that appear to be similarly situated to bypass the procedures altogether, an issue which is dispositive of Muwekma's Equal Protection Act and APA claims. Accordingly, it will remand this matter to the Department for the limited purpose of supplementing the administrative record in a manner consistent with this Opinion. During this time, the case shall be administratively closed. The Court shall retain jurisdiction over this matter and shall require the Department to complete its evaluation and submit a supplement to the administrative record by November 27, 2006. In light of the Department's past delays, and given the narrow purpose for which this matter is being remanded, the Court will look extremely skeptically on motions for extensions of time. (page 32)

On September 30, 2008 the US District Court in Washington, D.C. handed the Muwekma Tribe another **victory**. Justice Reginald B. Walton opined:

These arguments, and the explanation from the Department giving rise to them, seemingly cannot be reconciled with the Court's September 21, 2006, memorandum opinion. In that opinion, the Court noted that the defendants opposed the plaintiff's initial motion for summary judgment on three grounds, two of which concerned whether the plaintiff was similarly situated to Ione and Lower Lake for purposes of the plaintiff's constitutional and APA arguments. Specifically, "the defendants argue[d] that the Department ha[d] not treated like cases differently because by their very nature, federal acknowledgment decisions require highly fact-specific determinations," and "claim[ed] that [the plaintiff] was not treated differently than similarly situated petitioners because groups demonstrating or alleging characteristics similar to [the plaintiff] are regularly required to proceed through the federal acknowledgment process.

We note that **the Court rejected both of these arguments**. It dismissed the defendants' "hand-waving reference to 'highly fact-specific determinations,'" which, in the Court's estimation, "[did] not free the defendants" of their obligation to justify the decision to treat the plaintiff differently from Ione and Lower Lake based on the administrative record for the plaintiff's petition.

Further, the Court found the argument “that groups such as [the plaintiff] have been regularly and repeatedly required to submit Part 83 petitions” **insufficient** “to refute [the plaintiff’s] claim that the Department has treated it differently from similarly situated tribal petitioners without sufficient justification.

The Court further noted in a footnote that the defendants “obliquely” provided a “basis for distinguishing [the plaintiff] and Lower Lake in their reply to [the plaintiff’s] opposition to their cross-motion for summary judgment,” but also found this argument wanting. Specifically, the Court explained that:

First, and most obviously, [the defendants’ argument] pertain[ed] only to a difference between [the plaintiff] and one of the tribes with whom it [was] claiming to be similarly situated. **The defendants [did] not assert any “highly fact-specific determination []”** that would explain why [the plaintiff] is not similarly situated to Ione in such a way as to require a reasoned explanation of the Department’s disparate actions. Second, the Department [did] not contend, here or in the administrative record, that it required [the plaintiff] and not Lower Lake to undergo the Part 83 procedure because the latter, unlike the former, had received land in trust and had participated in an election.

Having rejected all of the defendants’ arguments on the issue of similarity of circumstances, the Court proceeded to find that “**the Department . . . ha[d] never provided a clear and coherent explanation for its disparate treatment** of [the plaintiff] when compared with Ione and Lower Lake,” nor had it ever “articulated the standards that guided its decision to require [the plaintiff] to submit a petition and documentation under Part 83 while allowing other tribes to bypass the formal tribal recognition procedure altogether.” Because there was “virtually nothing” in the administrative record that would “allow the Court to determine whether [the Department’s] judgment . . . reflect[ed] reasoned decisionmaking,” the Court concluded that it was “necessary to remand [the] case to allow the Department to supplement the administrative record in this regard.

In other words, the Court determined in its prior memorandum opinion that the defendants’ arguments to the effect that the plaintiff was not similarly situated to Ione and Lower Lake were without merit, and remanded the case to the Department so that the Department could explain why it treated the plaintiff differently than other, similarly situated tribes. The necessary implication of both conclusions is that the Court found the plaintiff to be similarly situated to Ione and Lower Lake.

... Here, the Department’s explanation and the defendants’ arguments in defense of that explanation and in support of summary judgment in their favor would appear to run afoul of the law of the case established in this Court’s prior memorandum opinion. The Court concluded, implicitly if not explicitly, that the plaintiff is similarly situated to Ione and Lower Lake, and remanded the case to the Department for the sole purpose of ascertaining a reason as to why the plaintiff was treated differently. Yet, the defendants do not even acknowledge that their arguments are inconsistent with the law-of-the-case, let alone provide a “compelling reason to depart” from it.

The defendants' insouciance regarding the law-of-the-case is particularly troubling because they appear to rely at least in part on administrative records for Ione and Lower Lake that were not considered when the Department initially considered the plaintiff's petition for recognition. This tactic harkens back to the defendants' reply memorandum in support of their initial cross-motion for summary judgment, where they argued "that because the full body of administrative records regarding Ione and Lower Lake [was] not before the Court, [the plaintiff] [could not] establish a violation of the Equal Protection Clause or the APA simply by alleging that it ha[d] been treated differently than those tribes.

The Court rejected that argument, explaining that "[w]hat matter[ed] . . . [was] whether the Department sufficiently justified in the administrative record for [the plaintiff's] tribal petition its decision to treat [the plaintiff] differently from Ione and Lower Lake.

The Court remanded this case to the Department so it could explain why it treated similarly situated tribes differently, **not so that it could construct post-hoc arguments** as to whether the tribes were similarly situated in the first place. **It certainly did not remand the case so that the Department could re-open the record, weigh facts that it had never previously considered, and arrive at a conclusion** vis-à-vis the similarity of the plaintiff's situation to those of Ione and Lower Lake that it had never reached before. **The Court would therefore be well within its discretion to reject the defendants' arguments outright, grant the plaintiff summary judgment with respect to its equal protection claim, and bring this case to a close.** [Emphasis added]

Although the BIA and Justice Department failed to respond to Justice Walton's Court Order, the Court failed to remand the reaffirmation order back to the Department of Interior to have Muwekma restored and placed back onto the list of Federally Recognized Tribes.

Therefore, the Tribe had to seek further remedy by challenging Walton's **180 degree last minute reversal** of all he opined above by going through the U.S. Appeals Court in Washington, D.C.

Oral arguments were presented by the Justice Department and the Tribe's litigation team before a panel of three justices serving on the United States Court of Appeals for the District of Columbia Circuit on September 18, 2012 and unfortunately the Courts are principally there to protect lower court decisions as well as federal governmental agencies.

Nonetheless the Tribe continues its struggle to regain its federally Acknowledged status. If it is successful during the 2017 session of Congress, it will be at least 111 years after the Tribe first obtained its Federally Recognized status in 1906. The Tribe will therefore be eligible for funding, services and finally purchase a land base that will help the ensuing generations of Muwekma children to maintain their rich Indian identity and heritage, as well as establishing an equal standing with the other Acknowledged tribes throughout in the United States.

Concluding Remarks

The Muwekma Ohlone Tribe of the San Francisco Bay Area has moved both its legal history and efforts seeking reaffirmation as Federally Recognized tribe almost to full circle, thus completing its century-long-plus journey since the Tribe first became Federally Acknowledged through the Congressional Homeless Indian Acts beginning in 1906.

The *Wirak Tayyi Trépam Táareš-tak-tka* (Place of the Bird Bone Tube Man Site) CA-MA-309 as well as the many other ancestral heritage/archaeological projects that the Tribe has worked on have also served as important “bridges” to the Tribe’s long historic and pre-contact ancestral past. This archaeological work has been exceedingly important and meaningful to the Tribal membership by providing a forum -- in the form of the present study and its ethnohistorical ties to the Tribe’s larger San Francisco Bay Area territory -- thus allowing the Muwekma Tribe to continually have a voice in telling part of its story after being completely disenfranchised for so many decades by public agencies, policy makers, academic institutions and archaeologists.

This present ethnohistory study has provided ethnographic, ethnohistoric and legal background information about the ancestral Muwekma Ohlone Indians – the aboriginal and historic tribal people of the greater circum-San Francisco Bay region -- in both a historic and contemporary context. Furthermore, this chapter was structured using contemporary anthropological and historical frameworks with two major research goals in mind:

1. To present herein, ethnohistoric and historic information that addresses the biological and cultural continuation of the aboriginal Muwekma Ohlone Tribal people from the San Francisco Bay region and thus identifying and discussing those “vital” cultural linkages between the living people and their ancestors and ancestral heritage sites, and specifically in this case, to the ancestral Muwekma Ohlone *Wirak Tayyi Trépam Táareš* and others people who were buried at the *Wirak Tayyi Trépam Táareš-tak-tka* (Place of the Bird Bone Tube Man Site) and;
2. To bring forward an interpretive understanding about the life of the ancestral Muwekma Ohlone person(s) who were buried at *Wirak Tayyi Trépam Táareš-tak-tka* (Place of the Bird Bone Tube Man Site) CA-SMA-309; and perhaps at some future date bring closure to this project with a **Reburial-Honoring Ceremony** for these people by placing them back into the earth (*warep*), within or near the original cemetery location from which they were laid to rest by their people around 451 years ago (ca. AD 1572).

The continuation of the Muwekma Tribe’s cultural traditions and language has been an ongoing concern over these past decades. The following signage and photos (Figures 54 - 86) are from Tribal gatherings and events that celebrate our Native heritage, history, culture and traditions.

Although there are almost no protections against the destruction of Native American Ancestral Heritage cemetery and village sites, and as far as we know, **no ancestral Muwekma Ohlone site** is eligible for Historical Landmark status under the Landmark statutes in the City of San Jose and Santa Clara County, the Muwekma Tribe want to honor the good efforts and diligent work displayed by the City of San Mateo’s Planning Department, Prometheus Real Estate Group, and the archaeologists from Basin Research Associates, Inc. in facilitating the recovery of our ancestors who were buried at a place our Tribe has named :*Wirak Tayyi Trépam Táareš-tak-tka* (Place of the Bird Bone Tube Man Site) CA-SMA-309. **The Muwekma Tribal Council AHO!**

Some of the Public Honoring and Acknowledgement of the Muwékma Ohlone Tribe



Figure 54: History Walk Historical Marker Downtown San Jose, California

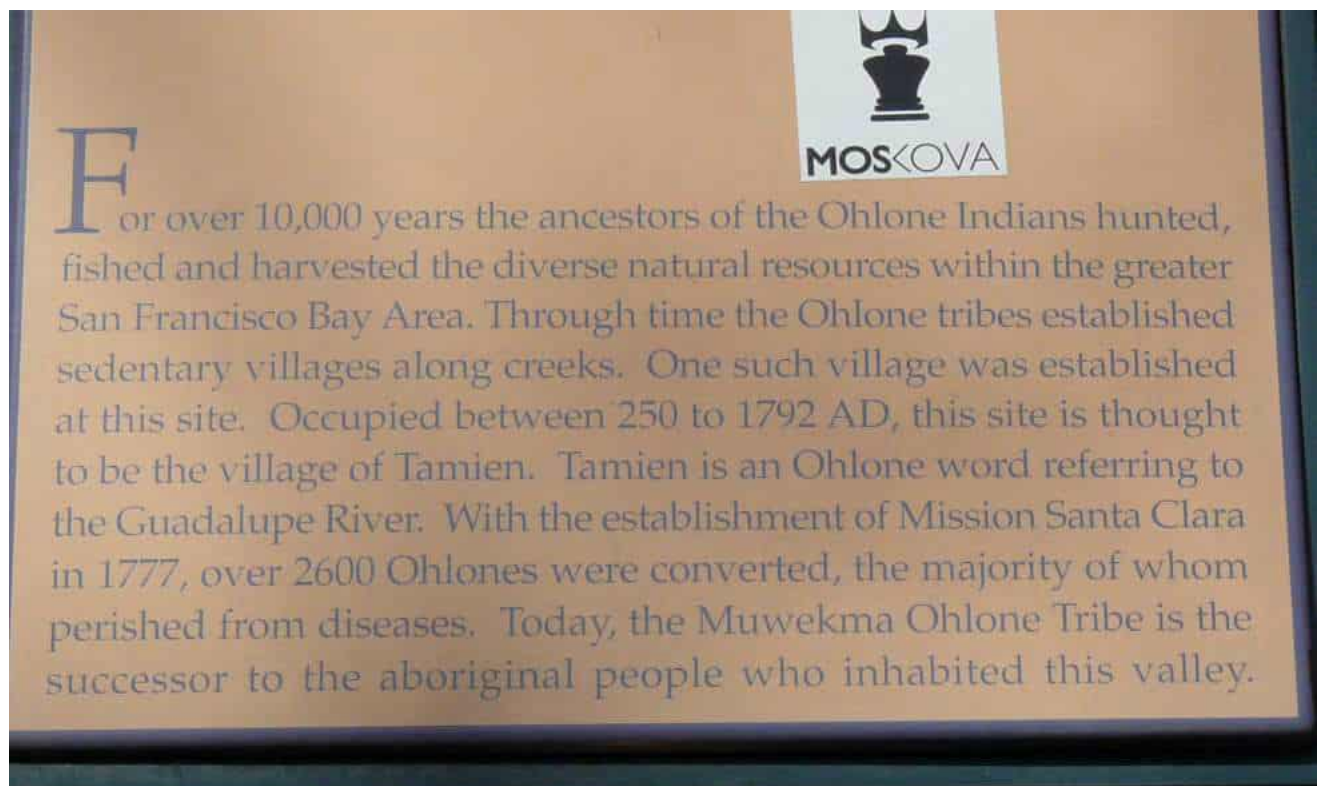


Figure 55: The Site of Tamien an Ohlone Indian Village (*Thámien Rúmmeytak* Site)

Transcription of the Historical Marker Village of Tamien Text

For over 10,000 years the ancestors of the Ohlone Indians hunted, fished and harvested the diverse natural resources within the greater San Francisco Bay Area. Through time the Ohlone tribes established sedentary villages along creeks. One such village was established at this site. Occupied between 250 and 1792 AD, this village is thought to be the village of Tamien [*Thámien*]. Tamien is an Ohlone word referring to the Guadalupe River. With the establishment of the Santa Clara Mission in 1777, over 2600 Ohlones were converted, the majority of whom perished to diseases. Today the Muwekma Ohlone Tribe is the successor to the aboriginal people who inhabited this valley.

Public Art over the Park Avenue Bridge: Eagle, Coyote and Hummingbird

On May 13, 1994 the City of San Jose unveiled the public art displaying Eagle, Coyote and Hummingbird and a version of the Ohlone Creation Narrative honoring the Muwekma Ohlone Tribe and later immigrants to San Jose, California with a plaque and sculptures (**Figures 56 -59**).

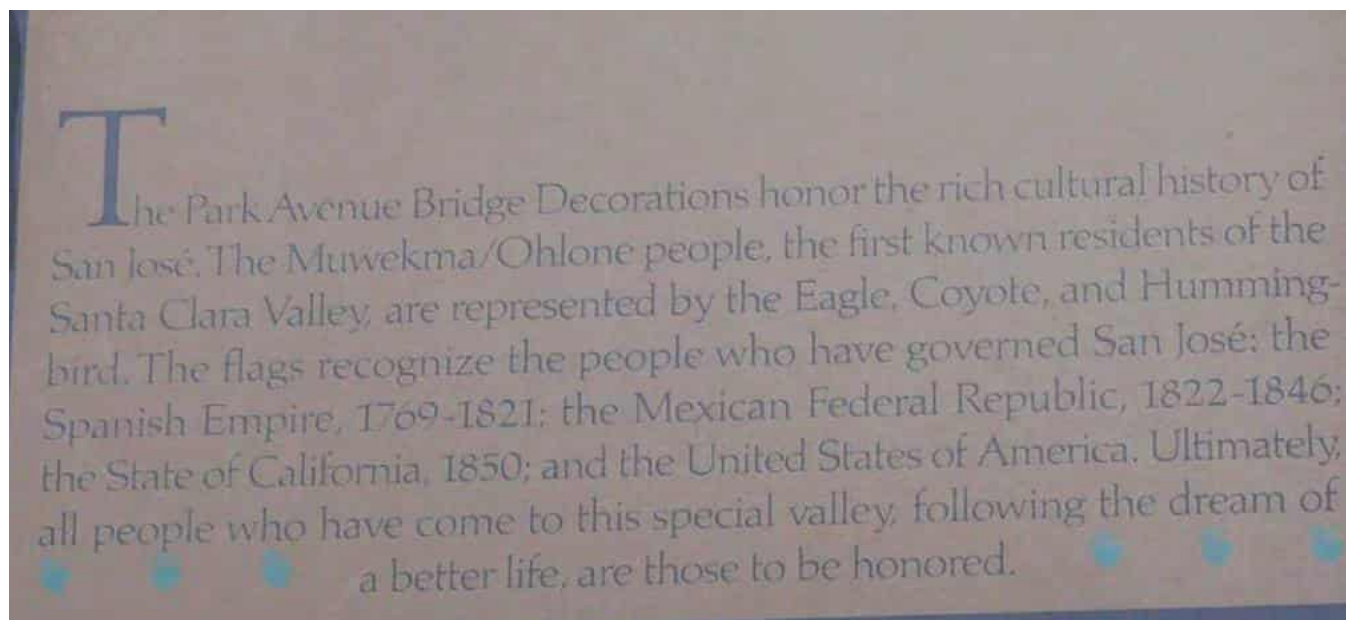


Figure 56: Honoring Plaque over the Park Avenue Bridge Downtown San Jose

Transcription of the Informational Plaque on the Park Avenue Bridge

The Park Avenue Bridge Decorations honor the rich cultural history of San Jose. The Muwekma Ohlone people the first know residents of the Santa Clara Valley, are represented by the Eagle, Coyote and Hummingbird. The flags recognize the people who have governed San Jose: the Spanish Empire, 1769-1821; the Mexican Federal Republic, 1822-1846; the State of California, 1850; and the United States of America. Ultimately all people who have come to this special valley following the dream of a better life, are those to be honored.

The Muwekma Ohlone Tribute (Presented by the Guadalupe River Park Conservancy)

“The Muwekma Ohlone people, Native Americans who once lived along the Guadalupe River, are honored with animal sculptures important to their tradition, on the Park Avenue Bridge. These include the Coyote, the Hummingbird, and the Eagle. The four flags that fly from atop the bridge represent the past and present governments of the area: Spain, Mexico, California and the United States. The Coyotes were created by artist Peter Schifffrin; the Eagle and Hummingbirds by Tom Andrews. The Coyote, Hummingbird and Eagle represent the Muwekma Ohlone creation story. Coyote was the father of the human race who was responsible for creating people and teaching them how to live properly. Hummingbird was wise and clever. Eagle was a leader.” See <https://grpg.org/public-art-landmarks/>



Figure 57: Eagle with Two Humming Birds Above



Figure 58: Coyote (One of the First People)



Figure 59: Hummingbird (One of the three First People in Creation Narrative)

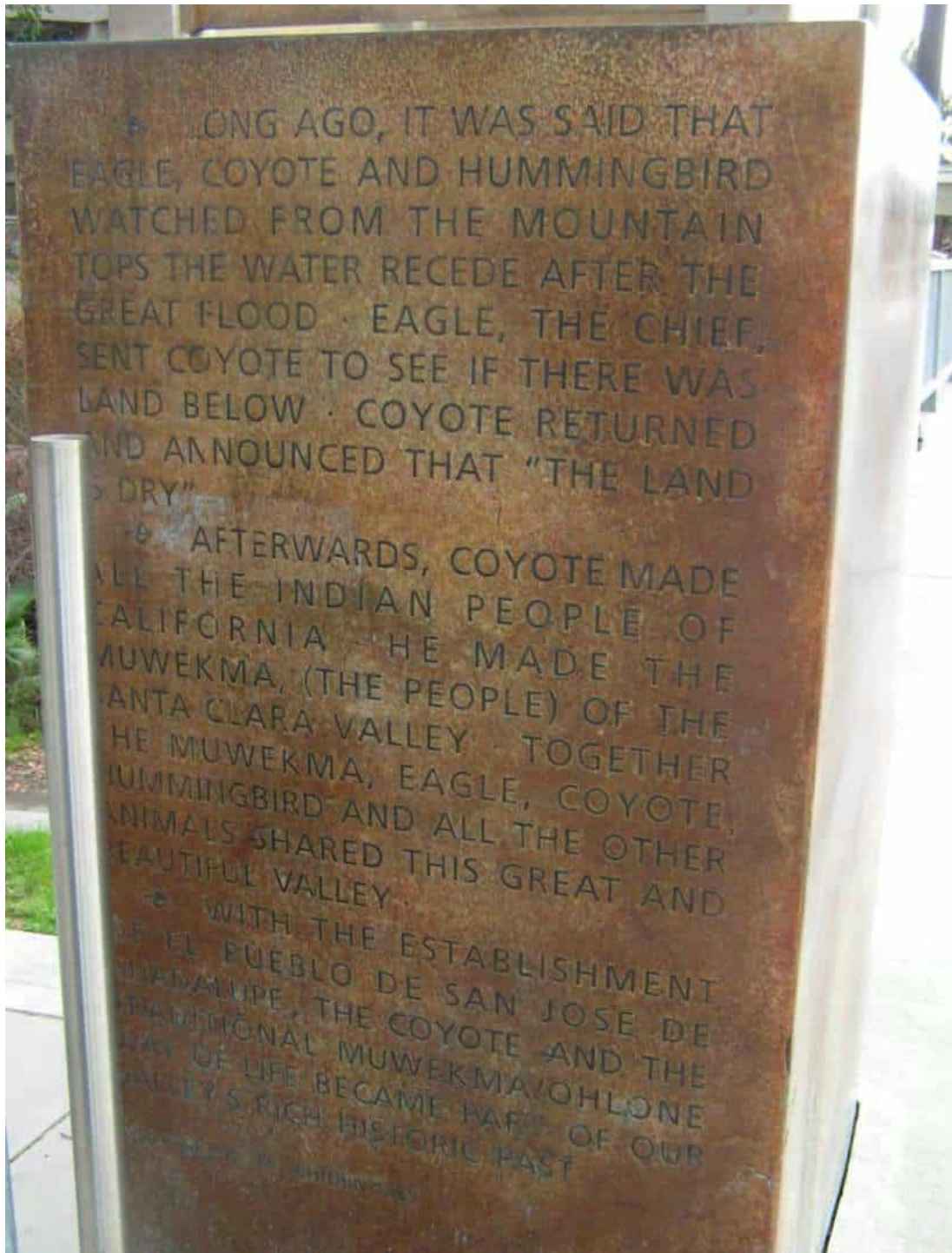


Figure 60: One of the Four Corner Plaques Honoring the Muwekma Ohlone Tribe

For a transcription of the text engraved on one of the cornerstones at the Park Avenue Bridge and information about this Commemoration honoring the **History of San Jose and Muwekma Ohlone Tribe** (see **Figure 61** below):



Eagle



Hummingbird



Coyote

Long ago, it was said that Eagle, Coyote, and Hummingbird watched from the mountain tops the water recede after the great flood. Eagle, The Chief, sent Coyote to see if there was land below. Coyote returned and announced that "the land is dry".

Afterwards, Coyote made all the Indian people of California. He made the Muwekma, (The People) of the Santa Clara Valley. Together the Muwekma, Eagle, Coyote, Hummingbird and all the other animals shared this great and beautiful valley.

With the establishment of the El Pueblo De San José De Guadalupe, the Coyote and the traditional Muwekma / Ohlone way of life became part of our valley's rich historic past.

Muwekma / Ohlone creation story

Commemoration of the history of San José

The Muwekma / Ohlone people

The Spanish Empire

The Mexican Federal Republic

The State of California

The United States of America

Sponsored by The Redevelopment Agency of the City of San Jose

May 13, 1994

Figure 61: Commemoration of the History of San Jose and the Muwekma Ohlone Tribe



Figure 62: CalTrain Tamien Station Plaque



Figure 63: Tamien CalTrain Station Plaque Honoring Muwekma Ohlone

Muwekma Ohlone Tribe Cultural Campout Camp Muwekma 2001



**Cedar Group Campsites
Del Valle Regional Park, Livermore, CA
June 17-24, 2001**

Photo taken at the "BIG FEAST BBQ" – June 23, 2001



Muwekma Ohlone Tribe Of The San Francisco Bay Area

Figure 64: Muwekma Ohlone Tribe Campout and Big Feast 2001

Muwekma Ohlone Tribe Cultural Campout Camp Muwekma 2002 "Big Feast BBQ"



**Del Valle Regional Park, Livermore, CA
June 23, 2002**



Muwekma Ohlone Tribe Of The San Francisco Bay Area

Figure 65: Muwekma Ohlone Tribe Campout and Big Feast 2002

Muwekma Ohlone Tribal Membership

Chochenyo Language Workshop #2 - 'Utthin

March 20, 2004 – San Jose State University

Mak suyyakma... *Our family*



Nonwente Mak Čočenyo
Let's Speak Chochenyo
Workshop Series

Taahe Mak Čočenyo
"Let's Listen To Chochenyo"
Lesson



Mak
šiiiniikma,
mak
huššištak.
*Our
children,
our future.*

Mak 'aččokma... *Our friends*



Muwekma Ohlone Tribe Of The San Francisco Bay Area

Figure 66: Muwekma Ohlone Tribe Chochenyo Language Workshop 2004

MUWEKMA OHLONE TRIBE ANNUAL CHRISTMAS PARTY & HOLIDAY GATHERING

Stanford University, December 10, 2005



Muwekma Ohlone Tribe Christmas Party
Horse Hismet Tauxl! ~ Merry Christmas!
Stanford University, December 10, 2005



Muwekma Ohlone Tribe Of The San Francisco Bay Area

Figure 67: Muwekma Christmas Gathering at Stanford University 2005

**Muwerkma Ohlone Tribal Gathering and
"Big Feast BBQ" 2008**



Figure 68: Muwerkma Tribal Gathering 2008

Muwerkma-Tah-Ruk 20th Anniversary May 30, 2009



**Figure 69: Rosemary Cambra at the Muwerkma-Tah-Ruk 20th Anniversary
Stanford University 2009**



Figure 70: Muwekma Tribal Leadership at the Dedication Ceremony for the Roberto Antonio Balermينو Neighborhood Park



Figure 71: Muwekma Tribal Representatives at the Opening of the “Back from Extinction” and “Cement Prairie” Exhibits at the New Museum in Los Gatos (2016)



Figure 72: Muwekma Information Booth at Stanford Powwow (May 2018)

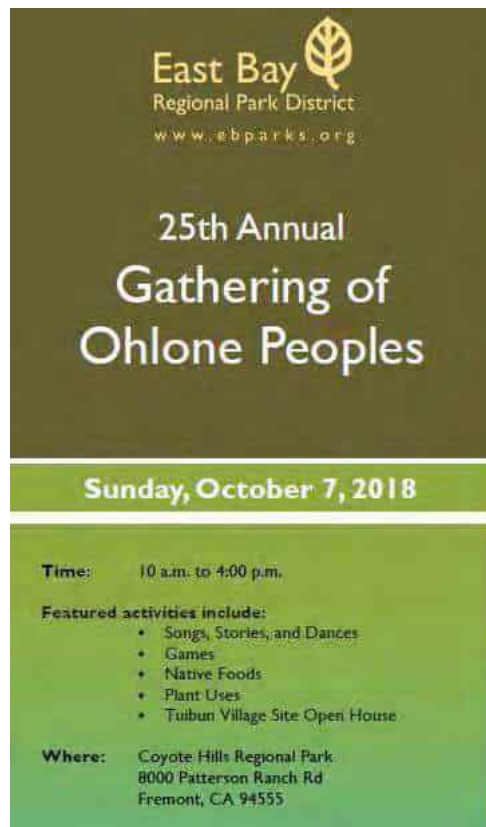


Figure 73: Muwekma at *Máyyan Šáatošikma* – Coyote Hills East Bay Regional Park Ohlone Gathering (October 2018)



Figure 74: October 8, 2018 Muwekma Ohlone Tribal Council opened the First Indigenous Peoples Day Celebration at Yerba Buena Gardens within the Tribe's Yelamu Territory in San Francisco



Figure 75: Muwekma Ohlone Tribe Chochenyo Singing Group at Special Welcoming Ceremony and Celebration for the Hikianalia (October 2018)



Figure 76: Muwekma Leadership Singing Welcoming Song at the Inaugural California Indian Flag Raising Event City of Milpitas (November 1, 2018)



Figure 77: Muwekma Town Hall Tribal Meeting Stanford University (November 2018)



Figure 78: Assemblyman Ash Kalra Honoring the Muwekma Tribe during the Inaugural California Indian Flag Raising Event City of Milpitas November 1, 2018



Figure 79: Opening Ceremony with Representatives of the Muwekma Ohlone Tribe and Keynote Address Dolores Huerta American Anthropological Association Meeting (November 14, 2018)

More recently the downtown San Jose community, school district and students attending the Burnett Middle School voted to rename that school after the **Muwekma Ohlone Tribe**. Elizabeth Barcelos writing for the online San Jose Spotlight wrote on September 24, 2019:

The school's outgoing namesake is California's first governor, Peter Burnett, whose racist policies included the Chinese Exclusion Act of 1882 and attempts to keep black Americans out of California. He also believed that Native Americans should be eliminated from the newly-created state, making the change to Ohlone an especially strong statement.

The Ohlone people were the original inhabitants of what is now San Jose. Ohlone College in Fremont is also named after them. According to the ballot, "By choosing this name, we will be teaching students about the Ohlone people while honoring their historical importance in the Santa Clara Valley."



Figure 80: Renaming Peter Burnett to Muwekma Ohlone Middle School, San Jose (June 2019)



Figure 81: Opening of Muwekma Park in Sunnyvale (July 27, 2022)

San Francisco Maritime National Historical Park and Museum



Indigenous Peoples' Day, October 14th

FOR IMMEDIATE RELEASE 10-12-2019

MAKING HISTORY -- MUWEKMA-OHLONE-TRIBE INFORMATION & CULTURAL EXHIBIT AT THE SAN FRANCISCO MARITIME NATIONAL HISTORIC PARK AND MUSEUM.

The Muwekma-Ohlone Tribe are presenting a one-day-only cultural exhibit and knowledge-giving event at the San Francisco Maritime National Historical Park and Museum.

The Muwekma Exhibit is in honor of Indigenous Peoples' Day, October 14th, an important day of remembrance of our ancestors and an important day to rightly dispel the myth that Columbus discovered America.

From the Tribal Vice Chairwoman:

We celebrate the Survival, Resilience and Contributions of the Indigenous Peoples who have lived in this area for more 3,000 years. We honor the special contributions that native peoples all over the world continue to give to our thriving societies.

We invite you into our community to learn about our Muwekma Ohlone Tribe & experience our Cultural Exhibit. Hope to see you this Monday at the San Francisco Maritime National Historic Park and Museum. <https://www.nps.gov/safi/index.htm> 499 Jefferson Street, at the corner of Hyde Street, San Francisco, CA 94109. Museum Hours: 9:30am to 5 pm. For more information on the Muwekma Ohlone Tribe of the San Francisco Bay Area visit muwekma.org. Find us on Facebook: www.facebook.com/muwekma/ Mákkín Mak Muwékma Wolwóolum ~ We Are Muwekma Ohlone! Aho!



Muwekma-Ohlone Tribal Members paddling in a canoe in the Aquatic Cove, just as their ancestors once traveled in the beautiful SF Bay waters.

Figure 82: Muwekma Paddling a Tule Boat in San Francisco Bay October 14, 2019



Figure 83: Muwekma Ohlone Singers and Dancers at Las Positas College (2023)



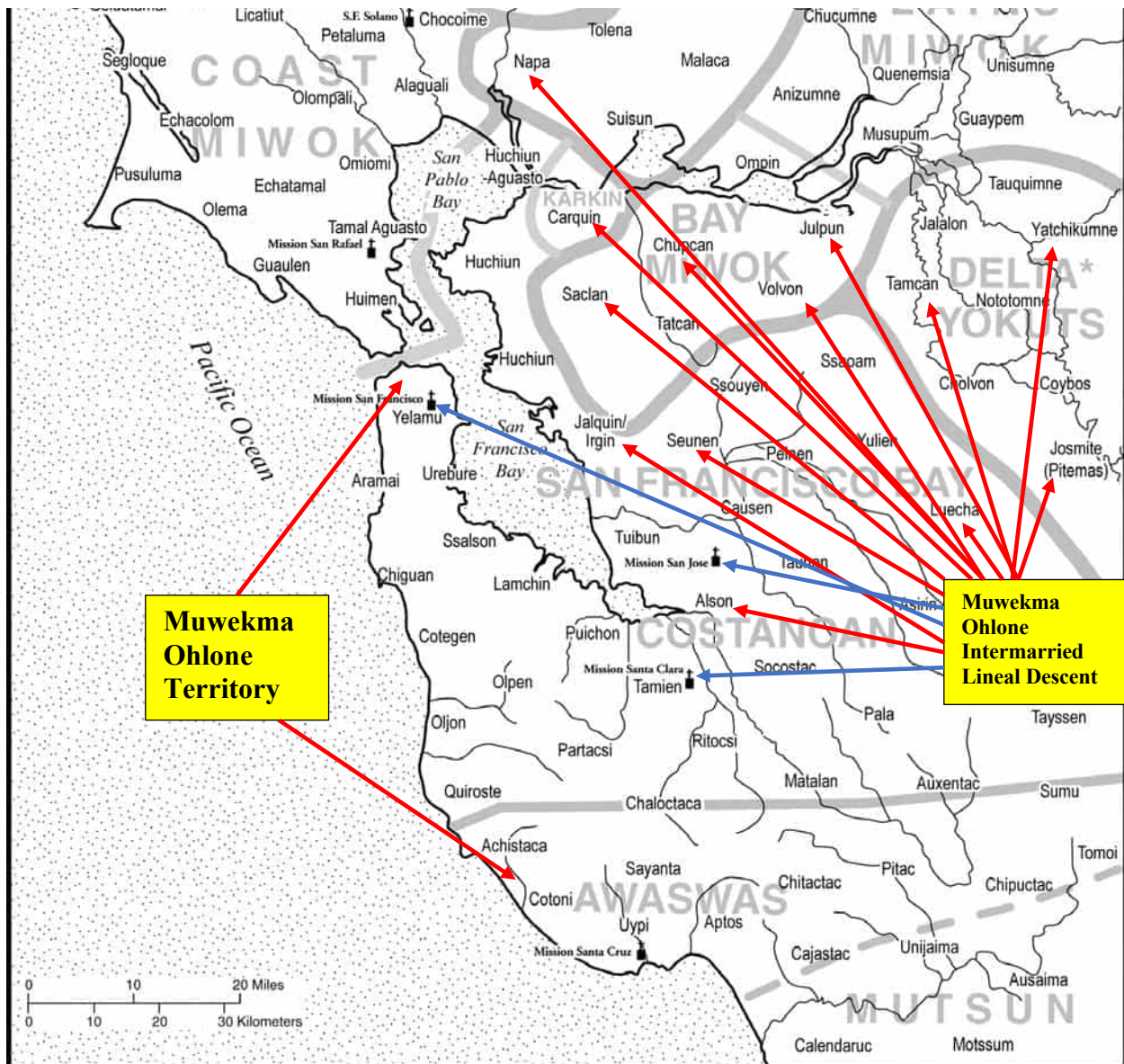
Figure 84: Muwekma Dancers at Stanford Powwow (2023)



Figure 85: Muwekma at Missing and Murdered Indian Women Event (2023)



Figure 86: Muwekma Head Dancer Joseph Torres (2023)



Map 8: Revised Linguistic Map of San Francisco Bay Area
San Francisco Bay Costanoan Language (Muwekma Territory)
 (After Callaghan and Milliken et al. 2009)

For more information, please visit the Muwekma Ohlone Tribal Website:
www.muwekma.org



Mural Honoring the Heritage of the Muwekma Ohlone Tribe Along the Guadalupe River



Muwekma Ohlone Tribal Flag

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United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Washington, D.C. 20240

TAKE
PRIDE IN
AMERICA

IN REPLY REFER TO:

Tribal Government Services - AR
757 4641-MIB

MAY 24 1996

Ms. Rosemary Cambra
226 Airport Parkway, Suite 630
San Jose, California 95110

Dear Ms. Cambra:

The Branch of Acknowledgment and Research has reviewed documentation submitted by the Muwekma to demonstrate previous acknowledgment. The purpose of this research is to determine whether the Muwekma can utilize section 83.8 of the acknowledgment regulations by demonstrating previous Federal acknowledgment in the 20th century.

If a petitioner can demonstrate past acknowledgment, the requirements to be acknowledged are reduced, in accord with section 83.8(d). A previously acknowledged petitioner need only demonstrate tribal existence from the point of last Federal acknowledgment. Further, the demonstration of tribal existence between last acknowledgment and the present-day community requires only a demonstration of criterion 83.7(c), using a reduced burden of evidence. The petitioner must still show that modern-day group meets the full requirements of criteria 83.7(b) and (c). Tribal ancestry under criterion 83.7(e) must still be shown, tracing from the group at the point of last Federal acknowledgment or earlier.

A determination of previous acknowledgment has two general elements. One is to show a past Federal action which constitutes unambiguous Federal acknowledgment. The second is to establish on a preliminary basis that the present group is the same as or has evolved from the group as it existed at the point of last acknowledgment.

Based on the documentation provided, and the BIA's background study on Federal acknowledgment in California between 1887 and 1933, we have concluded on a preliminary basis that the Pleasanton or Verona Band of Alameda County was previously acknowledged between 1914 and 1927. The band was among the groups, identified as bands, under the jurisdiction of the Indian agency at Sacramento, California. The agency dealt with the Verona Band as a group and identified it as a distinct social and political entity. The band was among the bands proposed by a Special California Indian agent in 1914 for homesite land under the appropriations for homeless California Indians which began in 1906. In 1928, the band was again

identified under the land purchase program, but this review was that a homesite was not required.

The Muwekma have also established, on a preliminary basis, that it is the same group as the band identified between 1914 and 1927. Consequently, the Muwekma may complete their petition documentation based on section 83.8 of the regulations, tracing the group's existence from 1927 to the present.

This letter is a determination of eligibility to be evaluated under section 83.8, not a determination that the Muwekma meet the requirements of the acknowledgment regulations, section 83.7, as modified for previously acknowledged groups by section 83.8. That determination will be made during the active consideration of the Muwekma petition.

While we have endeavored to make this determination as conclusive as possible, you should be aware that a determination of the point of last Federal acknowledgment under 83.8 is subject to review during the preparation of the proposed finding, as well as to challenge and review in the final determination comment process and any reconsideration, in the same manner as any other question bearing on a determination concerning acknowledgment.

This letter constitutes only a portion of the results of the technical assistance review of the documented Muwekma petition. The technical assistance review will be conducted based on the this determination of previous acknowledgment. We expect to provide the balance of the review within a short time.

Sincerely,

/SGD/ DEBORAH J. MADDOX

Director, Office of Tribal Services

cc: Al Logan Slagle
Dena Magdaleno

Surname; 440B; 440 Chron; 400; Hold; Roth:gr; x3592; 5/6/96;
muwekprv.ltr; transmit 7; ret:jac 05-10-96

**The Muwekma Ohlone Tribe of the San Francisco Bay Region:
A Brief Historic Timeline from 1900 to Present
with Selected Evidence for Previous and Continued Federal Recognition
and Other Key Historic Documents**

1. **1776-1849** - Muwekma ancestors baptized at Missions **San Francisco, Santa Clara and San Jose**.
2. **1797-1930** - Muwekma Ohlone ancestors and families continue to be baptized at **Mission San Jose**, buried in the **Ohlone Cemetery**, and some children were placed in the **St. Joseph's Orphanage** during the late 19th and early 20th centuries.
3. **1879/80** - US Senator George Hearst and his wife Phoebe Apperson Hearst purchase part of Muwekma's **Alisal (Pleasanton) Rancheria** where they built their mansion **Hacienda del Pozo de Verona**. **Western Pacific Railroad** builds a spur to their land and named the train stop **Verona Station**.
4. **1900** – Two Federal Censuses - Direct ancestors of the Muwekma Ohlone enrolled membership were identified as Mission San Jose Indians or Costanoan on the 1900 Indian Population Schedules for Washington Township (Niles Rancheria) and Murray Township (Pleasanton and Sunol Rancheria).
5. **1904** - The Northern Association for California Indians in their petition and memorial to Congress and President Roosevelt identified the two ancestral Muwekma tribal communities located at Pleasanton and Niles as “Costanoan” tribal groups.
6. **1905-1906 Special Indian Census** - Direct ancestors of the presently enrolled Muwekma Ohlone Tribal membership were identified by Charles E. Kelsey, Special Indian Agent for California on the Special Indian Census residing at Niles and Pleasanton, Alameda County.
7. **1910 Federal Census** - Direct ancestors of the Muwekma Ohlone membership were identified living on the 1910 Indian Population Schedule for Pleasanton Township residing at “Indian Town” (Alisal Rancheria).
8. **July 1, 1910** - Special Indian Agent C. E. Kelsey completed an official map for the Indian Service Bureau identifying all of the extant California Indian Rancherias under BIA jurisdiction and eligible for homesite land purchases under the Congressional Appropriation Acts of 1906, 1908, and later years. This map is dated July 1, 1910 and signed by Agent Kelsey. Kelsey formally designated the combined Niles/Sunol/Pleasanton/Livermore ancestral Muwekma communities as the Verona Band which takes its name after the Indian settlement that was located on the Hearst property and adjacent Verona railroad station that was built for them.
9. **1911-1913** - Special Indian Agent C. E. Kelsey published a map in 1911 and again in 1913 for the Indian Service Bureau and concerned Congressmen identifying all of the extant California Indian Rancherias under BIA jurisdiction and eligible for homesite land purchases. Kelsey formally designated the combined Niles/Sunol/Pleasanton/Livermore ancestral Muwekma communities the Verona Band.

10. 10. December 7, 1914 - Special Indian Agent from the Reno Agency, C. H. Asbury, took over Kelsey's responsibilities for Northern California and identified the Verona Band in 1914 correspondence as one of the tribes eligible for homesite land purchases under the Congressional Appropriation acts of 1906, 1908 and later years.

“Referring to the above letter of September 10th, regarding use of the appropriation for the purchase of lands for the Indians in California, I have made some investigation of this... . In this connection, I called on Mr. Kelsey for such data... . The list is given to me by Mr. Kelsey, and which is probably approximately right is as follows: Verona 30” (Asbury Reno Agency Report 1914:2).

11. 1923 - Reno Agency Annual Report, Superintendent James Jenkins reported to the Commission that “Other Indians in California under this jurisdiction but not occupying Government Lands are found in the localities named below: ... Alameda (County) Verona 30.” (1923:4-5).

12. June 23, 1927 Sacramento Agency Report Superintendent L. A. Dorrington reported to Assistant Commissioner, E. B. Meritt that:

“...There is one band in Alameda County commonly known as the Verona Band, which consists of about thirty individuals, located neat the town of Verona; these Indians were formerly those that resided in close proximity of the Mission San Jose.” (1927:1)

13. 1928 California Indian Jurisdictional Act Approved BIA Enrollment Applications - Between 1929 and 1932 direct ancestors and families of the Muwekma Ohlone Tribe enroll under the 1928 California Indian Jurisdictional Act completing 18 applications containing the names of 55 members of the tribe. All of the enrollment Muwekma families identified as **Mission San Jose Tribe** or **Ohlone** (or variation thereof). **Note** none of the other 17,000 California Indians were identified as “**Tribe: Mission San Jose.**”

14. 1931-1940 - Sherman Institute BIA Boarding School. Muwekma ancestor Domingo Marine enrolled at the Sherman Institute in Riverside California.

15. 1944-1947 - Chemawa BIA Boarding School. Muwekma tribal members John Guzman and Reyna Guzman were enrolled at the Chemawa Indian Boarding School in Oregon.

16. 1948-1957 - Second BIA Enrollment. Between 1948 and 1957 at least 21 Muwekma Ohlone heads of households enroll and are approved by the Secretary of the Interior.

17. 1953 Bureau of Indian Affairs, Sacramento Approved BIA Roll

“**Note: this list is divided into three alphabetical sections: (1) The 1933 Roll; (2) Part II of the 1933 Roll (Supplemental) and (3) The Roll approved November 23, 1951.**”

Roll No.

106	Alaniz, Phoebe, " Tribe Mission San Jose ";
150	Aleas, Joseph Francis, " Tribe Mission San Jose ";
381	Alvarez, Jennie, " Tribe Mission San Jose ";
456	Andrade, Chona, " Tribe unknown, Alameda County ";
715, 716	Arrellano, Albert, Arrellano, Edwina, " Tribe Mission San Jose ";
1586	Bianoco, Jose, " Tribe Mission San Jose ";
3955, 3956, 3957,	Corral, Erolinda Corral, Arthur, Corral, Robert, " Tribe Mission San Jose ";
107	Garcia, Thomas, " Tribe Mission San Jose ";
6905	Gonzales, Eulario, " Tribe Mission San Jose ";
7459	Guzman, Jack, " Tribe Mission San Jose ";
11904	Marine, Josephine, " Tribe Mission San Jose ";
11909, 11910	Marine, Catherine, Marine, Ernest, " Tribe Mission San Jose ";
12004, 12005	Martel, Flora Thompson, Martel, Laura May, " Tribe Mission San Jose ";
16248	Redondo, Joseph, " Tribe Mission San Jose ";
17269, 17270, 17271, 17272, 17273	Sanchez, Dolores, Sanchez, Augusta, Sanchez, Morgan, Sanchez, Maggie, Sanchez, Ignacio, " Tribe Mission San Jose ";
9859	Santos, Daniel, " Tribe Mission San Jose ";
19492	Thompson, Eduardo (Edward) " Tribe Alameda County. "

18. 1954-1955 - Alfred L. Kroeber and R. F. Heizer's "Continuity of Indian Population in California from 1770/1848 to 1955"

Kroeber and Heizer's historic study was prepared as in connection with the California Indian Claims Case. These two anthropological authorities from U. C. Berkeley presented documentation that recognized the survivorship of **Indian "Groups"** in the 20th century and specifically "Groups which anthropologists had long since given up as unproductive and culturally extinct, were evidently still going strong racially" (1970:3).

Kroeber and Heizer testified before the Justice Department at San Francisco stating that:

"Two main principles were followed in the selection of this sample:

- 1) Concentration on supposedly vanished, obscure, neglected, or "denatured" Indian **groups**, such as anthropologists tended to regard as unproductive for their purposes. This would include the little tribes that had suffered most heavily from gold miners and others; and the long Catholicized Indians of the Franciscan Missions, who, since secularization in 1834, might have tended not so much to die out as to socially merge in the resident Mexican population.

... These 491 genealogies from small, obscure, missionized, forgotten, or presumably "extinct" **groups** are tabulated in Part B of this report.

PART B. SPECIFIC DATA

San Jose Mission

In. S. Alameda Co.

Later refuge: Pleasanton
RECAPITULATION OF 1955 INQUIRY INTO SURVIVORSHIP
Costano Missions
San Jose (Pleasanton) 12 ...”

19. July 23, 1966 Letter to Congressman Don Edwards from Rupert Costo, American Indian Historical Society and Philip Galvan

Enclosed please find a statement of the Ohlone Indians as to their history and present status, copy of the deed to the present official Ohlone Indian Cemetery. . We request that you sponsor legislation designating the.98 of an acre adjacent to the Ohlone Indian Cemetery and the cemetery itself as a national historic site. A provision that the Government place this area in the care of the Ohlone Indians and the American Indian Historical Society... .

20. 1971 - Third BIA Enrollment. Between 1969-1971 at least 19 Muwekma Ohlone heads of households enroll and are approved by the Secretary of the Interior.

**21. May 1974 State of California Department of Parks and Recreation
Historic Resources Inventory Ohlone Indian Cemetery**

“Ohlone Indian Cemetery
Washington Blvd. App. 1 mile west of Mission San Jose
Owner: **Ohlone Indian Tribe**
City: Mission San Jose

1. Fremont Historical Places E27
2. National Register of Historic Places Rec'd 1/25/1971
Event of Historical Importance:
Local X State X National X
“Ancient burial place for Ohlone Indians and for Indians of Mission San Jose.”
Person of historical importance:
Name: “Tribal chiefs”
Statement of Significance:
“Prehistoric and historic burials are contained in this site. Burial ground includes baptized Indians associated with the Mission San Jose.”

22. January 1982 Committee to Establish the Tribal Council of the Costanoan Indians

Proposed Articles for Incorporating
“Committee to Establish the Tribal Council of Costanoan Indians
Alex O. Ramirez, Chairman
Manuel Martinez, Vice-Chairman
Rosemary Cambra, Sec./Tres.
Article I Name
The name of this organization shall be **COSTANOAN (OHLONE) TRIBAL COUNCIL.**

Article II Objectives

The objective of The Council shall be to create and maintain a cooperative working relationship between the Costanoan Indians, referred to also as Ohlones.

1. ... Becoming aware of government, state and county resources available to Indians and their families.
2. Serve as a resource to the community.

The Council shall be an advising, coordinating and evaluating agency in order to protect, conserve, and gain added cultural knowledge for the benefit of the people it represents.

Article III OFFICERS

Section I Composition of tribal Council

The Tribal Council members shall consist of Costanoan Indians with application and folder numbers registered with the United States Dept. of Interior Bureau of Indian Affairs.

23. Muwekma Ohlone Leadership are placed on the Native American Heritage Commission's Most Likely Descendant List which included former Muwekma Chairwoman Rosemary Cambra.

24. September 21, 1982 Letter from Karen Parsons East Bay Regional Park District to Nancy Evans Native American Heritage Commission

"Ardenwood Regional Preserve Native American Input concerning Ohlone Village and Burial Site Ala-392

"Thank you for returning my call last Friday to advise the District on Native American input for the Land Use-Development Plan. As we have discussed, the District will be sure to involve California Native Americans and will contact:

Phil Galvan (Fremont)

Rosemary Cambra (San Jose) Ohlone Tribal Council

Jenny Mitchell (Union City) Tri-City Native Americans."

25. March 1989 - Resolution of Intent to Petition (#111) Muwekma Ohlone Tribal Council petitions the United States Government for Recognition.

26. April 25, 1989, Letter from the DOI, BIA Tribal Government Services to Chairwoman Rosemary Cambra acknowledging receipt of the Tribe's letter with the "intent of the Ohlone/Costanoan – Muwekma Tribe to present a petition for Federal acknowledgment as an Indian Tribe." The Acting Chief of Tribal Services, also clearly stated that:

"Acknowledgment of a petitioning group as an Indian tribe within the meaning of Federal law establishes a **permanent** special relationship with the United States.

... Because of the significance and **permanence** of acknowledgment as a tribe, the process of evaluation is a lengthy and thorough one." [Emphasis added]

27. June 16, 1989, Letter from the BIA's Acting Deputy to the Assistant Secretary - Indian Affairs Operations, Hazel E. Elbert to Chairwoman Rosemary Cambra stating:

"This letter is to acknowledge our receipt, on May 9, 1989, of the undocumented petition for Federal acknowledgment of the Ohlone/Costanoan Muwekma.

... The evaluation process is deliberately lengthy and painstaking because the decision to acknowledge an Indian **tribe establishes a perpetual government-to-government relationship with the United States.**" ...[Emphasis added]

28. 1989-1992 – Muwekma successfully repatriates 550 ancestral remains from Stanford University aided by the Native American Heritage Commission's Executive Secretary Larry Meyers.

29. April 6, 1992 – Resolution by the International Treaty Council Recognizing and supporting the Muwekma Ohlone Tribe.

30. June 27, 1992 – TAMIEN CALTRAIN STATION Grand Opening . "Dedicated to the Muwekma Ohlone Tribe of the Ohlone Indian Community who have lived on this site for centuries."

31. September 10, 1992 - Resolution San Francisco Human Rights Commission Recognizing the Muwekma Ohlone Tribe of the San Francisco Bay Area.

32. 1994 - The Site of Tamien an Ohlone Indian Village. History Walk Historical Marker Downtown San Jose, California. " ... Today the Muwekma Ohlone Tribe is the successor to the aboriginal people who inhabited this valley." <https://grpg.org/public-art-landmarks/>

33. May 13, 1994 - The City of San Jose unveiled the public art displaying Eagle, Coyote and Hummingbird and a version of the Ohlone Creation Narrative honoring the Muwekma Ohlone Tribe and later immigrants to San Jose, California with a plaque and sculptures.

34. 1994 Passage of HR 4180) "An Act to provide for the annual publication of a list of federally recognized Indian tribes, and for other purposes.)

"Title I – Withdrawal of Acknowledgment or Recognition.

SEC. 101 Short Title. "Federally Recognized Indian Tribe List of 1994."

SEC 103 Findings ...

(3) Indian tribes presently may be recognized by Act of Congress; by the administrative procedures set forth in part 83 of the Code of Federal Regulations denominated "Procedures for Establishing that an American Indian Group Exists as an Indian Tribe; or by decision of a United States court;

(4) a tribe which has been recognized in one of these manners may not be terminated except by an Act of Congress;

(5) Congress has expressly repudiated the policy of terminating recognized Indian tribes, and has actively sought to restore recognition to tribes that previously have been terminated; ... [Emphasis added]

Title II Central Council of Tlingit and Haida Indian Tribes of Alaska

...SEC. 202. Findings

The Congress finds and declares that—

- (1) **the Secretary does not have the authority to terminate the federally recognized status of an Indian Tribe as determined by Congress;**
- (2) **the Secretary may not administratively diminish the privileges and immunities of federally recognized Indian tribes without the consent of Congress; ...** [Emphasis added]

35. 1996 - Muwekma Ohlone Tribal Mural in the City of Berkeley in News for Native California: Abundance, Happiness, Pride and Hope (Volume 9, No. 3, Spring 1996).

36. May 24, 1996, Letter of Previous Federal Recognition from Deborah Maddox, Division Chief of Tribal Operation to Chairwoman Rosemary Cambra stating:

Based upon the documentation provided, and the BIA's background study on Federal acknowledgment in California between 1887 and 1933, we have concluded on a preliminary basis that the Pleasanton or Verona Band of Alameda County was previously acknowledged between 1914 and 1927. The band was among the groups, identified as bands, under the jurisdiction of the Indian agency at Sacramento, California. The agency dealt with the Verona Band as a group and identified it as a distinct social and political entity. The band was among the bands proposed by a Special California Indian agent in 1914 for homesite land under the appropriations for homeless California Indians which began in 1906."

37. November 1996 Bureau Of Indian Affairs' Branch of Acknowledgement and Research produced a "Working Paper on Previous Acknowledgment in California, 1887-1933" that clearly determined that:

When this detailed research was done, government researchers uncovered substantial evidence of previous acknowledgment of nonreservation California groups which are not presently recognized. **Federal actions toward California Indians between 1906 and 1933 show that many tribes not currently recognized were then acknowledged.** This report analyzes several types of Federal actions during this period and finds that some previous actions constituted recognition and some did not. (1996:1-3)

38. January 23, 1998 – Letter from BIA Sacramento Acting Area Director Michael R. Smith to Dena Magdaleno, Chairwoman of the Congressional created (HR 2144) Advisory Council on California Indian Policy' Recognition Task Force concluded his letter by stating:

... The Bureau of Indian Affairs, Sacramento Area Office, is ready to assist the Tsnungwe Council and the Muwekma Ohlone Tribe in seeking administrative Federal recognition on the basis your tribes were never terminated.

39. January 27, 1998 – Letter from BIA Sacramento Area Director Ron Jaeger to Chairwoman Rosemary Cambra, concluded his letter by stating:

... Based on a preliminary conclusion by the Central Office, BIA, that the Muwekma Ohlone Tribe has met the requirements of 25 CFR 83.8, the Sacramento Area Office hereby supports the Tribe in its efforts to obtain Federal recognition status. This office is willing to support the Tribe's efforts by providing assistance whenever possible."

40. September 1997/1998 Advisory Council on California Indian Policy Recognition Report – Equal Justice for California submitted to the US Congress formally concluded the following about Sacramento Agency Superintendent Lafayette A. Dorrington's actions:

The Dorrington report provides evidence of previous federal acknowledgment for modern-day petitioners who can establish their connection to the historic bands identified therein. Clearly, the BIA "recognized" its trust obligations to these Indian bands when it undertook – pursuant to the authority of the Homeless California Indian Acts and the Allotment Act –to determine their living conditions and their need for land. The fact that some were provided with land and others were not did not diminish that trust.

Among those California Indian groups that have petitioned for federal acknowledgment, there are several who can trace their origins to one or more of the bands identified in the Dorrington report. The **Muwekma Tribe** is one whose connection to the Verona Band (id, at 1) has been recently confirmed in a letter from the BAR,

41. March 26, 1998 Letter from Division Chief of Tribal Operation, Deborah Maddox to Chairwoman Rosemary Cambra stating that:

A review of the Muwekma submissions shows that there is sufficient evidence to review the petition on all seven of the mandatory criteria. The Bureau of Indian Affairs (BIA) is placing the Muwekma petition on the ready for active consideration list as of March 26, 1998.

42. 2000 (Draft Recognition Bill)Congressman George Miller
(Title II- **California Tribal Status Clarification Act**)

SEC.201. **SHORT TITLE**

"California Tribal Status Clarification Act of 2000"

SEC.202. **FINDINGS**

The Congress finds the following:

....

(4) The Muwekma are the descendants of the native peoples who occupied the southern, eastern and western regions of the San Francisco Bay Area, including all of what is now San Francisco, San Mateo, Alameda and Contra Costa Counties, much of what is now Santa Clara County, and parts of Santa Cruz, san Joaquin, Napa and Solano Counties. The aboriginal tribes from which the Muwekma are descendants

include the Passasimi/Yatikumne, Tamcan, Josemite, Lacquisemne, Julpun, Napian/Karkin, Jalquin/Yrgin, Alson/Tamien, Suenen, Chupcan, Choquoime and Nototomne. Spanish missionaries forced the ancestors of the Muwekma Tribe into the Mission Dolores, San Jose and Santa Clara in the late 18th and early 19th centuries. In the 1830's the Mexican government secularized the missions which resulted in the exclusion of the Muwekma from the three Bay Area missions and their resettlement in a number of rancherias in the Alameda County, including the Alisal Rancheria near Pleasanton, the Del Mocho Rancheria near Livermore, the El Molino Rancheria near Niles, as well as on rancherias in Sunol and San Leandro/ San Lorenzo. The Muwekma people continue to reside in their aboriginal territory in the San Francisco Bay Area.

(5) The United States recognized all four tribes in the early part of the century as politically identifiable bands of Indians under its jurisdiction and eligible for statutory benefits and services. The Koi people were recognized as the Lower Lake Band, The Tsnungwe as the Trinity Tribe of Humboldt County and the Burnt Ranch, the **Muwekma as the Verona Band of Alameda County**, and the Dunlap as the Dunlap Band of Monos.

(6) The United States recognized the four tribes as eligible for the purchase of lands under the provisions of various Appropriations Acts allocating funds to purchase lands for homeless Indians in California. While the BIA recognized the **Muwekma**, Tsnungwe and Dunlap as tribes eligible for the purchase of land under these Acts, no land ever was purchased for them.

...

(8) Congress has never terminated or expressed intent to terminate the status of the Lower Lake Koi Tribe, the **Muwekma** Tribe, the Tsnungwe Council or the Dunlap Band. Nevertheless, the Bureau of Indian affairs has refused to deal with the Tribes as federally recognized tribes. Notwithstanding the denial of federal benefits, services and protection, the Tribes have continued to maintain social and political ties from since the dates of last recognition by the Bureau.

43. 2000 –D.C. District Court Justice Ricardo Urbina wrote in his **Introduction of his Memorandum Opinion Granting the Plaintiff's Motion to Amend the Court's Order** (July 28, 2000) and **Memorandum Order Denying the Defendants' to Alter or Amend the Court's Orders** (June 11, 2002) that:

The Muwekma Tribe is a tribe of Ohlone Indians indigenous to the present-day San Francisco Bay area. In the early part of the Twentieth Century, the Department of the Interior ("DOI") recognized the Muwekma tribe as an Indian tribe under the jurisdiction of the United States." (Civil Case No. 99-3261 RMU D.D.C.)

44. October 30, 2000, Response by the Department of Interior's Branch of Acknowledgment and Research/Tribal Services Division of the Bureau of Indian Affairs to Justice Urbina's Court Order regarding the Muwekma Ohlone Tribal enrollment and descendency:

... . When combined with the members who have both types of ancestors), **100% of the membership is represented**. Thus, analysis shows that the petition's membership can trace (and, based on a sampling, can document) its various lineages back to individuals *or to one or more siblings of individuals* appearing on the 1900, "Kelsey", and 1910 census enumerations described above.

45. January 5, 2001, Department of Interior, Division of Indian Affairs and the Environment and Natural Resources Division, United States Department of Justice lawyers complaining to U. S. District Justice Ricardo Urbina in their "**Response to the Court's Two Questions Concerning the Relief Plaintiff Requests**" argued the following:

Plaintiff's assertion that it was inadvertently dropped from the list of Federally recognized tribes, and, therefore, it is entitled to priority over other petitioners is also baseless. There is no evidence that the Muwekma Tribe was "illegally" or "inadvertently" removed from recognized status, as Plaintiff insists. Instead, it appears that the relationship between the Federal government and the Verona Band, to which the Plaintiff now claims to be the successor, **simply withered away** after the 1920's **for reasons yet to be determined by the BIA**. (No. 1.99CV03261 (RMU) January 5, 2001, pg. 4-5). [Emphasis added]

46. November 2001: GAO Report to Congressional Requesters – Indian Issues – Improvement Needed in Tribal Recognition Process concluded that:

Although the regulation-based process was never intended to be the only way groups could receive federal recognition, it was intended to provide clear, uniform, and objective approach for the Department of the Interior that established specific criteria and a process for evaluating groups seeking federal recognition. However, weaknesses in the process create uncertainty about the basis for recognition decisions, and the amount of time it takes to make those decisions impede the process from fulfilling its promise as a uniform approach to tribal recognition. Questions about the level of evidence required to meet the criteria and the basis for decisions reached will continue without more transparent guidance.

The November 2001 GAO Report also provided the following overview contained in **Appendix I: How Tribes Have Become Federally Recognized**:

The United States has recognized Indian tribes under a variety of circumstances. There are 556 tribes on the Bureau of Indian Affairs' (BIA) most recent list of recognized tribes published in March 2000. Since then, another five tribes have been recognized, for a total of 561 federally recognized tribes. Although the BIA only published its first list of recognized tribes in 1979, the federal government has "recognized" tribes since colonial times—although the term was not used until much later. In early American history, the government acknowledged such relationships through treaties and agreements with tribal governments. Recognition means that a tribe is formally recognized as a sovereign entity with a

government-to-government relationship with the United States. The basic concept underlying Indian sovereignty is that it is not granted by the Congress but rather is an inherent status of the tribe that has never been lost or extinguished. Although all recognized tribes have the same sovereignty and political relationship with the United States regardless of the means by which they were recognized, why they are on the list, or how they got on the list, varies significantly.

... There are 292 tribes on the current list of recognized tribes that can trace their federal recognition at least back to the era of the Indian Reorganization Act of 1934 (IRA) and related laws. These laws helped define and create the tribal governments that exist today. ... Then, beginning in the 1880s, federal Indian Policy shifted to emphasize the assimilation of Indians into mainstream cultures by dividing reservation land into individual allotments, terminating historical tribal governments, and suppressing Indian customs and tribal laws. In the 1920s, federal Indian policy shifted once more; this time away from isolationism and assimilation and toward tribal self-governance, culminating in the IRA.

IRA established a process to form stronger tribal governments and terminated the federal policy of breaking up reservations. ... In making these determinations, the Secretary considered whether the group

- Had existing treaty relations with the United States or had been designated a tribe by an act of the Congress or an executive order, *
- Had been treated as having collective rights in tribal lands or funds, even though not expressly designated as a tribe;
- Had been treated as a tribe by other tribes; and
- Had exercised political authority over its members by a tribal council or other form of government.

The Secretary also considered factors of lesser importance, such as the existence of special appropriation items for the group and the social solidarity of the group. In addition to these tribes, known as historic tribes, IRA allowed Indians without a common tribal affiliation to organize into tribes. Indian residents of a reservation at the time the act was passed could organize as a tribe by adopting a constitution.

For a brief period, federal Indian policy reverted to assimilation during the 1950s and 1960s. As a result of legislation during this time, the political relationship with some tribes was terminated. Termination by the Congress, however, did not terminate the tribes' existence, but only the U.S. Government's relation with the tribes. While the Congress and federal courts restored federal recognition to 37 of the terminated tribes – the most recent in December 2000—relations with many other terminated tribes were not restored. Because the Congress terminated these tribes, the tribes are not eligible to be recognized through the regulatory process. [GAO Report, November 2001, pages 21-25]

47. November 7, 2001, “On-The-Record Technical Assistance Meeting” between BIA/BAR staff and representatives and consultants from the Muwekma Ohlone Tribe. During the course of the Technical Assistance meeting one of the consultants inquired whether or not the **1997/1998 ACCIP reports** “had a bearing” on the BAR decision making process. The response by BAR Historian, John Dibbern was:

Well, if you want us to consider the report, you really should submit it for the record. ... That makes it part of the record. And, furthermore, when you submit it as part of the record, you can give us an explanation of how you think it applies. And then we can consider that argument and your take on how the report applies.”(On-The-Record Technical Assistance Meeting page 52)

48. July 25, 2002 – “Extension of Remarks” by Congresswoman Zoe Lofgren stated on the floor of the House of Representatives:

The Muwekma Ohlone Indian Tribe is a sovereign Indian Nation located within several counties in the San Francisco Bay Area since time immemorial.

In 1906, the Tribe was formally identified by the Special Indian Census conducted by Indian Agent C. E. Kelsey, as a result of the Congressional Appropriation Act mandate to identify and to purchase land for homeless California Indian tribes.

At this time, the Department of Interior and the Bureau of Indian Affairs federally acknowledged the Verona Band as coming under the jurisdiction of the Reno and Sacramento Agencies between 1906 and 1927.

The Congress of the United States also recognized the Verona Band pursuant to Chapter 14 of Title 25 of the United States Code, which was affirmed by the United States Court of Claims in the Case of Indians of California v. United States (1942) 98 Ct. Cl.583.

The Court of Claims case judgement instructed the identification of the Indians of California with the creation of Indian rolls. The direct ancestors of the present-day Muwekma Ohlone Tribe participated in and enrolled under the 1928 California Indian Jurisdictional Act and the ensuing Claims Settlement of 1944 with the Secretary of the Interior approving all of their enrollment applications.

Meanwhile, as a result of inconsistent federal policies of neglect toward the California Indians, the government breached the trust responsibility relationship with the Muwekma tribe and left the Tribe landless and without either services or benefits. As a result, the Tribe has suffered losses and displacement. Despite these hardships the Tribe has never relinquished their Indian tribal status and their status was never terminated.

In 1984, in an attempt to have the federal government acknowledge the status of the Tribe, the Muwekma Ohlone people formally organized a tribal council in conformance with the guidelines under the Indian Reorganization Act of 1934.

In 1989, the Muwekma Ohlone Tribal leadership submitted a resolution to the Bureau of Indian Affairs' Branch of Acknowledgment and Research with the intent to petition for Federal acknowledgment. This application is known as Petition #111. This federal process is known to take many years to complete.

Simultaneously, in the 1980's and 1990's, the United States Congress recognized the federal government's neglect of the California Indians and directed a Commission to study the history and current status of the California Indians and to deliver a reports with recommendations. In the late 1990's the Congressional mandated report – the California Advisory Report, recommended that the Muwekma Ohlone tribe be reaffirmed to its status as a federally recognized tribe along with five other Tribes, the Dunlap Band of Mono Indians, the Lower Lake Koi Tribe, the Tsnungwe Council, the Southern Sierra Miwuk Nation, and the Tolowa Nation.

On May 24, 1996, the Bureau of Indian Affairs pursuant to the regulatory process then issued a letter to the Muwekma Ohlone tribe concluding that the Tribe was indeed a Federally Recognized Tribe.

In an effort to reaffirm their status and compel a timely decision by the Department of the Interior, the Muwekma Ohlone Tribe sued the Bureau of Indian Affairs. The Court has mandated that the Department issue a decision this year. That decision is expected in early August.

Specifically, on July 28, 2000, and again on June 11, 2002, Judge Richardo Urbina wrote in his Introduction of his Memorandum Opinion Granting the Plaintiff's Motion to Amend the Court's Order (July 28, 2000) and Memorandum Order Denying the Defendants' to Alter or Amend the Court's Orders (June 11, 2002) affirmatively stating that:

The Muwekma Tribe is a tribe of Ohlone Indians indigenous to the present-day San Francisco Bay area. In the early part of the Twentieth Century, the Department of the Interior ("DOI") recognized the Muwekma tribe as an Indian tribe under the jurisdiction of the United States. (Civil Case No. 99-3261 RMU D.D.C.)

I proudly support the long struggle of the Muwekma Ohlone Tribe as they continue to seek justice and to finally, and without further delay, achieve their goal of their reaffirmation of their tribal status by the federal government. This process has dragged on long enough. I hope that the Bureau of Indian Affairs and the Department of Interior will do the right thing and act positively to grant the Muwekma Ohlone tribe their rights as a Federally Recognized Indian Tribe. The Muwekma Ohlone Tribe has waited long enough; let them get on with their lives as they seek to improve the lives of the members of this proud tribe. To do anything else is to deny this tribe Justice. They have waited patiently and should not have to wait any longer.

49. August 29, 2002 Letter from California Lt. Governor Cruz Bustamante to Assistant Secretary – Indian Affairs, Neil McCaleb:

I write to urge you to support Petition # 111 by the Muwekma Ohlone Tribe for reaffirmation of Federal Acknowledgment.

The Muwekma Ohlone Tribe meets all of the criteria for reaffirmation set by the court as well as the Bureau of Indian Affairs' acknowledgment criteria. The tribe is a previously recognized tribe, It has demonstrated that it has had a trust relationship with the United States from 1906 to the present and Congress has never terminated their relationship.

The tribe's membership descend from an historical tribe and they are not members of any other Federally recognized tribe.

After compiling data and completing extensive research, the Muwekma have presented a compelling case for the tribe's Federal Acknowledgment. I respectfully urge you and the Bureau of Indian Affairs to carefully review their Petition.

50 September 6, 2002 - In the **Final Determination** the BAR staff predisposed to circumvent the Muwekma Tribe's responses to the Proposed Finding and supporting new evidence stated:

Given these conclusions of the Proposed Finding under criterion 83.7(a), that the period prior to 1927 is outside the period to be evaluated and that the petitioner met this criterion during the period after 1985, **it is not necessary to respond to the petitioner's comments and arguments for those two time periods.** Neither the petitioner nor any third party challenged the conclusions of the Proposed Finding that the petitioner met the criterion before 1927 and after 1985. Therefore, the evaluation of criterion 83.7(a) for this Final Determination will review the evidence and arguments for the years between 1927 and 1985. (FD 2002 page 9)

51. September 6, 2002, the Branch of Acknowledgment and Research under their **Summary Conclusions Under the Criteria (25 CFR 83.7)** section in the Final Determination concluded that:

The review of all the evidence in the record concludes that the Muwekma petitioner has **satisfied** the requirements of 25 CFR 83.7 (d), (e), (f), and (g). That is, the petitioner's constitution and enrollment ordinance describe its membership criteria and governing procedures, its members have demonstrated their descent from the **historical tribe** (in this case, from the Verona band last acknowledged by the Federal Government in 1927 and as defined in the Proposed Finding and Final Determination), the group is principally composed of those persons who are not members of another North American Indian tribe, and neither the group nor its members are the subject of congressional legislation **expressly terminating** or forbidding the Federal relationship. (Page 7)

...When a Final Determination is negative, the regulations direct that the petitioner be informed of alternatives to this administrative process for achieving the status of a federally recognized tribe, or other means by which the petitioner's members may become eligible for services and benefits as Indians (25 CFR 83.10(n)).

... In addition, Congress may consider taking legislative action to recognize petitioners which do not meet the specific requirements of the acknowledgment regulations but, **nevertheless, have merit.**” (Pages 7-8) [Emphasis added]

52. March 26, 2004 – Letter from Congressman Richard Pombo, Chair of the Committee on Resources to Chairwoman Rosemary Cambra wrote:

The Committee on Resources will hold a Full Committee Oversight Hearing on Wednesday, March 31, 2004 The hearing will focus on the Federal recognition and acknowledgment process by the Bureau of Indian Affairs. Among one of the subjects covered will be whether the current process is working properly and in a timely manner, and what alternatives exist to improve the system. I cordially invite you to testify at this hearing.

You have had significant experience with this subject matter and information regarding your experience would be most helpful to the Committee. ...”

53. March 31, 2004 – Testimony of Rosemary Cambra, Chairwoman, Muwekma Tribe.

“HorSe Tuuxi

Good Morning Mr. Chairman and Members of the Oversight Hearing:

Mr. Chairman, my name is Rosemary Cambra and I carry several badges of honor in Indian Country. I am the elected Chairwoman of the Muwekma Ohlone Tribe of the San Francisco Bay region since 1984 and I am the Co-Chair of the Recognition Task Force for the National Congress of American Indians (NCAI). I also had the good fortune to work on the Recognition Task Force for the Congressionally created Advisory Council on California Indian Policy between 1994 and 1998.

As you can tell by my commitment, Mr. Chairman, I am a person deeply concerned about the justice issues not only confronting my tribe, but the plethora of issues confronting the many disenfranchised historic tribes throughout this country that were either previously recognized or whom fell through the administrative cracks, thereby rending both groups as Unacknowledged by the Secretary of Interior today.

Today I want to speak on four points. The first is my involvement as co-Chair of the Recognition Task Force for NCAI. The second reports upon the implications of ACCIP reports submitted to the Congress in 1998. The third addresses the long, painful and costly efforts that my Tribe has been engaged in both prior to and during the Recognition Process and the adverse ramifications for my people. And lastly, I want to discuss about the conflict of interest and violations under the Administrative Procedures Act by both BAR staff and DOI legal Counsel.”

54. April 21, 2004, former Assistant Secretary of Indian Affairs, Kevin Gover, provided testimony before the Senate Committee on Indian Affairs on proposed Senate Bill 297. In his testimony addressing the “Structural Issues with the Federal Acknowledgment Program” former AS-IA Gover provided the following statement:

As has been well documented, I did not always agree with the judgments and opinions of BAR researchers and the attorneys from the Solicitor's office who advised the BAR. I came to believe that the BAR and its attorneys had been essentially unsupervised for many years and that the Assistant Secretary's office had become little more than a **rubber stamp** for their recommendations. ...

... Another troubling aspect of the program was the phenomenon of analytical tools employed by the BAR **hardening into rules of law**. Two examples make the point. First, when applying the requirement that a tribe demonstrate the "continuous" existence of political influence of tribal leadership over the members, OFA looks to see that such influence existed in each ten-year increment of the tribe's existence. This is unobjectionable as an analytical approach, but it is my opinion **wrong and illegal** to apply the "ten-year" approach as a rule of law. Bar maintained that if conclusive proof of political influence was absent during any ten-year period, continuity was broken and the petition had to be denied. I believe that, while the absence of such proof during any given decade might be some evidence of a break in continuity, **it is not conclusive and it cannot fairly give rise to a presumption** of a break in continuity. It may, for example, only reflect a gap in effective news reporting, record keeping, or record retention, **not any actual gap in tribal existence**. In my view, for the "ten-year" approach to be hardened in to a rule of law, or even permitted to establish a presumption, it **must go through notice-and-comment rulemaking under the Administrative Procedures Act, which it did not**.

"Finally, the role of the office of the Solicitor presents difficulty. Certain individuals in the Solicitor's office were drafters of the Part 83 rules; participate in OFA's consideration of the petition; participate in OFA's drafting of recommendations to the Assistant Secretary; compile the administrative record behind each decision; advise the Assistant Secretary directly during his or her review of the petition; help to draft the decisions of the Assistant Secretary; litigate before the IBIA concerning the decision; advise the Secretary during reconsideration of decisions of the Assistant Secretary; and assist in the litigation in federal court that results from the Department's final actions. **These individuals have an inappropriate degree of control, direction, and influence in the process.** I believe that the work of these attorneys is essentially unsupervised in the Solicitor's office for the same reason that work of the BAR is essentially unsupervised by the Assistant Secretary: the Solicitor and his or her immediate supervisors simply do not have the time to master the intricacies of the evidence because of its volume. (Page 3-4)

In his continued testimony on S. 297, former AS-IA Gover made the following points:

"... My primary disagreement with BAR staff related specifically to the **assignment of weight to specific evidence**, the inferences that could fairly be drawn from the evidence, and the degree of certainty about historical facts required by the regulation. I believe that BAR staff, being of trained as historians, anthropologists, and genealogists, **applied too difficult a standard**. I believe they sought near certainty of the facts asserted by petitioners. **They dismissed relevant evidence as inconclusive, even though conclusive proof is not required by the regulations.**

Moreover, **BAR staff seemed thoroughly unwilling to give evidence any cumulative effect.** While any given piece of evidence, when considered cumulatively, can make a sound case. ... I do believe that, in accordance with their training, **they applied a burden of proof** far beyond what is appropriate and **far beyond what is permitted by the regulations.** ..." (Page 5) [Emphasis added]

In former AS-IA Gover's "**Suggestions for Amendments**" he put forward the following:

... First, I strongly believe that certain petitioners, which already have been denied recognition, should be permitted another opportunity under the revised process established by this bill. I adopted a policy when I was Assistant Secretary that I would not revisit final determinations of my predecessors in office. While I believe that this was the right policy, I remain troubled to this day that justice was denied to certain tribes, particularly the Miami Tribe. Even some of the petitions I personally acted upon leave me wishing that this revised process had been in effect when I was in office. Into this category I would place Mowa Choctaw. Finally, I remain convinced that the Chinook Tribe is deserving of federal recognition, and I believe that, if Assistant Secretary McCaleb had the resources provided by this bill available to him when he addressed the Chinook petition, the outcome well may have been different. **There may be other tribes, such as the Duwamish and the Muwekma who should be eligible for reconsideration as well.** (Page 7) [Emphasis added]

55. - December 29, 2000 Letter from AS-IA Kevin Gover to Regional Directors of Alaska and Pacific regarding "Reaffirmation of Federal Recognition of Indian Tribes"

I have received information from you that the King Salmon Tribe, the Shoonaq' Tribe of Kodiak, and the Lower Lake Rancheria have been officially overlooked for many years by the Bureau of Indian Affairs ("Bureau" or BIA) even though their government-to-government relationship with the United States was never terminated. I have been requested to review these cases and take action, if warranted.

At one time, each of these groups was recognized by the Bureau. However, for reason not clearly understood, they were simply ignored as the BIA went through fundamental organizational and philosophical changes following landmark legislation such as the 1934 Indian Reorganization Act and other federal policy shifts. It is an unfortunate part of the Bureau's legacy that I spoke of during our reconciliation event several months ago, and I am please today, and on behalf of the department of the Interior and the BIA, to correct the egregious oversight.

The Indian tribes mentioned above should not have to go through the Federal acknowledgment process outlined in the Federal Register at 25 CFR, Part 83 ("acknowledgment regulation") because their government-to-government relationship continued. **The acknowledgment regulation does not apply to Indian tribes whose government-to-government relationship was never severed.** Rather, the acknowledgment regulation provides a process for tribes to seek recognition when the tribe have yet to establish such a government-to-government relationship, when a previously existing government-to-government relationship has lapsed, or when the government-to-government relationship was terminated through an administrative process.

Here, the Tribes were never administratively terminated nor were their relations with the United States broken. Instead, an administrative error by the Bureau of Indian Affairs occurred in the initial failure to place the tribes on the Federal Register list of entities recognized and eligible to receive services from the United States Bureau of Indian Affairs. The administrative oversight, having now been identified, must be corrected and the Tribes' rightful existence must now be affirmed.

... With respect to the Lower Lake Rancheria, the documentation shows that it should be treated differently than other California tribes that were terminated during the termination era. ...In contrast, the lower Lake Rancheria lost its land pursuant to the Lower Lake Act This Act predated the Rancheria Act and did not contain a provision to cause the loss of an Indian's legal status as an Indian as a result of his (or her) acceptance of any assets of the Lower Lake Rancheria. Thus, the Lower Lake Act did not terminate the Lower Lake Rancheria.

Therefore, by action today, I am reaffirming formal recognition of the following Indian tribes:

King Salmon Tribe in Alaska

Shoonaq' Tribe of Kodiak in Alaska, and

Lower Lake Rancheria in California

...By this memorandum I am directing that the Bureau of Indian Affairs, specifically the Alaska Region, and Pacific Region officials deal with the respective tribes accordingly. Further, I direct that the Office of Tribal Services include the Tribes mentioned above in the "Indian Entities Recognized and Eligible to Receive Services from the United States Bureau of Indian Affairs,... .

The Bureau of Indian Affairs will maintain contact with the respective tribes to address the relevant details in maintaining a government-to-government relationship in accordance with Executive Orders 13084 and 13175 as well as the Executive Memorandum of April 29, 1994, on Government-to-Government Relations with Native American Tribal Governments.

56. 2014 – Present – Muwekma was named **Most Likely Descendant** for the San Francisco Public Utilities Commission excavations at *Sii Túupentak* (CA-ALA-565/H) for the "Watershed" Educational Facility. Carla Schultheis, Watershed and Environmental Improvement Program Manager, Natural Resources and Lands Management Division, Water Enterprise, 525 Golden Gate Avenue, 10th Floor; San Francisco, CA 94102.

57. March 7, 2015 - The Muwekma Ohlone Tribal leadership had named and participated in a ribbon cutting ceremony for the newly created **Roberto Antonio Balermينو Park** located on Almaden Road in San Jose. <https://www.hmdb.org/m.asp?m=155137>

58. November 1, 2018 - **Muwekma Leadership Singing a Welcoming Song at the Inaugural California Indian Flag Raising Event in the City of Milpitas.**

59. 2019 – Peter Burnett Academy renamed **Muwekma Ohlone Middle School**. 850 North 2nd St, San Jose, CA.

After a process that brought together students, teachers and the local community, Burnett Middle School will have a new name: Ohlone Middle School. The school's outgoing namesake is California's first governor, Peter Burnett, whose racist policies included the Chinese Exclusion Act of 1882 and attempts to keep black Americans out of California. He also believed that Native Americans should be eliminated from the newly-created state, making the change to Ohlone an especially strong statement."

<https://ohlone.sjUSD.org/>

<https://sanjosespotlight.com/burnett-middle-school-to-be-renamed-ohlone-middle-school/#:~:text=After%20a%20process%20that%20brought%20together%20students%2C%20teachers,attempts%20to%20keep%20black%20Americans%20out%20of%20California.>

60. October 14, 2019 - Muwekma Tribal Exhibit in Honor of Indigenous Peoples Day at San Francisco Maritime National Historical Park and Museum.

61. November 2, 2019 - Recognition Citation by a Congress Member of the United States citation presented by Congressman Ro Khanna, 17th District California.

62. November 19, 2019 - Certificate of Recognition Issued by State Senator Jim Beall 15th Senate District.

63. December 21, 2020 - U.C. Berkeley Chancellor Carol Christ issues letter to Tara Sweeney Assistant Secretary - Indian Affairs supporting the reaffirmation of the Muwekma Tribe.

64. 2021 - Mid-Pen Housing "Polsomi Place" in Honor of Mission Santa Clara Indian Lopé Yñigo and the Muwekma Ohlone Tribe. (City of Sunnyvale, California)

Lopé Yñigo was one of few Native Ohlone Indians awarded a land grant, It was not until February 15, 1844, after petitioning Governor Micheltorena, that he was granted the land that he named Posolmi y Pozitas de las Animas meaning Little Wells of Souls."

The Plaque presents "**First People - History of the Muwekma Ohlone**. The Muwekma Ohlone people were the original residents of the region from San Francisco and the Bay Area down to the lower Santa Clara Valley south of Morgan Hill. ... In the early 20th century, the ancestors of the Muwekma Ohlone became federally recognized through a series of Congressional acts and actions.

65. 2021- Lands of the Ohlone People: "Today's descendants of the Thamien Ohlone identify themselves as Muwekma Ohlone." The Panel was established at the Santa Clara County's Valley Transportation Authority's Berryessa Transit Center, San Jose, CA. "The project team worked extensively with local community members of the Muwekma Ohlone Indian Tribe of the San Francisco Bay Area to develop the language of the interpretive panel, the plant identification signs, and the stone monument within the garden."

<https://sustainableinfrastructure.org/project-awards/vtas-berryessa-transit-center/>

66. August 31, 2021 - Muwekma Mural Dedication Guadalupe River Walk, City of San Jose. “We are Still Here!” San Jose Walls partnered with the Guadalupe River Park Conservancy. <https://sjwalls.com/pwsj-2021>

66. September 13, 2021 - Plaque Honoring the 100th Anniversary of San Jose City College and Muwekma Ohlone Tribe Land Acknowledgement. “We also honor the history of the land on which we stand and recognize that our community continues to benefit from the use and occupation of the Muwekma Ohlone people’s unceded ancestral homeland.”

68. November 6, 2021 - Certificate of Recognition by 25th District Assembly Member Alex Lee .

69. 2021- 2023 – Exhibition on the Muwekma Ohlone Tribe at New Museum of Los Gatos (NUMU) Exhibitions titled “**Reclamation: Resilience of the Muwekma Ohlone Tribe,**” and “**Reclamation: Aboriginal Ancestral Homeland of the Muwekma Ohlone Tribe.**” Ami Davis, Executive Director, NUMU, 106 E. Main Street, Los Gatos, Ca 95030

70. 2022 -Dedication of the Muwékma Ohlone Park located at 1035 Indian Wells Ave, Sunnyvale, CA 94085 Muwékma Park Grand Opening Wonderful Ceremony for the Muwékma Park Grand Opening in Sunnyvale, CA. Larry Klein, Sunnyvale Mayor gave a very nice speech and thanked everyone involved.

Muwékma Park is a dedication to the Muwekma Ohlone Tribe of the San Francisco Bay Area. The newest playground in the Bay Area is 6.5 acres.
<http://www.spiffykerms.com/2022/08/exploring-bay-area-playgrounds-muwekma-park/>
<https://www.facebook.com/watch/?v=724693661945628>

71. 2022 – In the UNITED STATES DISTRICT COURT NORTHERN DISTRICT OF CALIFORNIA SAN JOSE DIVISION, ELIZABETH WEISS, Plaintiff, vs. STEPHEN PEREZ, in his official capacity as President of San Jose State University; et al. Case No. 5:22-cv-00641-BLF DEFENDANTS’ OPPOSITION TO PLAINTIFF’S MOTION FOR PRELIMINARY INJUNCTION/ Date: June 2, 2022 Judge: Hon. Beth Labson Freeman

On August 20, 2021, SJSU sent letters to the Tribes inviting their consultation with respect to “phases of the NAGPRA process.” Id. ¶ 7 & Ex. F. Based on those consultations, SJSU determined that the **Muwekma Ohlone Indian Tribe of the SF Bay Area** is culturally affiliated with nearly all of the sites, because the Tribe “**provided unambiguous and specific genealogical, documentary, and oral history ties to this ancestral site.**” Id. & Ex. E-1

... B. Plaintiff’s Claims Are Not Likely to Succeed on the Merits

“1. The Complaint Must Be Dismissed Due to Failure to Join the Muwekma Ohlone Tribe Under Federal Rule of Civil Procedure 19, when an absent party is a “necessary” party, joinder of that party is not feasible, and the absent party is “indispensable,” the plaintiff’s claims may not proceed without it. Fed. R. Civ. P. 19(b). The **Muwekma Ohlone Tribe** is a necessary party here because adjudicating this dispute in its absence could both impair its rights and leave the University subject to a substantial risk of inconsistent obligations.

See *White v. Univ. of Cal.*, 765 F.3d 1010, 1026-27 (9th Cir. 2014) (affirming dismissal of NAGPRA claims by anthropology professors). **The Tribe’s joinder is not feasible because it enjoys sovereign immunity from suit.** See *Native Village of Tyonek v. Puckett*, 957 F.2d 631, 635 (9th Cir. 1992); *Wilcox Decl. Ex. A § IV*. And, because the Tribe has sovereign immunity, the Tribe is “indispensable” and the claims against Defendants may not proceed without it. See, e.g., *Deschutes River All. v. Portland Gen. Elec. Co.*, 1 F.4th 1153 (9th Cir. 2021); *Jamul Action Comm. v. Simermeyer*, 974 F.3d 984 (9th Cir. 2020); *White*, 765 F.3d 1010.

72. 2022-2023 – Repatriation of ancestral remains from Diablo Valley College, Contra Costa Community College District, Pleasant Hill, California.

Memorandum of Understanding for the Reburial of Human Remains and Associated Funerary Items Repatriated to the Wilton Rancheria and the Muwekma Ohlone Tribe

the process whereby the Wilton Rancheria and the **Muwekma Ohlone Tribe** ... and the Contra Costa Community College District ...; will work in cooperation to rebury the human remains and associated funerary items that have been repatriated to the Tribes.

73. 2023 – Repatriation of Muwekma Ohlone Ancestral from the Lindsay Wildlife Experience, 1931 First Avenue, Walnut Creek, Ca. 94597.

Institution or Tribe (if applicable): **Muwekma Ohlone Tribe (Repatriation)** of Human Skulls. Contact name and title: Charlene Nijmeh, Chairwoman.

74. August 5, 2025 – Union City Council’s Resolution No. 2025-107 – Supporting Federal Recognition of the Muwekma Ohlone Tribe.



**DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION**

Armando Quintero, Director

Julianne Polanco, State Historic Preservation Officer

1725 23rd Street, Suite 100, Sacramento, CA 95816-7100

Telephone: (916) 445-7000 FAX: (916) 445-7053

calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

February 10, 2026

Refer to HUD_2025_1114_001

Manasa Hegde
HCD Specialist III
County of San Mateo
Department of Housing
264 Harbor Boulevard, Building A
Belmont, CA 94002-4017

Re: Multifamily Residential Construction Project at 500 Linden Avenue, South San Francisco, CA

Dear Ms. Hegde:

The State Historic Preservation Officer (SHPO) received the consultation submittal from the County of San Mateo for the above referenced undertaking on November 14, 2025, with a follow-up submittal on December 16, 2025, and January 22, 2026. As Responsible Entity (RE) for the U.S. Department of Housing and Urban Development (HUD), the County of San Mateo is initiating consultation with SHPO for review and comment pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations found at 36 CFR Part 800. The regulations and advisory materials are located at www.achp.gov.

Undertaking

The Undertaking proposes the demolition of the existing 1971 bank building and preparation for a new six-story and basement, approximately 73 foot high, 87,263 square foot, apartment building with concrete foundations, steel and wood framing, and exterior veneers including masonry, composite and metal panels, concrete masonry units, and formed concrete. Parking is proposed at the basement level on the adjacent property. A total of 10 studio apartments, 69 one-bedroom apartments, and 1 two-bedroom apartment are currently proposed on floors two through six.

Area of Potential Effects (APE)

The County of San Mateo has delineated the Direct APE for the undertaking as the full subject property boundary and the Indirect APE as the immediately surrounding 1/8-mile radius.

- Pursuant to 36 CFR § 800.4(a)(1), the delineated APE is appropriate for this undertaking.

Identification of Historic Properties

San Mateo County's efforts to identify and consider historic properties included a records search at the Northwest Information Center (NWIC) on March 28, 2024; review of historic maps, atlases, newspapers, county assessor information, and property deed and building date information from the County Recorder's and Assessor's Offices; review of available information at the San Mateo County and South San Francisco Historical societies, and the online City of South San Francisco archives, as well as a review of the National Register of Historic Places online databases and the Office of Historic Preservation's Built-Environment Resource Directory; site visits during April and January 2024; development of a sight-line study; consultation with the South San Francisco Historical Society, South San Francisco Historical Society Museum, San Mateo County Historical Association, and the Grand

Library, South San Francisco; an evaluation of 500 Linden Avenue, South San Francisco for eligibility to the National Register of Historic Places (NRHP); and consultation with seven Indian tribes.

The NWIC records search failed to identify any historic properties within the project area however, the records search identified 35 historic properties within the half-mile search radius. Two previously conducted cultural resource reports overlap the APE, and 33 reports have been conducted within the half-mile radius.

- Pursuant to 36 CFR § 800.4(c)(2), the County of Santa Mateo has determined that the property at 500 Linden Avenue in Santa Mateo County is not eligible for inclusion in the NRHP under any criteria. **I concur.**

Consultation

The County of San Mateo initiated consultation with seven tribes on November 13, 2025. The Indian Canyon Band of Costanoan Ohlone People responded November 19, 2025, that the APE overlaps or is near the management boundary of a potentially eligible cultural site and requested a Native American Monitor and an Archaeologist be present on-site at all times during any/all ground disturbing activities. The County responded on January 16, 2026, detailing project records search findings. To date, no response has been received from the Tribe and consultation is ongoing.

The Muwekma Ohlone Tribe responded on November 14, 2025, formally requesting consultation under Section 106 however, their response referred to a project in Saratoga, Santa Clara County, and not the current Undertaking. The County responded on January 16, 2026, clarifying the current project. To date, no response has been received and consultation is currently ongoing. No response has been received from the South San Francisco Historical Society, South San Francisco Historical Society Museum, San Mateo County Historical Association, and the Grand Library, South San Francisco.

- Pursuant to 36 CFR § 800.4(a)(3)(4), I have no comment on the County of San Mateo's consultation efforts.
- Pursuant to 36 CFR Part 800.4(b)(1), the County of San Mateo has made a reasonable and good faith effort to identify historic properties within the APE.
- Please be mindful that Indian tribes possess special expertise in assessing historic properties of religious and cultural significance not available to Office of Historic Preservation staff. The SHPO requests that the County of San Mateo provide a summary of any views conveyed by Indian tribes or other individuals and organizations likely to have knowledge of, or concerns with historic properties in the project area, should they be submitted following receipt of this letter. In so doing, the SHPO reserves the right to resume Section 106 consultation and respond to new information, as necessary.

Finding of Effect

Pursuant to 36 CFR Part 800.4(d), SHPO **does not object** to the County of San Mateo's finding of *no historic properties affected* for the (HUD)-funded multifamily residential construction project at 500 Linden Avenue in South San Francisco.

SHPO appreciates the County of San Mateo's consideration of historic properties in the project planning process. If you have questions, please contact Chris Wendt, Historian II, with the Architectural Review & Environmental Compliance Unit at chris.wendt@parks.ca.gov.

Manasa Hegde
February 10, 2026
Page 2 of 2

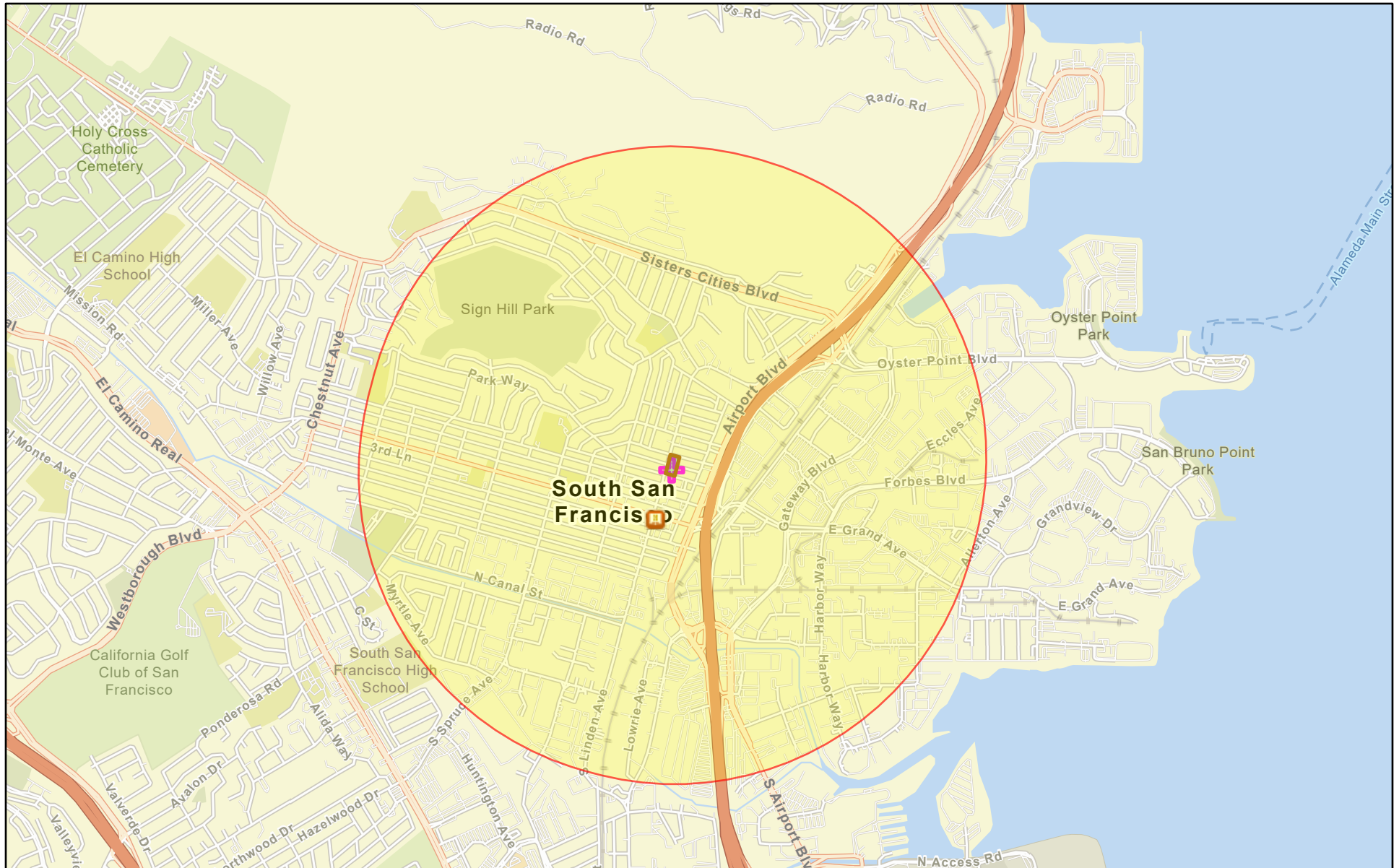
Please note that we are only sending this letter in electronic format. Please confirm receipt of this letter.

Sincerely,

A handwritten signature in blue ink, consisting of a stylized 'J' followed by a horizontal line.

Julianne Polanco
State Historic Preservation Officer

1-Mile Radius Map



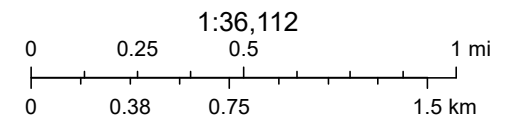
October 20, 2025

 Project Buffer

 Search Result (point)

 Liberty Bank, aka Rotary Gardens

 National Register of Historic Places



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, EPA OEI, OFA



1970 Rendering of original bank currently on site (top)...proposed new construction to occupy the vacant property 2025 (bottom)

HISTORIC ARCHITECTURE AND CULTURAL RESOURCES SECTION 106 ASSESSMENT

Rotary Gardens/AKA Liberty Bank

500 Linden Avenue
South San Francisco, California 94080

Report Date

October 30, 2025

Partner Project No.

25-551454.1

Prepared for:

Beacon Development Group
4900 Hopyard Road, Suite 300
Pleasanton, California



Building
Science



Environmental
Consulting



Construction &
Development



Energy &
Sustainability



October 30, 2025

Mr. Matthew Almonte
Beacon Development Group
4900 Hopyard Road, Suite 300
Pleasanton, California 94588

Subject: Historic Architecture And Cultural Resources Section 106 Assessment

Rotary Gardens/AKA Liberty Bank
500 Linden Avenue
South San Francisco, California 94080
Partner Project No. 25-551454.1

Dear Mr. Almonte:

Partner Assessment Corporation (Partner) is pleased to provide the results of this Historic Architecture And Cultural Resources Section 106 Assessment in compliance with the National Historic Preservation Act of 1966, the California Environmental Quality Act (CEQA), and more specifically the United States Department of Housing and Urban Development (HUD) 221(d)(4) New Construction program for the above-mentioned address (the "subject property").

This assessment was performed according to the scope of work and limitations set forth by Beacon Development Group (client) in due diligence to initiate Section 106 consulting with the SHPO on behalf of the project. This report includes a SHPO Concurrence Request in support of the project.

Partner has made a good faith effort, as detailed herein, to complete this report in accordance with Section 106 of the National Historic Preservation Act of 1966, CEQA, and HUD guidelines. Please do not hesitate to contact the undersigned at jgajewski@partneresi.com and (618) 556 9150 or mbivens@partneresi.com and (314) 740 2127 to discuss further details.

Sincerely,

Partner Assessment Corporation

John Gajewski
Technical Director - Historic Architecture Solutions

Prepared By:

Matthew Bivens, Associate AIA
Senior Architecture Advisor – Historic Architecture



EXECUTIVE SUMMARY

Partner has performed this Section 106 Historic Architecture And Cultural Resources Assessment as requested by the client and in general conformance with the scope and limitations as detailed in our proposal for the property located at 500 Linden Avenue, South San Francisco, California ("subject property" hereafter). This report is designed to provide Beacon Development Group a built environment study, relevant site history as available from archives, and an evaluation to determine if the subject property is individually eligible for listing in the National Register of Historic Places (NRHP) or within a NRHP historic district, or listing in the California Register of Historic Places (CR), and, therefore, whether it constitutes a historical resource for the purposes of Section 106 of the National Historic Preservation Act (NHPA). Additionally, as the site is proposed for new construction an assessment of surrounding buildings for potential impacts from the proposed building has been implemented in compliance with local, regional, and federal historic regulations. Finally, our report includes a SHPO concurrence request in support of the project in providing affordable, senior housing on the site, an otherwise underutilized, vacated property.

The property consists of one (1) two-story load-bearing concrete masonry bank building with 11,095 square feet. In addition to the current structure, the subject property is also improved with a separate asphalt-paved parking area and associated landscaping.

Based on the age of the existing building, being over 45-years old (completed in 1971 and thus 54 years of age), and coupled with HUD regulations, an historic architectural assessment is required to determine whether the subject property can be found to be historic or that a proposed scope of repair or rehabilitation work or a building demolition may adversely impact the existing building (if determined historic) or the immediately surrounding area (if also determined historic). A professional Architectural Historian/Historian/Historic Architecture/Historic Preservation Specialist assessment review is thus required to determine if the property may be determined eligible for listing OR is already listed in the National Register of Historic Places (NRHP). Additionally, due to the presence of locally eligible resources, the property and surrounding area were assessed for both the San Francisco and California Register of Historic Places (CR).

Our review verified that the building is not listed in the NRHP, the CR, or the local register; the surrounding buildings within the APE are also not listed in either the NRHP or the CR; few are locally designated resources, but these are far removed outside the APE to the south, southwest, and southeast. While a few immediately adjacent properties (specifically those included within the Indirect APE) have been identified as historically aged, none of these resources have been officially listed and none have been determined NRHP eligible.

In summary, our report found **NO Historic Properties** in the Project Area; additionally, while there are buildings over 50-years of age in the APE, these are not NRHP or CR eligible or listed and thus for purposes of this assessment, there are **NO Historic Properties** in the Project APE. Within the Indirect APE, on the



local level are several resources that have been documented on the BERD; however, no actions on local listing have been made. Far outside of the APE is a single NRHP listed historic property is located to the south but the proposed project, not within sight or in proximity, would not impact said resource.

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The following report Figures and Appendices are attached at the end of this report.

FIGURES

- Figure 1:** Site Location Map
- Figure 2:** Site Plan
- Figure 3:** Topo Map
- Figure 4:** APE Map Exhibit
- Figure 5:** NRHP Map with APE
- Figure 6:** Local Historic Resources Map
- Figure 7:** NWIC Resource Map 1

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APPENDICES

- Appendix A1:** Site & Property Photos
- Appendix A2:** Assessment Photos of APE Buildings
- Appendix B1:** Historic Fire Insurance Map Review
- Appendix B2:** Historic Topographical Map Review
- Appendix B3:** Historic Aerial Photograph Review
- Appendix B4:** Historic City Directory Review

- Attachment 1:** Design of Proposed New Construction
- Attachment 2.1:** DPR Forms
- Attachment 2.1:** DPR Photo Log

QUALIFICATIONS

1.0 INTRODUCTION

Partner Assessment Corporation is conducting an **Environmental Site Assessment and Historic Architecture Assessment** of the above-mentioned project located in San Francisco county, California.

We respectfully request consultation regarding the proposed project in accordance with 36 CFR 800. This assessment is being conducted on behalf of a financial services client under U.S. Housing and Urban Development (HUD) guidelines, and additional guidelines, when applicable.

U.S. HUD FHA Mortgage Insurance Program: 221(d)(4)-New Construction

Partner reviewed HUD's Section 106 Agreement database ([Section 106 Agreement Database and Disaster Recovery Programmatic Agreements Database - HUD Exchange](#)). The subject property city/county and/or state are not listed in the database.

Because of the proposed Federal activities and because a Section 106 Programmatic Agreement is not in place (at this time), Section 106 consultation is warranted. A 36CFR61 qualified Architectural Historian and Historian, and Archaeologist, conducted this assessment in accordance with federal regulations.

1.1 Limitations

Partner warrants that the findings and conclusions contained herein were accomplished in accordance with the methodologies set forth in the Scope of Work. These methodologies are described as representing good commercial and customary practice. There is a possibility that even with the proper application of these methodologies there may exist on the subject property conditions that could not be identified within the scope of the assessment, or which were not reasonably identifiable from the available information.

Partner believes that the information obtained is reliable. However, Partner cannot and does not warrant or guarantee that the information provided by other sources is accurate or complete. The conclusions and findings set forth in this report are strictly limited in time and scope to the date of the evaluations. The conclusions presented in the report are based solely on the services described therein, and not on scientific tasks or procedures beyond the scope of agreed-upon services or the time and budgeting restraints imposed by the Client. No other warranties are implied or expressed.

The information provided in this report is based upon research of available documents, records, and maps held by the appropriate government and private agencies, as well as client provided information. This report is subject to the limitations of provided documentation, availability, and accuracy of pertinent records.

1.2 User Reliance

Beacon Development Group engaged Partner to perform this assessment in accordance with an agreement governing the nature, scope, and purpose of the work as well as other matters critical to the engagement. All reports, both verbal and written, are for the sole use and benefit Beacon Development Group. Either verbally or in writing, third parties may come into possession of this report or all or part of the information generated as a result of this work. In the absence of a written agreement with Partner granting such rights, no third parties shall have rights of recourse or recovery whatsoever under any course of action against Partner, its officers, employees, vendors, successors, or assigns.

Any such unauthorized user shall be responsible to protect, indemnify and hold Partner, Client and their respective officers, employees, vendors, successors and assigns harmless from any and all claims, damages, losses, liabilities, expenses (including reasonable attorneys' fees) and costs attributable to such Use. Unauthorized use of this report shall constitute acceptance of and commitment to these responsibilities, which shall be irrevocable and shall apply regardless of the cause of action or legal theory pled or asserted. Additional legal penalties may apply.

This report has been completed under specific Terms and Conditions relating to scope, relying parties, limitations of liability, indemnification, dispute resolution, and other factors relevant to any reliance on this report. Any parties relying on this report do so having accepted Partner's Terms and Conditions, that was included as part of the proposal that Beacon Development Group engaged Partner with to complete this work.

2.0 PROPERTY & SITE DESCRIPTION

2.1 General Description - Site

The project site is currently developed with one (1) two-story bank building and an associated paved parking lot, located at 500 Linden Avenue, South San Francisco, San Mateo County, California (Figure 2). The site is assigned Assessor's Parcel Numbers 012175260 (bank) and 012175010 (parking lot). This property encompasses approximately 0.96 acres of developed land and including some 11,095 square feet of interior building space. The property is at the east side of Linden Avenue in between California Avenue to the north and Lux Avenue to the south and is surrounded at the east and opposite sides of the street by varied mixed-use buildings. The 2021 United States Geological Survey (USGS) South San Francisco Quadrangle 7.5-minute series topographic map was reviewed for this report. According to the contour lines on the topographic map, the subject property is located approximately 39 feet above mean sea level. The contour lines in the area of the subject property indicate the area is sloping gently towards the south (Figure 3).

2.2 Further Description - Property

While initially undeveloped up to 1950, a one-story reinforced concrete structure was temporarily on site by 1956 but subsequently demolished before 1970; the subject building was erected in 1971 and the associated parking lot graded and paved at the same time. The surrounding area was slow to develop although streets were laid out and parcels defined for future construction as early as 1892. Neighborhood development would pick up after 1910 and see great growth between 1925 and 1950. Additional details are provided below.

Property Details per Ownership Records

Name	Liberty Bank/AKA Rotary Gardens
Address	500 Linden Avenue
Historic Addresses	65, 69, 508, and 522 Linden Avenue; 228 and 229 6th Lane; 59-64, and 238 Lux Avenue; 231 and 241 California Avenue
City, State	South San Francisco, San Mateo County, California
Property use	Banking facility, commercial business
Land acreage (acres)	0.96
Number of buildings and structures	1 building, 1 structure (masonry)
Number of floors	Two-story
Year built	1971
Gross building area (sf)	11,095 sf
Foundation/Substructure	Concrete slab-on-grade with perimeter and interior footings under load bearing masonry structures
Superstructure	Exterior brick and concrete masonry panel

Façade	Masonry and concrete
Roof type	Flat roof

The subject property is currently occupied by Liberty Bank for commercial use—it is however vacant at this time. Onsite operations consist of previous commercial banking operations and associated parking lot. In addition to the current structure, the subject property is also improved with asphalt-paved parking areas and associated landscaping.

According to available historical sources, the subject property was formerly undeveloped as early as 1892 until circa at least 1910; developed with an automobile storage structure and an additional structure in 1925; developed with a commercial structure from 1956 until circa 1966; developed with a parking lot in the north plot by 1970; and developed with the current parking lot in the north plot and commercial structure in the south plot from 1971 to present. Tenants on the subject property have included Purity Stores Limited (1966); Bank of America South San Francisco (1977-1982); Liberty Bank (1987-2022); Liberty BanCorp (2016-2022); and Smile Dentistry Fishers (2022). The subject property bank is designated for DTC for Downtown Transit Core development and the parking lot is zoned LNC for Linden Neighborhood Center development by the City of South San Francisco.

The adjoining properties are tabulated below:

<i>Adjoining Properties</i>	
<i>North:</i>	California Avenue, beyond which is Curry Corner (600 Linden Avenue); Stephany Barbie Beauty Shop (602 Linden Avenue); Taqueria Celaya (608 Linden Avenue); Alfredo's Market (612 Linden Avenue); and single-family residences (238, 236, 232, and 230 California Avenue)
<i>East:</i>	Single-family residences (229 California Avenue; 228 6th Lane; and 226 Lux Avenue)
<i>South:</i>	Lux Avenue, beyond which is a multi-family residence (418 Linden Avenue); Los Metates Restaurant (231 and 231A Lux Avenue); and a single-family residence (227 Lux Avenue)
<i>Southwest:</i>	Intersection of Linden Avenue and Lux Avenue, beyond which is storefront retail (433, 435, 437, and 439 Linden Avenue); and storefront retail with residences above (415, 415A, 417, 419, 437, and 429 Linden Avenue)
<i>West:</i>	Linden Avenue, beyond which is Colombo Liquors (507 Linden Avenue); Discoteca Ramos (511 Linden Avenue); Ace Furnace Company (513 and 515 Linden Avenue); a vacant lot; multi-family residence (517 Linden Avenue); a drop-off only dry cleaners (519 Linden Avenue); and a beauty salon (523 Linden Avenue)
<i>Northwest:</i>	Intersection of California Avenue and Linden Avenue, beyond which is Emmanuel Florist (304 California Avenue)

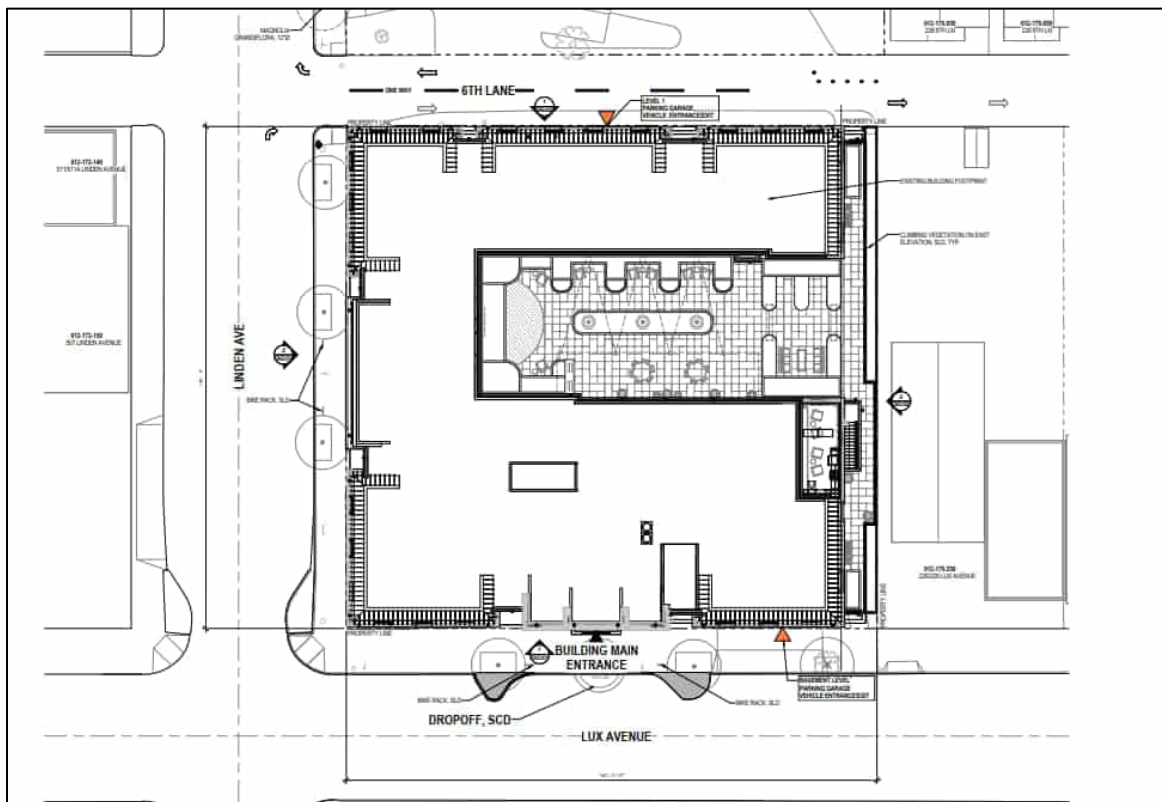
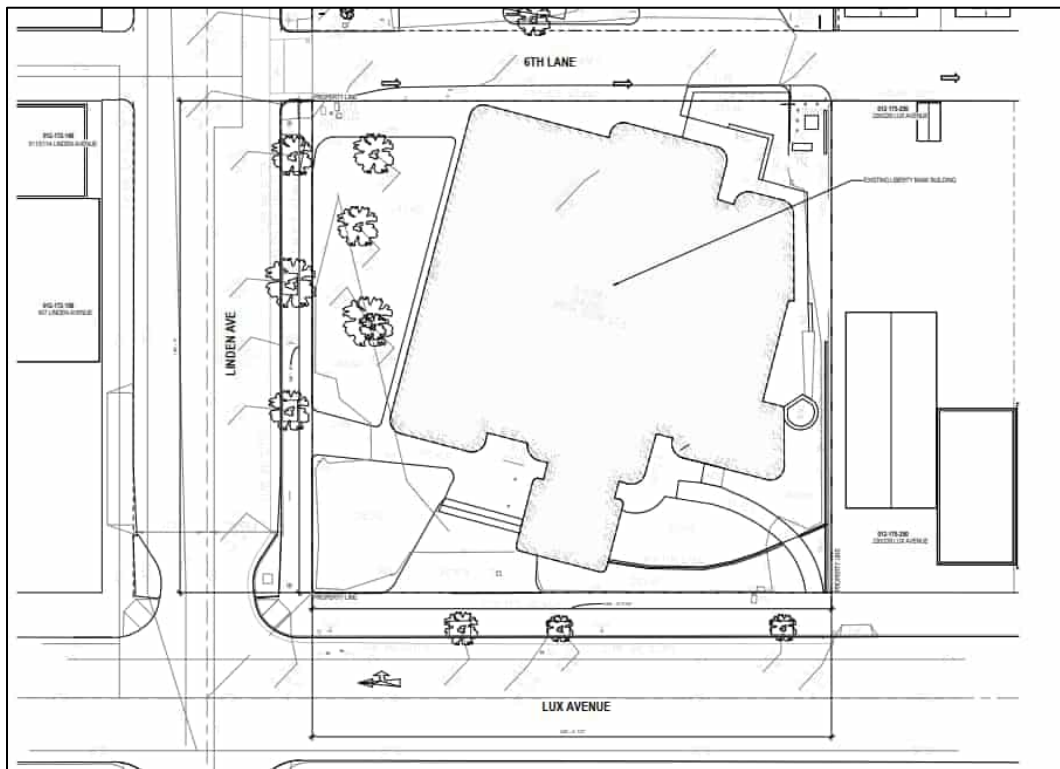
2.3 Proposed Site Development

The site development requires demolition of the existing 1971 bank building and preparation for a new six-story and basement, approximately 73 foot high, 87,263 square foot, apartment building with concrete foundations, steel and wood framing, and exterior veneers including masonry, composite, and metal panels, concrete masonry units, and formed concrete. Parking is proposed at the basement level and on the adjacent property. A total of 10 studio apartments, 69 one-bedroom apartments, and 1 two-bedroom apartment are currently proposed on floors two through six. Designed by HKIT Architects of Oakland, the developer is Beacon Development Group for the owner, the Rotary Club of South San Francisco. The project has a designed landscape component which was drawn by Urban Area of Oakland; civil engineers Luk & Associates provided professional engineering for the project. See Attachment 1 for building plans and illustrations below and on the subsequent pages.

Proposed Floor Plan at Level 2



Existing Site Plan (top) and Proposed Site Plan (bottom)



Proposed Building Elevations



2 WEST EXTERIOR ELEVATION
1/8" = 1'-0"



1 SOUTH EXTERIOR ELEVATION
1/8" = 1'-0"

3.0 METHODOLOGY

3.1 Objectives

The objectives of this report, and as a Partner Historic Architecture Solutions Group (HAS) standard, and in direct compliance with federal, state, and local regulations and requirements, were to assess the subject property for potential significance for listing in a local, state, or national register of historic places. Based on new project information provided by the client we have a sense of the massing, footprint, materials, colors, and height of the proposed new construction. We have taken this information to assess potential impacts on surrounding resources. As part of our assessment, we identified those resources within a logical Area of Potential Effects (APE-Figure 4) for potential National Register of Historic Places (NRHP) significance based on the information provided. Typically, a ¼, ½, or 1-mile radius is used to account for the visual, physical, and audible potential effects caused either directly or indirectly by a project. In this case Partner performed a limited 1/8-mile radius search for historic properties to identify if there were properties or resources that were either listed or eligible for listing in the NRHP (Figure 5), the California State, or the local South San Francisco register (Figure 6); then to assess the potential effects on those properties in association with the project. A ½ mile radius search was used for archaeology.

3.2 Historical & Archaeological Resources Identified

Partner completed a desktop review of architectural resources included within the Built Environment Resource Directory (BERD), the South San Francisco and San Mateo County local Historic Resources Map, and the National Register of Historic Places database (NRHP) in April of 2024 and again during October of 2025 (Figures 5 and 6). All historical and architectural resources identified within ½-mile of the project were reviewed.

In summary, the results of the records search indicated that there are no NRHP, no state, and no locally listed properties within 1/8-mile radius of the property, in fact the closet NRHP listed building, the Martin Building/Metropolitan Hotel at 220 Grand, to the south is located beyond the APE.

3.3 APE Analysis (Justification to Limit the APE)

In conjunction with the project, and in verification of the APE, Partner implemented a Sight-Line Study that extended outward to a 1/8-mile radius; the purpose of this investigation was to assess from which locations that the subject property might be seen and to what degree or potential effect of new, six-story construction there may have on outlying historic resources (either NRHP or CR listed or eligible). In the study it was found that several larger buildings, mature trees, and varied land elevations physically and visually block the subject property. Existing conditions including monumental new construction projects ranging in size from four to seven stories in height and occupying both half and full city blocks dominate the APE, limiting visibility and causing an adverse effect; specifically, a new five-story immediately south has impacted the area in recent years. The general urban density of the area also provides a limitation of visibility.

Due to the nature of the scope of proposed work, the natural topography and location, and the surrounding built environment, we have confirmed that the Direct APE is the full subject property boundary, and the Indirect APE is the immediately surrounding 1/8-mile radius (see Figures 4 and 5).

3.4 Background Research

During early April of 2024, and again during October of 2025, Partner Historic Architecture Solutions (HAS) team conducted background historical and architectural research as well as parcel documentation data from county files in preparation of this report. HAS then proceeded to identify the potential historically aged properties on the Subject Property as well as reviewed information on adjacent properties via historic maps and atlases as well as county assessor information. The San Mateo County Recorder's and Assessor's Offices were consulted for property deed and building date information where available. The San Mateo County and local South San Francisco Historical Societies, and the online City of South San Francisco archives were accessed to obtain area history and historic development pattern insights. Historic newspapers were reviewed relative to names associated with the Subject Property and adjacent parcels where known. The National Register of Historic Places (NRHP) online databases were used to reference those NRHP listed properties in South San Francisco to gain insight into development patterns. Together the information collected was examined to develop this Report.

3.5 Field Methodology

Partner HAS staff Matthew Bivens compiled historic maps and atlases in addition to other information to familiarize with the APE and larger area. Partner Archaeologist Michael Macko and Environmental Specialist Sue Tang conducted site visits during April and January of 2024, respectively, to inspect the project area and immediate environment; relative documentation was gathered where available. Macko obtained cultural resource reports and available records for the assessment including any updates since last year through October 19, 2025. The project site was investigated and documented via digital photography and compared to a land survey and historic aerial photographs to identify buildings and structures within the boundary of the property. A Sight-Line study looking back to the Subject Property was implemented to identify potential visibility of the project from sections of the roadway and surrounding streetscapes.

3.6 Review of Historical Information

Partner obtained historical use information about the subject property from a variety of sources. A chronological listing of the historical data found is summarized in the Table below:

3.6.1 Table: Historic Data Available

<i>Historical Use Information</i>		
<i>Years</i>	<i>Resource</i>	<i>Description/Use</i>
1892-1950	Aerial Photographs, Fire Insurance Maps, Topographic Maps	Undeveloped land
1956-1966	Aerial Photographs, Topographic Maps, Fire Insurance Maps, City Directories	Commercial; Tenants include Purity Stores Limited (1966)
1970	Fire Insurance Maps	North plot developed as a parking lot; south plot undeveloped
1971-Present	Aerial Photographs, City Directories, Fire Insurance Maps, Topographic Maps	Commercial and Parking Lot; Tenants include Bank of America South San Francisco (1977-1982); Liberty Bank (1987-2022); Liberty BanCorp (2016-2022); and Smile Dentistry Fishers (2022)

Fire Insurance Maps

Partner reviewed the collection of Fire insurance maps (FIMS) from ERIS in October 2025. The following inferred uses of the subject property and adjoining properties interpreted from the FIMs in Appendix B1 are tabulated below.

Date:	1892
Subject Property:	The north plot is not depicted. The south plot is depicted as developed with a stable (addressed as 59-64 Lux Avenue)
North:	Not depicted
East:	Not depicted
South:	Depicted as undeveloped land across Lux Avenue
Southwest:	Depicted as undeveloped land across the intersection of Lux Avenue and Linden Avenue
West:	Depicted as undeveloped land to the west-southwest across Linden Avenue, otherwise not depicted
Northwest:	Not depicted

Date:	1899
Subject Property:	Not depicted or may be depicted as undeveloped land (addressed as 59-64 Lux Avenue and 65 and 69 Linden Avenue)
North:	Not depicted
East:	Not depicted
Southeast:	Not depicted
South:	No significant changes depicted across Lux Avenue
Southwest:	No significant changes depicted across the intersection of Lux Avenue and Linden Avenue
West:	No significant changes depicted across Linden Avenue
Northwest:	Not depicted

Date:	1905
Subject Property:	Not depicted or may be depicted as undeveloped land (addressed as 60-64 Lux Avenue and 68 and 69 Linden Avenue)
North:	Not depicted
East:	Not depicted
South:	No significant changes depicted across Lux Avenue
Southwest:	Depicted as developed with three dwellings and associated outbuildings across the intersection of Lux Avenue and Linden Avenue
West:	No significant changes depicted across Linden Avenue
Northwest:	Not depicted

Date:	1910
Subject Property:	Not depicted or may be depicted as undeveloped land (addressed as 60-64 Lux Avenue)
North:	Not depicted
East:	Not depicted
South:	No significant changes depicted across Lux Avenue
Southwest:	Depicted as developed with four dwellings and associated outbuildings across the intersection of Lux Avenue and Linden Avenue
West:	Depicted as developed with two dwellings and an outbuilding across Linden Avenue
Northwest:	Depicted as developed with R.C. Church across the intersection of Linden Avenue and California Avenue

Date:	1925
Subject Property:	Depicted as developed with a structure in the southeast portion of the south plot and an automobile storage structure in the northeast portion of the south plot (addressed as 238 Lux Avenue and two other indecipherable addresses)
North:	Depicted as developed with four dwellings and associated outbuildings across California Avenue
East:	Depicted as developed with two dwellings and an automobile storage structure
South:	Depicted as developed with a dwelling and a cobbler. Otherwise depicted as undeveloped land across Lux Avenue
Southwest:	No significant changes depicted across the intersection of Lux Avenue and Linden Avenue
West:	Depicted as developed with a grocery store, two dwellings and outbuildings, and two shops across Linden Avenue
Northwest:	Depicted as developed with a dwelling across the intersection of California Avenue and Linden Avenue

Date:	1950
Subject Property:	Depicted as undeveloped land (addressed as 238 Lux Avenue; 522 Linden Avenue; and 231 California Avenue)
North:	No significant changes depicted across California Avenue
East:	Depicted as developed with three dwellings and a shop
South:	Depicted as developed with three dwellings across Lux Avenue
Southwest:	Depicted as developed with four dwellings, outbuildings, and a shop across the intersection of Lux Avenue and Linden Avenue
West:	Depicted as developed with a grocery store, apartment building, and two shops across Linden Avenue
Northwest:	No significant changes depicted across the intersection of California Avenue and Linden Avenue

Date:	1956
Subject Property:	Depicted as developed with a concrete reinforced structure in the north portion of the south plot. Depicted as undeveloped in the north plot (addressed as 238 Lux Avenue; 229 6th Lane; 508 and 522 Linden Avenue; and 241 California Avenue)
North:	No significant changes depicted across California Avenue
East:	No significant changes depicted
South:	Depicted as developed with a restaurant, a shop, and two dwellings across Lux Avenue
Southwest:	Depicted as developed with three dwellings, outbuildings, a shop, and a restaurant across the intersection of Lux Avenue and Linden Avenue
West:	Depicted as developed with a parking lot, four shops, and an apartment building across Linden Avenue
Northwest:	No significant changes depicted across the intersection of California Avenue and Linden Avenue

Date:	1970
Subject Property:	Depicted as undeveloped land in the south plot. The north plot is depicted as developed with a parking lot (addressed as 238 Lux Avenue; 228 6th Lane; and 241 California Avenue)
North:	Depicted as developed with a commercial building with seven shops, and five dwellings with associated outbuildings across California Avenue
East:	No significant changes depicted
South:	No significant changes depicted across Lux Avenue
Southwest:	Depicted as developed with four shops and two restaurants across the intersection of Lux Avenue and Linden Avenue
West:	No significant changes depicted across Linden Avenue
Northwest:	No significant changes depicted across the intersection of California Avenue and Linden Avenue

Copies of reviewed FIMs are included in Appendix B1 of this report.

Topographical Map Review

Partner reviewed historical topographic maps obtained from TopoView in October 2025. The following inferred uses of the subject property and adjoining properties interpreted from topographic maps in Appendix B2 are tabulated below:

3.6.2 Table: Historic Topographical Maps

Date:	1932 and 1935
Subject Property:	Depicted with no structures but flanked by Main and Dyer Street
North:	Depicted as generally unimproved with few buildings
East:	Depicted as unimproved land
South:	Depicted as generally unimproved with two buildings along Main Street
West:	Depicted as unimproved land

Date:	1942 and 1948 (1957 edition)		
Subject Property:	Depicted with no structures but flanked by Main and Dyer Street		
North:	Depicted as partially developed with several buildings		
East:	Depicted as generally unimproved land with few buildings and a new road		
South:	Depicted as generally unimproved with three buildings along Main Street		
West:	Depicted as partially developed with few buildings		
Date:	1965 (1967 edition)		
Subject Property:	Depicted with structures		
North:	Depicted as partially developed with several buildings		
East:	Depicted as a dense development with many buildings and new roads		
South:	Depicted as partially developed with several buildings		
West:	Depicted as partially developed with few buildings		
Date:	1962 (1974 edition)		
Subject Property:	Depicted with structures, fully built out		
North:	Depicted as further developed with several buildings		
East:	Depicted as a dense development with many buildings and new roads		
South:	Depicted as further developed with several buildings		
West:	Depicted as partially developed with few buildings		
Date:	1965 (1982 edition)		
Subject Property:	Depicted with structures, fully built out		
North:	Depicted as further developed with several buildings		
East:	Depicted as a dense development with many buildings and new roads		
South:	Depicted as a dense development with several buildings		
West:	Depicted as a dense development with several buildings		

Copies of reviewed topographic maps are included in Appendix B2 of this report.

Aerial Photography

Partner obtained available aerial photographs of the subject property and surrounding area from Environmental Risk Information Services (ERIS) in October 2025. The inferred uses of the subject property and adjoining properties as interpreted from the aerial photographs in Appendix B3 are tabulated below:

3.6.3 Table: Historic Aerial Photographs

Date:	1930	Scale:	1"=500'
Subject Property:	Appears to be two plots of vacant land with an alley dividing the two plots		
North:	Appears to be developed with single-family residences across a roadway		
East:	Appears to be developed with the existing single-family residences		
Southwest:	Appears to be developed with single-family residences across an intersection		

Date:	1930	Scale:	1"=500'
West:	Appears to be developed with single-family residences and vacant land across a roadway		
Northwest:	Appears to be vacant land across an intersection		

Date:	1941, 1946	Scale:	1"=500'
Subject Property:	Appears to be graded, vacant land in the east portion of the south plot. No other significant changes visible		
North:	No significant changes visible across a roadway		
East:	No significant changes visible		
South:	No significant changes visible across a roadway		
Southwest:	No significant changes visible across an intersection		
West:	No significant changes visible across a roadway		
Northwest:	No significant changes visible across an intersection		

Date:	1956	Scale:	1"=500'
Subject Property:	The south plot appears to be developed with an industrial structure. The north lot appears to be developed as a parking lot		
North:	No significant changes visible across a roadway		
East:	No significant changes visible		
South:	Appears to be developed with a commercial building and parking areas. The single-family residences remain visible		
Southwest:	Appears to be developed with commercial buildings across an intersection		
West:	Appears to be developed several commercial buildings and single-family residences across a roadway		
Northwest:	Appears to be developed with a commercial structure across an intersection		

Date:	1965, 1968	Scale:	1"=500'
Subject Property:	No significant changes visible		
North:	Appears to be developed with the existing commercial building and single-family residences across a roadway		
East:	No significant changes visible		
South:	No significant changes visible across a roadway		
Southwest:	No significant changes visible across an intersection		
West:	No significant changes visible		
Northwest:	No significant changes visible		

Date:	1974, 1982	Scale:	1"=500'
Subject Property:	Appears to be developed with the existing commercial structure in the south plot and the existing parking lot in the north plot		
North:	No significant changes visible across a roadway, No significant changes visible		
East:	No significant changes visible		
South:	No significant changes visible		
Southwest:	No significant changes visible		
West:	No significant changes visible		
Northwest:	No significant changes visible		
Date:	1993, 2000, 2005	Scale:	1"=500'
Subject Property:	No significant changes visible		
North:	No significant changes visible		
East:	No significant changes visible		
South:	No significant changes visible		
Southwest:	No significant changes visible		
West:	No significant changes visible		
Northwest:	No significant changes visible		
Date:	2009, 2012, 2014, 2016, 2018	Scale:	1"=500'
Subject Property:	No significant changes visible		
North:	No significant changes visible		
East:	No significant changes visible		
South:	The previous commercial building appears to have been razed and replaced with a parking lot. The single-family residences remain visible across a roadway		
Southwest:	No significant changes visible across an intersection		
West:	No significant changes visible across a roadway		
Northwest:	Appears to be developed with the existing commercial building across an intersection		
Date:	2021	Scale:	1"=500'
Subject Property:	No significant changes visible		
North:	No significant changes visible		
East:	No significant changes visible		
South:	The previous parking lot appears to be under development. The single-family residences remain visible across a roadway		
Southwest:	No significant changes visible		
West:	No significant changes visible		
Northwest:	No significant changes visible		

Copies of select aerial photographs are included in Appendix B3 of this report.

City Directory

Partner reviewed historical city directories obtained from ERIS for past names and businesses that were listed for the subject property and adjoining properties dating back to 1961. The findings are tabulated below; the surrounding area is represented in Appendix B4.

3.6.4 Table: City Directory Listings

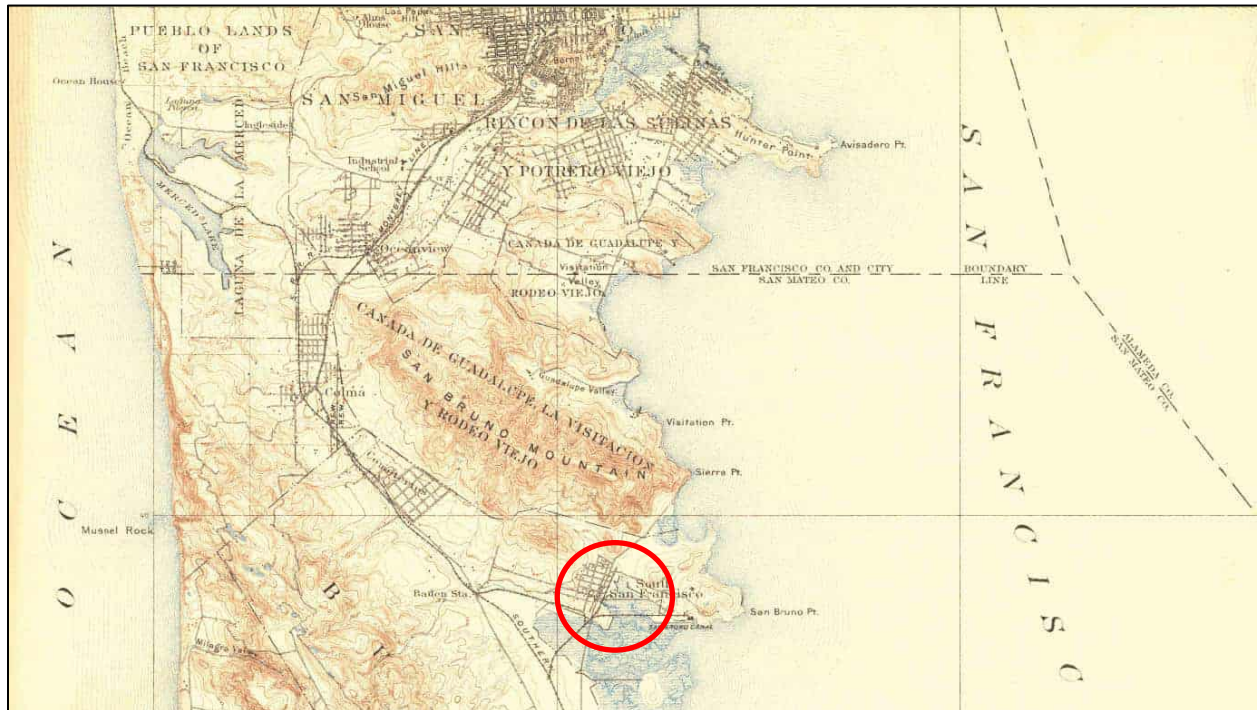
<i>City Directory Search for 500 Linden Ave (Subject Property)</i>	
<i>Year(s)</i>	Occupant Listed
1977	Bank of Am So Sf
1982	Bank of Am Ssf Ckg, Bank of Am Ssf Lns, Bank of Am Ssf Inf, Bank of Am Ssf Esw
1987	Liberty Bank
1991	Liberty Bank
1996	Liberty Bank
2001	Liberty Bank
2003	Liberty Bank
2008	Liberty Bank
2016	Liberty Bank, Liberty Bancorp
2020	Liberty Bank, Liberty Bancorp
2022	Liberty Bank, Smile Dentistry Fishers, Liberty Bancorp
<i>City Directory Search for 508 Linden Ave (Subject Property)</i>	
<i>Year(s)</i>	Occupant Listed
1966	Purity Stores Limited

3.7 Historical Research

Besides a thorough study of available historic maps and atlases, aerial photos, city directories, and topographical maps, archival research was conducted to develop a general and specific history of the area and project buildings. County histories were referenced as were trade journals, historic newspapers, and architectural archives. Building information (such as construction materials, building dates, and designations) was derived from site observations as well as the San Mateo County Assessor Office and City of South San Francisco where available. The California OHP archives were also consulted, and relative resources referenced. The National Register of Historic Places (NRHP) online collections were studied and downloaded as applicable (see Figure 5 for APE map over NRHP listings and Figure 6 over local). Previous cultural resource reports, and recorded inventory sheets were reviewed as applicable, and a number of other sources were reviewed in preparation of this Report.

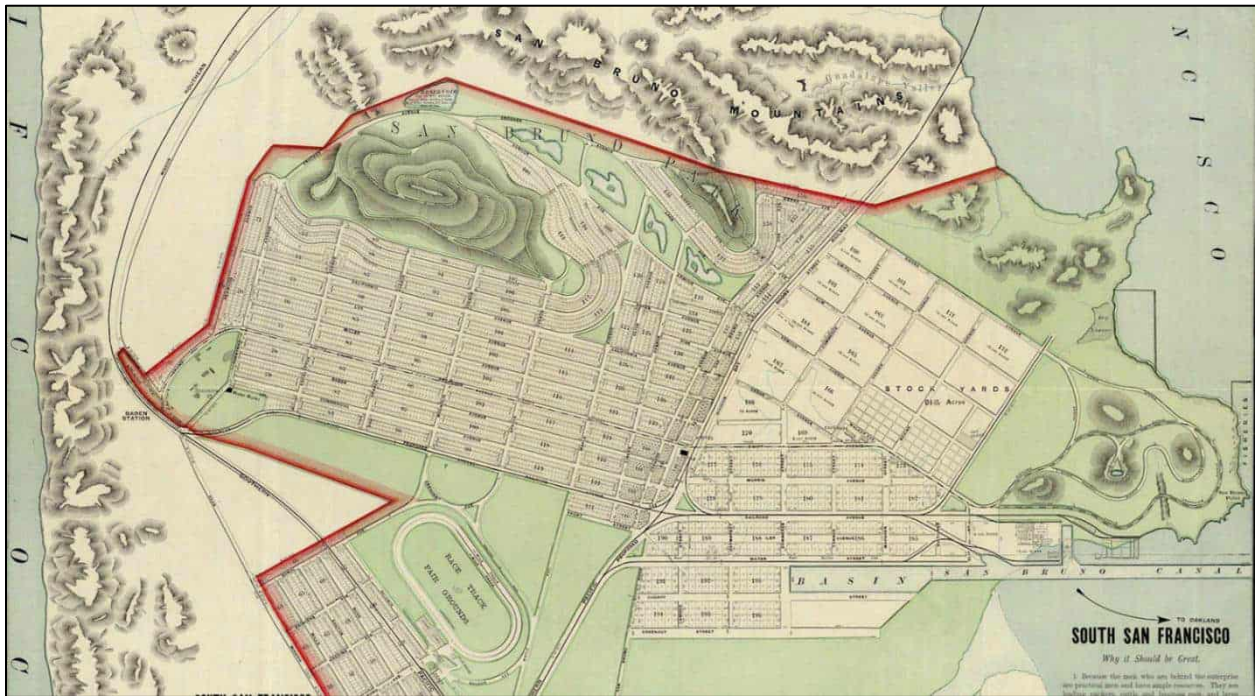
4.1 Brief History of South San Francisco, San Mateo, California

Image: Historic topographical map of vicinity of South San Francisco, 1892. Source: U.S. Geological Survey, San Mateo Quad, California (San Mateo County), 1892.



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Image: 1894 Map of the new town proposed by Swift and Iler and other partners, Collection of South San Francisco Historical Society.



Improvement of the town was crucial to its founders; land agent William Martin would implement a ceaseless campaign to develop the town into an industrial city starting in 1892.² The first house was constructed in 1891 and by 1895 the town had 671 residents; to support the 171 children the Land Company built a school in 1894 which included grades kindergarten through high school. The first bank was opened in 1905; incorporated with a capital of \$50,000 the Bank of South San Francisco was a sturdy red brick building (image right).

Image: 1910 era postcard of Bank of SSF, CA, Collection of South San Francisco Historical Society.

In 1905 there were 1,500 people and in 1908 the town boasted 2,000 inhabitants—a feat earning the rank of a 6th class city and was officially incorporated as South San Francisco. The town had continued to expand, and new buildings were erected. By 1920 there were some 2,420 residents and a number of new housing developments were constructed.



During 1923 the original "Industrial City" sign was whitewashed on Sign Hill but by 1928 it was decided that

² Ibid, South San Francisco Land and Improvement Company Records.

the sign should be made with concrete letters. The current sign is NRHP listed. The Great Depression hit the city like it had others; economy slowed, and people sought jobs.

Works Progress Administration (WPA) programs came to South San Francisco and the new Post Office on Linden was constructed, complete with murals by Victor Arnautoff, a former assistant to painter Diego Rivera. By 1930 the population rose to some 5,000, more than doubling since 1920. Businesses would continue to grow, and new companies located; by 1950 modern industrial parks had been developed along a new freeway and road transportation of goods was increased. In 1971 the **subject building**, the South San Francisco branch of the Bank of America was constructed for an estimated \$434,000. The bank remained in use through recent times, however ceasing as a Bank of America after 1982 being reinvented as Liberty Bank and is now the subject of redevelopment.



Images: Above at right side: original 1971 rendering of the subject building. Below: Historic aerial photograph of development area by 1956 (top) and then 1974 (bottom); the site of the future subject property is marked by a red rectangle. Source: USGS.



New research on the bank building uncovered the original 1970-1971 building permits which indicate that the owner at the time, the Continental Service Company, also employed a bank branch architectural group. Continental appears to have been responsible for all the American Bank buildings in the region during the late 1960s and 1970s, but no individual names have been associated with the subject building. Permits suggest that Midstate Construction Company of San Francisco erected the building with electric completed by Gillard Company, plumbing by Lauder, and sheet metal installed by SO City.³ Completed inspections were approved by the city in March of 1971. The parties involved with researched in conjunction with the subject property and nothing significant was found that directly related to the subject building on Linden at Lux. Archives indicate that long-time vice president of Continental, Robert D. Fox, was appointed to supervise the real estate, architectural and construction arrangements for all Bank of America branches in Southern California in 1970 at which time Raleigh C. DeBow was elected President to manage the San Francisco properties.⁴ The building remained in use as an American Bank into the 1980s after which time it was sold to Liberty Bank.

4.2 Historic Preservation: Section 106 of the National Historic Preservation Act

Section 106 of the National Historic Preservation Act of 1966 (NHPA, 16 U.S.C. §§ 470 et seq.) and its implementing regulations, "Protection of Historic Properties" (36 CFR Part 800), require federal agencies to consider the effects of their undertakings on historic properties. Projects with a federal nexus are required to go through Section 106 consultation with State Historic Preservation Offices (SHPOs). As SOI 36CFR61 certified Architectural Historians, Historians, and Archaeologists, we follow the Standards established by the NHPA and under Section 106 of the Act relative to the assessment of the property. This report contains relative information and identification of historic resources in support of the City of South San Francisco review, in addition to consultation in support of the California OHP under CEQA.

4.3 Affected Environment – Subject Property Location and Description

The subject property is located at 500 Linden Avenue, South San Francisco, San Mateo County, California comprising approximately 0.96 acres of developed land, including some 11,095 square feet of building space, and associated parking lot structure on site. The property is bound by California Avenue to the north, additional buildings to the east, Linden Avenue to the west, and Lux Avenue to the south; surrounding the property are other mixed-use buildings. The Affected Environment includes 1 building and 1 structure situated within a rectangular parcel that is otherwise improved with a building, parking lot, sidewalks, and landscaping. This area is the Direct Area of Potential Effects (Direct APE). See APE Map in Figure 4.

4.4 Affected Environment – Surrounding Area and Description

Immediately surrounding the project area are other mixed-use buildings of the same general scale, have varied materials, and span construction periods of at least 100 years. Sidewalks flanking the north boundary street as well as the western and southern streets are planted with trees and landscaping elements;

³ South San Francisco Building Department plan permit no. 12905, March 30, 1971.

⁴ "Continental Service Co. Head Picked," Pasadena Independent Topics, July 1, 1970, page 8. And Oakland Tribune, June 8, 1970, page 7.

additional landscaping is present within the eastern properties. This area is the Indirect Area of Potential Effects (Indirect APE). See APE Map at Figure 4.

An assessment of the proposed project in context of the previously identified “historic” properties within the APE was implemented. Both the CHRIS and BERD lists were searched, in addition to the NRHP and CR. Adjacent to these listed or identified resources were cases of similar era buildings or of historically aged buildings, and thus these resources were also examined. The majority of resources within the study area have been modified over time and several demolished for new construction.

OF NOTE is the presence of massive new construction projects that surround the area and are included within the APE. Ranging in height from four (4) to seven (7) stories and encompassing either entire or half city blocks, the recent buildings dominate the area and have already caused an Adverse Effect on the identified and potential historic properties. The CHRIS and BERD inventories were researched to identify those known properties within the APE and then site inspection verified the presence of additional resources; these findings are summarized below. See Figure 4 for map and visual assessment; see Attachment A1 for site specific photo log and Attachment A2 for Sight-Line Study Assessment photo log.

CHRIS list:

312 Tamarack Ave OTIS#408539; Primary#P-41-000955 (also see BERD) See Figure 4, page 2. The building is not eligible for the NRHP but may be eligible for the CR or in a local register.

This building is tucked into a narrow alley to the west of Linden and to the southwest of the subject property. The primary façade faces south to massive new construction which throws a shadow on this resource. To the east is another 4-story new construction project. The subject property is to the northeast and not visible from this property and has no effect. This property has been adversely impacted by the new construction.

Tamarack Avenue has additional resources that are historically aged that have also been adversely impacted by the new construction. For purposes of this assessment, resources on Tamarack within the APE are not eligible for NRHP or CR listing; a local designation may apply but again, said resources have been adversely affected by new construction and demolition of other historic resources in the context.

BERD list includes:

312 Tamarack Ave OTIS#408539 evaluation was 7R (4080-0134-0004), built 1935 (also see CHRIS). See Figure 4, page 2.

7R= Identified in Reconnaissance Level survey or in an Area of Potential Effect APE, not evaluated (Not evaluated, or needs re-evaluation for NRHP or CR). The building is not eligible for the NRHP but may be eligible for the CR or in a local register. This building is tucked into a narrow alley to the west of Linden and to the southwest of the subject property. The primary façade faces south to massive new construction which throws a shadow on this resource. To the east is another 4-story new construction project. The subject property is to the northeast and not visible from this property. This property has been adversely impacted by the new construction.

309 Airport Blvd-demolished; no assessment needed. Note: This massive new replacement construction has adversely impacted the nearby identified resources in addition to those that are historically aged. New construction here has adversely affected other historic aged buildings along Airport Blvd, Cypress Avenue, Grand Avenue, 4th Lane, Miller Avenue, Tamarack Lane, and 6th Lane. This construction dominates the skyline with a 7-story building that occupies an entire city block; to construct the building required demolition of historic resources. See Figure 4, page 3.

421 Airport Blvd-demolished; no assessment needed. Note: This massive new replacement construction has adversely impacted the nearby identified resources in addition to those that are historically aged. New construction here has adversely affected other historic aged buildings along Airport Blvd, Cypress Avenue, Grand Avenue, 4th Lane, Miller Avenue, Tamarack Lane, and 6th Lane. This construction dominates the skyline with a 7-story building that occupies an entire city block; to construct the building required demolition of historic resources. See Figure 4, page 3.

421 Cypress Ave (Liberty Hotel) OTIS#501146 evaluation was 6Y (4-10-1997; HUD970312A) built 1926. See Figure 4, page 4.

6Y=Determined ineligible for NRHP by consensus through Section 106 process-not evaluated for CR or local listing (not eligible for or removed from listing or designation as specified). While the resource may be eligible under a local listing it is not eligible for the CR; integrity is a potential issue. The adjacent new construction has also impacted the context and has an adverse effect on the resource. The primary elevation of the building faces east and the subject property is far to the west and set adjacent a new 4-story building, which also has created an adverse effect. The north side of the building flanks Lux Avenue. The subject property is slightly visible from the primary elevation of this resource and has no adverse effect.

421 Cypress Ave (Burtolucci's) OTIS#408441 evaluation was 5S2 (4080-0025-0000) built 1926. See Figure 4, page 4.

5S2= Individually eligible for local listing or designation (recognized as historically significant by the local government). We can concur with these findings however must note that the adjacent new construction has impacted the context and has an adverse effect on the resource. The primary elevation of the building faces east and the subject property is far to the west and set adjacent a new 4-story building, which also has created an adverse effect. The subject property is slightly visible from the primary elevation of this resource and has no adverse effect.

310 Linden Ave OTIS#408592 evaluation was 5D2 (4080-0136-0052), built 1948. See Figure 4, page 5.

5D2= Contributor to a multi-component resource that is eligible for local listing or designation (recognized as historically significant by the local government). We concur with these findings. The primary façade faces west along Linden, south of the subject property and south of a 4-story new construction building that has adversely affected the surrounding area at Linden and the cross streets of Grand Avenue, 4th Lane, Miller Avenue, Tamarack Lane, Lux Avenue, 6th Lane, and California Avenue. The subject property is not visible from the primary elevation of this resource and has no effect.

312 Linden Ave OTIS#408593 evaluation was 5D2 (4080-0136-0053) and 6Y (11-7-1991; HUD911011C), built 1931. See Figure 4, page 5.

5D2= Contributor to a multi-component resource that is eligible for local listing or designation (recognized as historically significant by the local government). Initial evaluation revised later.

6Y=Determined ineligible for NRHP by consensus through Section 106 process-not evaluated for CR or local listing. (not eligible for or removed from listing or designation as specified).

We concur with the evaluation 6Y due to exterior alterations that affect the building's integrity. Additionally, like 310 Linden, the property is south of the subject property and closer south of a 4-story new construction building that has adversely affected the surrounding area at Linden and the cross streets of Grand Avenue, 4th Lane, Miller Avenue, Tamarack Lane, Lux Avenue, 6th Lane, and California Avenue. The subject property is not visible from the primary elevation of this resource and has no effect.

322 Linden Ave (US Post Office) OTIS#408594 evaluation was 3S (4080-0136-0054), built 1940. See Figure 4, page 5.

3S= Appears eligible for NRHP individually through survey evaluation (Appears eligible for National or California Registers-NRHP or CR). We concur with these findings for a CR listing. The property is south of the subject property and closer south of a 4-story new construction building that has adversely affected the surrounding area at Linden and the cross streets of Grand Avenue, 4th Lane, Miller Avenue, Tamarack Lane, Lux Avenue, 6th Lane, and California Avenue. The subject property is not visible from the primary elevation of this resource and has no effect.

413 Linden Ave (Daggett House) OTIS#408491 evaluation was 3S (4080-0075-0000), built 1893. See Figure 4, page 5.

3S= Appears eligible for NRHP individually through survey evaluation (Appears eligible for National or California Registers-NRHP or CR). We concur with these findings. The property is southwest of the subject property and closer southwest of a 4-story new construction building that has adversely affected the surrounding area at Linden and the cross streets of Grand Avenue, 4th Lane, Miller Avenue, Tamarack Lane, Lux Avenue, 6th Lane, and California Avenue. The subject property is not visible from the primary elevation of this resource and has no effect.

615 Linden Ave OTIS#471950 evaluation was 6Y (5-9-1991; HUD910412A), built 1917. See Figure 4, page 6.

6Y=Determined ineligible for NRHP by consensus through Section 106 process-not evaluated for CR or local listing. (not eligible for or removed from listing or designation as specified). While the property may be eligible for local listing it is not eligible for the CR. The property is northwest of the subject property and the 4-story new construction building that has adversely affected the surrounding area (as described earlier). The subject property is not visible from the primary elevation of this resource and has no effect.

701 Linden Ave OTIS#408492 evaluation was 7R (4080-0076-0000), built 1928. See Figure 4, page 6.

7R= Identified in Reconnaissance Level survey or in an Area of Potential Effect APE, not evaluated (Not evaluated, or needs re-evaluation for NRHP or CR). The resource is not eligible for the NRHP or CR but may be eligible for a local designation. Like 615 Linden, the property is northwest of the subject property and the 4-story new construction building that has adversely affected the surrounding area (as described earlier). The subject property is not visible from the primary elevation of this resource and has no effect.

300 Miller Ave OTIS#672796 evaluation was 6Y (8-27-2017; HUD_2017_0627_001), no date of build. See Figure 4, page 7.

6Y=Determined ineligible for NRHP by consensus through Section 106 process-not evaluated for CR or local listing (not eligible for or removed from listing or designation as specified). 300 and 306 Miller appear to be the same parcel and contain additional buildings not accessible. Regardless the property is not eligible for the CR but may be eligible for a local designation. The primary façade faces south, and the subject property is to the northwest; in between is the 4-story new construction at Linden and Lux. A massive 5-story new construction element is immediately west of this resource. All new construction has adversely affected the resource. The subject property is barely visible from the resource and has no adverse effect.

306 Miller Ave (Daggett Home) OTIS#408356 evaluation was 5S2 (4080-0086-0000), built 1895. See Figure 4, page 7.

5S2= Individually eligible for local listing or designation (recognized as historically significant by the local government). 300 and 306 Miller appear to be the same parcel and contain additional buildings not accessible. Regardless the property is not eligible for the CR but may be eligible for a local designation. The primary façade faces south, and the subject property is to the northwest; in between is the 4-story new construction at Linden and Lux. A massive 5-story new construction element is immediately west of this resource. All new construction has adversely affected the resource. The subject property is barely visible from the resource and has no adverse effect.

308 Miller Ave OTIS#408357 evaluation was 7R (4080-0087-0000), built 1898. See Figure 4, page 7.

7R= Identified in Reconnaissance Level survey or in an Area of Potential Effect APE, not evaluated (Not evaluated, or needs re-evaluation for NRHP or CR). The property is not eligible for the CR but may be eligible for a local designation. The primary façade faces south, and the subject property is to the northwest; in between is the 4-story new construction at Linden and Lux. A massive 5-story new construction element is immediately next door to this resource. All new construction has adversely affected the resource. The subject property is barely visible from the resource and has no adverse effect.

310 Miller Ave-demolished; no assessment needed. Note: This massive new replacement construction has adversely impacted the nearby identified resources in addition to those that are historically aged. See Figure 4, page 7.

314 Miller Ave-demolished; no assessment needed. Note: This massive new replacement construction has adversely impacted the nearby identified resources in addition to those that are historically aged. See Figure 4, page 7.

323 Miller Ave- demolished; no assessment needed. Note: This massive new replacement construction has adversely impacted the nearby identified resources in addition to those that are historically aged. See Figure 4, page 7 and 8.

340 Miller Ave OTIS#408361 evaluation was 5S2 (4080-0091-0000), built 1906. See Figure 4, page 7 and 8.

5S2= Individually eligible for local listing or designation (recognized as historically significant by the local government). We concur with these findings. The resource primary elevation faces south, and the

subject building is to the northwest beyond the 5-story new construction on the city block. The resource has been adversely affected by the new construction. The subject building is not visible from the resource and has no effect.

341 Miller Ave OTIS#408596 evaluation was 7R (4080-0138-0000), built 1920. See Figure 4, page 8.

7R= Identified in Reconnaissance Level survey or in an Area of Potential Effect APE, not evaluated (Not evaluated, or needs re-evaluation for NRHP or CR). The resource is not eligible for the NRHP or CR but may be eligible on a local list. The primary façade faces north, and the resource is to the west of new construction (a parking garage) in addition to southwest of a 5-story residential building that was recently built. The subject building is not visible from this resource's primary elevation and there is no effect.

345 Miller Ave OTIS#408362 evaluation was 7R (4080-0092-0000), built 1920. See Figure 4, page 8.

7R= Identified in Reconnaissance Level survey or in an Area of Potential Effect APE, not evaluated (Not evaluated, or needs re-evaluation for NRHP or CR). The resource is not eligible for the NRHP or CR but may be eligible on a local list. The primary façade faces north, and the resource is to the west of new construction (a parking garage) in addition to southwest of a 5-story residential building that was recently built. The subject building is not visible from this resource's primary elevation and there is no effect.

313 Pine Ave OTIS#408524 evaluation was 6Y (8-12-1989; HUD890707C) and 7R (4080-0123-0001), built 1922. See Figure 4, page 9.

6Y=Determined ineligible for NRHP by consensus through Section 106 process-not evaluated for CR or local listing. (not eligible for or removed from listing or designation as specified). This resource is one of several nearly identical residential buildings on Pine; there may be support for listing in the CR or local list. The primary facade faces north, and the subject building is to the southeast. Topography, natural growth and landscape, and additional buildings in between the resource and the subject building cause a visual screen and the local context is intact here. The subject building is not visible from the resource and there is no effect.

317 Pine Ave OTIS#408525 evaluation was 7R (4080-0123-0002), built 1922. See Figure 4, page 9.

7R= Identified in Reconnaissance Level survey or in an Area of Potential Effect APE, not evaluated (Not evaluated, or needs re-evaluation for NRHP or CR). This resource is one of several nearly identical residential buildings on Pine; there may be support for listing in the CR or local list. The primary facade faces north, and the subject building is to the southeast. Topography, natural growth and landscape, and additional buildings in between the resource and the subject building cause a visual screen and the local context is intact here. The subject building is not visible from the resource and there is no effect.

321 Pine Ave OTIS#408526 evaluation was 7R (4080-0123-0003), built 1922. See Figure 4, page 9.

7R= Identified in Reconnaissance Level survey or in an Area of Potential Effect APE, not evaluated (Not evaluated, or needs re-evaluation for NRHP or CR). This resource is one of several nearly identical residential buildings on Pine; there may be support for listing in the CR or local list. The primary facade faces north, and the subject building is to the southeast. Topography, natural growth and landscape, and additional buildings in between the resource and the subject building cause a visual screen and the local context is intact here. The subject building is not visible from the resource and there is no effect.

323 Pine Ave OTIS#408527 evaluation was 7R (4080-0123-0004), built 1922. See Figure 4, page 9.

7R= Identified in Reconnaissance Level survey or in an Area of Potential Effect APE, not evaluated (Not evaluated, or needs re-evaluation for NRHP or CR). This resource is one of several nearly identical residential buildings on Pine; there may be support for listing in the CR or local list. The primary facade faces north, and the subject building is to the southeast. Topography, natural growth and landscape, and additional buildings in between the resource and the subject building cause a visual screen and the local context is intact here. The subject building is not visible from the resource and there is no effect.

312 Tamarack Ave OTIS#408539 evaluation was 7R (4080-0134-0004), built 1935 (also see CHRIS). See Figure 4, page 2.

7R= Identified in Reconnaissance Level survey or in an Area of Potential Effect APE, not evaluated (Not evaluated, or needs re-evaluation for NRHP or CR). The building is not eligible for the NRHP but may be eligible for the CR or in a local register. This building is tucked into a narrow alley to the west of Linden and to the southwest of the subject property. The primary façade faces south to massive new construction which throws a shadow on this resource. To the east is another 4-story new construction project. The subject property is to the northeast and not visible from this property. This property has been adversely impacted by the new construction.

Summary

In summary, a number of previously recognized historic and potentially historic properties have been identified within the APE on the CHRIS and BERD lists (Figure 4); a Sight-Line Study of a 1/8-mile area was implemented in which the visible area was less than 1/16 mile. Within that 1/16-mile radius visibility of the subject property was limited due to existing new construction (ranging in height from 4-7 stories and encompassing ½ to a full city block), topography, natural landscape elements, and building density; the APE used was found to be justified. Figure 4 illustrates those buildings within the APE that were assessed according to the limitations present. New construction has caused an adverse effect on the surrounding buildings and general historic context, specifically from the new building at the southeast corner of Linden and Lux Avenues, immediately below the subject building. For purposes of this assessment there are pre-existing adverse effects that have impacted both identified historic as well as historically aged buildings. Demolition and new construction on the subject property will have an effect on the surrounding environment, this is obvious. Based on the details, materials, dimensions, and other elements of the proposed new construction, we have determined that the proposed project will NOT have any adverse effects or no effects at all based on the existing conditions, the lack of listed resources, the loss of historic building fabric, alterations completed on historically aged buildings, and more specifically the monumental new construction existing within the larger APE.

4.5 Evaluation of Potential Eligibility

Generally, for buildings to be eligible for the NRHP, they must at least meet a standard threshold of being 50 years old, be historically, culturally, or architecturally significant, and must have a high degree of physical integrity—enough to illustrate the area and the period of significance of the property. To be considered significant, a building must meet at least one of the following basic criteria:

- A. The property is associated with events that have made a significant contribution to the broad patterns of our history.

- B. The property is associated with the lives of persons significant in our past.
- C. The property embodies the distinctive characteristics of a type, period, or method of construction, represent the work of a master, possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction.
- D. The property illustrates, or may be likely to yield, information important to history or prehistory.

4.6 Architectural History and Survey Results

Research on the subject property indicates that its original occupant was the South San Francisco Branch of the Bank of America, who had constructed the branch building in 1971. Archives were searched to identify an architect or builder and based on city building permit records the original owner/developer was also responsible for the architecture-the Continental Service Company, who employed a bank branch architectural group. Continental appears to have been responsible for all the American Bank buildings in the region during the late 1960s and 1970s, but no individual names have been associated with the subject building. Permits suggest that Midstate Construction Company of San Francisco erected the building with electric completed by Gillard Company, plumbing by Lauder, and sheet metal installed by SO City. Research was also conducted on the early history of the Bank of America, which had its beginnings in San Francisco as early as 1904. The building as a whole is relatively intact and capable of telling the story of early 1970s era banking in the neighborhood, although such trends were occurring all over South San Francisco at the time and the bank's occupation ended in the 1980s, quickly being replaced by a neighborhood bank. The architectural style is Post-Modern and although interesting, was not found to have been the subject of any scholarly discourse either by bank builders or Contemporary era architects and did not appear in Bank of America archives of California buildings.

Of mention is a 2018 historic resources survey conducted for an adjacent property to the south at 488 Linden Avenue where a former building occupied the site which was historically aged and then proposed for demolition and replacement.⁵ New construction of a high, five-story, affordable apartment building was proposed and ultimately built at this southeast corner of the intersection at Lux and Linden Avenues. The subject parcel and eight (8) adjoining properties were assessed as the APE and a finding of "No Adverse Effects to Historic Properties" was recommended. Our assessment resurveyed these parcels in addition to extending out the APE to a larger area of 1/8-mile, performing a more thorough Sight-Line Study and assessment of resources, in all directions (see Figures 4, 5, and 6).

California Register of Historical Resources and Local Designations

The California Built Environment Resource Directory (BERD) was reviewed, and no resources were found in the project area or immediately adjacent area. The nearest resources include: 413 Linden to the southwest (the 1893 Daggett House), 615 Linden to the north (a 1917 era building), 421 Cyprus to the east (the 1926 Liberty Hotel/Burtolucci's) which are each far removed from the subject property as described in previous section 4.4.

⁵ Tom Origer & Associates for Roem Development Corp., "Historical Resources Survey for Linden Avenue Affordable Housing Project, South San Francisco," prepared by Vicki R. Beard, 2018.

Supplemental to this report we investigated both the California Register of Historical Resources (CR) and the City of South San Francisco (Places of Historical and Architectural Significance) criteria; again, the subject property and adjacent properties are not listed. (Figure 6 shows locations of local designated properties).

The **California Register** criteria are based on National Register criteria. For a property to be eligible for inclusion in the California Register, one or more of the following criteria must be met:

1. It is associated with the events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
2. It is associated with the lives of persons important to local, California, or national history;
3. It embodies the distinctive characteristics of a type, period, region, or method or construction, or represents the work of a master, or possesses high artistic values; and/or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the Nation.

In addition to meeting one or more of the above criteria, the California Register requires that sufficient time has passed since a resource's period of significance to "obtain a scholarly perspective on the events or individuals associated with the resource." Fifty years is used as a general estimate of time needed to develop the perspective to understand the resource's significance (CCR 4852 [d][2]). The California Register also requires that a resource possess integrity, which is defined as "the authenticity of an historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance" (California Office of Historic Preservation 1999:2). To retain integrity, a resource should have its original location, design, setting, materials, workmanship, feeling, and association. Which of these factors is most important depends on the particular criterion under which the resource is considered eligible for listing (California Office of Historic Preservation 1999).

While the property is over 50-years old and does retain integrity of original exterior design in addition to the majority of interior footprint and layout (however with contemporary finishes), the property is NOT eligible under California Criteria 1-4. The building is thus not eligible for listing as a California Historical Resource or as a California Historical Landmark. Additionally, a system of identifying local historic resources and landmarks was employed to determine potential listing of the property. Specifics about the local historic preservation program are included below.

City of South San Francisco Historic Preservation & Municipal Code (SSFMC)

About the Historic Preservation Program

The Historic Preservation Program began in 1986 with the adoption of the Historic Preservation Ordinance. City Council appointed a five-member Historic Preservation Commission to carry out the task of identifying South San Francisco's most important historic sites and structures, and protecting them from needless neglect, exterior alteration that might destroy their historic and architectural value, or demolition.

Historic Resource Designation

The goals are accomplished by designating landmarks as Historic Resources. Specific criteria have been established to define how a property qualifies for nominations as a historic resource. The criteria relate to

the property's significance to the heritage of the City, the involvement of important people who may have designed, built, resided in, or worked in the structure, its exemplification of a special architectural style, or its careful attention to detail and craftsmanship. Its relationship to other historic buildings or to a historic district is also considered. If nominated, a public hearing is scheduled, and the Historic Preservation Commission reviews the background of the structure or site and determines whether or not to designate it as a historic resource.

Special Status and Recognition

Historic resources have a special status and recognition in the community. Resource owners can be proud that their property is identified and honored for embodying local historical significance. Such structures are important representatives of the past and present spirit of South San Francisco. Once designated, even if the property changes hands, it is afforded permanent protection from misguided alteration or demolition.

South San Francisco Municipal Code (SSFMC)

Historic resources are subject to the State Historic Building Code, which has been written with more flexibility than South San Francisco's local building code. This may facilitate the retention of historical features and reduce expenses for a renovation. Before the owner of a historic resource (or a property on the list of potential historic resources) can alter the exterior of a building or tear it down, the Historic Preservation Commission must issue a Certificate of Alteration. No building permit for a historic resource or a potential historic resource will be issued without a Certificate of Alteration. A Planning Application for a Certificate of Alteration shall be filed with the Planning Division and will be subject to review by the Planning Commission; for further information regarding the Certificate of Alteration, visit Chapter 2.56 of the South San Francisco Municipal Code. Note administrative fees are charged for such applications.

In summary, the subject property is not included within the Municipal Code, nor considered as an historic resource, nor has any special local status or recognition. (Figure 6 again shows locations of local designated properties).

4.7 Archaeological Resources Records Search Results

A Records Search was conducted through the California Historic Resources Inventory System at Sonoma State University in March 2024 and additional information was requested during early October of 2025 from the Northwest Information Center (Figure 7 includes mapped resources). The results indicate that 49 reports of surveys and studies have been conducted within a 0.5-mile radius of the subject property (Table 1). One included the subject property although it was not elaborated upon.⁶

The records search also identified 34 recorded resources that include three prehistoric archaeological sites and 31 historic structures, buildings, and sites dating between the 1880s and 1950s (Table 2). The Grand Avenue Commercial Historic District is three blocks south of the subject property. Three prehistoric sites have been recorded nearby, two being recorded in the first decade of the 20th century by Nels Nelson while working at University of California (Berkeley). No formal archaeological study was ever conducted on the

⁶ Ibid. The building is included on page 3 of the larger report by address and description as a bank building.

sites with the two identified by Nelson assumed destroyed. They are plotted with tentative locations and adjacent to the former course of Colma Creek 0.5 miles south of the subject property. The third was identified as a possible buried resource roughly 1-3 meters below Airport Boulevard.

4.8 Effects Summary

Effects assessments are based on the criteria of an adverse effect as defined in the implementing regulations of Section 106 of the National Historic Preservation Act (NHPA). The criterion of an adverse effect is defined as follows:

- An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified after the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

The effect of a proposed undertaking will be one of three types:

No Effect: If an undertaking results in no change to the characteristics that qualify the building for listing on the NRHP either directly or indirectly, then it has no effect.

No Adverse Effect: If an undertaking will have some effect on the characteristics from which the building derives its significance, but the expected effect does not meet the criteria of "Adverse Effect," the undertaking will have "No Adverse Effect" on the building.

Adverse Effect: An undertaking has an adverse effect when one or more of the following conditions are likely to occur:

- i. Physical destruction or damage;
- ii. Alterations that are inconsistent with the secretary's standards for the treatment of historic properties, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access;
- iii. Removal of the property from its historic location;
- iv. Change of the character of the property's use or of contributing physical features within the property's setting;
- v. Introduction of visual, atmospheric, or audible elements that diminish the property's integrity of the property's significant historic features;
- vi. Neglect or deterioration (except in certain religious or cultural cases);
- vii. Transfer, lease, or sale of property out of federal ownership or control without adequate preservation controls.

4.9 APE Effects Discussion

In general, there is **No Effect** on any buildings that are recorded as being "not historically designated" and/or "not meeting the National Register criteria", from direct effects per criteria (i), (ii), (iii), (iv), (vi) or (vii) as listed above.

The **Direct APE** contains historically aged properties but based on our research the building is **NOT NRHP** eligible nor is it eligible for the CR or a local list; demolition of the building will result in **NO EFFECT**.

Within the **Indirect APE** there are **NO NRHP, NO CR, NOR LOCALLY** designated historic resources, although there are historically aged properties and thus while the project may affect said resources, such effects will **NOT BE ADVERSE**. Finally, to those non-historic resources in the APE (which counts for the majority), the project will have **NO Effect** on adjacent properties.

Outside of the Indirect APE there are **NRHP** designated historic resources, but distance, topography, natural landscaping, and infill buildings are in between and thus the project will have **NO Effect** on historic properties.

There are **no archaeological resources** recorded at the subject property, and there is a low probability of significant intact archaeological resources occurring beneath the pavements and foundations on the subject property. Debris from late-19th to mid-20th century construction and settlement of South San Francisco could occur as isolated elements of the historic landscape.

5.0 FINDINGS AND CONCLUSION

5.1 Historic Architecture

This Report has been completed in fulfillment of the Section 106 and CEQA process and is being presented to the client and the California OHP for consideration. Based upon the proposed scope of work as indicated by the client which includes demolition and redevelopment of the property, in addition to the research and documentation provided relative to the subject property, we conclude as follows:

Archival research focused on banking within the local area in addition to the development of modern buildings from which nothing of significance was discovered regarding the subject property, its history, architect and builder. The Bank of America occupancy lasted a short time between 1971 and before 1982, being replaced by another bank in the mid-1980s. We have found that the building, although over 50-years old and technically historically aged, has no known significant associations with events (A), persons (B), architecture (C), or information potential (D).

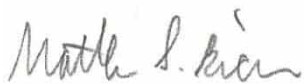
Thus, the **Direct APE** contains **NO NRHP or CR Historic Properties** and **NO Locally Listed Properties**, it does however contain an historically aged building. The subject building was found **NOT NRHP or CR ELIGIBLE** and as such, demolition, and redevelopment there will **cause NO Effect**. Within the **Indirect 1/8-mile radius APE** there are **NO NRHP or CR Historic Properties** and **NO Locally Listed Properties**, however there are historically aged properties and as such, while there may be an effect from the new construction, we have determined that said effect will **NOT BE ADVERSE**. Finally, the nearest **NRHP listed** property is 0.16 miles away to the south and is **NOT visible** from the project area and vice-versa. Thus, again, there is **NO EFFECT** from the undertaking. Based on our findings discussed in this report, we recommend project approval of the new construction as proposed.

5.2 Archaeological Resources

The APE contains no recorded archaeological resources. Remnants of previous structures constructed in the early 20th century may occur as disturbed demolition and construction debris, but these would have no potential for NRHP eligibility. The subject property does not exhibit characteristics that would associate with prehistoric resources, such as proximity to water and the marine resources of the bay or the riverine resources of Colma Creek.

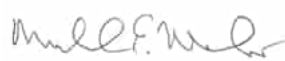
If there are any further concerns or clarifications, please do not hesitate to contact the undersigned at msbivens@partneresi.com or at (314) 740-2127 or mmacko@partneresi.com or at (714) 922-9570.

Prepared by:



Matthew Bivens, Associate AIA | MAHis(Hons)
Senior Historic Architecture Advisor

Archaeological Data:



Michael Macko, MA, RPA
Senior Archaeologist

6.0 SOURCES AND ADDITIONAL NOTES

Reference Documents

Cartwright Aerial Surveys, Historic Aerial Photograph: 1965

Environmental Risk Information Services (ERIS), Database Report, September 2023.

Enterprise Journal, July 26, 1972, and December 21, 1973.

Fairchild Historic Aerial Photograph, 1930, 1941.

Fire Insurance Maps of South San Francisco, Sanborn Map Company: 1892, 1899, 1905, 1910, 1925, 1950, 1956, 1970.

History of San Mateo County, California (San Francisco: B. F. Alley, Publisher, 1883).

Maxar Technologies Historic Aerial Photograph 2021

National Register of Historic Places Nomination Form for Martin Building/Metropolitan Hotel, Janice Pregliasco, 1996.

National Register of Historic Places Nomination Form for South San Francisco Hillside Sign, Nancy Goldenberg and Joni Carroll, 1995.

South San Francisco Land & Improvement Company, South San Francisco Map, 1894.

The Times, March 12, 1971, and October 2, 1973.

United States Department of Agriculture historic aerial photos: 2005, 2009, 2012, 2014, 2016, 2018.

United States Geological Survey, accessed via the Internet, April 2024.

United States Geological Survey Historic Aerial Photographs: 1946, 1956, 1968, 1974, 1982, 1993.

United States Geological Survey Topographic Maps: 7.5-minute series, accessed via County of San Mateo Database, March 2024 including 1892, 1896, 1899, 1915, 1939, 1943, 1947, 1950, 1956, 1968, 1973, 1980, 1995, 1996, 2015, 2018, 2021.

Additional References

City of South San Francisco Planning Division, Historic Preservation Program.

County of San Mateo, Information Services and GIS Mapping.

Historical Society of South San Francisco.

APPENDICES & ATTACHMENTS

FIGURE 1: SITE LOCATION MAP

FIGURE 2: SITE PLAN

FIGURE 3: TOPO MAP

FIGURE 4: APE MAP

FIGURE 5: NRHP MAP WITH APE

FIGURE 6: SSF LOCAL HISTORIC MAP

FIGURE 7: NWIC RESOURCE MAP

TABLES

APPENDIX A1-SITE PHOTOS

APPENDIX A2-APE PHOTOS

APPENDIX B1: HISTORIC FIRE INSURANCE MAPS

APPENDIX B2: HISTORIC TOPO MAPS

APPENDIX B3: AERIAL PHOTOS

APPENDIX B4: CITY DIRECTORY

ATTACHMENT 1: DESIGN PROPOSED

ATTACHMENT 2.1: DPR FORMS

ATTACHMENT 2.2: DPR PHOTOS

QUALIFICATIONS



October 31, 2021

California Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, California 95816
Submitted via: Calshpo.ohp@parks.ca.gov

Subject: **Section 106 Consultation Request**

RE: Liberty Bank, aka Rotary Gardens
 500 Linden Avenue
 South San Francisco, San Mateo County, CA 94080
 Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Ms. Polanco:

In accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, Partner Engineering and Science, Inc. (Partner) on behalf of the County of San Mateo (the Responsible Entity), is providing information for your review and concurrence regarding the above-referenced project. It is being considered for assistance in HUD Multifamily Accelerated Processing (MAP) Guide and is subject to review under 24 CFR Part 58. HUD has authorized representatives to act on their behalf to consult with SHPOs in order to initiate the Section 106 review process as stated in HUD's Section 106 Authorization Memo. The applicant for this project is Beacon Development Group and contact is Matthew Almonte (matthew.almonte@beacondevgroup.com).

The project site is currently developed with one (1) two-story bank building and an associated paved parking lot, located at 500 Linden Avenue, South San Francisco, San Mateo County, California. The property is at the east side of Linden Avenue in between California Avenue to the north and Lux Avenue to the south and is surrounded at the east and opposite sides of the street by varied mixed-use buildings. The subject property is currently occupied by Liberty Bank for commercial use—it is however vacant at this time. Onsite operations consist of previous commercial banking operations and associated parking lot. In addition to the current structure, the subject property is also improved with asphalt-paved parking areas and associated landscaping.

The site development requires demolition of the existing 1971 bank building and preparation for a new six-story and basement, approximately 73 foot high, 87,263 square foot, apartment building with concrete foundations, steel and wood framing, and exterior veneers including masonry, composite, and metal panels, concrete masonry units, and formed concrete. Parking is proposed at the basement level and on the

adjacent property. A total of 10 studio apartments, 69 one-bedroom apartments, and 1 two-bedroom apartment are currently proposed on floors two through six.

Due to the project scope of work, Partner Engineering and Science (Partner) completed an Historic Architecture and Cultural Resources Section 106 Assessment to assess the likelihood of encountering cultural resources and the potential impact to the subject property building. Results of the Assessment indicate that the Direct APE contains historically aged properties but based on our research the building is NOT NRHP eligible nor is it eligible for the CR or a local list; demolition of the building will result in NO EFFECT.

Within the Indirect APE there are NO NRHP, NO CR, NOR LOCALLY designated historic resources, although there are historically aged properties and thus while the project may affect said resources, such effects will NOT BE ADVERSE. Finally, to those non-historic resources in the APE (which counts for the majority), the project will have NO Effect on adjacent properties.

Outside of the Indirect APE there are NRHP designated historic resources, but distance, topography, natural landscaping, and infill buildings are in between and thus the project will have NO Effect on historic properties.

There are no archaeological resources recoded at the subject property, and there is a low probability of significant intact archaeological resources occurring beneath the pavements and foundations on the subject property. Debris from late-19th to mid-20th century construction and settlement of South San Francisco could occur as isolated elements of the historic landscape. Please refer to the Attachments for a complete copy of the Assessment and its findings.

Based on the results of the Historic Architecture and Cultural Resources Section 106 Assessment, Partner recommends a finding of "No Historic Properties Affected" pursuant to 36 CFR 800.4(d)(1).

Attached for your review are copies of relevant documents supporting our finding, along with photographs and a map showing the location of the property. This documentation satisfies requirements set forth at §800.11(d).

In accordance with §800.4(d)(1)(i), your office has thirty days to object to this finding. Please respond within this timeframe, otherwise we will assume that you concur with our finding. If you concur, please email your response to kdickens@partneresi.com or to provide further guidance

Sincerely,

A handwritten signature in black ink, appearing to read 'Kimberly Dickens', with a stylized flourish extending to the right.

Kimberly Dickens
Project Manager, Staff Archaeologist

Attachments:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Amah Mutsun Tribal Band of Mission San Juan Bautista
PO Box 214211, 2929 Fulton Ave Unit 19, Sacramento, CA 95821
cdzimmer93@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Senior Cultural Monitor & Consultant, Councilman Christopher Zimmer,

County of San Mateo is considering funding the project listed above with federal funds from the U.S. Department of Housing and Urban Development (HUD). Under HUD regulation 24 CFR 58.4, County of San Mateo has assumed HUD's environmental review responsibilities for the project, including tribal consultation related to historic properties. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, plant and animal communities, and buildings and structures with significant tribal associations.

County of San Mateo will conduct a review of this project to comply with Section 106 of the National Historic Preservation Act and its implementing regulations 36 CFR Part 800. We would like to invite you to be a consulting party in this review to help identify historic properties in the project area that may have religious and cultural significance to your tribe, and if such properties exist, to help assess how the project might affect them.

The project site is currently developed with one (1) two-story bank building and an associated paved parking lot, located at 500 Linden Avenue, South San Francisco, San Mateo County, California. The property is at the east side of Linden Avenue in between California Avenue to the north and Lux Avenue to the south and is surrounded at the east and opposite sides of the street by varied mixed-use buildings. The subject property is currently occupied by Liberty Bank for commercial use—it is however vacant at this time. Onsite operations consist of previous commercial banking operations and associated parking lot. In addition to the current structure, the subject property is also improved with asphalt-paved parking areas and associated landscaping.

The site development requires demolition of the existing 1971 bank building and preparation for a new six-story and basement, approximately 73 foot high, 87,263 square foot, apartment building with concrete foundations, steel and wood framing, and exterior veneers including masonry, composite, and metal panels, concrete masonry units, and formed concrete. Parking is proposed at the basement level and on the adjacent property. A total of 10 studio apartments, 69 one-bedroom apartments, and 1 two-bedroom apartment are currently proposed on floors two through six.

Due to the project scope of work, Partner Engineering and Science (Partner) completed an Historic Architecture and Cultural Resources Section 106 Assessment to assess the likelihood of encountering cultural resources and the potential impact to the subject property building. Results of the Assessment indicate that the Direct APE contains historically aged properties but based on our research the building is NOT NRHP eligible nor is it eligible for the CR or a local list; demolition of the building will result in NO EFFECT.

Within the Indirect APE there are NO NRHP, NO CR, NOR LOCALLY designated historic resources, although there are historically aged properties and thus while the project may affect said resources, such effects will NOT BE ADVERSE. Finally, to those non-historic resources in the APE (which counts for the majority), the project will have NO Effect on adjacent properties. Outside of the Indirect APE there are NRHP designated historic resources, but distance, topography, natural landscaping, and infill buildings are in between and thus the project will have NO Effect on historic properties.

There are no archaeological resources recorded at the subject property, and there is a low probability of significant intact archaeological resources occurring beneath the pavements and foundations on the subject property. Debris from late-19th to mid-20th century construction and settlement of South San Francisco could occur as isolated elements of the historic landscape. Please refer to the Attachments for a complete copy of the Assessment and its findings.

Please notify us in writing within 30 calendar days from receipt of this letter whether you wish to consult on this project. If you have any initial concerns with impacts of the project on religious or cultural properties, please be sure to note them in your response.

Enclosed are the site photos and maps that show the project area and, if applicable, an additional area of potential indirect effects.

More information on the Section 106 review process is available at <http://www.onecpd.info/environmental-review/historic-preservation/>.

HUD's process for tribal consultation under Section 106 is described in a Notice available at <https://www.onecpd.info/resource/2448/notice-cpd-12-006-tribal-consultation-under-24-cfr-part-58>.

If you do wish to consult or even if you do not wish to consult, please include in your reply the name and contact information for the tribe's principal representative in the consultation. We value your assistance and look forward to consulting further if there are historic properties of religious and cultural significance to your tribe that may be affected by this project. Please email your response to emalabanan@smchousing.org or to provide further guidance within 30 Days upon receiving this notice.

Sincerely,



Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Wuksache Indian Tribe/Eshom Valley Band
1179 Rock Haven Ct., Salinas, CA 93906
kwood8934@aol.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Chairperson Kenneth Woodrow,

County of San Mateo is considering funding the project listed above with federal funds from the U.S. Department of Housing and Urban Development (HUD). Under HUD regulation 24 CFR 58.4, County of San Mateo assumed HUD's environmental review responsibilities for the project, including tribal consultation related to historic properties. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, plant and animal communities, and buildings and structures with significant tribal associations.

County of San Mateo will conduct a review of this project to comply with Section 106 of the National Historic Preservation Act and its implementing regulations 36 CFR Part 800. We would like to invite you to be a consulting party in this review to help identify historic properties in the project area that may have religious and cultural significance to your tribe, and if such properties exist, to help assess how the project might affect them.

The project site is currently developed with one (1) two-story bank building and an associated paved parking lot, located at 500 Linden Avenue, South San Francisco, San Mateo County, California. The property is at the east side of Linden Avenue in between California Avenue to the north and Lux Avenue to the south and is surrounded at the east and opposite sides of the street by varied mixed-use buildings. The subject property is currently occupied by Liberty Bank for commercial use—it is however vacant at this time. Onsite operations consist of previous commercial banking operations and associated parking lot. In addition to the current structure, the subject property is also improved with asphalt-paved parking areas and associated landscaping.

The site development requires demolition of the existing 1971 bank building and preparation for a new six-story and basement, approximately 73 foot high, 87,263 square foot, apartment building with concrete foundations, steel and wood framing, and exterior veneers including masonry, composite, and metal panels, concrete masonry units, and formed concrete. Parking is proposed at the basement level and on the adjacent property. A total of 10 studio apartments, 69 one-bedroom apartments, and 1 two-bedroom apartment are currently proposed on floors two through six.

Due to the project scope of work, Partner Engineering and Science (Partner) completed an Historic Architecture and Cultural Resources Section 106 Assessment to assess the likelihood of encountering cultural resources and the potential impact to the subject property building. Results of the Assessment indicate that the Direct APE contains historically aged properties but based on our research the building is NOT NRHP eligible nor is it eligible for the CR or a local list; demolition of the building will result in NO EFFECT.

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There are no archaeological resources recorded at the subject property, and there is a low probability of significant intact archaeological resources occurring beneath the pavements and foundations on the subject property. Debris from late-19th to mid-20th century construction and settlement of South San Francisco could occur as isolated elements of the historic landscape. Please refer to the Attachments for a complete copy of the Assessment and its findings.

Please notify us in writing within 30 calendar days from receipt of this letter whether you wish to consult on this project. If you have any initial concerns with impacts of the project on religious or cultural properties, please be sure to note them in your response.

Enclosed are the site photos and maps that show the project area and, if applicable, an additional area of potential indirect effects.

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Please email your response to emalaban@smchousing.org or to provide further guidance within 30 Days upon receiving this notice.

Sincerely,



Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Amah Mutsun Tribal Band
P.O. Box 5272, Galt, CA 95632
aerieways@aol.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Vice-Chairperson Ed Ketchum,

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HCD Specialist County of San Mateo

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Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Amah Mutsun Tribal Band of Mission San Juan Bautista
PO Box 214211, 2929 Fulton Ave Unit 19, Sacramento, CA 95821
garryzimmer@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Senior Cultural Monitor & Consultant Garry Zimmer,

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Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

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November 13, 2025

Amah Mutsun Tribal Band of Mission San Juan Bautista
3030 Soda Bay Road, Lakeport, CA 95453
amahmutsuntribalcommunications@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Chairperson Irene Zwierlein,

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Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Amah Mutsun Tribal Band of Mission San Juan Bautista
PO Box 214211, 2929 Fulton Ave Unit 19, Sacramento, CA 95821
michellezimmer1966@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Senior Cultural Monitor & Consultant Michelle Zimmer,

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Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

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November 13, 2025

Amah Mutsun Tribal Band of Mission San Juan Bautista
2451 Tyrolean Way, Sacramento, CA 95821
shelbyzimmer1997@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Senior Cultural Monitor & Consultant, Councilwoman Shelby Brown,

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Tribal Consultation Lead

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Amah Mutsun Tribal Band
P.O. Box 5272, Galt, CA 95632
vjlttestingcenter@aol.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Chairperson Valentin Lopez,

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Sincerely,

Eleazar Malabanan

Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Indian Canyon Mutsun Band of Costanoan

P.O. Box 28, Hollister, CA 95024

admin@kanyonconsulting.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Chairperson Ann Marie Sayers,

County of San Mateo is considering funding the project listed above with federal funds from the U.S. Department of Housing and Urban Development (HUD). Under HUD regulation 24 CFR 58.4, County of San Mateo has assumed HUD's environmental review responsibilities for the project, including tribal consultation related to historic properties. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, plant and animal communities, and buildings and structures with significant tribal associations.

County of San Mateo will conduct a review of this project to comply with Section 106 of the National Historic Preservation Act and its implementing regulations 36 CFR Part 800. We would like to invite you to be a consulting party in this review to help identify historic properties in the project area that may have religious and cultural significance to your tribe, and if such properties exist, to help assess how the project might affect them.

The project site is currently developed with one (1) two-story bank building and an associated paved parking lot, located at 500 Linden Avenue, South San Francisco, San Mateo County, California. The property is at the east side of Linden Avenue in between California Avenue to the north and Lux Avenue to the south and is surrounded at the east and opposite sides of the street by varied mixed-use buildings. The subject property is currently occupied by Liberty Bank for commercial use—it is however vacant at this time. Onsite operations consist of previous commercial banking operations and associated parking lot. In addition to the current structure, the subject property is also improved with asphalt-paved parking areas and associated landscaping.

The site development requires demolition of the existing 1971 bank building and preparation for a new six-story and basement, approximately 73 foot high, 87,263 square foot, apartment building with concrete foundations, steel and wood framing, and exterior veneers including masonry, composite, and metal panels, concrete masonry units, and formed concrete. Parking is proposed at the basement level and on the adjacent property. A total of 10 studio apartments, 69 one-bedroom apartments, and 1 two-bedroom apartment are currently proposed on floors two through six.

Due to the project scope of work, Partner Engineering and Science (Partner) completed an Historic Architecture and Cultural Resources Section 106 Assessment to assess the likelihood of encountering cultural resources and the potential impact to the subject property building. Results of the Assessment indicate that the Direct APE contains historically aged properties but based on our research the building is NOT NRHP eligible nor is it eligible for the CR or a local list; demolition of the building will result in NO EFFECT.

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Please notify us in writing within 30 calendar days from receipt of this letter whether you wish to consult on this project. If you have any initial concerns with impacts of the project on religious or cultural properties, please be sure to note them in your response.

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Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Costanoan Rumsen Carmel Tribe
108 South Acacia, Rialto, CA 92376
crct.crd@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Tribal Council Carla Muñoz,

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South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Cultural Resource Officer Henry Muñoz,

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HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Indian Canyon Mutsun Band of Costanoan
971 S 7th Street, San Jose, CA 95122
kanyon@kanyonconsulting.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear MLD Contact Kanyon Sayers-Roods,

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Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Costanoan Rumsen Carmel Tribe
29539 Oakbridge Dr, Menifee, CA 92586
crct.crd@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Cultural Resource Officer Samuel Rodriguez,

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HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

Muwekma Ohlone Indian Tribe of the SF Bay Area
1169 S. Main Street, Ste. 336, Manteca, CA 95337
cnijmeh@muwekma.org

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Chairperson Charlene Nijmeh,

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1169 S. Main Street, Ste. 336, Manteca, CA 95337
rmassiatt@muwekma.org

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Councilmember/MLD Tribal Rep. Richard Massiatt,

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There are no archaeological resources recorded at the subject property, and there is a low probability of significant intact archaeological resources occurring beneath the pavements and foundations on the subject property. Debris from late-19th to mid-20th century construction and settlement of South San Francisco could occur as isolated elements of the historic landscape. Please refer to the Attachments for a complete copy of the Assessment and its findings.

Please notify us in writing within 30 calendar days from receipt of this letter whether you wish to consult on this project. If you have any initial concerns with impacts of the project on religious or cultural properties, please be sure to note them in your response.

Enclosed are the site photos and maps that show the project area and, if applicable, an additional area of potential indirect effects.

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Please email your response to emalaban@smchousing.org or to provide further guidance within 30 Days upon receiving this notice.

Sincerely,



Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

The Ohlone Indian Tribe
P.O. Box 3388, Fremont, CA 94539
chochenyo@AOL.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Chairperson Andrew Galvan,

County of San Mateo is considering funding the project listed above with federal funds from the U.S. Department of Housing and Urban Development (HUD). Under HUD regulation 24 CFR 58.4, County of San Mateo has assumed HUD's environmental review responsibilities for the project, including tribal consultation related to historic properties. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, plant and animal communities, and buildings and structures with significant tribal associations.

County of San Mateo will conduct a review of this project to comply with Section 106 of the National Historic Preservation Act and its implementing regulations 36 CFR Part 800. We would like to invite you to be a consulting party in this review to help identify historic properties in the project area that may have religious and cultural significance to your tribe, and if such properties exist, to help assess how the project might affect them.

The project site is currently developed with one (1) two-story bank building and an associated paved parking lot, located at 500 Linden Avenue, South San Francisco, San Mateo County, California. The property is at the east side of Linden Avenue in between California Avenue to the north and Lux Avenue to the south and is surrounded at the east and opposite sides of the street by varied mixed-use buildings. The subject property is currently occupied by Liberty Bank for commercial use—it is however vacant at this time. Onsite operations consist of previous commercial banking operations and associated parking lot. In addition to the current structure, the subject property is also improved with asphalt-paved parking areas and associated landscaping.

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Sincerely,



Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

The Ohlone Indian Tribe
259 Winwood Avenue, Pacifica, CA 94044
dirwin0368@yahoo.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear THPO Desiree Vigil,

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Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

November 13, 2025

The Ohlone Indian Tribe
17365 Via Del Rey, San Lorenzo, CA 94580
vincent.d.medina@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Cultural Leader Vincent Medina,

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Eleazar Malabanan

HCD Specialist County of San Mateo

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment



October 30, 2025

Amah Mutsun Tribal Band
P.O. Box 5272, Galt, CA 95632
vjlttestingcenter@aol.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Chairperson Valentin Lopez,

The Beacon Development Group is considering funding the project listed above with federal funds from the U.S. Department of Housing and Urban Development (HUD). Under HUD regulation 24 CFR 58.4, Partner, on behalf of Beacon Development Group, has assumed HUD's environmental review responsibilities for the project, including tribal consultation related to historic properties. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, plant and animal communities, and buildings and structures with significant tribal association.

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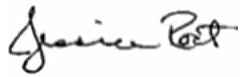
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Jessica Rost
Tribal Consultation Lead

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment



October 30, 2025

Amah Mutsun Tribal Band
P.O. Box 5272, Galt, CA 95632
aerieways@aol.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Vice-Chairperson Ed Ketchum,

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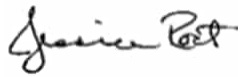
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Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment



October 30, 2025

Amah Mutsun Tribal Band of Mission San Juan Bautista
3030 Soda Bay Road, Lakeport, CA 95453
amahmutsuntribalcommunications@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Chairperson Irene Zwierlein,

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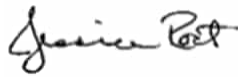
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Jessica Rost
Tribal Consultation Lead

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment



October 30, 2025

Amah Mutsun Tribal Band of Mission San Juan Bautista
2451 Tyrolean Way, Sacramento, CA 95821
shelbyzimmer1997@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Senior Cultural Monitor & Consultant, Councilwoman Shelby Brown,

The Beacon Development Group is considering funding the project listed above with federal funds from the U.S. Department of Housing and Urban Development (HUD). Under HUD regulation 24 CFR 58.4, Partner, on behalf of Beacon Development Group, has assumed HUD's environmental review responsibilities for the project, including tribal consultation related to historic properties. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, plant and animal communities, and buildings and structures with significant tribal association.

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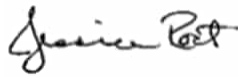
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October 30, 2025

Amah Mutsun Tribal Band of Mission San Juan Bautista
PO Box 214211, 2929 Fulton Ave Unit 19, Sacramento, CA 95821
garryzimmer@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Senior Cultural Monitor & Consultant Garry Zimmer,

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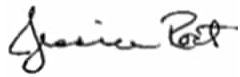
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October 30, 2025

Amah Mutsun Tribal Band of Mission San Juan Bautista
PO Box 214211, 2929 Fulton Ave Unit 19, Sacramento, CA 95821
cdzimmer93@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Senior Cultural Monitor & Consultant, Councilman Christopher Zimmer,

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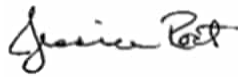
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October 30, 2025

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PO Box 214211, 2929 Fulton Ave Unit 19, Sacramento, CA 95821
michellezimmer1966@gmail.com

RE: Liberty Bank, aka Rotary Gardens
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Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Senior Cultural Monitor & Consultant Michelle Zimmer,

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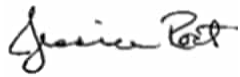
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October 30, 2025

Costanoan Rumsen Carmel Tribe
108 South Acacia, Rialto, CA 92376
crct.crd@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Tribal Council Carla Muñoz,

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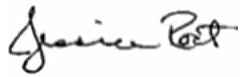
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Dear Cultural Resource Officer Henry Muñoz,

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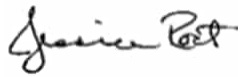
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Jessica Rost
Tribal Consultation Lead

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment



October 30, 2025

Costanoan Rumsen Carmel Tribe
29539 Oakbridge Dr, Menifee, CA 92586
crct.crd@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Cultural Resource Officer Samuel Rodriguez,

The Beacon Development Group is considering funding the project listed above with federal funds from the U.S. Department of Housing and Urban Development (HUD). Under HUD regulation 24 CFR 58.4, Partner, on behalf of Beacon Development Group, has assumed HUD's environmental review responsibilities for the project, including tribal consultation related to historic properties. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, plant and animal communities, and buildings and structures with significant tribal association.

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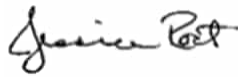
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Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment



October 30, 2025

Indian Canyon Mutsun Band of Costanoan
P.O. Box 28, Hollister, CA 95024
admin@kanyonconsulting.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Chairperson Ann Marie Sayers,

The Beacon Development Group is considering funding the project listed above with federal funds from the U.S. Department of Housing and Urban Development (HUD). Under HUD regulation 24 CFR 58.4, Partner, on behalf of Beacon Development Group, has assumed HUD's environmental review responsibilities for the project, including tribal consultation related to historic properties. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, plant and animal communities, and buildings and structures with significant tribal association.

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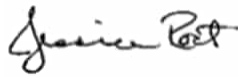
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Tribal Consultation Lead

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment



October 30, 2025

Indian Canyon Mutsun Band of Costanoan
971 S 7th Street, San Jose, CA 95122
kanyon@kanyonconsulting.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear MLD Contact Kanyon Sayers-Roods,

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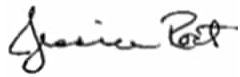
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Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment



October 30, 2025

Muwekma Ohlone Indian Tribe of the SF Bay Area
1169 S. Main Street, Ste. 336, Manteca, CA 95337
cnijmeh@muwekma.org

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Chairperson Charlene Nijmeh,

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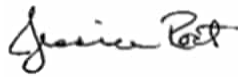
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October 30, 2025

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1169 S. Main Street, Ste. 336, Manteca, CA 95337
rmassiatt@muwekma.org

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Councilmember/MLD Tribal Rep. Richard Massiatt,

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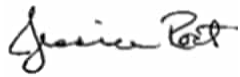
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Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment



October 30, 2025

The Ohlone Indian Tribe
P.O. Box 3388, Fremont, CA 94539
chochenyo@AOL.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Chairperson Andrew Galvan,

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There are no archaeological resources recoded at the subject property, and there is a low probability of significant intact archaeological resources occurring beneath the pavements and foundations on the subject property. Debris from late-19th to mid-20th century construction and settlement of South San Francisco could occur as isolated elements of the historic landscape. Please refer to the Attachments for a complete copy of the Assessment and its findings.

Please notify us in writing within 30 calendar days from receipt of this letter whether you wish to consult on this project. If you have any initial concerns with impacts of the project on religious or cultural properties, please be sure to note them in your response.

Enclosed are the site photos and maps that show the project area and, if applicable, an additional area of potential indirect effects.

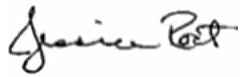
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Sincerely,

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Jessica Rost
Tribal Consultation Lead

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment



October 30, 2025

The Ohlone Indian Tribe
17365 Via Del Rey, San Lorenzo, CA 94580
vincent.d.medina@gmail.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Cultural Leader Vincent Medina,

The Beacon Development Group is considering funding the project listed above with federal funds from the U.S. Department of Housing and Urban Development (HUD). Under HUD regulation 24 CFR 58.4, Partner, on behalf of Beacon Development Group, has assumed HUD's environmental review responsibilities for the project, including tribal consultation related to historic properties. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, plant and animal communities, and buildings and structures with significant tribal association.

Partner Engineering and Science, Inc. (Partner), on behalf of Beacon Development Group, will conduct a review of this project to comply with Section 106 of the National Historic Preservation Act and its implementing regulations 36 CFR Part 800. We would like to invite you to be a consulting party in this review to help identify historic properties in the project area that may have religious and cultural significance to your tribe, and if such properties exist, to help assess how the project might affect them. If the project might have an adverse effect, we would like to discuss possible ways to avoid, minimize or mitigate potential adverse effects.

The project site is currently developed with one (1) two-story bank building and an associated paved parking lot, located at 500 Linden Avenue, South San Francisco, San Mateo County, California. The property is at the east side of Linden Avenue in between California Avenue to the north and Lux Avenue to the south and is surrounded at the east and opposite sides of the street by varied mixed-use buildings. The subject property is currently occupied by Liberty Bank for commercial use—it is however vacant at this time. Onsite operations consist of previous commercial banking operations and associated parking lot. In addition to the current structure, the subject property is also improved with asphalt-paved parking areas and associated landscaping.

The site development requires demolition of the existing 1971 bank building and preparation for a new six-story and basement, approximately 73 foot high, 87,263 square foot, apartment building with concrete foundations, steel and wood framing, and exterior veneers including masonry, composite, and metal panels, concrete masonry units, and formed concrete. Parking is proposed at the basement level and on the adjacent property. A total of 10 studio apartments, 69 one-bedroom apartments, and 1 two-bedroom apartment are currently proposed on floors two through six.

Due to the project scope of work, Partner Engineering and Science (Partner) completed an Historic Architecture and Cultural Resources Section 106 Assessment to assess the likelihood of encountering cultural resources and the potential impact to the subject property building. Results of the Assessment indicate that the Direct APE contains historically aged properties but based on our research the building is NOT NRHP eligible nor is it eligible for the CR or a local list; demolition of the building will result in NO EFFECT.

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Enclosed are the site photos and maps that show the project area and, if applicable, an additional area of potential indirect effects.

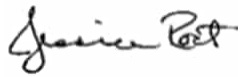
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Jessica Rost
Tribal Consultation Lead

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment



October 30, 2025

The Ohlone Indian Tribe
259 Winwood Avenue, Pacifica, CA 94044
dirwin0368@yahoo.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear THPO Desiree Vigil,

The Beacon Development Group is considering funding the project listed above with federal funds from the U.S. Department of Housing and Urban Development (HUD). Under HUD regulation 24 CFR 58.4, Partner, on behalf of Beacon Development Group, has assumed HUD's environmental review responsibilities for the project, including tribal consultation related to historic properties. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, plant and animal communities, and buildings and structures with significant tribal association.

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The site development requires demolition of the existing 1971 bank building and preparation for a new six-story and basement, approximately 73 foot high, 87,263 square foot, apartment building with concrete foundations, steel and wood framing, and exterior veneers including masonry, composite, and metal panels, concrete masonry units, and formed concrete. Parking is proposed at the basement level and on the adjacent property. A total of 10 studio apartments, 69 one-bedroom apartments, and 1 two-bedroom apartment are currently proposed on floors two through six.

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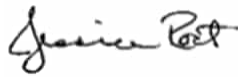
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Jessica Rost
Tribal Consultation Lead

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment



October 30, 2025

Wuksache Indian Tribe/Eshom Valley Band
1179 Rock Haven Ct., Salinas, CA 93906
kwood8934@aol.com

RE: Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, San Mateo County, CA 94080
Partner Project No. 25-551454.1
Program: 221(d)(4)

Dear Chairperson Kenneth Woodrow,

The Beacon Development Group is considering funding the project listed above with federal funds from the U.S. Department of Housing and Urban Development (HUD). Under HUD regulation 24 CFR 58.4, Partner, on behalf of Beacon Development Group, has assumed HUD's environmental review responsibilities for the project, including tribal consultation related to historic properties. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, plant and animal communities, and buildings and structures with significant tribal association.

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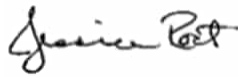
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Jessica Rost
Tribal Consultation Lead

Attachment:

Attachment A: Historic Architecture and Cultural Resources Section 106 Assessment

APPENDIX L: NOISE ASSESSMENT



NOISE ASSESSMENT

Liberty Bank, aka Rotary Gardens

500 Linden Avenue

South San Francisco, California, 94080

Report Date

October 22, 2025

HUD Program Number:

Part 58 EA

Partner Project No.

25-551454.1

Prepared for:

HumanGood Affordable Housing

Duarte, California 91010



Building
Science



Environmental
Consulting



Construction &
Development



Energy &
Sustainability



October 22, 2025

HumanGood Affordable Housing
1900 Huntington Drive
Duarte, California 91010

Subject: **Noise Assessment**
Liberty Bank, aka Rotary Gardens
500 Linden Avenue
South San Francisco, California 94080
Partner Project No. 25-551454.1

Partner Assessment Corporation (Partner) has completed a *Noise Assessment* for the property listed above ("subject property") in general accordance with HUD guidelines, as specified in "The Noise Guidebook". According to these guidelines, the subject property was assessed to determine whether it is located within 1,000 feet of a roadway with available traffic data; within 3,000 feet of a railroad; or within 15 miles of a civil airport or military airfield.

The acceptability of noise for the HUD criteria calls for a day-night average sound level (DNL) of 65 decibels or less. Any DNL above 75 decibels is deemed unacceptable. DNL values between 65 and 75 decibels may be acceptable through engineering adjustments to the subject property.

The noise assessment is based on site plan(s) and this report outlines (1) the 10-year projected noise levels for the subject property; (2) noise assessment location (NAL) points and (3) noise barriers, when applicable.

Online HUD calculations providing visual indications of DNL currently affecting the subject property have been prepared and are included in the appendices herein. Furthermore, additional supporting documentation (i.e. published traffic county information, client provided documentation, etc.) utilized in preparing the noise calculations are also included in the appendices.

Prepared By:

Jackelyn Goldschmidt
HUD NEPA Professional

Reviewed By:

Michael Lawlor
Project Manager



EXECUTIVE SUMMARY

Partner has performed a *Noise Assessment* in conformance with the scope and limitations as detailed in the "The Noise Guidebook" and HUD MAP Guide, dated December 18, 2020 (effective March 18, 2021), for the property located at 500 Linden Avenue in South San Francisco, San Mateo County, California, 94080 (the "subject property").

Project Description

The subject property is currently a vacant commercial structure, most recently occupied by Liberty Bank for commercial use. Currently no onsite operations exist. The subject property consists of one two-story building constructed in 1971, on 0.96-acres of land. In addition to the current structure, the subject property is also improved with fencing, asphalt-paved parking areas, and associated landscaping.

The subject property is planned for development with two 6-story multi-family buildings. In addition to the proposed structure, the subject property will also be improved with courtyard, a meditate corner, bee garden, community patio, exercise garden, healing garden, quiet corner, and BBQ area, and landscaping. NALs were selected from each corner of the combined building footprints that were closest to the noise sources (NALs #1 and 2). The proposed project will also consist of gathering areas to include courtyards (NALs # 3 and 4) located on the second floor in the center of each building and blocked from view of three sides, and roof decks (NALs #5 and 6) located on the top level, 6th floor, of each building. Locations of the proposed noise sensitive uses (gathering areas) are located within the attached Site Plans for NAL locations and noise sources.

Of note, the proposed courtyard areas are located centrally between three sides of the proposed structures, and additionally, are situated on the second level and facing a row of multi-story houses which will block the line of sight to the noise sources.

Site topography was noted during Partner's onsite assessment activities on October 15, 2025. In addition, the 2021 United States Geological Survey (USGS) San Francisco South, California Quadrangle 7.5-minute series topographic map was reviewed for this assessment. According to the contour lines on the topographic map, the subject property is located at approximately 38 feet above mean sea level (MSL). The contour lines in the area of the subject property indicate the area is sloping gently towards the south. Site topography is not considered a mitigant from the surrounding noise sources. A copy of the most recent topographic map is included within the attachments of this report.



SITE ACCEPTABILITY STANDARDS

Hud Acceptability Category	Day-night average sound level (dB)
Acceptable	Less than 65
Normally Unacceptable	Between 65 and 75
Unacceptable	Above 75

Per the HUD guidelines, a total 10-year day-night sound level (DNL) was calculated for multiple noise assessment locations (NALs), as depicted on the attached site plan, combining roadways with available traffic data within 1,000 feet; railways within 3,000-feet; and airports/military airfields within a 15-mile radius of the subject property, where applicable. The following table summarizes the calculated noise levels for the combined noise sources, as well as the minimum attenuation required for elevated interior noise when utilizing the HUD Sound Transmission Classification Assessment Tool (STraCAT), where applicable, accounting for the 3-dB margin of error as stipulated in the HUD Noise Guidelines:

10-YEAR NOISE CALCULATIONS (COMBINED)

NAL	Combined Projected Noise Level (dB)	Hud Acceptability Category	Attenuation Required (dB)
1	69	Normally unacceptable	27
2	69	Normally unacceptable	27
3 ^A	58	Acceptable	N/A
4 ^B	58	Acceptable	N/A
5 ^C	69	Normally unacceptable	N/A
6 ^D	69	Normally unacceptable	N/A

Attenuation Required Calculator: <https://www.hudexchange.info/stracat/>

A = North building courtyard

B = South building courtyard

C = North building roof deck

D = South building roof deck

N/A = Not applicable for exterior gathering areas

Partner performed a STraCAT analysis, in general accordance with the United States Department of Housing and Urban Development (HUD) guidelines and STraCAT Users Guide, dated 2010, v1.0. Based on the results of the STraCAT, the exterior envelope construction as depicted in the Drawings is likely to conform to HUD's requirements for required sound attenuation.

Recommendation(s):

No further action regarding noise at the subject property is warranted at this time.



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1.0 PROJECT INFORMATION

1.1 Existing Property Conditions

The subject property is currently a vacant commercial structure, most recently occupied by Liberty Bank for commercial use. Currently no onsite operations exist. The subject property consists of one two-story building constructed in 1971, on 0.96-acres of land. In addition to the current structure, the subject property is also improved with fencing, asphalt-paved parking areas, and associated landscaping.

1.2 Surrounding Property Conditions

The area surrounding the subject property consists of the following:

ADJOINING PROPERTIES

Direction	Land Use/Occupant
North:	California Avenue, beyond which is a multi-tenant retail building (600-612 Linden Avenue) and single-family residences (230-238 California Avenue)
Northeast:	California Avenue, beyond which is a single-family residence (228 California Avenue)
East:	Single-family residences (226 Lux Avenue; 228 6th Lane; 229 California Avenue)
Southeast:	Lux Avenue, beyond which is a multi-family residence (223 and 225 Lux Avenue)
South:	Lux Avenue, beyond which is a single-family residence (227 Lux Avenue), Los Metates Restaurant (237 Lux Avenue), and a multi-family residence (418 Linden Avenue)
Southwest:	Intersection of Linden Avenue and Lux Avenue, beyond which is a multi-tenant retail building (433-439 Linden Avenue), multi-tenant retail buildings with upper floor residences (415-429 Linden Avenue), and multi-family residences (304 Tamarack Lane; 307 Lux Avenue)
West:	Linden Avenue, beyond which are Colombo Liquors (507 Linden Avenue), retail buildings with upper floor residences (511, 513, and 523 Linden Avenue), and a multi-family residence (517 Linden Avenue)
Northwest:	Intersection of Linden Avenue and California Avenue, beyond which is Emmanuel Flowers (304 California Avenue)

A copy of the most recent Site Map is included within the attachments of this report.

1.3 Site and Surrounding Topography

Site topography was noted during Partner's onsite assessment activities on October 15, 2025. In addition, the 2021 United States Geological Survey (USGS) San Francisco South, California Quadrangle 7.5-minute series topographic map was reviewed for this assessment. According to the contour lines on the

2.0 NOISE SOURCE DATA INFORMATION

2.1 Roadway Data Information

Roadways with published traffic counts were assessed within a 1,000-foot radius of the subject property. Roadways include the following: U.S. Route 101. See table below for roadway specific information.

ROAD NAME		
	Value	Data Source
Average Annual Daily Traffic (2023)	205,000	California Department of Transportation (CDOT) website
Medium Truck %	3.026%	Calculated based on the CDOT classification counts
Heavy Truck %	1.583%	Calculated based on the CDOT classification counts
Nighttime %	15%	HUD default value
Road Gradient %	0%	No steep grades observed
Speed Limit (MPH)	65	Speed limit obtained from Google Earth streetview
Annual Growth Rate %	2%	HUD default value
10-Year Projected Traffic Counts (2035)		
Car Count	248,007	
Medium Truck Count	7,867	
Heavy Truck Count	4,116	

The state of California has posted values for AADT on most major highways; however, they do not record counts for smaller local county or city roads. Partner requested inquired about AADT and other traffic data from local city and county traffic and engineering departments; however, no response has been received.

A copy of the related traffic data outlined above, as well as communications for data requests, is included within the supporting documentation of this report.

topographic map, the subject property is located at approximately 38 feet above mean sea level (MSL). The contour lines in the area of the subject property indicate the area is sloping gently towards the south.

Site topography is not considered a mitigant from the surrounding noise sources.

A copy of the most recent topographic map is included within the attachments of this report.

1.4 Proposed Property Conditions

The subject property is planned for development with two 6-story multi-family buildings. In addition to the proposed structure, the subject property will also be improved with courtyard, a meditate corner, bee garden, community patio, exercise garden, healing garden, quiet corner, and BBQ area, and landscaping. NALs were selected from each corner of the combined building footprints that were closest to the noise sources (NALs #1 and 2). The proposed project will also consist of gathering areas to include courtyards (NALs # 3 and 4) located on the second floor in the center of each building and blocked from view of three sides, and roof decks (NALs #5 and 6) located on the top level, 6th floor, of each building. Locations of the proposed noise sensitive uses (gathering areas) are located within the attached Site Plans for NAL locations and noise sources.

Of note, the proposed courtyard areas (NALs #3 and #4) are located centrally between three sides of the proposed structures, and additionally, are situated on the second level and facing a row of multi-story houses which will block the line of sight to the noise sources; therefore, noise is assumed to be < 65 dB and considered to be "Acceptable" per the HUD noise regulations. Additionally, the roof decks have been proposed in order to satisfy local zoning requirements, and will be made accessible to residents following completion. Therefore, the information concerning noise levels at these NALs is being provided in order to assess overall building conditions, and no further action will be required at these locations.

Copies of site plans denoting the surrounding noise sources and NALs are included within the attachments of this report.

2.2 Railway Data Information

Railways were assessed within a 3,000-foot radius of the subject property.

CALTRAIN

	Value	Data Source Notes
Diesel or Electric	Electric	Confirmed via Google Earth streetview and online research
Train Speed (MPH)	70	FRA Crossing Inventory website (https://fragis.fra.dot.gov/gisfrasafety/)
Engines per Train	1	HUD default value for passenger trains
Rail Cars per Train	8	HUD default value for passenger trains
Train Operations per Day	104	Caltrain Schedule (https://www.caltrain.com/)
Nighttime %	26%	Caltrain Schedule (https://www.caltrain.com/)
Whistles or Horns Applicable?	No	Based on no at-grade crossings located within 0.25 miles of the subject property
Bolted or Welded Tracks?	Welded	Based on observations via Google Earth streetview

UNION PACIFIC (MAIN CORRIDOR)

	Value	Data Source Notes
Diesel or Electric	Diesel	Confirmed via Google Earth streetview and online research
Train Speed (MPH)	10	FRA Crossing Inventory website (https://fragis.fra.dot.gov/gisfrasafety/)
Engines per Train	2	HUD default value for diesel freight trains
Rail Cars per Train	50	HUD default value for diesel freight trains
Train Operations per Day	8	FRA Crossing Inventory website (https://fragis.fra.dot.gov/gisfrasafety/)
Nighttime %	62%	Calculated based on night trains count from FRA Crossing Inventory website (https://fragis.fra.dot.gov/gisfrasafety/)
Whistles or Horns Applicable?	No	Based on no at-grade crossings located within 0.25 miles of the subject property
Bolted or Welded Tracks?	Bolted	Based on observations via Google Earth streetview

UNION PACIFIC (EAST BOUND)

	Value	Data Source Notes
Diesel or Electric	Diesel	Confirmed via Google Earth streetview and online research
Train Speed (MPH)	10	FRA Crossing Inventory website (https://fragis.fra.dot.gov/gisfrasafety/)
Engines per Train	2	HUD default value for diesel freight trains
Rail Cars per Train	50	HUD default value for diesel freight trains
Train Operations per Day	1	FRA Crossing Inventory website (https://fragis.fra.dot.gov/gisfrasafety/)
Nighttime %	38%	Calculated based on night trains count from FRA Crossing Inventory website (https://fragis.fra.dot.gov/gisfrasafety/)
Whistles or Horns Applicable?	No	Based on no at-grade crossings located within 0.25 miles of the subject property
Bolted or Welded Tracks?	Bolted	Based on observations via Google Earth streetview

A copy of the related railroad data outlined above, as well as communications for data requests, is included within the supporting documentation of this report.

2.3 Airport Data Information

Airports / airfields were assessed within a 15-mile radius of the subject property.

AIRPORT INFORMATION

Airport/Airfield Name	Distance (miles)	Noise Map Available?	Year of Map	Data Source Notes
San Francisco International Airport	2.17	Yes	2024	San Francisco International Airport Noise Exposure Map*
Half Moon Bay Airport	11.01	Yes	2014	Half Moon Bay Airport Noise Exposure Map
San Carlos Airport	13.06	Yes	2015	San Carlos Airport Noise Exposure Map
Oakland International Airport	11.16	Yes	2006	Oakland International Airport Noise Exposure Map

*https://noise.flysfo.com/wp-content/uploads/2025/02/SFO_2024Q4_Title21_Report_v2-021425.pdf

A copy of the related airport/airfield data outlined above, is included within the supporting documentation of this report.

2.4 Vertical Noise Assessment

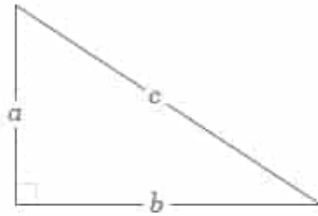
A vertical noise assessment may be considered for locations that do not reside on the ground level such as an upper-level courtyard or pool deck, rooftop patio or garden, balconies, or other elevated gathering areas. When a height difference is present between a noise source and noise receptor, the Pythagorean Theorem may be used to calculate the true effective distance of the noise source to the NAL.

Elevated gathering areas include a second-floor courtyard at each building, and rooftop decks on the 6th floor on the east side of each building.

Vertical noise calculations were completed with the Pythagorean Theorem:

$$a^2 + b^2 = c^2 \quad \text{OR} \quad c = \sqrt{a^2 + b^2}$$

a=height of gathering area or balcony | b=horizontal distance to noise source | c=effective distance



Copies of site plans denoting the surrounding noise sources and NALs are included within the attachments of this report.

3.0 NOISE SOURCE TRAFFIC CALCULATIONS

3.1 Roadway 10-Year Noise Calculations

Partner assessed the 10-year projected noise levels at multiple noise assessment locations (NALs), as depicted on the attached site plan. The following table summarizes the calculated noise levels for each roadway, as applicable:

10-YEAR NOISE CALCULATIONS (ROADWAYS)

NAL	U.S. Route 101	
	Effective Distance (ft)	Calculated Noise Level (dB)
1	732	69
2	759	68
3 ^A	No direct line of sight	
4 ^B	No direct line of sight	
5 ^C	757	68
6 ^D	745	69

A = North building courtyard

B = South building courtyard

C = North building roof deck

D = South building roof deck

3.2 Railway Noise Calculations

Partner assessed the 10-year projected noise levels at multiple noise assessment locations (NALs), as depicted on the attached site plan. The following table summarizes the calculated noise levels for each railroad noise source, as applicable:

10-YEAR NOISE CALCULATIONS (RAILROADS)

NAL	Caltrain		UP (Main corridor)		UP (East bound)	
	Effective Distance (ft)	Calculated Noise Level (dB)	Effective Distance (ft)	Calculated Noise Level (dB)	Effective Distance (ft)	Calculated Noise Level (dB)
1	1164	51	1164	56	2029	42
2	1278	50	1278	55	2301	41
3 ^A	1200	51	1200	56	2073	42
4 ^B	1222	51	1222	56	2183	41
5 ^C	1200	51	1200	56	2073	42
6 ^D	1222	51	1222	56	2183	41

A = North building courtyard

B = South building courtyard

C = North building roof deck

D = South building roof deck

Supporting documentation including the measured effective distances and calculated noise levels are included within the attachments of this report.

3.3 Airport Noise Summary

ESTIMATED AIRPORTS NOISE LEVELS

Airport/Airfield Name	Effective Distance (Miles)	Listed Noise Level (dB)
San Francisco International Airport	2.17	52
Half Moon Bay Airport	11.01	<65
San Carlos Airport	13.06	<65
Oakland International Airport	11.16	<65

As outlined above, the subject property is located outside the 65dB noise level. Noise monitoring stations for the airports nearby indicate the average noise for the subject property neighborhood was approximately 52 dB for the year of 2024. Airport noise is not considered a concern at this time.

Supporting documentation including the measured effective distances and calculated noise levels are included within the attachments of this report.

3.4 Vertical Noise Summary

Based on elevated outdoor gathering areas including the rooftop decks, and elevated noise levels for ground level NALs, Partner completed a vertical noise assessment.

3.4.1 Vertical Noise Effective Distance Calculations

Based on the calculated Normally Unacceptable noise for NALs #1 (North Building), and #2 (South Building), Partner completed a vertical noise assessment for the roof decks on the 6th floor of each building, for NALs #5 (North Building roof deck), and #6 (South Building roof deck). Partner did not complete vertical noise assessments for the courtyards on floor 2, elevated outdoor gathering areas, as there is no line of sight to noise sources.

The vertical calculations are outlined in the following tables:

VERTICAL HEIGHT CALCULATIONS – NAL 5 (ROADWAYS)

Floor	U.S. Route 101		
	a Height (ft)	b Horizontal Distance (ft)	c New Effective Distance (ft)
6	61	755	757

a=height of gathering area or balcony | b=horizontal distance to noise source | c=effective distance

VERTICAL HEIGHT CALCULATIONS – NAL 6 (ROADWAYS)

Floor	U.S. Route 101		
	a Height (ft)	b Horizontal Distance (ft)	c New Effective Distance (ft)
6	61	742	745

a=height of gathering area or balcony | b=horizontal distance to noise source | c=effective distance

VERTICAL HEIGHT CALCULATIONS – NAL 5 (RAILWAYS)

Floor	Caltrain			UP (Main corridor)			UP (East Bound)		
	A	B	C	A	B	C	A	B	C
6	61	1200	1202	61	1200	1202	61	2073	2074

a=height of gathering area or balcony | b=horizontal distance to noise source | c=effective distance

VERTICAL HEIGHT CALCULATIONS – NAL 6 (RAILWAYS)

Floor	Caltrain			UP (Main corridor)			UP (East Bound)		
	A	B	C	A	B	C	A	B	C
6	61	1200	1202	61	1200	1202	61	2073	2074

a=height of gathering area or balcony | b=horizontal distance to noise source | c=effective distance

Copies of site plans denoting the surrounding noise sources and NALs are included within the attachments of this report.

3.4.2 Vertical Noise Calculations

Partner assessed the 10-year projected noise levels at multiple noise assessment locations (NALs), as depicted on the attached site plan. The following table summarizes the calculated noise levels for each elevated NAL, as applicable:

10-YEAR VERTICAL NOISE CALCULATIONS (ROADWAYS)

NAL	U.S. Route 101	
	Effective Distance (ft)	Calculated Noise Level (dB)
5 ^C	757	68
6 ^D	745	69

C = North building roof deck

D = South building roof deck

10-YEAR VERTICAL NOISE CALCULATIONS (RAILROADS)

NAL	Caltrain		UP (Main corridor)		UP (East Bound)	
	Effective Distance (ft)	Calculated Noise Level (dB)	Effective Distance (ft)	Calculated Noise Level (dB)	Effective Distance (ft)	Calculated Noise Level (dB)
5 ^C	1202	51	1202	56	2074	42
6 ^D	1224	51	1224	56	2184	41

C = North building roof deck

D = South building roof deck

Supporting documentation including the measured effective distances and calculated noise levels are included within the attachments of this report.

4.0 BARRIER PERFORMANCE MODULE

A Barrier Performance Module was not warranted at this time.

5.0 NIGHTTIME FRACTION OFFSET

Nighttime fraction offset calculations were not completed at this time.

6.0 STraCAT ANALYSIS

Noise levels were calculated to be 69 dB for both NAL #1 (North Building) and NAL #2 (South Building), and noted as “Normally Unacceptable”, per HUD guidelines. As such, because there are noise levels for the proposed onsite buildings with noise levels greater than 65dB and less than 76dB. Partner performed a STraCAT analysis, in general accordance with the United States Department of Housing and Urban Development (HUD) guidelines and STraCAT Users Guide, dated 2010, v1.0. Based on the results of the STraCAT, the exterior envelope construction as depicted in the Drawings is likely to conform to HUD’s requirements for required sound attenuation. A copy of this analysis is included in Appendix F.

7.2 Vertical 10-Year Noise Calculations (Total Noise for vertical NALs)

A total 10-year day-night sound level (DNL) was calculated for multiple vertical noise assessment locations (NALs), as depicted on the attached site plan, combining roadways with available traffic data within 1,000 feet; railways within 3,000-feet; and airports/military airfields within a 15-mile radius of the subject property, where applicable. The following table summarizes the calculated noise levels for the combined noise sources, as well as the minimum attenuation required for elevated interior noise when utilizing the HUD Sound Transmission Classification Assessment Tool (STraCAT), where applicable, accounting for the 3-dB margin of error as stipulated in the HUD Noise Guidelines:

VERTICAL 10-YEAR NOISE CALCULATIONS (COMBINED)

NAL	Combined Projected Noise Level (dB)	Hud Acceptability Category	Attenuation Required (dB)
5 ^C	69	Normally unacceptable	N/A
6 ^D	69	Normally unacceptable	N/A

C = North building roof deck

D = South building roof deck

N/A = Not applicable for exterior gathering areas

7.3 BPM

The BPM was not warranted for the proposed subject buildings based on calculations outlined herein.

7.4 Lday Results

The Lday was not warranted for the proposed subject buildings based on calculations outlined herein.

7.5 STraCAT Results

Noise levels were calculated to be 69 dB for both NAL #1 (North Building) and NAL #2 (South Building), and noted as "Normally Unacceptable", per HUD guidelines. As such, because there are noise levels for the proposed onsite buildings with noise levels greater than 65dB and less than 76dB. Partner performed a STraCAT analysis, in general accordance with the United States Department of Housing and Urban Development (HUD) guidelines and STraCAT Users Guide, dated 2010, v1.0. Based on the results of the STraCAT, the exterior envelope construction as depicted in the Drawings is likely to conform to HUD's requirements for required sound attenuation. A copy of this analysis is included in Appendix F.

7.0 NOISE CALCULATION RESULTS

7.1 10-Year Noise Calculations (Total Noise)

SITE ACCEPTABILITY STANDARDS

Hud Acceptability Category	Day-night average sound level (dB)
Acceptable	Less than 65
Normally Unacceptable	Between 65 and 75
Unacceptable	Above 75

A total 10-year day-night sound level (DNL) was calculated for multiple noise assessment locations (NALs), as depicted on the attached site plan, combining roadways with available traffic data within 1,000 feet; railways within 3,000-feet; and airports/military airfields within a 15-mile radius of the subject property, where applicable. The following table summarizes the calculated noise levels for the combined noise sources, as well as the minimum attenuation required for elevated interior noise when utilizing the HUD Sound Transmission Classification Assessment Tool (STraCAT), where applicable, accounting for the 3-dB margin of error as stipulated in the HUD Noise Guidelines:

10-YEAR NOISE CALCULATIONS (COMBINED)

NAL	Combined Projected Noise Level (dB)	Hud Acceptability Category	Attenuation Required (dB)
1	69	Normally unacceptable	27
2	69	Normally unacceptable	27
3 ^A	58	Acceptable	N/A
4 ^B	58	Acceptable	N/A
5 ^C	69	Normally unacceptable	N/A
6 ^D	69	Normally unacceptable	N/A

Attenuation Required Calculator: <https://www.hudexchange.info/stracat/>

A = North building courtyard

B = South building courtyard

C = North building roof deck

D = South building roof deck

N/A = Not applicable for exterior gathering areas

Of note, the proposed courtyard areas (NALs #3 and #4) are located centrally between three sides of the proposed structures, and additionally, are situated on the second level and facing a row of multi-story houses which will block the line of sight to the noise sources; therefore, noise is assumed to be < 65 dB and considered to be "Acceptable" per the HUD noise regulations. Additionally, the roof decks have been proposed in order to satisfy local zoning requirements, and will be made accessible to residents following completion. Therefore, the information concerning noise levels at these NALs is being provided in order to assess overall building conditions, and no further action will be required at these locations.

8.0 RECOMMENDATIONS

No further action regarding noise at the subject property is warranted at this time.

9.0 LIMITATIONS

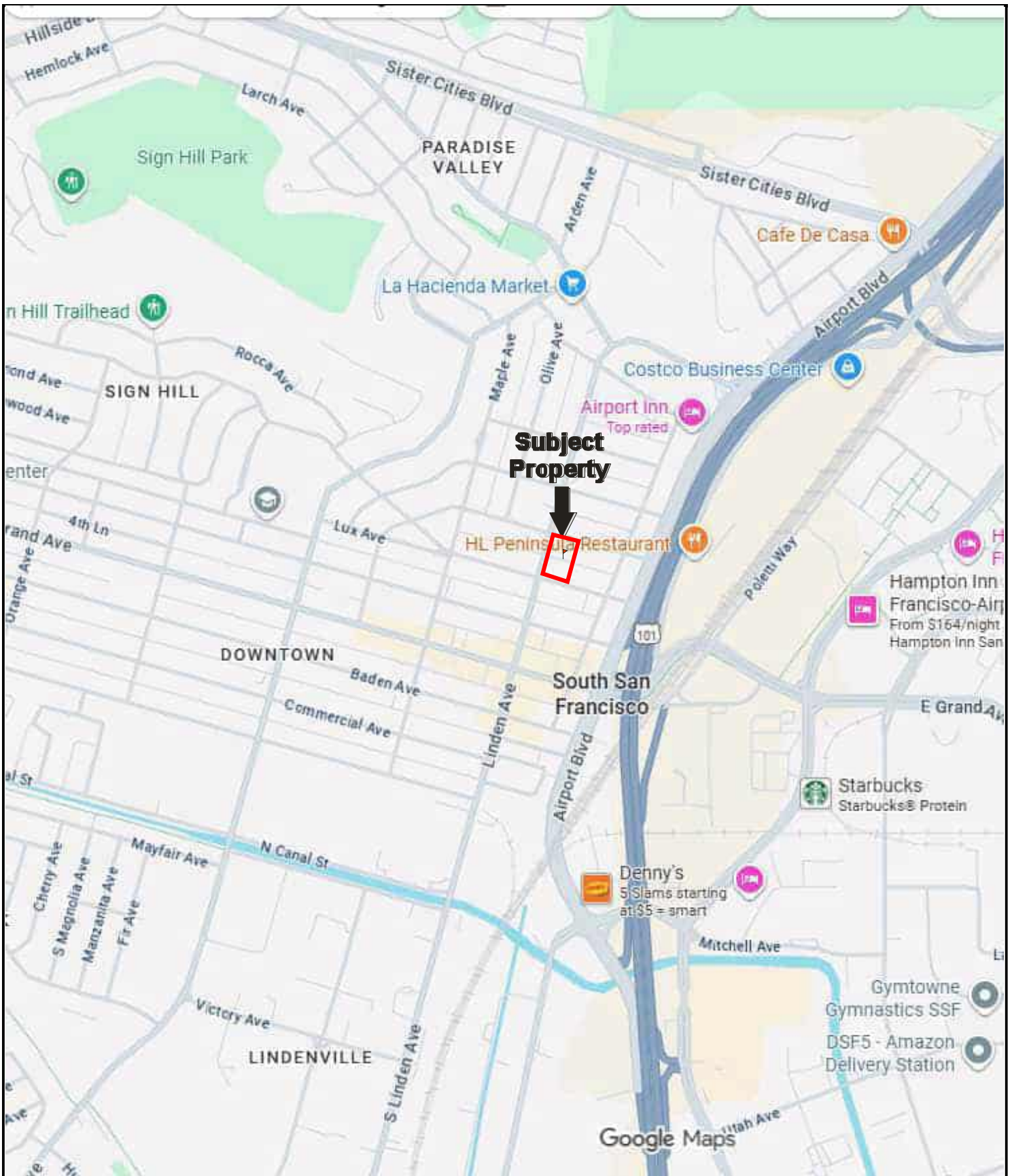
Partner warrants the findings and conclusions contained herein were completed in general accordance with HUD guidelines, as specified in "The Noise Guidebook". Partner believes the information obtained from the applicable agencies regarding obtained noise data is accurate and up to date. However, Partner cannot and does not warrant or guarantee the information provided by these other sources is accurate or complete. The conclusions and findings set forth in this report are strictly limited in time and scope to the date of the evaluations.

This noise report consists of a two-dimensional assessment of the applicable noise sources and does not address topographic elevations or attenuation of existing barriers. Noise levels will be calculated utilizing the most recent reasonably ascertainable noise data available from local, state, and federal resources. The utilized aforementioned data is subject to availability from the agencies during the project timeline.

Additional scopes of work not included within the scope of this noise assessment, include but not limited to the following: 65 dB or 75 dB line location determination, barrier attenuation calculations, Noise O&M Plan, Noise Waiver, etc.

FIGURES

- 1 SITE LOCATION MAP
- 2 SITE PLAN
- 3 TOPOGRAPHIC MAP



Drawing Not To Scale

KEY:
Subject Property 

FIGURE 1: SITE LOCATION MAP
Project No. 25-551454.1



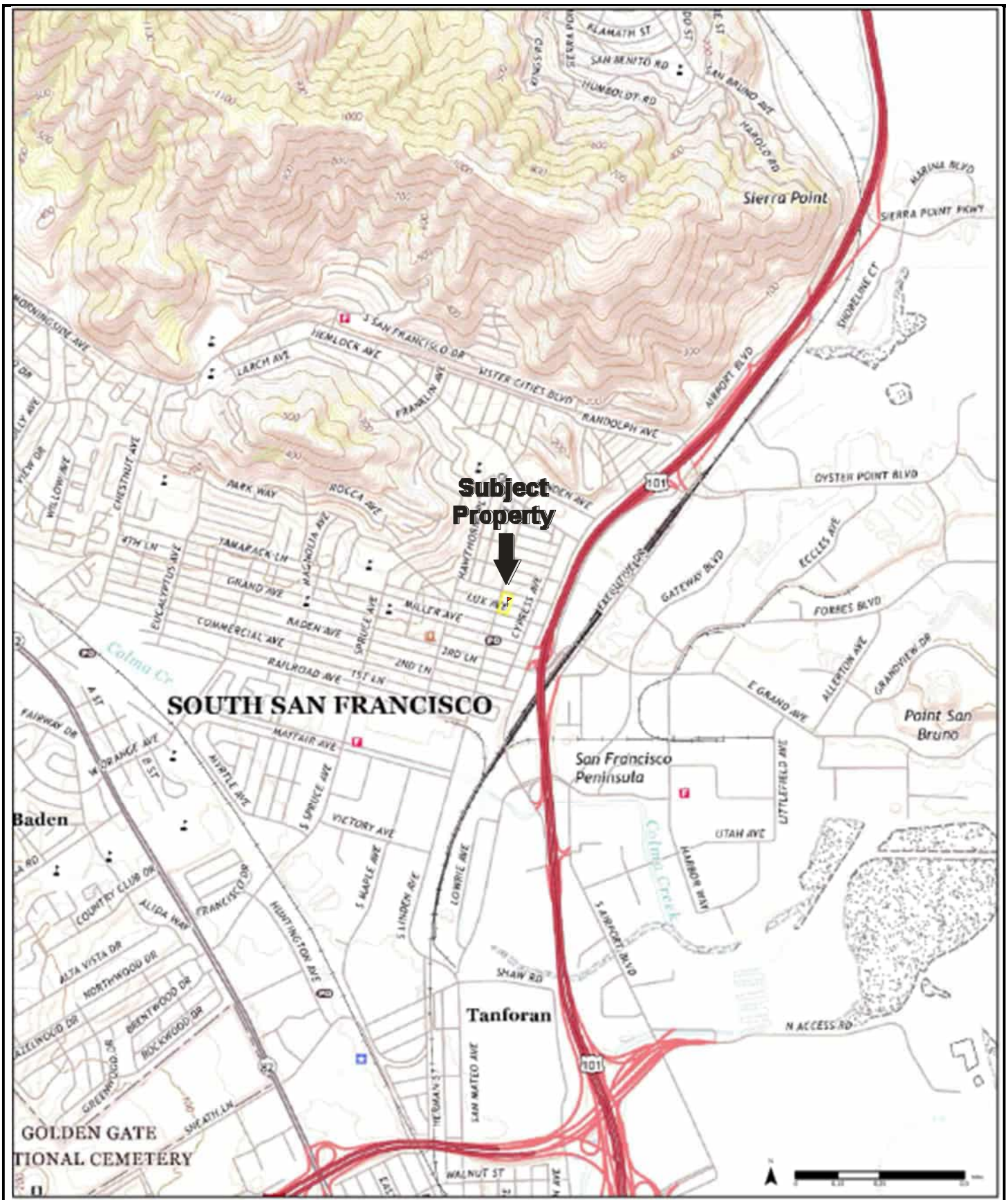
**GROUNDWATER
FLOW**



KEY:
Subject Property 
T: Transformer

FIGURE 2: SITE PLAN
Project No. 25-551454.1

PARTNER



USGS 7.5-Minute *San Francisco South, California* Quadrangle
Created: 2021/Revised: 2025

KEY:
Subject Property 

FIGURE 3: TOPOGRAPHIC MAP
Project No. 25-551454.1

APPENDIX A: SITE PLANS

Subject Property



HKIT ARCHITECTS

T 510 625 9800 • F 510 625 9801 • WWW.HKIT.COM

FOR DESIGN
REVIEW ONLY

South SF Rotary
Gardens

000 LINDEN AVENUE,
SOUTH SAN FRANCISCO, CA 94080
JOB NO. XXXXX.XX
DRAWN Author
CHECKED Checker
JOB CAPTAIN Approver
ISSUE

[illegible]

DRAWING TITLE
ROOF PLAN - NORTH
SITE

SCALE As indicated

A2.N07

A. SEE SHEETS A7.33 & A7.34 FOR ELEVATOR CONTROL ROOM LAYOUT, DETAILED HOISTWAY PLAN AND SECTION, AND BALANCE OF INFO

NOTE: This text note is just as a reference. Please duplicate (**with detailing**) this note legend and rename it following the same naming convention:

Legend Category-Legend Type-Description 1

Ex: Sheet-Notes-Demolition

Change scale to match drawing scale.

FLOOR PLAN LEGEND

FOR ADDITIONAL ARCH. SYMBOLS, SEE SHEET G0.2

	NON-RATED WALL
	1 HOUR FIRE-RATED ASSEMBLY
	2 HOUR FIRE-RATED ASSEMBLY
	3 HOUR FIRE-RATED ASSEMBLY
	WINDOW / LOUVER TAG
	WALL TAG
	DOOR TAG
	KEYNOTE TAG

NOTE: This legend component is just as a reference. If you want to create a new type please follow these steps:

For Legend components:

1. Go to the Annotate tab > Component > Legend Component
2. Choose the proper legend component family and view type from the Options Bar.
3. Place it into the Legend.
4. Use texts to add the legend component description.

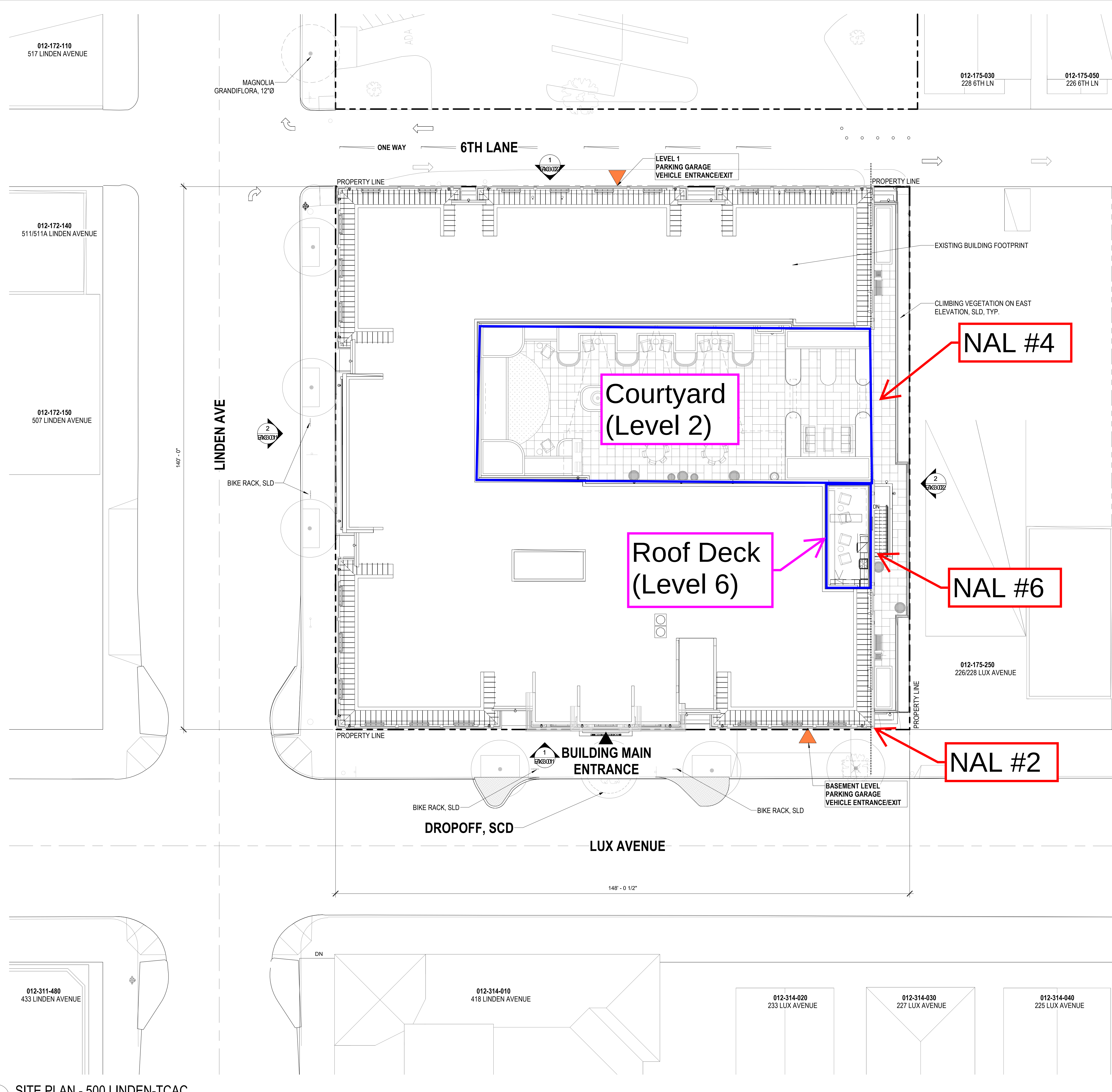
For Tags/Symbols components:

1. Go to the Families drop-down on the Project Browser > Annotations Symbols.
2. Choose the proper annotation symbol family and then drag and drop into the Legend view.
3. Use texts to add the legend component description.

Change scale to match drawing scale (if necessary).

1 ROOF NORTH
1/8" = 1'-0"

South Building



1 SITE PLAN - 500 LINDEN-TCAC
3/32" = 1'-0"

SITE PLAN

07/31/24

APPENDIX B: ROADWAY SUPPORTING DATA

Goldschmidt, Jackie

From: DPW_info <DPW_info@smcgov.org>
Sent: Tuesday, October 21, 2025 6:47 PM
To: Goldschmidt, Jackie; DPW_info
Cc: Lawlor, Michael
Subject: RE: Traffic Data Request - San Mateo County - Liberty Bank - 500 Linden Avenue, South San Francisco, CALIFORNIA 94080 (25-551454.1)

CAUTION: This message originated from outside the Partner organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello,

This area isn't in the jurisdiction of the San Mateo County.

Please check the city of South San Francisco.

Thank you

From: Goldschmidt, Jackie <jgoldschmidt@partneresi.com>
Sent: Tuesday, October 21, 2025 3:47 PM
To: DPW_info <DPW_info@smcgov.org>
Cc: Lawlor, Michael <MLawlor@partneresi.com>
Subject: Traffic Data Request - San Mateo County - Liberty Bank - 500 Linden Avenue, South San Francisco, CALIFORNIA 94080 (25-551454.1)

CAUTION: This email originated from outside of San Mateo County. Unless you recognize the sender's email address and know the content is safe, do not click links, open attachments or reply.

Hello,

We are completing a noise assessment per HUD requirements for a property located in San Mateo County at 500 Linden Ave, South San Francisco, CA 94080. We have already pulled traffic data available from the state of California; however, we are reaching out to see if any local traffic data is available. If available, can you please provide the following information/documentation for the below indicated roadways?

Roadways (Near the intersection of Linden Avenue and Lux Avenue)

- Juniper Avenue
- Aspen Avenue
- 8th Lane
- Pine Avenue
- 7th Lane
- California Avenue
- 6th Lane
- Lux Avenue
- Tamarack Lane

- Miller Avenue
- 4th Lane
- Grane Avenue
- 3rd Lane
- Maple Avenue
- Hawthorne Place
- Olive Avenue
- Hickory Place
- Linden Avenue
- Cypress Avenue

Request

- 10-year projected AADT (Year 2035)
- Most recent AADT
- FHWA Vehicle Classification Counts OR Truck Percentages (utilizing FHWA Class 5 for medium trucks and Classes 4 and 6-12 for heavy trucks)
- Hourly Volume Counts (per class, if available)
- Annual Growth Rate Percentage

Thank you for any assistance you are able to provide. If additional information is needed to fill the above request, please let me know.

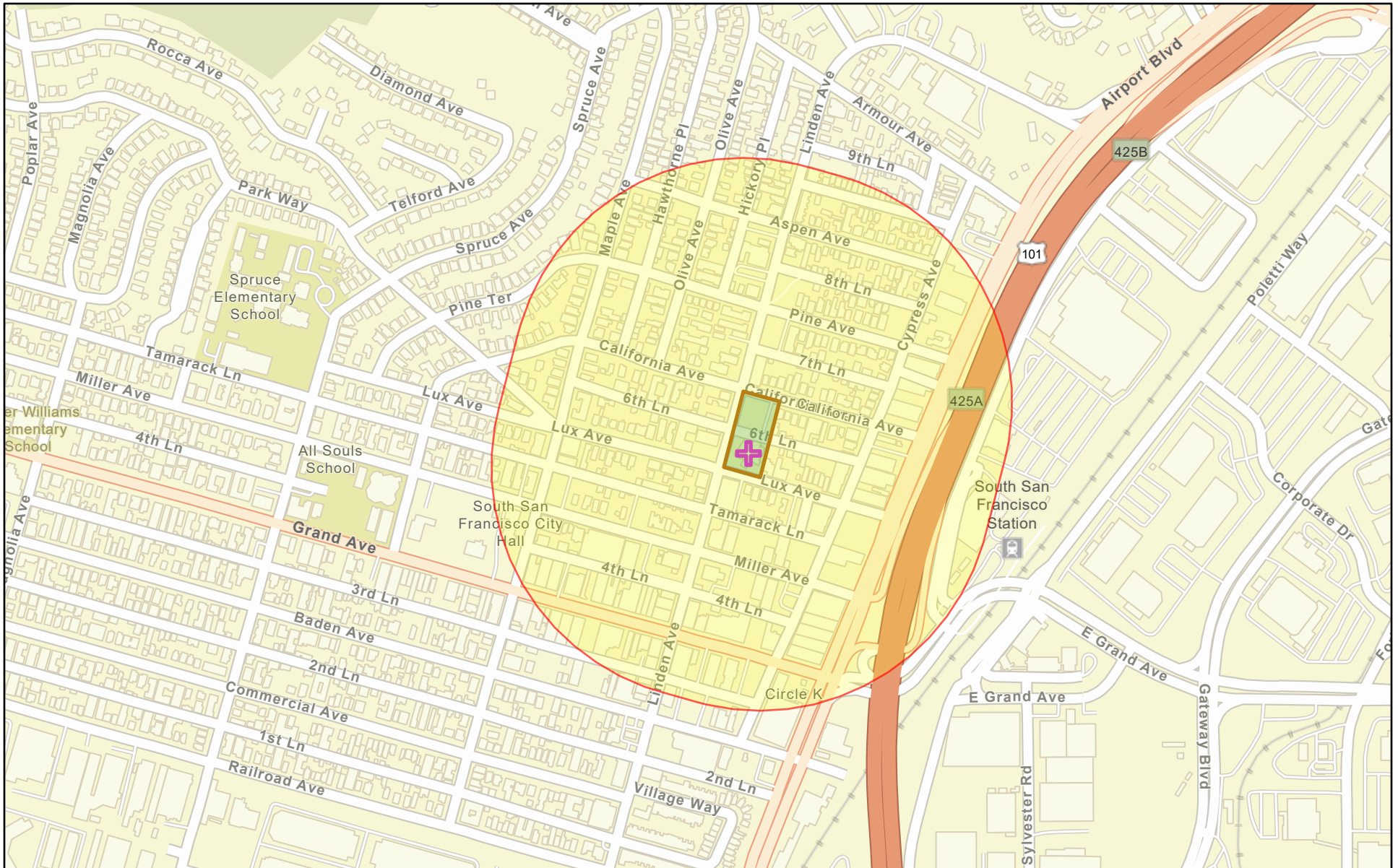
Thank you,

Jackie Goldschmidt
Senior Project Assessor

PARTNER ENGINEERING AND SCIENCE, INC.

6600 France Avenue South, Suite 680, Edina, MN 55435
C: 320-905-1775 | O: 952-209-3780 | F: 612-293-0892

1000-Ft Radius Map

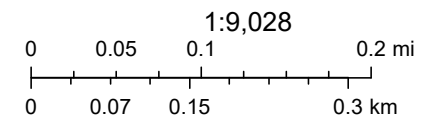


October 20, 2025

 Project Buffer

 Search Result (point)

 Liberty Bank, aka Rotary Gardens



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community



Highway 101

Speed limit (google street view capture)



AADT - 2023

DISTRICT	RTE	RTE_SFX	CNTY	PM_PFX	PM	PM_SFX	DESCRIPTION	BACK_PEAK_HOUR	BACK_PEAK_MADT	BACK_AADT	AHEAD_PEAK_HOUR	AHEAD_PEAK_MADT	AHEAD_AADT
04	101		SM		21.915		SOUTH SAN FRANCISCO, GRAND AVENUE	14300	218000	216000	13700	205000	198000

Volume Trend

Year	Dist	Route	County	Postmile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak AADT	Ahead AADT
2013	4	101	SM	21.915	SOUTH SAN FRANCISCO, GRAND AVENUE	16100	230000	220000	15300	219000	209000
2014	4	101	SM	21.915	SOUTH SAN FRANCISCO, GRAND AVENUE	16300	232000	222000	15500	221000	211000
2015	4	101	SM	21.915	SOUTH SAN FRANCISCO, GRAND AVENUE	16600	236000	226000	15800	225000	215000
2016	4	101	SM	21.915	SOUTH SAN FRANCISCO, GRAND AVENUE	16000	233000	226000	16500	239000	232000
2017	4	101	SM	21.915	SOUTH SAN FRANCISCO, GRAND AVENUE	16900	245000	237300	17400	251000	243600
2018	4	101	SM	21.915	SOUTH SAN FRANCISCO, GRAND AVENUE	16500	238000	230800	17000	244000	237000
2019	4	101	SM	21.915	SOUTH SAN FRANCISCO, GRAND AVENUE	14500	229000	222000	15000	235000	230000
2020	4	101	SM	21.915	SOUTH SAN FRANCISCO, GRAND AVENUE	11600	184000	178000	12000	188000	184000
2021	4	101	SM	21.915	SOUTH SAN FRANCISCO, GRAND AVENUE	11000	174000	169000	11400	178000	174000
2022	4	101	SM	21.915	SOUTH SAN FRANCISCO, GRAND AVENUE	13900	212000	210000	13300	200000	193000

FHWA Vehicle Classification counts

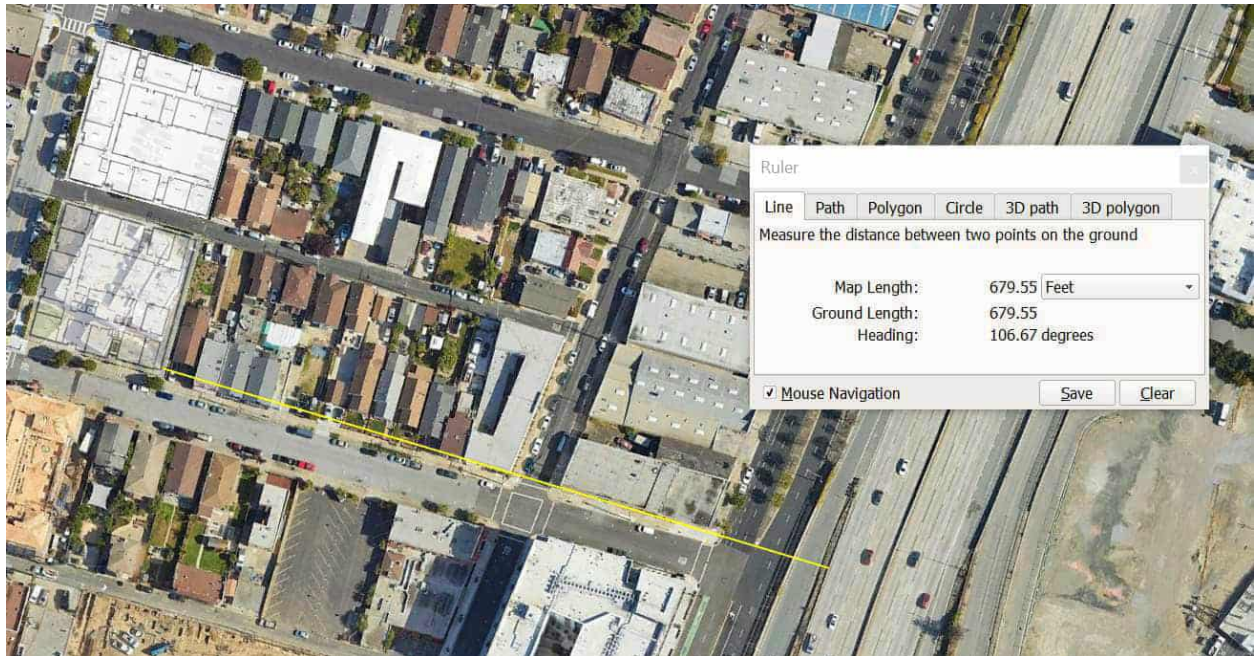
RTE	RTE_SFX	DIST	CNTY	PM_PFX	POSTMILE	PM_SFX	LEG	DESCRIPTION	VEHICLE_AADT_TOTAL	TOT_TRK_AADT	TRK_PERCENT_TOT	TRK_2_AXLE	TRK_2_AXLE_PCT	TRK_3_AXLE	TRK_3_AXLE_PCT	TRK_4_AXLE	TRK_4_AXLE_PCT	TRK_5_AXLE	TRK_5_AXLE_PCT	EAL	EST_YEAR	EST_CODE
101	04	SM			17.95	B		MILLBRAE, MILLBRAE AVENUE	222000	10234	4.61	6718	65.64	1215	11.87	453	4.43	1847	18.05	1051	22	E

- Medium (AKA single) – trucks under class #5 (single unit 2-axle trucks)
 - Medium Trucks % = $6718 / 222000 = 0.03026 = 3.026\%$
- Heavy (AKA combo) – trucks under classes #4 (Buses) and #6-13 (3-axle trucks or larger)
 - Heavy Trucks % = $3515 / 222000 = 0.01583 = 1.583\%$



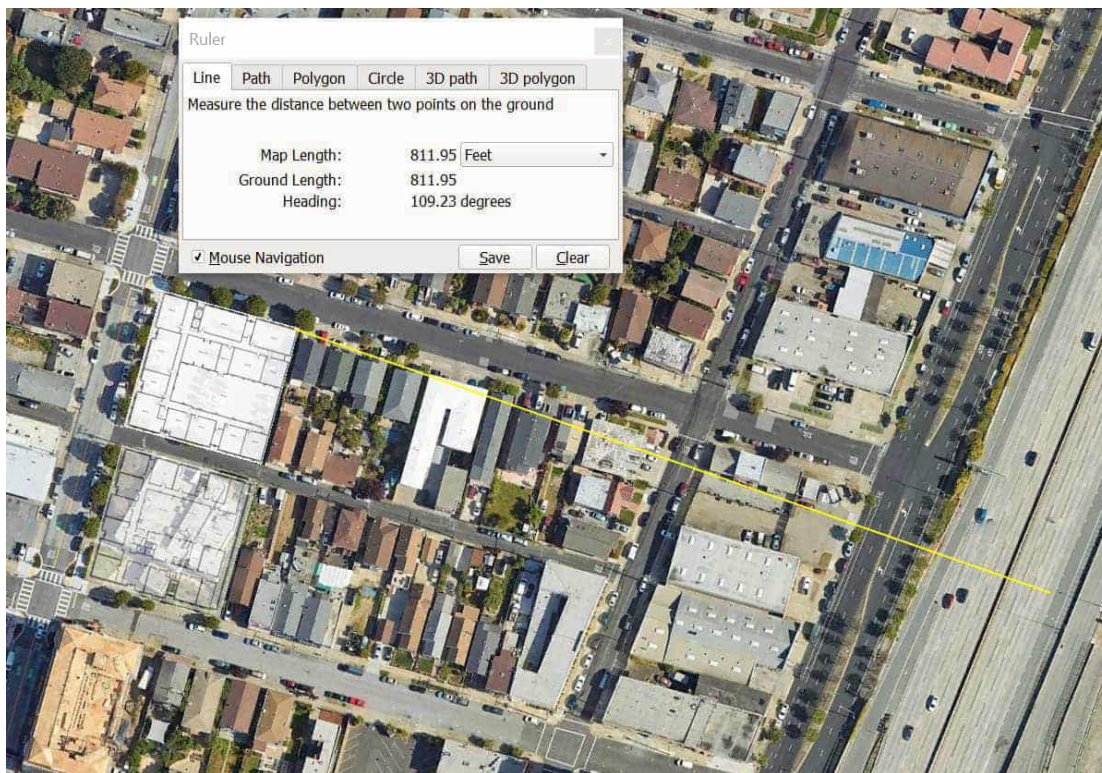
NAL #1

US Route 101



NAL #2

US Route 101



NAL #3 – Northern building courtyard

US Route 101

No direct line of sight

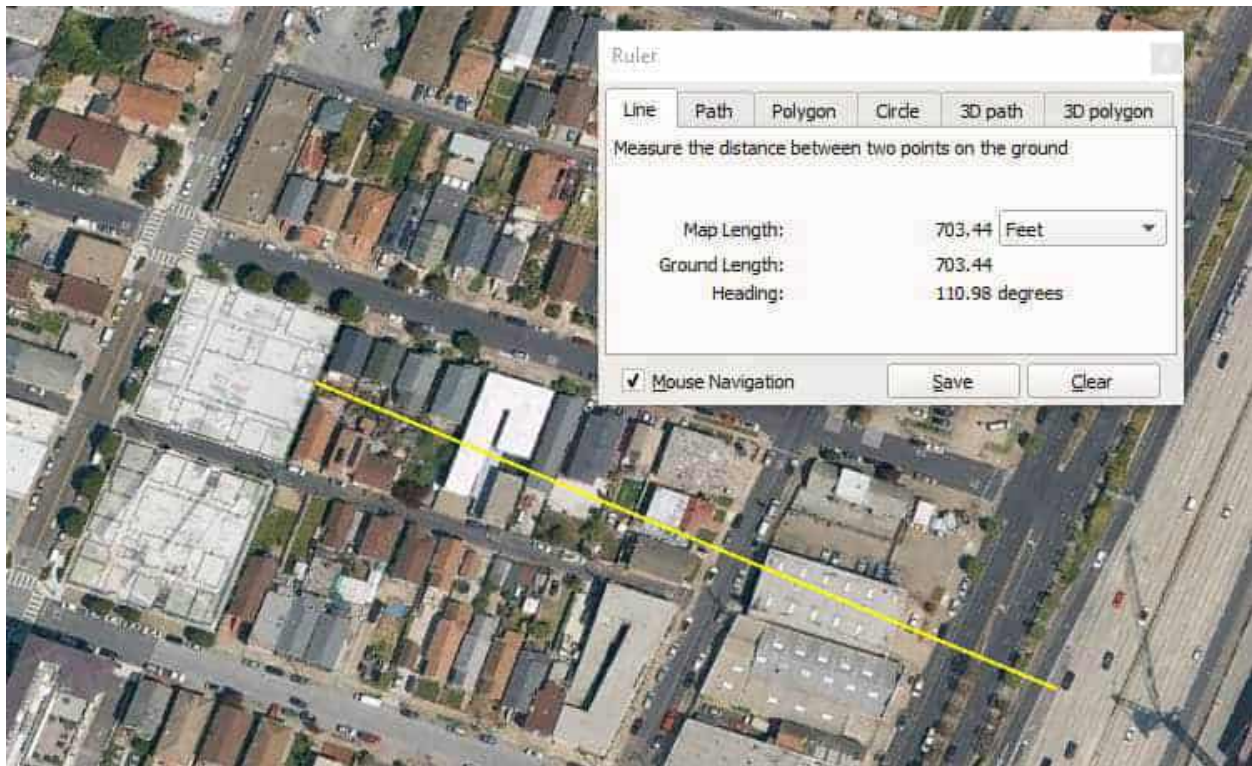
NAL #4 – Southern building courtyard

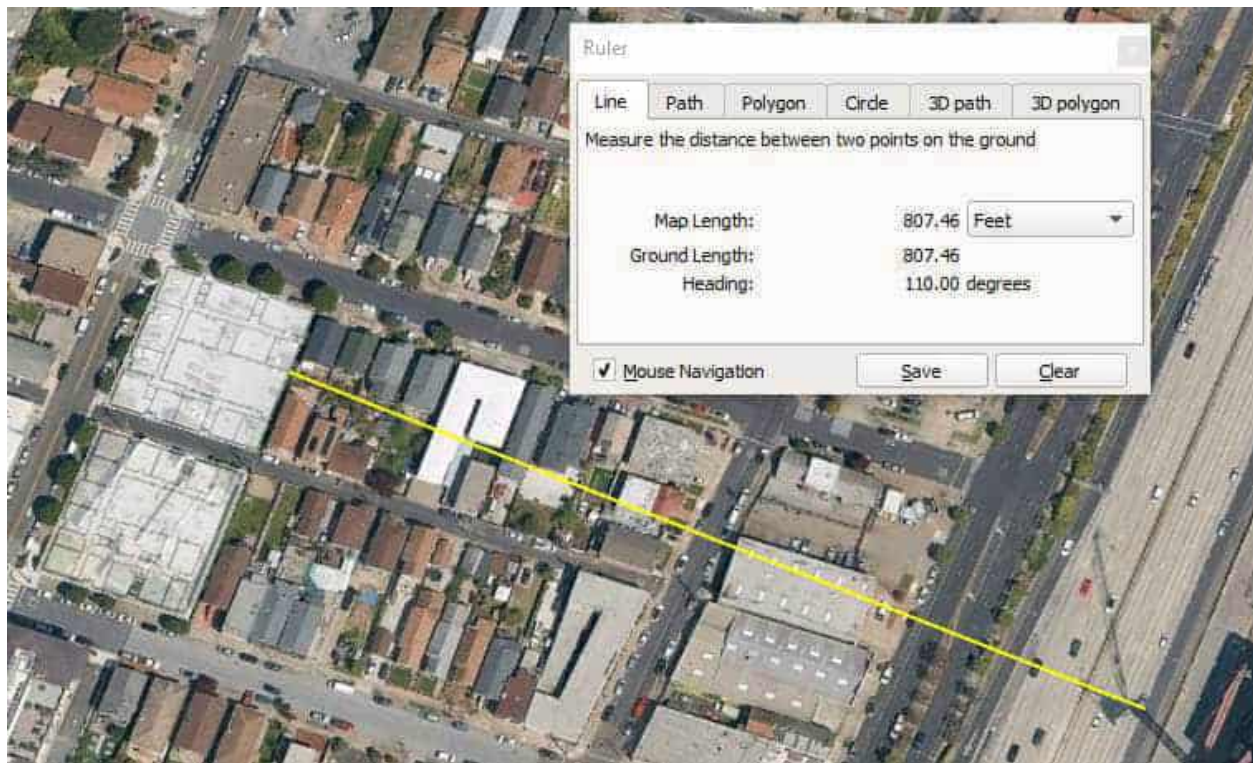
US Route 101

No direct line of sight

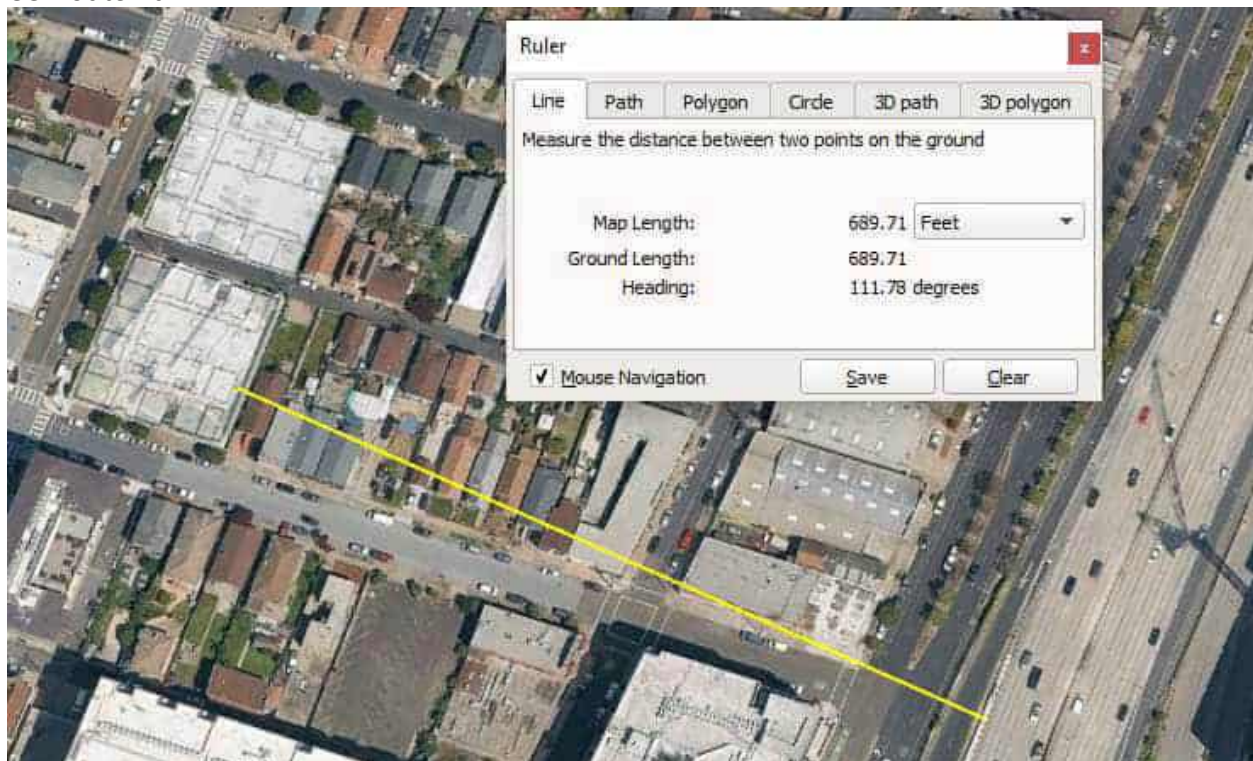
NAL #5 – Northern building roof deck

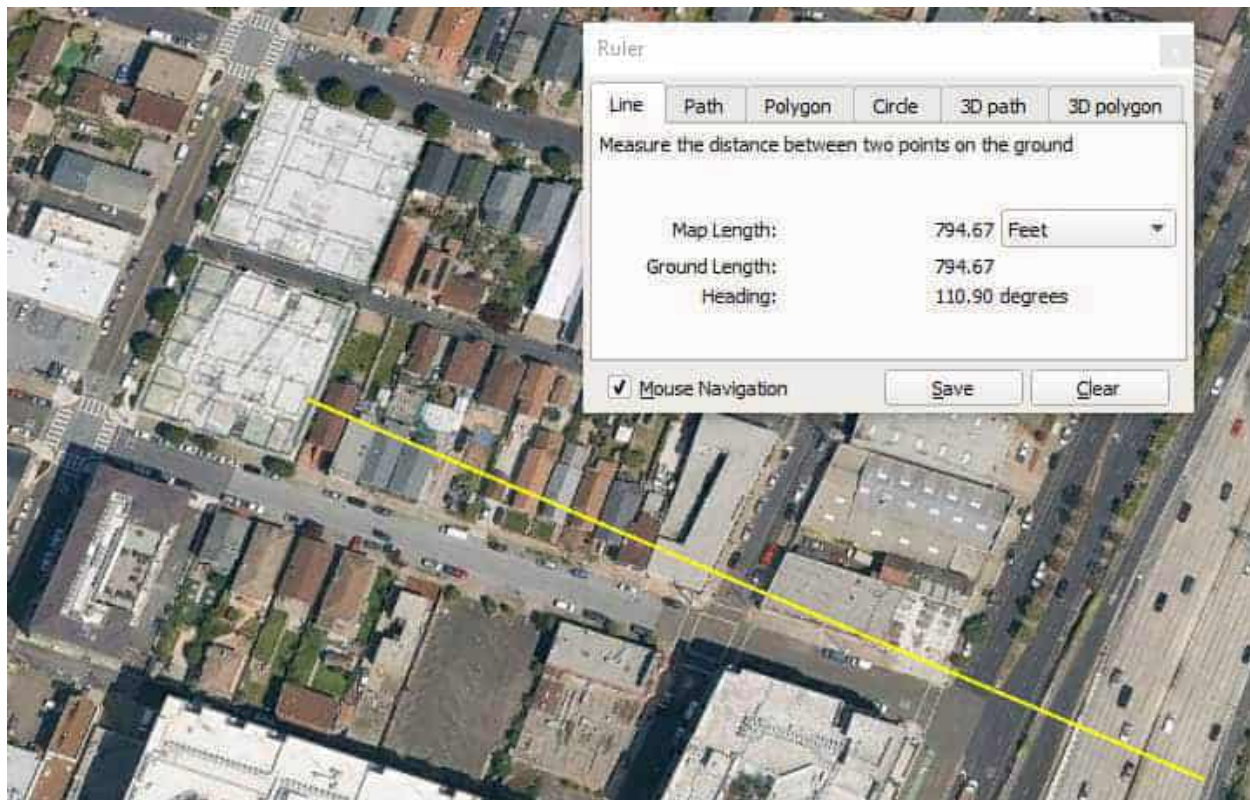
US Route 101





NAL #6 – Southern building roof deck
US Route 101





TRAFFIC COUNT PROJECTION WORKSHEET

U.S. Route 101

2023 AADT: 205,000

YEAR	CAR COUNT	2.00%	NEW CC	MEDIUM TRUCK COUNT	HEAVY TRUCK COUNT	2.00%	NEW MEDIUM TC	NEW HEAVY TC
2024	195,551.55	1.02	199,462.58	6,203.30	3,245.15	1.02	6,327.37	3,310.05
2025	199,462.58	1.02	203,451.83	6,327.37	3,310.05	1.02	6,453.91	3,376.25
2026	203,451.83	1.02	207,520.87	6,453.91	3,376.25	1.02	6,582.99	3,443.78
2027	207,520.87	1.02	211,671.29	6,582.99	3,443.78	1.02	6,714.65	3,512.65
2028	211,671.29	1.02	215,904.71	6,714.65	3,512.65	1.02	6,848.94	3,582.91
2029	215,904.71	1.02	220,222.81	6,848.94	3,582.91	1.02	6,985.92	3,654.57
2030	220,222.81	1.02	224,627.26	6,985.92	3,654.57	1.02	7,125.64	3,727.66
2031	224,627.26	1.02	229,119.81	7,125.64	3,727.66	1.02	7,268.15	3,802.21
2032	229,119.81	1.02	233,702.20	7,268.15	3,802.21	1.02	7,413.52	3,878.25
2033	233,702.20	1.02	238,376.25	7,413.52	3,878.25	1.02	7,561.79	3,955.82
2034	238,376.25	1.02	243,143.77	7,561.79	3,955.82	1.02	7,713.02	4,034.94
2035	243,143.77	1.02	248,006.65	7,713.02	4,034.94	1.02	7,867.28	4,115.63
			248,007				7,867	4,116

NOTES: Nighttime Traffic = 15%
 Road Gradient = 0%
 Annual Growth Rate = 2%

205,000 - Current AADT/traffic count (2023)
6,203 - Current Medium Truck Count (3.026%)
3,245 - Current Heavy Truck Count (1.583%)
195,552 - Current Car Count (95.391%)

Goldschmidt, Jackie

From: Goldschmidt, Jackie
Sent: Tuesday, October 21, 2025 5:46 PM
To: 'Engineering@ssf.net'
Cc: Lawlor, Michael
Subject: Traffic Data Request - Liberty Bank - 500 Linden Avenue, South San Francisco, CALIFORNIA 94080 (25-551454.1)
Attachments: Roadway Map 1000 Ft Radius.pdf

Hello,

We are completing a noise assessment per HUD requirements for a property located in San Mateo County at 500 Linden Ave, South San Francisco, CA 94080. We have already pulled traffic data available from the state of California; however, we are reaching out to see if any local traffic data is available. If available, can you please provide the following information/documentation for the below indicated roadways?

Roadways (Near the intersection of Linden Avenue and Lux Avenue)

- Juniper Avenue
- Aspen Avenue
- 8th Lane
- Pine Avenue
- 7th Lane
- California Avenue
- 6th Lane
- Lux Avenue
- Tamarack Lane
- Miller Avenue
- 4th Lane
- Grane Avenue
- 3rd Lane
- Maple Avenue
- Hawthorne Place
- Olive Avenue
- Hickory Place
- Linden Avenue
- Cypress Avenue

Request

- 10-year projected AADT (Year 2035)
- Most recent AADT
- FHWA Vehicle Classification Counts OR Truck Percentages (utilizing FHWA Class 5 for medium trucks and Classes 4 and 6-12 for heavy trucks)
- Hourly Volume Counts (per class, if available)
- Annual Growth Rate Percentage

Thank you for any assistance you are able to provide. If additional information is needed to fill the above request, please let me know.

Thank you,

Jackie Goldschmidt
Senior Project Assessor

PARTNER ENGINEERING AND SCIENCE, INC.

6600 France Avenue South, Suite 680, Edina, MN 55435
C: 320-905-1775 | O: 952-209-3780 | F: 612-293-0892

APPENDIX C: RAILWAY SUPPORTING DATA

U. S. DOT CROSSING INVENTORY FORM

DEPARTMENT OF TRANSPORTATION

FEDERAL RAILROAD ADMINISTRATION

OMB No. 2130-0017

Instructions for the initial reporting of the following types of new or previously unreported crossings: For public highway-rail grade crossings, complete the entire inventory Form. For private highway-rail grade crossings, complete the Header, Parts I and II, and the Submission Information section. For public pathway grade crossings (including pedestrian station grade crossings), complete the Header, Parts I and II, and the Submission Information section. For Private pathway grade crossings, complete the Header, Parts I and II, and the Submission Information section. For grade-separated highway-rail or pathway crossings (including pedestrian station crossings), complete the Header, Part I, and the Submission Information section. For changes to existing data, complete the Header, Part I Items 1-3, and the Submission Information section, in addition to the updated data fields. Note: For private crossings only, Part I Item 20 and Part III Item 2.K. are required unless otherwise noted. An asterisk * denotes an optional field.

A. Revision Date (MM/DD/YYYY) 09 / 29 / 2025	B. Reporting Agency ☒ Railroad ☐ Transit ☐ State ☐ Other	C. Reason for Update (Select only one) ☒ Change in Data ☐ New Crossing ☐ Closed ☐ Re-Open ☐ Date Change Only ☐ Change in Primary Operating RR ☐ No Train Traffic ☐ Quiet Zone Update ☐ Admin. Correction	D. DOT Crossing Inventory Number 754840S
---	--	--	--

Part I: Location and Classification Information

1. Primary Operating Railroad Union Pacific Railroad Company [UP]		2. State CALIFORNIA		3. County SAN MATEO	
4. City / Municipality ☒ In ☐ Near SOUTH SAN FRANCISCO		5. Street/Road Name & Block Number PRIVATE ROAD (Street/Road Name) * (Block Number)		6. Highway Type & No. NA	
7. Do Other Railroads Operate a Separate Track at Crossing? ☐ Yes ☒ No If Yes, Specify RR			8. Do Other Railroads Operate Over Your Track at Crossing? ☐ Yes ☒ No If Yes, Specify RR		
9. Railroad Division or Region ☐ None WESTERN		10. Railroad Subdivision or District ☐ None SAN FRANCISCO		11. Branch or Line Name ☐ None SP-SO.SF BELT	
12. RR Milepost 0009.75 (prefix) (nnnn.nnn) (suffix)		13. Line Segment * E-9.75X			
14. Nearest RR Timetable Station * SO SAN FRAN		15. Parent RR (if applicable) ☒ N/A		16. Crossing Owner (if applicable) ☒ N/A	
17. Crossing Type ☐ Public ☒ Private	18. Crossing Purpose ☒ Highway ☐ Pathway, Ped. ☐ Station, Ped.	19. Crossing Position ☒ At Grade ☐ RR Under ☐ RR Over	20. Public Access (if Private Crossing) ☐ Yes ☒ No	21. Type of Train ☒ Freight ☐ Intercity Passenger ☐ Commuter ☐ Transit ☐ Shared Use Transit ☐ Tourist/Other	22. Average Passenger Train Count Per Day ☐ Less Than One Per Day ☐ Number Per Day 0
23. Type of Land Use ☐ Open Space ☐ Farm ☐ Residential ☐ Commercial ☒ Industrial ☐ Institutional ☐ Recreational ☐ RR Yard					
24. Is there an Adjacent Crossing with a Separate Number? ☐ Yes ☒ No If Yes, Provide Crossing Number			25. Quiet Zone (FRA provided) ☒ No ☐ 24 Hr ☐ Partial ☐ Chicago Excused Date Established		
26. HSR Corridor ID ☐ N/A	27. Latitude in decimal degrees (WGS84 std: nn.nnnnnnn) 37.6515850		28. Longitude in decimal degrees (WGS84 std: -nnn.nnnnnnn) -122.4080000		29. Lat/Long Source ☒ Actual ☐ Estimated
30.A. Railroad Use *			31.A. State Use *		
30.B. Railroad Use *			31.B. State Use *		
30.C. Railroad Use *			31.C. State Use *		
30.D. Railroad Use *			31.D. State Use *		
32.A. Narrative (Railroad Use) *			32.B. Narrative (State Use) *		
33. Emergency Notification Telephone No. (posted) 800-848-8715		34. Railroad Contact (Telephone No.) 402-544-3721		35. State Contact (Telephone No.) 415-703-3722	

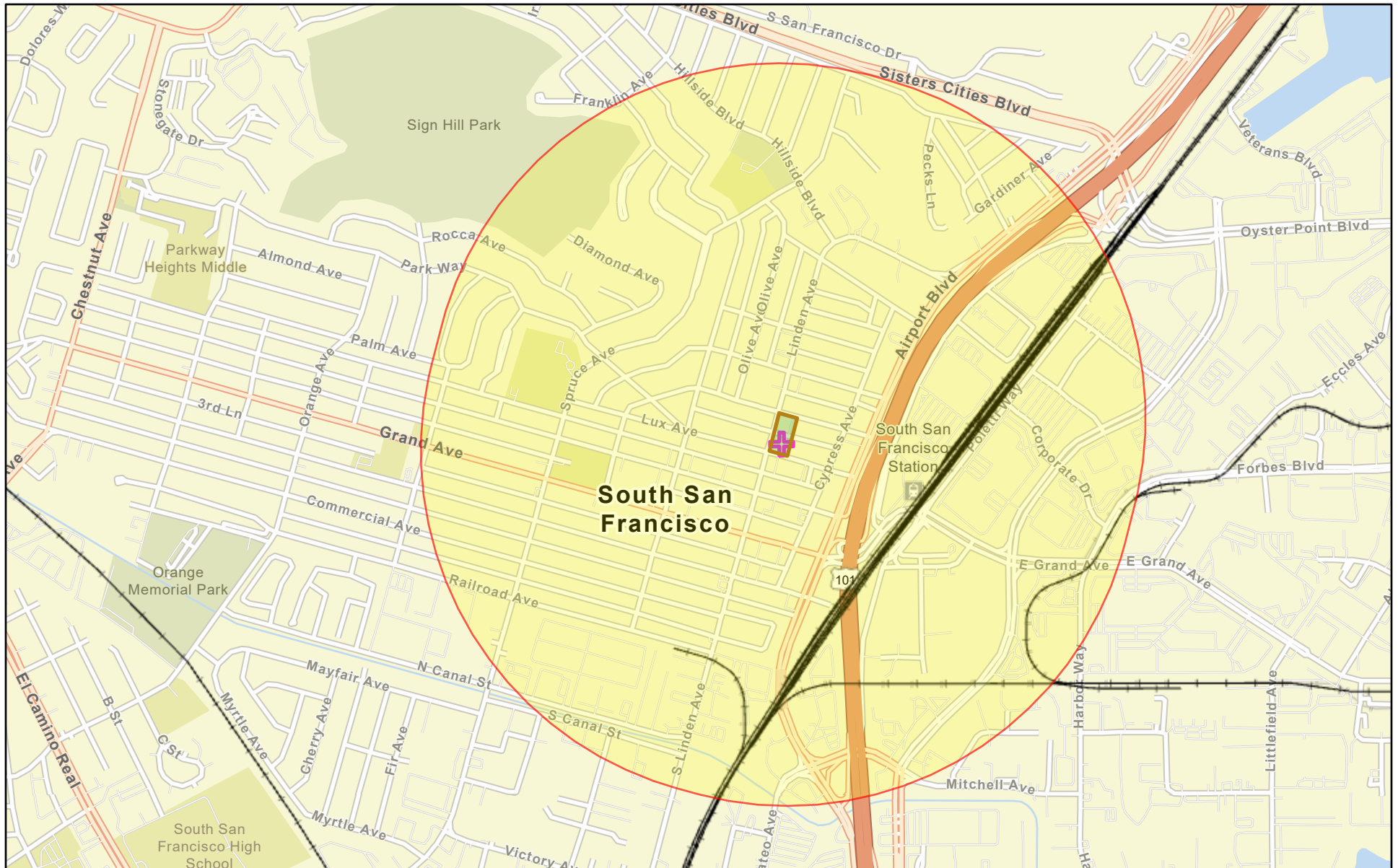
Part II: Railroad Information

1. Estimated Number of Daily Train Movements				
1.A. Total Day Thru Trains (6 AM to 6 PM) 1	1.B. Total Night Thru Trains (6 PM to 6 AM) 1	1.C. Total Switching Trains 0	1.D. Total Transit Trains 0	1.E. Check if Less Than One Movement Per Day How many trains per week? ☐
2. Year of Train Count Data (YYYY) 2025		3. Speed of Train at Crossing 3.A. Maximum Timetable Speed (mph) 10 3.B. Typical Speed Range Over Crossing (mph) From 5 to 10		
4. Type and Count of Tracks Main 0 Siding 0 Yard 0 Transit 0 Industry 1				
5. Train Detection (Main Track only) ☐ Constant Warning Time ☐ Motion Detection ☐ AFO ☐ PTC ☐ DC ☐ Other ☒ None				
6. Is Track Signaled? ☐ Yes ☒ No		7.A. Event Recorder ☐ Yes ☒ No		7.B. Remote Health Monitoring ☐ Yes ☒ No

U. S. DOT CROSSING INVENTORY FORM

A. Revision Date (MM/DD/YYYY) 09/29/2025		PAGE 2		D. Crossing Inventory Number (7 char.) 754840S	
Part III: Highway or Pathway Traffic Control Device Information					
1. Are there Signs or Signals? ☒ Yes ☐ No		2. Types of Passive Traffic Control Devices associated with the Crossing			
2.A. Crossbuck Assemblies (count) 0		2.B. STOP Signs (R1-1) (count) 0	2.C. YIELD Signs (R1-2) (count)	2.D. Advance Warning Signs (Check all that apply; include count) ☒ None ☐ W10-1 ☐ W10-3 ☐ W10-11 ☐ W10-2 ☐ W10-4 ☐ W10-12	
2.E. Low Ground Clearance Sign (W10-5) ☐ Yes (count _____) ☐ No		2.F. Pavement Markings ☐ Stop Lines ☐ Dynamic Envelope ☐ RR Xing Symbols ☐ None		2.G. Channelization Devices/Medians ☐ All Approaches ☐ Median ☐ One Approach ☐ None	
2.H. EXEMPT Sign (R15-3) ☐ Yes ☐ No		2.I. ENS Sign (I-13) Displayed ☒ Yes ☐ No			
2.J. Other MUTCD Signs Specify Type _____ Count _____ Specify Type _____ Count _____ Specify Type _____ Count _____		2.K. Private Crossing Signs (if private) ☒ Yes ☐ No		2.L. LED Enhanced Signs (List types)	
3. Types of Train Activated Warning Devices at the Grade Crossing (specify count of each device for all that apply)					
3.A. Gate Arms (count) Roadway <u>2</u> Pedestrian _____		3.B. Gate Configuration ☒ 2 Quad ☐ Full (Barrier) Resistance ☐ 3 Quad ☐ Median Gates ☐ 4 Quad		3.C. Cantilevered (or Bridged) Flashing Light Structures (count) Over Traffic Lane <u>0</u> ☐ Incandescent Not Over Traffic Lane <u>0</u> ☐ LED	
3.D. Mast Mounted Flashing Lights (count of masts) <u>2</u> ☐ Incandescent ☒ LED ☒ Back Lights Included ☐ Side Lights Included		3.E. Total Count of Flashing Light Pairs 4			
3.F. Installation Date of Current Active Warning Devices: (MM/YYYY) _____/_____/_____ ☐ Not Required		3.G. Wayside Horn ☐ Yes Installed on (MM/YYYY) ____/____/_____ ☐ No		3.H. Highway Traffic Signals Controlling Crossing ☐ Yes ☒ No	
3.I. Bells (count) 2		3.J. Non-Train Active Warning ☐ Flagging/Flagman ☐ Manually Operated Signals ☐ Watchman ☐ Floodlighting ☐ None			
3.K. Other Flashing Lights or Warning Devices Count <u>0</u> Specify type _____					
4.A. Does nearby Hwy Intersection have Traffic Signals? ☐ Yes ☐ No		4.B. Hwy Traffic Signal Interconnection ☐ Not Interconnected ☐ For Traffic Signals ☐ For Warning Signs		4.C. Hwy Traffic Signal Preemption ☐ Simultaneous ☐ Advance	
5. Highway Traffic Pre-Signals ☐ Yes ☐ No Storage Distance * _____ Stop Line Distance * _____		6. Highway Monitoring Devices (Check all that apply) ☐ Yes - Photo/Video Recording ☐ Yes - Vehicle Presence Detection ☐ None			
Part IV: Physical Characteristics					
1. Traffic Lanes Crossing Railroad Number of Lanes <u>2</u> ☐ One-way Traffic ☒ Two-way Traffic ☐ Divided Traffic		2. Is Roadway/Pathway Paved? ☒ Yes ☐ No		3. Does Track Run Down a Street? ☐ Yes ☐ No	
4. Is Crossing Illuminated? (Street lights within approx. 50 feet from nearest rail) ☐ Yes ☐ No		5. Crossing Surface (on Main Track, multiple types allowed) Installation Date * (MM/YYYY) ____/____/_____ ☐ 1 Timber ☐ 2 Asphalt ☐ 3 Asphalt and Timber ☐ 4 Concrete ☐ 5 Concrete and Rubber ☐ 6 Rubber ☐ 7 Metal ☐ 8 Unconsolidated ☐ 9 Composite ☐ 10 Other (specify) _____			
6. Intersecting Roadway within 500 feet? ☐ Yes ☐ No If Yes, Approximate Distance (feet) _____		7. Smallest Crossing Angle ☐ 0° - 29° ☐ 30° - 59° ☐ 60° - 90°		8. Is Commercial Power Available? * ☐ Yes ☐ No	
Part V: Public Highway Information					
1. Highway System ☐ (01) Interstate Highway System ☐ (02) Other Nat Hwy System (NHS) ☐ (03) Federal AID, Not NHS ☐ (08) Non-Federal Aid		2. Functional Classification of Road at Crossing ☐ (0) Rural ☐ (1) Urban ☐ (1) Interstate ☐ (5) Major Collector ☐ (2) Other Freeways and Expressways ☐ (3) Other Principal Arterial ☐ (6) Minor Collector ☐ (4) Minor Arterial ☐ (7) Local		3. Is Crossing on State Highway System? ☐ Yes ☐ No	
4. Highway Speed Limit _____ MPH ☐ Posted ☐ Statutory		5. Linear Referencing System (LRS Route ID) *			
6. LRS Milepost *					
7. Annual Average Daily Traffic (AADT) Year <u>1970</u> AADT _____		8. Estimated Percent Trucks _____ %		9. Regularly Used by School Buses? ☐ Yes ☒ No Average Number per Day <u>0</u>	
10. Emergency Services Route ☐ Yes ☐ No					
Submission Information - This information is used for administrative purposes and is not available on the public website.					
Submitted by _____ Organization _____ Phone _____ Date _____					
Public reporting burden for this information collection is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed and completing and reviewing the collection of information. According to the Paperwork Reduction Act of 1995, a federal agency may not conduct or sponsor, and a person is not required to, nor shall a person be subject to a penalty for failure to comply with, a collection of information unless it displays a currently valid OMB control number. The valid OMB control number for information collection is 2130-0017. Send comments regarding this burden estimate or any other aspect of this collection, including for reducing this burden to: Information Collection Officer, Federal Railroad Administration, 1200 New Jersey Ave. SE, MS-25 Washington, DC 20590.					

3000-Ft Radius Map



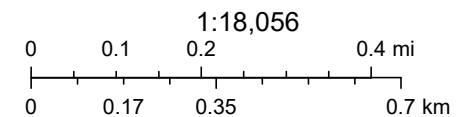
October 20, 2025

 Project Buffer

 Search Result (point)

 Liberty Bank, aka Rotary Gardens

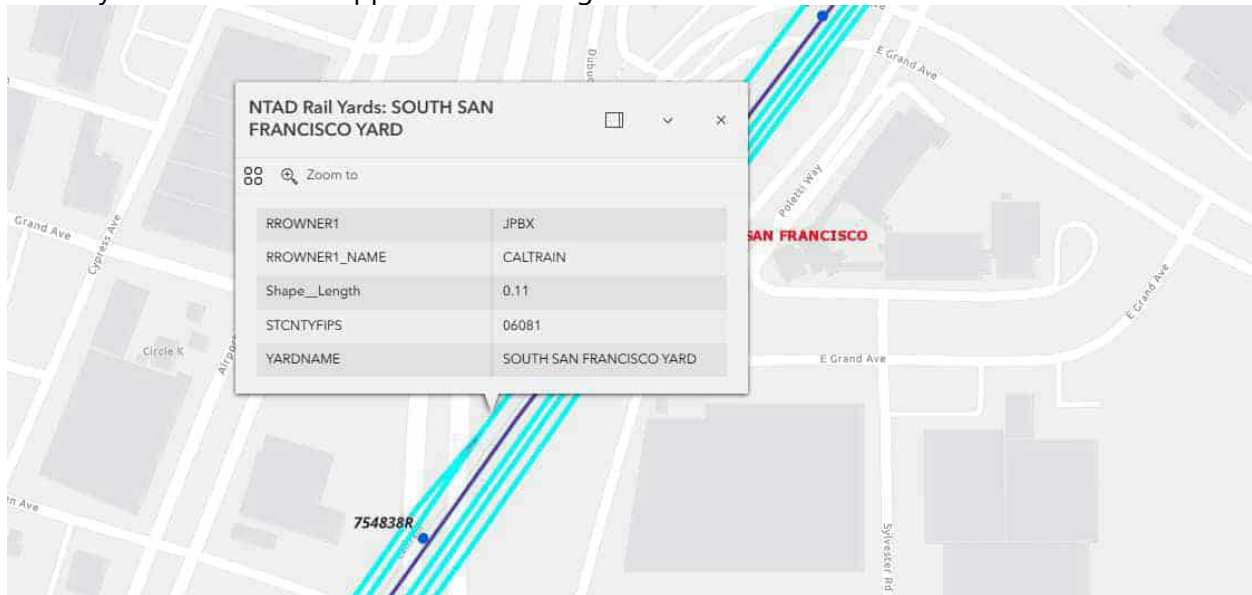
 Railroads



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, EPA OEI

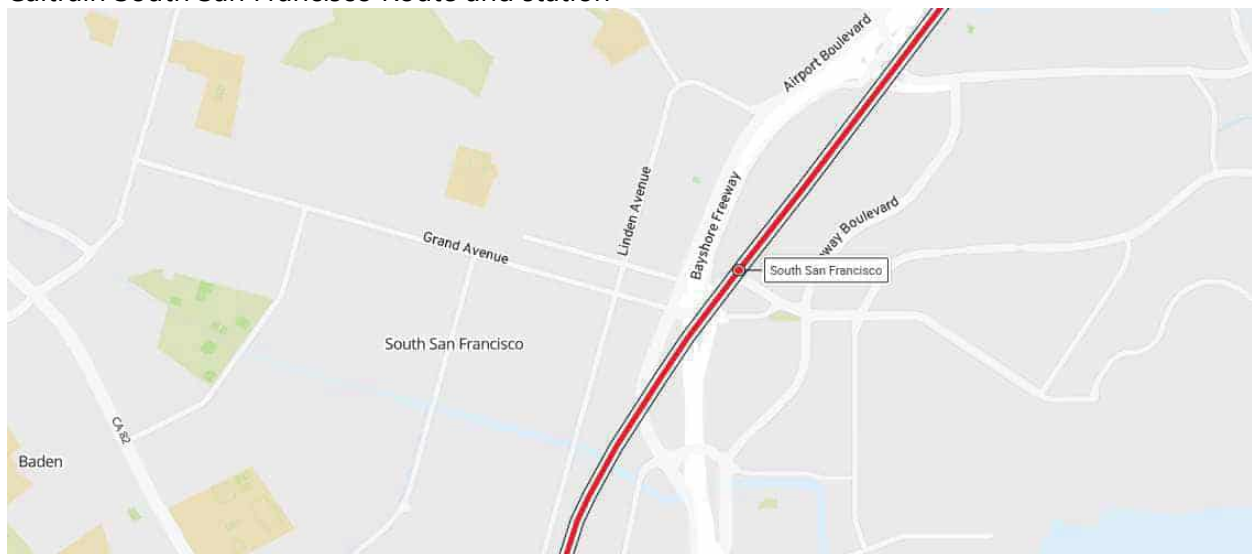


*Nearby railroad corridor appears to be designated as "South San Francisco Yard"

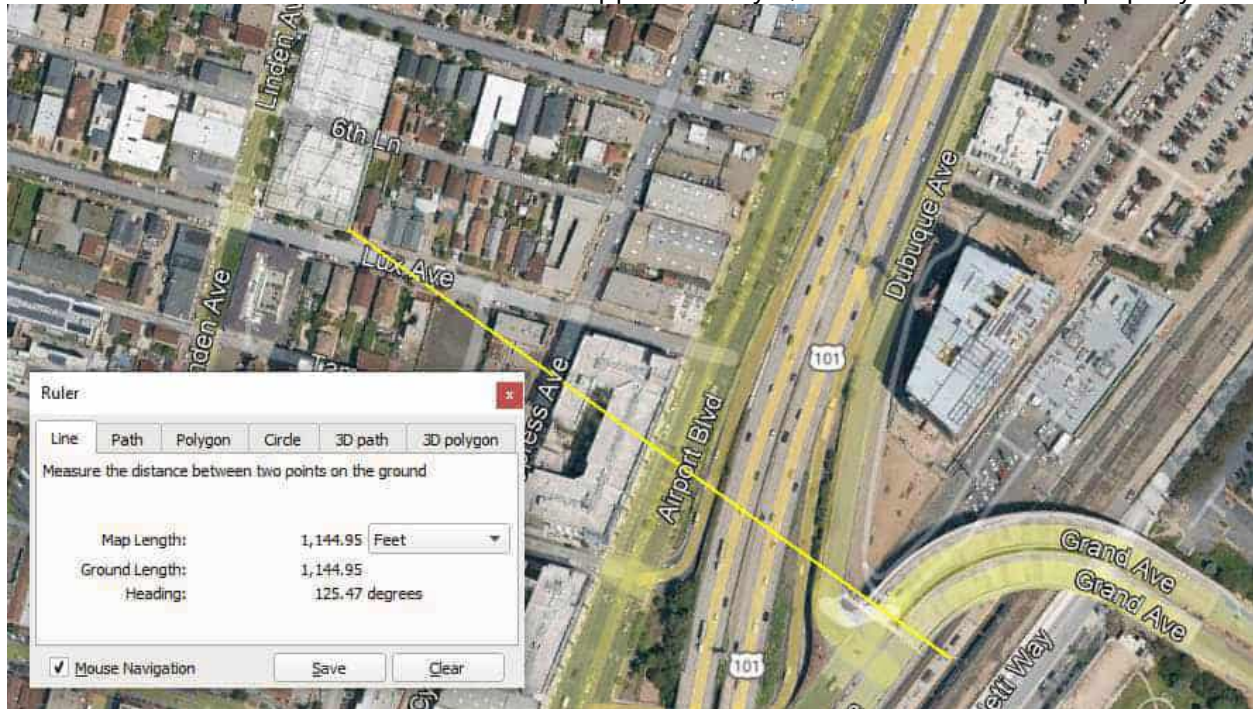


Caltrain (Peninsula Corridor Joint Powers Board [PCJX])

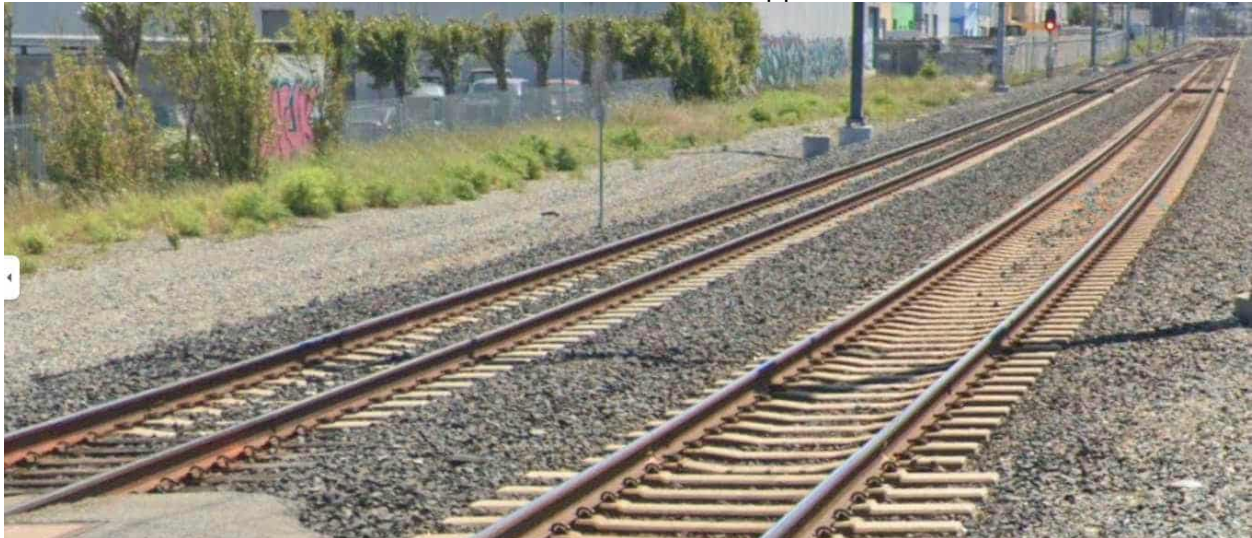
Caltrain South San Francisco Route and station



Caltrain South San Francisco Station located approximately 1,145-feet southeast of property



Intersection of Linden Avenue and Dollar Avenue – tracks appear to be welded



Nighttime % (calculated based on 10pm-7am time): $17/104 = 16\%$

*Refer to the Caltrain schedule attachment

UP

Spur from UP tracks appear to be bolted



Nighttime Fraction for all railroads:

Railroad Name	Trains Day (TD)	Trains Night (TN)	Trains Switching (TS)	Night ATO
Caltrain	68	36	0	0.2596
Union Pacific (Main corridor)	0	8	4	0.6250
Union Pacific (east bound)	1	1	0	0.3750

$$((TN \times 0.75) + (TS \times 0.375)) \div (TD + TN + TS) = \text{Night ATO}$$

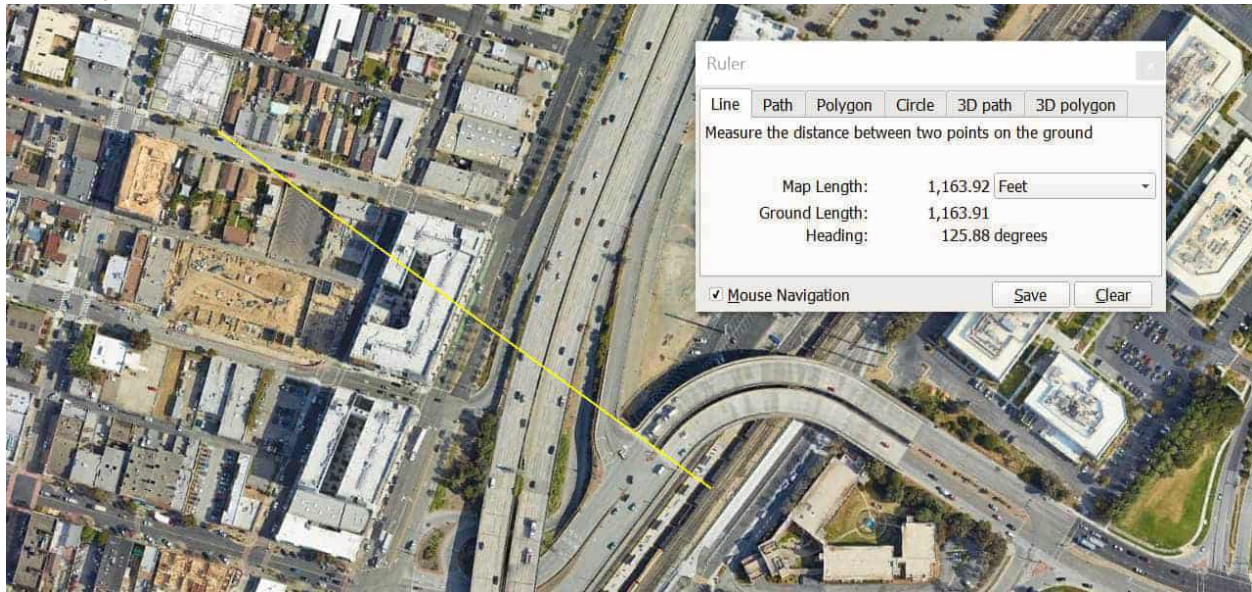
Note: Caltrain and UP tracks were combined on one Inventory Report (see below). The Caltrain schedule was available online (<https://www.caltrain.com/media/34716>) and was used to determine total train operations per day and train operations between 6am-6pm and subtracted from the totals in the Inventory Report. Remaining trains were assigned to UP. All switching train operations were assumed to be freight (UP) and not commuter (Caltrain).

104 Total Caltrains 112 Total Trains on shared tracks		Part II: Railroad Inform
1. Estimated Number of Daily Train Movements		
1.A. Total Day Thru Trains (6 AM to 6 PM) 68	1.B. Total Night Thru Trains (6 PM to 6 AM) 44	1.C. Total Switching Trains 4
2. Year of Train Count Data (YYYY) 2024		
36 Caltrain trains 8 UP trains		

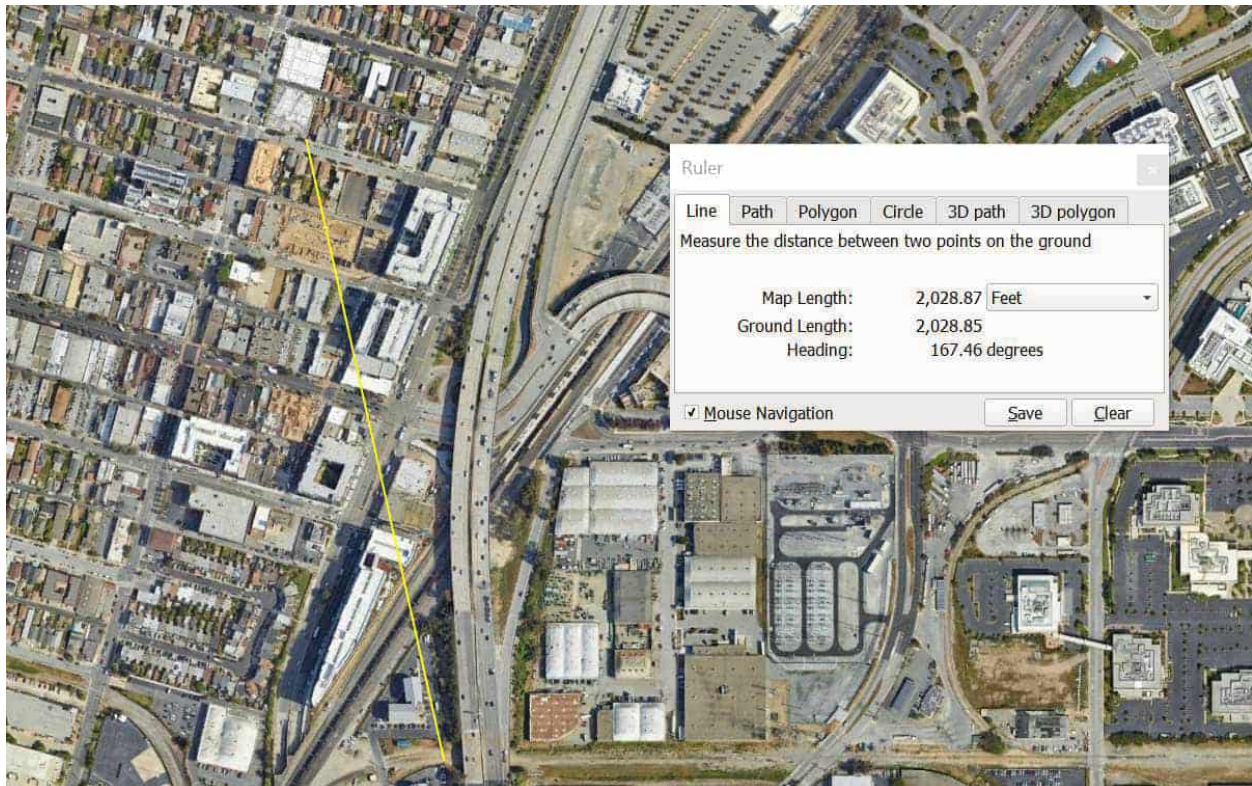


NAL #1

Caltrain/Union Pacific Railroad

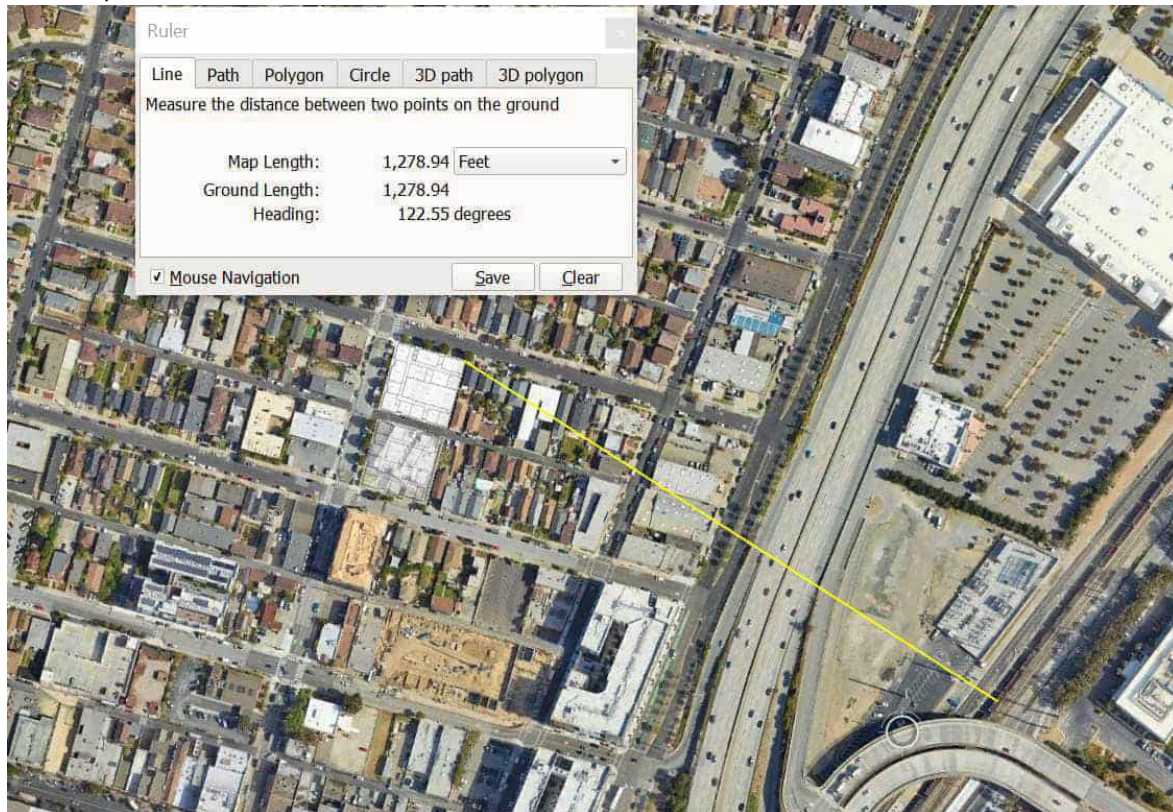


Union Pacific Railroad

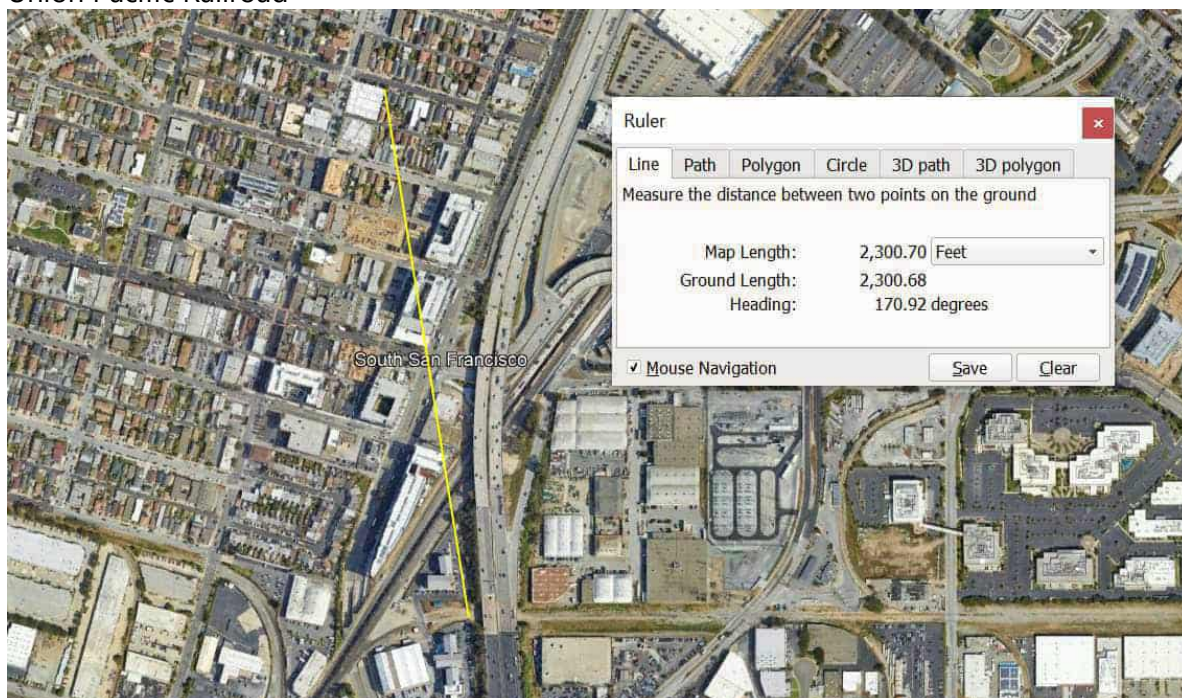


NAL #2

Caltrain/Union Pacific Railroad

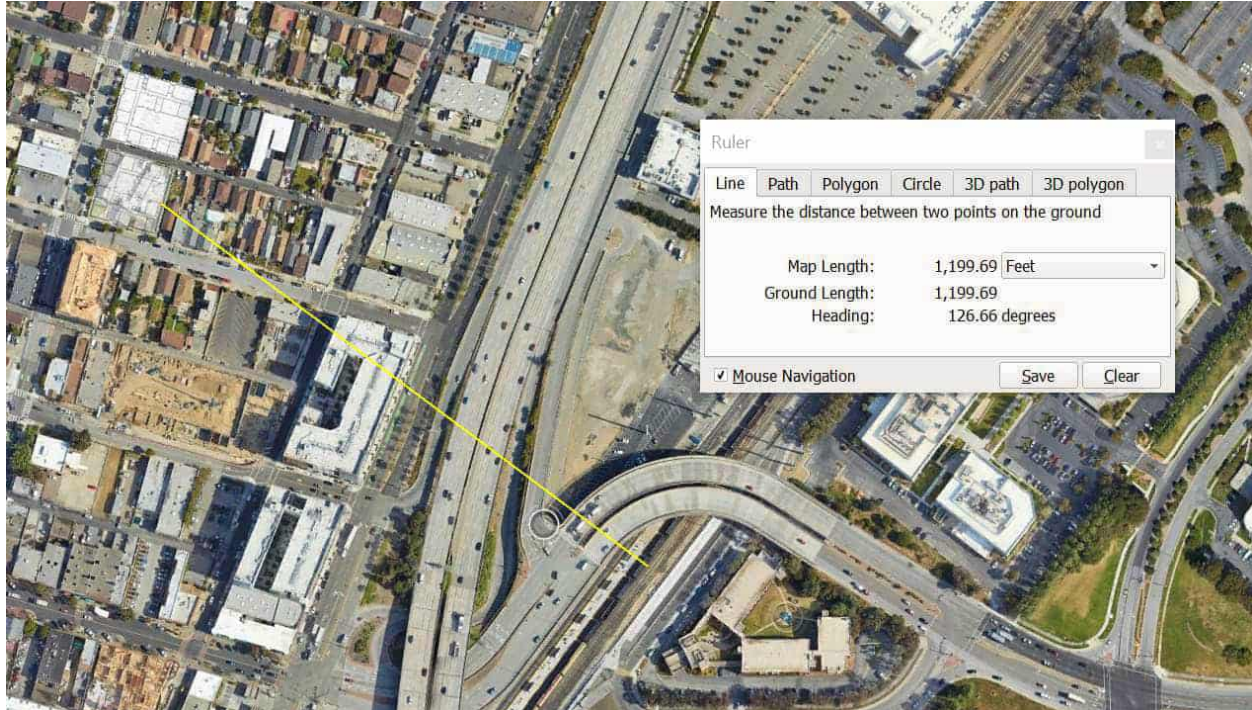


Union Pacific Railroad



NAL #3 and 5

Caltrain/Union Pacific Railroad

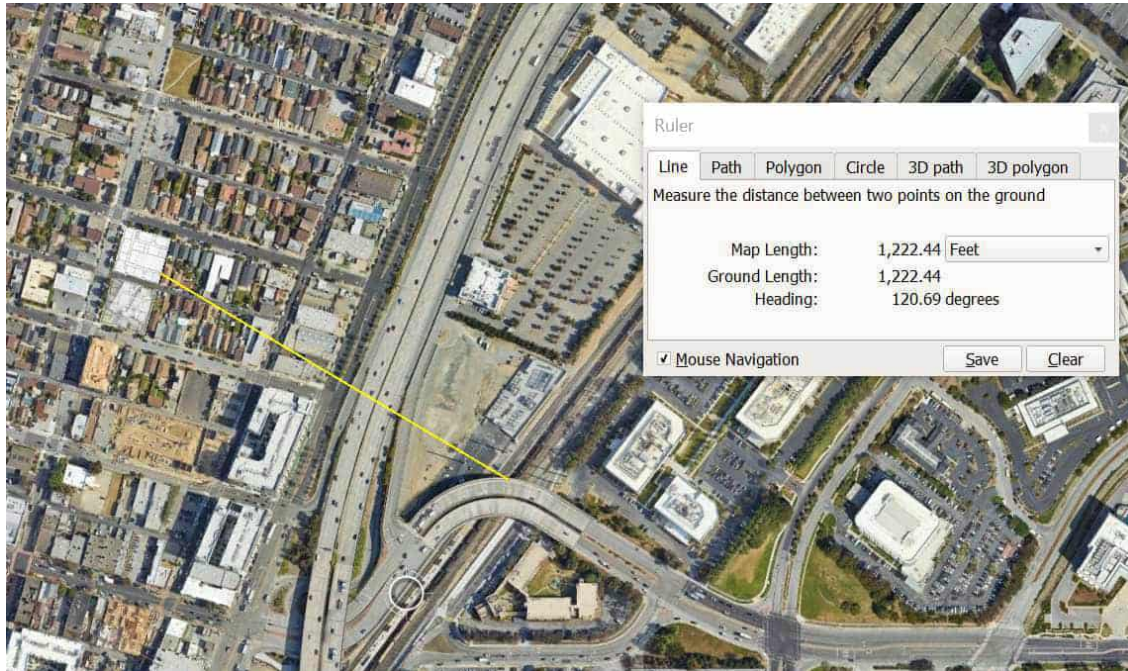


Union Pacific Railroad

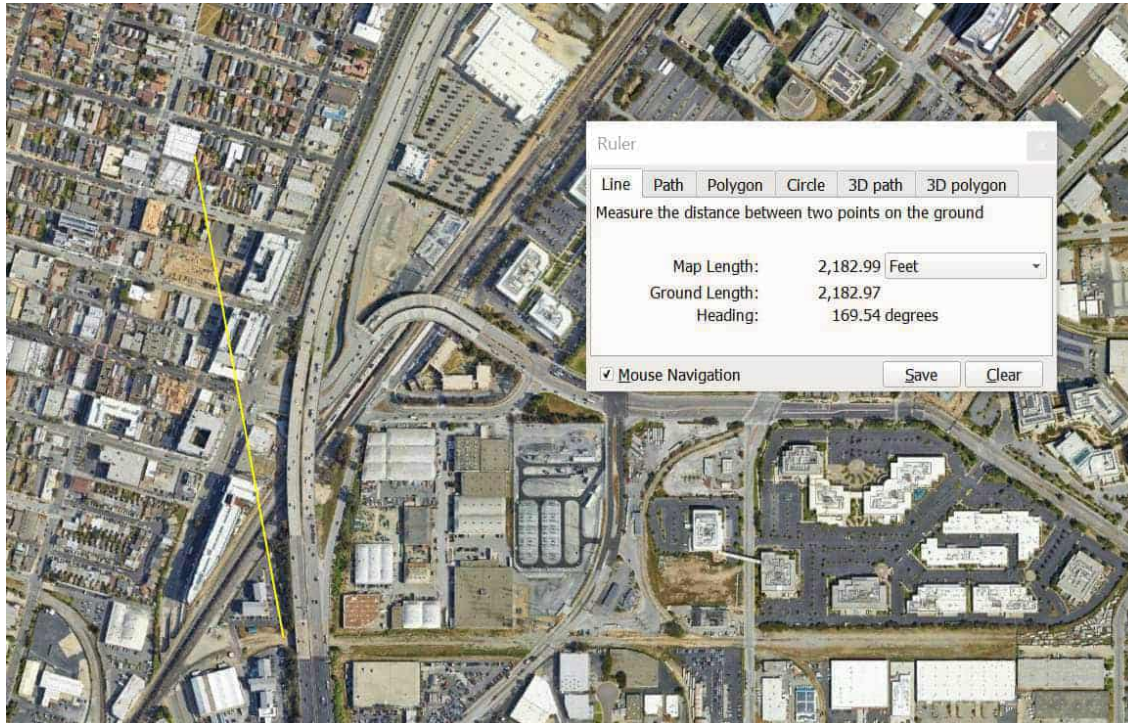


NAL #4 and 6

Caltrain/Union Pacific Railroad



Union Pacific Railroad



Printer-Friendly WEEKDAY Caltrain Schedule

Morning to Early Afternoon – Page 1 of 2

104 total trains

36 nighttime trains (6am-6pm)



Northbound – WEEKDAY SERVICE to SAN FRANCISCO

	Train No.	101	103	401	105	503	107	805	405	109	807	507	111	809	409	113	811	511	115	413	117	119	121	123	125	127	129	131	133
ZONE 6	Gilroy							5:52a			6:31a			6:52a			7:31a												
	San Martin							6:04a			6:43a			7:04a			7:43a												
ZONE 5	Morgan Hill							6:10a			6:49a			7:10a			7:49a												
	Blossom Hill							6:23a			7:02a			7:23a			8:02a												
	Capitol							6:29a			7:08a			7:29a			8:08a												
ZONE 4	Tamien	4:37a			5:52a	—	-	6:35a	-	6:52a	7:14a			7:35a		7:47a	8:14a				8:52a		9:52a		10:52a		11:52a		12:52p
	San Jose Diridon	4:43a	5:08a	5:43a	5:58a	6:22a	6:28a	6:40a	6:43a	6:58a	7:19a	7:22a	7:28a	7:40a	7:43a	7:53a	8:19a	8:22a	8:28a	8:43a	8:58a	9:28a	9:58a	10:28a	10:58a	11:28a	11:58a	12:28p	12:58p
	College Park	—	—	—	—	—	—	—	—	—		—	—		—	8:01a		—	—	—	—	—	—	—	—	—	—	—	—
	Santa Clara	4:49a	5:14a	5:49a	6:04a	—	6:34a		6:49a	7:04a		—	7:34a		7:49a	8:04a		—	8:34a	8:49a	9:04a	9:34a	10:04a	10:34a	11:04a	11:34a	12:04p	12:34p	1:04p
	Lawrence	4:54a	5:19a	5:54a	6:09a	—	6:39a		6:54a	7:09a		—	7:39a		7:54a	8:09a		—	8:39a	8:54a	9:09a	9:39a	10:09a	10:39a	11:09a	11:39a	12:09p	12:39p	1:09p
	Sunnyvale	4:57a	5:22a	5:57a	6:12a	6:32a	6:42a		6:57a	7:12a		7:32a	7:42a		7:57a	8:12a		8:32a	8:42a	8:58a	9:12a	9:42a	10:12a	10:42a	11:12a	11:42a	12:12p	12:42p	1:12p
ZONE 3	Mountain View	5:01a	5:26a	6:01a	6:16a	6:36a	6:46a		7:01a	7:16a		7:36a	7:46a		8:01a	8:16a		8:36a	8:46a	9:01a	9:16a	9:46a	10:16a	10:46a	11:16a	11:46a	12:16p	12:46p	1:16p
	San Antonio	5:04a	5:29a	6:04a	6:19a	—	6:49a		7:04a	7:19a		—	7:49a		8:04a	8:19a		—	8:49a	9:04a	9:19a	9:49a	10:19a	10:49a	11:19a	11:49a	12:19p	12:49p	1:19p
	California Avenue	5:07a	5:32a	6:07a	6:22a	—	6:52a		7:07a	7:22a		—	7:52a		8:07a	8:22a		—	8:52a	9:07a	9:22a	9:52a	10:22a	10:52a	11:22a	11:52a	12:22p	12:52p	1:22p
	Palo Alto	5:10a	5:35a	6:10a	6:25a	6:43a	6:55a		7:10a	7:25a		7:43a	7:55a		8:10a	8:25a		8:43a	8:55a	9:11a	9:25a	9:55a	10:25a	10:55a	11:25a	11:55a	12:25p	12:55p	1:25p
	Menlo Park	5:13a	5:38a	6:13a	6:28a	—	6:58a		7:13a	7:28a		—	7:58a		8:13a	8:28a		-	8:58a	9:13a	9:28a	9:58a	10:28a	10:58a	11:28a	11:58a	12:28p	12:58p	1:28p
	Redwood City	5:18a	5:43a	6:18a	6:33a	6:49a	7:03a		7:18a	7:33a		7:49a	8:03a		8:18a	8:34a		8:49a	9:03a	9:18a	9:33a	10:03a	10:33a	11:03a	11:33a	12:03p	12:33p	1:03p	1:33p
	San Carlos	5:22a	5:47a	—	6:37a	—	7:07a		—	7:37a		—	8:07a		—	8:37a		—	9:07a	—	9:37a	10:07a	10:37a	11:07a	11:37a	12:07p	12:37p	1:07p	1:37p
	Belmont	5:24a	5:49a	—	6:39a	—	7:09a		—	7:39a		—	8:09a		—	8:39a		—	9:09a	—	9:39a	10:09a	10:39a	11:09a	11:39a	12:09p	12:39p	1:09p	1:39p
	Hillsdale	5:27a	5:52a	6:25a	6:42a	6:56a	7:12a		7:25a	7:42a		7:56a	8:12a		8:25a	8:43a		8:56a	9:12a	9:25a	9:42a	10:12a	10:42a	11:12a	11:42a	12:12p	12:42p	1:12p	1:42p
	Hayward Park	5:30a	5:55a	—	6:45a	—	7:15a		—	7:45a		—	8:15a		—	8:45a		—	9:15a	—	9:45a	10:15a	10:45a	11:15a	11:45a	12:15p	12:45p	1:15p	1:45p
	San Mateo	5:32a	5:57a	6:28a	6:47a	6:59a	7:17a		7:28a	7:47a		7:59a	8:17a		8:28a	8:47a		8:59a	9:17a	9:28a	9:47a	10:17a	10:47a	11:17a	11:47a	12:17p	12:47p	1:17p	1:47p
	Burlingame	5:35a	6:00a	—	6:50a	—	7:20a		—	7:50a		—	8:20a		—	8:50a		—	9:20a	—	9:50a	10:20a	10:50a	11:20a	11:50a	12:20p	12:50p	1:20p	1:50p
ZONE 2	Millbrae	5:39a	6:04a	6:33a	6:54a	7:04a	7:24a		7:33a	7:54a		8:04a	8:24a		8:33a	8:54a		9:04a	9:24a	9:33a	9:54a	10:24a	10:54a	11:24a	11:54a	12:24p	12:54p	1:24p	1:54p
	San Bruno	5:42a	6:07a	—	6:57a	—	7:27a		—	7:57a		—	8:27a		—	8:57a		—	9:27a	—	9:57a	10:27a	10:57a	11:27a	11:57a	12:27p	12:57p	1:27p	1:57p
	S. San Francisco	5:45a	6:10a	6:39a	7:00a	7:09a	7:30a		7:39a	8:00a		8:09a	8:30a		8:39a	9:00a		9:09a	9:30a	9:39a	10:00a	10:30a	11:00a	11:30a	12:00p	12:30p	1:00p	1:30p	2:00p
	Bayshore	5:50a	6:15a	—	7:05a	—	7:35a		—	8:05a		—	8:35a		—	9:05a		—	9:35a	—	10:05a	10:35a	11:05a	11:35a	12:05p	12:35p	1:05p	1:35p	2:05p
ZONE 1	22 nd Street	5:55a	6:20a	6:47a	7:10a	7:16a	7:40a		7:47a	8:10a		8:16a	8:40a		8:47a	9:10a		9:16a	9:40a	9:47a	10:10a	10:40a	11:10a	11:40a	12:10p	12:40p	1:10p	1:40p	2:10p
	San Francisco	6:01a	6:26a	6:53a	7:16a	7:22a	7:46a		7:53a	8:16a		8:22a	8:46a		8:53a	9:16a		9:22a	9:46a	9:53a	10:16a	10:46a	11:16a	11:46a	12:16p	12:46p	1:16p	1:46p	2:16p

1XX Local

4XX Limited

5XX Express

— Train bypasses station

8XX South County Connector

6:40a 6:43a

Timed transfers for South County Connector service

Timetable subject to change without notice

See Page 2 For Afternoon and Evening Times

EFFECTIVE January 27, 2025

Printer-Friendly WEEKDAY Caltrain Schedule

Afternoon to Evening – Page 2 of 2



Northbound – WEEKDAY SERVICE to SAN FRANCISCO

	Train No.	135	137	139	141	515	143	417	145	519	147	421	149	523	151	425	153	527	155	429	157	159	161	163	165	167	169	171	173
ZONE 6	Gilroy																												
	San Martin																												
	Morgan Hill																												
ZONE 5	Blossom Hill																												
	Capitol																												
ZONE 4	Tamien		1:52p		2:47p				3:52p				4:52p				5:52p				6:52p		7:52p		8:52p		9:52p		11:24p
	San Jose Diridon	1:28p	1:58p	2:28p	2:53p	3:22p	3:28p	3:43p	3:58p	4:22p	4:28p	4:43p	4:58p	5:22p	5:28p	5:43p	5:58p	6:22p	6:28p	6:43p	6:58p	7:28p	7:58p	8:28p	8:58p	9:28p	9:58p	10:30p	11:30p
	College Park	–	–	–	3:01p	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Santa Clara	1:34p	2:04p	2:34p	3:04p	–	3:34p	3:49p	4:04p	–	4:34p	4:49p	5:04p	–	5:34p	5:49p	6:04p	–	6:34p	6:49p	7:04p	7:34p	8:04p	8:34p	9:04p	9:34p	10:04p	10:36p	11:36p
	Lawrence	1:39p	2:09p	2:39p	3:09p	–	3:39p	3:54p	4:09p	–	4:39p	4:54p	5:09p	–	5:39p	5:54p	6:09p	–	6:39p	6:54p	7:09p	7:39p	8:09p	8:39p	9:09p	9:39p	10:09p	10:41p	11:41p
ZONE 3	Sunnyvale	1:42p	2:12p	2:42p	3:12p	3:32p	3:42p	3:57p	4:12p	4:32p	4:42p	4:57p	5:12p	5:32p	5:42p	5:57p	6:12p	6:32p	6:42p	6:57p	7:12p	7:42p	8:12p	8:42p	9:12p	9:42p	10:12p	10:44p	11:44p
	Mountain View	1:46p	2:16p	2:46p	3:16p	3:36p	3:46p	4:01p	4:16p	4:36p	4:46p	5:01p	5:16p	5:36p	5:46p	6:01p	6:16p	6:36p	6:46p	7:01p	7:16p	7:46p	8:16p	8:46p	9:16p	9:46p	10:16p	10:48p	11:48p
	San Antonio	1:49p	2:19p	2:49p	3:19p	–	3:49p	4:04p	4:19p	–	4:49p	5:04p	5:19p	–	5:49p	6:04p	6:19p	–	6:49p	7:04p	7:19p	7:49p	8:19p	8:49p	9:19p	9:49p	10:19p	10:51p	11:51p
	California Avenue	1:52p	2:22p	2:52p	3:22p	–	3:52p	4:07p	4:22p	–	4:52p	5:07p	5:22p	–	5:52p	6:07p	6:22p	–	6:52p	7:07p	7:22p	7:52p	8:22p	8:52p	9:22p	9:52p	10:22p	10:54p	11:54p
	Palo Alto	1:55p	2:25p	2:55p	3:25p	3:43p	3:55p	4:10p	4:25p	4:43p	4:55p	5:10p	5:25p	5:43p	5:55p	6:10p	6:25p	6:43p	6:55p	7:10p	7:25p	7:55p	8:25p	8:55p	9:25p	9:55p	10:25p	10:57p	11:57p
ZONE 2	Menlo Park	1:58p	2:28p	2:58p	3:28p	–	3:58p	4:13p	4:28p	–	4:58p	5:13p	5:28p	–	5:58p	6:13p	6:28p	–	6:58p	7:13p	7:28p	7:58p	8:28p	8:58p	9:28p	9:58p	10:28p	11:00p	12:00a
	Redwood City	2:03p	2:33p	3:03p	3:34p	3:49p	4:03p	4:18p	4:33p	4:49p	5:03p	5:18p	5:33p	5:49p	6:03p	6:18p	6:33p	6:49p	7:03p	7:18p	7:33p	8:03p	8:33p	9:03p	9:33p	10:03p	10:33p	11:05p	12:05a
	San Carlos	2:07p	2:37p	3:07p	3:37p	–	4:07p	–	4:37p	–	5:07p	–	5:37p	–	6:07p	–	6:37p	–	7:07p	–	7:37p	8:07p	8:37p	9:07p	9:37p	10:07p	10:37p	11:09p	12:09a
	Belmont	2:09p	2:39p	3:09p	3:39p	–	4:09p	–	4:39p	–	5:09p	–	5:39p	–	6:09p	–	6:39p	–	7:09p	–	7:39p	8:09p	8:39p	9:09p	9:39p	10:09p	10:39p	11:11p	12:11a
	Hillsdale	2:12p	2:42p	3:12p	3:43p	3:56p	4:12p	4:25p	4:42p	4:56p	5:12p	5:25p	5:42p	5:56p	6:12p	6:25p	6:42p	6:56p	7:12p	7:25p	7:42p	8:12p	8:42p	9:12p	9:42p	10:12p	10:42p	11:14p	12:14a
ZONE 1	Hayward Park	2:15p	2:45p	3:15p	3:45p	–	4:15p	–	4:45p	–	5:15p	–	5:45p	–	6:15p	–	6:45p	–	7:15p	–	7:45p	8:15p	8:45p	9:15p	9:45p	10:15p	10:45p	11:17p	12:17a
	San Mateo	2:17p	2:47p	3:17p	3:47p	3:59p	4:17p	4:28p	4:47p	4:59p	5:17p	5:28p	5:47p	5:59p	6:17p	6:28p	6:47p	6:59p	7:17p	7:28p	7:47p	8:17p	8:47p	9:17p	9:47p	10:17p	10:47p	11:19p	12:19a
	Burlingame	2:20p	2:50p	3:20p	3:50p	–	4:20p	–	4:50p	–	5:20p	–	5:50p	–	6:20p	–	6:50p	–	7:20p	–	7:50p	8:20p	8:50p	9:20p	9:50p	10:20p	10:50p	11:22p	12:22a
	Millbrae	2:24p	2:54p	3:24p	3:54p	4:04p	4:24p	4:33p	4:54p	5:04p	5:24p	5:33p	5:54p	6:04p	6:24p	6:33p	6:54p	7:04p	7:24p	7:33p	7:54p	8:24p	8:54p	9:24p	9:54p	10:24p	10:54p	11:26p	12:26a
	San Bruno	2:27p	2:57p	3:27p	3:57p	–	4:27p	–	4:57p	–	5:27p	–	5:57p	–	6:27p	–	6:57p	–	7:27p	–	7:57p	8:27p	8:57p	9:27p	9:57p	10:27p	10:57p	11:29p	12:29a
	S. San Francisco	2:30p	3:00p	3:30p	4:00p	4:09p	4:30p	4:39p	5:00p	5:09p	5:30p	5:39p	6:00p	6:09p	6:30p	6:39p	7:00p	7:09p	7:30p	7:39p	8:00p	8:30p	9:00p	9:30p	10:00p	10:30p	11:00p	11:32p	12:32a
	Bayshore	2:35p	3:05p	3:35p	4:05p	–	4:35p	–	5:05p	–	5:35p	–	6:05p	–	6:35p	–	7:05p	–	7:35p	–	8:05p	8:35p	9:05p	9:35p	10:05p	10:35p	11:05p	11:37p	12:37a
	22 nd Street	2:40p	3:10p	3:40p	4:10p	4:16p	4:40p	4:47p	5:10p	5:16p	5:40p	5:47p	6:10p	6:16p	6:40p	6:47p	7:10p	7:16p	7:40p	7:47p	8:10p	8:40p	9:10p	9:40p	10:10p	10:40p	11:10p	11:42p	12:42a
	San Francisco	2:46p	3:16p	3:46p	4:16p	4:22p	4:46p	4:53p	5:16p	5:22p	5:46p	5:53p	6:16p	6:22p	6:46p	6:53p	7:16p	7:22p	7:46p	7:53p	8:16p	8:46p	9:16p	9:46p	10:16p	10:46p	11:16p	11:48p	12:48a

1XX Local

4XX Limited

5XX Express

— Train bypasses station

See Page 1 For Morning and Early Afternoon Times

Timetable subject to change without notice

EFFECTIVE January 27, 2025

Printer-Friendly WEEKDAY Caltrain Schedule

Morning to Early Afternoon – Page 1 of 2



Southbound – WEEKDAY SERVICE to SAN JOSE / GILROY

Train No.	102	104	502	106	404	108	506	110	408	112	510	114	412	116	118	120	122	124	126	128	130	132	134	136	138	140	514	814
San Francisco	4:55a	5:30a	6:20a	6:25a	6:48a	6:55a	7:20a	7:25a	7:48a	7:55a	8:20a	8:25a	8:48a	8:55a	9:25a	9:55a	10:25a	10:55a	11:25a	11:55a	12:25p	12:55p	1:25p	1:55p	2:25p	2:55p	3:20p	
22 nd Street	5:00a	5:35a	6:24a	6:30a	6:53a	7:00a	7:24a	7:30a	7:53a	8:00a	8:24a	8:30a	8:53a	9:00a	9:30a	10:00a	10:30a	11:00a	11:30a	12:00p	12:30p	1:00p	1:30p	2:00p	2:30p	3:00p	3:24p	
Bayshore	5:04a	5:39a	—	6:34a	—	7:04a	—	7:34a	—	8:04a	—	8:34a	—	9:04a	9:34a	10:04a	10:34a	11:04a	11:34a	12:04p	12:34p	1:04p	1:34p	2:04p	2:34p	3:04p	—	
S. San Francisco	5:10a	5:46a	6:32a	6:40a	7:01a	7:10a	7:32a	7:40a	8:01a	8:10a	8:32a	8:40a	9:01a	9:10a	9:40a	10:10a	10:40a	11:10a	11:40a	12:10p	12:40p	1:10p	1:40p	2:10p	2:40p	3:10p	3:32p	
San Bruno	5:13a	5:49a	—	6:43a	—	7:13a	—	7:43a	—	8:13a	—	8:43a	—	9:13a	9:43a	10:13a	10:43a	11:13a	11:43a	12:13p	12:43p	1:13p	1:43p	2:13p	2:43p	3:13p	—	
Millbrae	5:16a	5:52a	6:38a	6:46a	7:07a	7:16a	7:38a	7:46a	8:07a	8:16a	8:38a	8:46a	9:07a	9:16a	9:46a	10:16a	10:46a	11:16a	11:46a	12:16p	12:46p	1:16p	1:46p	2:16p	2:46p	3:16p	3:38p	
Burlingame	5:20a	5:56a	—	6:50a	—	7:20a	—	7:50a	—	8:20a	—	8:50a	—	9:20a	9:50a	10:20a	10:50a	11:20a	11:50a	12:20p	12:50p	1:20p	1:50p	2:20p	2:50p	3:20p	—	
San Mateo	5:23a	5:59a	6:43a	6:53a	7:12a	7:23a	7:43a	7:53a	8:12a	8:23a	8:43a	8:53a	9:12a	9:23a	9:53a	10:23a	10:53a	11:23a	11:53a	12:23p	12:53p	1:23p	1:53p	2:23p	2:53p	3:23p	3:43p	
Hayward Park	5:25a	6:02a	—	6:55a	—	7:25a	—	7:55a	—	8:25a	—	8:55a	—	9:25a	9:55a	10:25a	10:55a	11:25a	11:55a	12:25p	12:55p	1:25p	1:55p	2:25p	2:55p	3:25p	—	
Hillsdale	5:27a	6:05a	6:46a	6:57a	7:15a	7:27a	7:46a	7:57a	8:15a	8:27a	8:46a	8:57a	9:15a	9:27a	9:57a	10:27a	10:57a	11:27a	11:57a	12:27p	12:57p	1:27p	1:57p	2:27p	2:57p	3:27p	3:46p	
Belmont	5:31a	6:09a	—	7:01a	—	7:31a	—	8:01a	—	8:31a	—	9:01a	—	9:31a	10:01a	10:31a	11:01a	11:31a	12:01p	12:31p	1:01p	1:31p	2:01p	2:31p	3:01p	3:31p	—	
San Carlos	5:33a	6:12a	—	7:03a	—	7:33a	—	8:03a	—	8:33a	—	9:03a	—	9:33a	10:03a	10:33a	11:03a	11:33a	12:03p	12:33p	1:03p	1:33p	2:03p	2:33p	3:03p	3:33p	—	
Redwood City	5:37a	6:16a	6:53a	7:07a	7:22a	7:37a	7:53a	8:07a	8:22a	8:37a	8:53a	9:07a	9:22a	9:37a	10:07a	10:37a	11:07a	11:37a	12:07p	12:37p	1:07p	1:37p	2:07p	2:37p	3:07p	3:37p	3:53p	
Menlo Park	5:41a	6:20a	—	7:11a	7:26a	7:41a	—	8:11a	8:26a	8:41a	—	9:11a	9:26a	9:41a	10:11a	10:41a	11:11a	11:41a	12:11p	12:41p	1:11p	1:41p	2:11p	2:41p	3:11p	3:41p	—	
Palo Alto	5:44a	6:24a	6:59a	7:14a	7:29a	7:44a	7:59a	8:14a	8:29a	8:44a	8:59a	9:14a	9:29a	9:44a	10:14a	10:44a	11:14a	11:44a	12:14p	12:44p	1:14p	1:44p	2:14p	2:44p	3:14p	3:44p	3:59p	
California Avenue	5:47a	6:27a	—	7:17a	7:32a	7:47a	—	8:17a	8:32a	8:47a	—	9:17a	9:32a	9:47a	10:17a	10:47a	11:17a	11:47a	12:17p	12:47p	1:17p	1:47p	2:17p	2:47p	3:17p	3:47p	—	
San Antonio	5:51a	6:31a	—	7:21a	7:36a	7:51a	—	8:21a	8:36a	8:51a	—	9:21a	9:36a	9:51a	10:21a	10:51a	11:21a	11:51a	12:21p	12:51p	1:21p	1:51p	2:21p	2:51p	3:21p	3:51p	—	
Mountain View	5:54a	6:34a	7:06a	7:24a	7:39a	7:54a	8:06a	8:24a	8:39a	8:54a	9:06a	9:24a	9:39a	9:54a	10:24a	10:54a	11:24a	11:54a	12:24p	12:54p	1:24p	1:54p	2:24p	2:54p	3:24p	3:54p	4:06p	
Sunnyvale	5:58a	6:38a	7:09a	7:28a	7:43a	7:58a	8:09a	8:28a	8:43a	8:58a	9:09a	9:28a	9:43a	9:58a	10:28a	10:58a	11:28a	11:58a	12:28p	12:58p	1:28p	1:58p	2:28p	2:58p	3:28p	3:58p	4:09p	
Lawrence	6:01a	6:41a	—	7:31a	7:46a	8:01a	—	8:31a	8:46a	9:01a	—	9:31a	9:46a	10:01a	10:31a	11:01a	11:31a	12:01p	12:31p	1:01p	1:31p	2:01p	2:31p	3:01p	3:31p	4:01p	—	
Santa Clara	6:06a	6:46a	—	7:36a	7:51a	8:06a	—	8:36a	8:51a	9:06a	—	9:36a	9:51a	10:06a	10:36a	11:06a	11:36a	12:06p	12:36p	1:06p	1:36p	2:06p	2:36p	3:06p	3:36p	4:06p	—	
College Park	—	—	—	—	—	8:08a	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4:08p	—	
San Jose Diridon	6:12a	7:03a	7:20a	7:42a	7:58a	8:23a	8:20a	8:42a	8:58a	9:13a	9:20a	9:42a	9:58a	10:13a	10:42a	11:13a	11:42a	12:13p	12:42p	1:13p	1:42p	2:13p	2:42p	3:13p	3:42p	4:14p	4:20p	4:23p
Tamien		7:08a				8:28a				9:18a				10:18a		11:18a		12:18p		1:18p		2:18p		3:18p		4:19p		4:28p
Capitol																												4:34p
Blossom Hill																												4:40p
Morgan Hill																												4:53p
San Martin																												5:00p
Gilroy																												5:11p

1XX Local

4XX Limited

5XX Express

— Train bypasses station

8XX South County Connector

4:18p 4:21p

Timed transfers for South County Connector service

Timetable subject to change without notice

See Page 2 For Afternoon and Evening Times

EFFECTIVE January 27, 2025

Printer-Friendly WEEKDAY Caltrain Schedule

Afternoon to Evening – Page 2 of 2



Southbound – WEEKDAY SERVICE to SAN JOSE / GILROY

Train No.	142	416	816	144	518	146	420	820	148	522	822	150	424	152	526	154	428	156	158	160	162	164	166	168	170	172	174	176
San Francisco	3:25p	3:48p		3:55p	4:20p	4:25p	4:48p		4:55p	5:20p		5:25p	5:48p	5:55p	6:20p	6:25p	6:48p	6:55p	7:25p	7:55p	8:25p	8:55p	9:25p	9:55p	10:25p	10:55p	11:25p	12:05a
22 nd Street	3:30p	3:53p		4:00p	4:24p	4:30p	4:53p		5:00p	5:24p		5:30p	5:53p	6:00p	6:24p	6:30p	6:53p	7:00p	7:30p	8:00p	8:30p	9:00p	9:30p	10:00p	10:30p	11:00p	11:30p	12:10a
Bayshore	3:34p	—		4:04p	—	4:34p	—		5:04p	—		5:34p	—	6:04p	—	6:34p	—	7:04p	7:34p	8:04p	8:34p	9:04p	9:34p	10:04p	10:34p	11:04p	11:34p	12:14a
S. San Francisco	3:40p	4:01p		4:10p	4:32p	4:40p	5:01p		5:10p	5:32p		5:40p	6:01p	6:10p	6:32p	6:40p	7:01p	7:10p	7:40p	8:10p	8:40p	9:10p	9:40p	10:10p	10:40p	11:10p	11:40p	12:20a
San Bruno	3:43p	—		4:13p	—	4:43p	—		5:13p	—		5:43p	—	6:13p	—	6:43p	—	7:13p	7:43p	8:13p	8:43p	9:13p	9:43p	10:13p	10:43p	11:13p	11:43p	12:23a
Millbrae	3:46p	4:07p		4:16p	4:38p	4:46p	5:07p		5:16p	5:38p		5:46p	6:07p	6:16p	6:38p	6:46p	7:07p	7:16p	7:46p	8:16p	8:46p	9:16p	9:46p	10:16p	10:46p	11:16p	11:46p	12:26a
Burlingame	3:50p	—		4:20p	—	4:50p	—		5:20p	—		5:50p	—	6:20p	—	6:50p	—	7:20p	7:50p	8:20p	8:50p	9:20p	9:50p	10:20p	10:50p	11:20p	11:50p	12:30a
San Mateo	3:53p	4:12p		4:23p	4:43p	4:53p	5:12p		5:23p	5:43p		5:53p	6:12p	6:23p	6:43p	6:53p	7:12p	7:23p	7:53p	8:23p	8:53p	9:23p	9:53p	10:23p	10:53p	11:23p	11:53p	12:33a
Hayward Park	3:55p	—		4:25p	—	4:55p	—		5:25p	—		5:55p	—	6:25p	—	6:55p	—	7:25p	7:55p	8:25p	8:55p	9:25p	9:55p	10:25p	10:55p	11:25p	11:55p	12:35a
Hillsdale	3:57p	4:15p		4:27p	4:46p	4:57p	5:15p		5:27p	5:46p		5:57p	6:15p	6:27p	6:46p	6:57p	7:15p	7:27p	7:57p	8:27p	8:57p	9:27p	9:57p	10:27p	10:57p	11:27p	11:57p	12:37a
Belmont	4:01p	—		4:31p	—	5:01p	—		5:31p	—		6:01p	—	6:31p	—	7:01p	—	7:31p	8:01p	8:31p	9:01p	9:31p	10:01p	10:31p	11:01p	11:31p	12:01a	12:41a
San Carlos	4:03p	—		4:33p	—	5:03p	—		5:33p	—		6:03p	—	6:33p	—	7:03p	—	7:33p	8:03p	8:33p	9:03p	9:33p	10:03p	10:33p	11:03p	11:33p	12:03a	12:43a
Redwood City	4:07p	4:22p		4:37p	4:53p	5:07p	5:22p		5:37p	5:53p		6:07p	6:22p	6:37p	6:53p	7:07p	7:22p	7:37p	8:07p	8:37p	9:07p	9:37p	10:07p	10:37p	11:07p	11:37p	12:07a	12:47a
Menlo Park	4:11p	4:26p		4:41p	—	5:11p	5:26p		5:41p	—		6:11p	6:26p	6:41p	—	7:11p	7:26p	7:41p	8:11p	8:41p	9:11p	9:41p	10:11p	10:41p	11:11p	11:41p	12:11a	12:51a
Palo Alto	4:14p	4:29p		4:44p	4:59p	5:14p	5:29p		5:44p	5:59p		6:14p	6:29p	6:44p	6:59p	7:14p	7:29p	7:44p	8:14p	8:44p	9:14p	9:44p	10:14p	10:44p	11:14p	11:44p	12:14a	12:54a
California Avenue	4:17p	4:32p		4:47p	—	5:17p	5:32p		5:47p	—		6:17p	6:32p	6:47p	—	7:17p	7:32p	7:47p	8:17p	8:47p	9:17p	9:47p	10:17p	10:47p	11:17p	11:47p	12:17a	12:57a
San Antonio	4:21p	4:36p		4:51p	—	5:21p	5:36p		5:51p	—		6:21p	6:36p	6:51p	—	7:21p	7:36p	7:51p	8:21p	8:51p	9:21p	9:51p	10:21p	10:51p	11:21p	11:51p	12:21a	1:01a
Mountain View	4:24p	4:39p		4:54p	5:06p	5:24p	5:39p		5:54p	6:06p		6:24p	6:39p	6:54p	7:06p	7:24p	7:39p	7:54p	8:24p	8:54p	9:24p	9:54p	10:24p	10:54p	11:24p	11:54p	12:24a	1:04a
Sunnyvale	4:28p	4:43p		4:58p	5:09p	5:28p	5:43p		5:58p	6:09p		6:28p	6:43p	6:58p	7:09p	7:28p	7:43p	7:58p	8:28p	8:58p	9:28p	9:58p	10:28p	10:58p	11:28p	11:58p	12:28a	1:08a
Lawrence	4:31p	4:46p		5:01p	—	5:31p	5:46p		6:01p	—		6:31p	6:46p	7:01p	—	7:31p	7:46p	8:01p	8:31p	9:01p	9:31p	10:01p	10:31p	11:01p	11:31p	12:01a	12:31a	1:11a
Santa Clara	4:36p	4:51p		5:06p	—	5:36p	5:51p		6:06p	—		6:36p	6:51p	7:06p	—	7:36p	7:51p	8:06p	8:36p	9:06p	9:36p	10:06p	10:36p	11:06p	11:36p	12:06a	12:36a	1:16a
College Park	—	—		—	—	—	—		—	—		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
San Jose Diridon	4:42p	4:58p	5:01p	5:13p	5:20p	5:42p	5:58p	6:01p	6:13p	6:20p	6:23p	6:42p	6:58p	7:13p	7:20p	7:42p	7:58p	8:13p	8:42p	9:13p	9:42p	10:13p	10:42p	11:13p	11:42p	12:13a	12:42a	1:23a
Tamien			5:06p	5:18p				6:06p	6:18p					7:18p				8:18p		9:18p		10:18p		11:18p		12:18a		1:28a
Capitol			5:12p					6:12p																				
Blossom Hill			5:18p					6:18p																				
Morgan Hill			5:31p					6:31p																				
San Martin			5:38p					6:38p																				
Gilroy			5:49p					6:49p																				

1XX Local

4XX Limited

5XX Express

— Train bypasses station

8XX South County Connector

4:57p 5:00p

Timed transfers for South County Connector service

Timetable subject to change without notice

See Page 1 For Morning and Early Afternoon Times

EFFECTIVE January 27, 2025

U. S. DOT CROSSING INVENTORY FORM

DEPARTMENT OF TRANSPORTATION

FEDERAL RAILROAD ADMINISTRATION

OMB No. 2130-0017

Instructions for the initial reporting of the following types of new or previously unreported crossings: For public highway-rail grade crossings, complete the entire inventory Form. For private highway-rail grade crossings, complete the Header, Parts I and II, and the Submission Information section. For public pathway grade crossings (including pedestrian station grade crossings), complete the Header, Parts I and II, and the Submission Information section. For Private pathway grade crossings, complete the Header, Parts I and II, and the Submission Information section. For grade-separated highway-rail or pathway crossings (including pedestrian station crossings), complete the Header, Part I, and the Submission Information section. For changes to existing data, complete the Header, Part I Items 1-3, and the Submission Information section, in addition to the updated data fields. Note: For private crossings only, Part I Item 20 and Part III Item 2.K. are required unless otherwise noted. An asterisk * denotes an optional field.

A. Revision Date (MM/DD/YYYY) 12 / 30 / 2024	B. Reporting Agency ☒ Railroad ☐ Transit ☐ State ☐ Other	C. Reason for Update (Select only one) ☒ Change in Data ☐ New Crossing ☐ Closed ☐ Re-Open ☐ Date Change Only ☐ Change in Primary Operating RR ☐ No Train Traffic ☐ Quiet Zone Update ☐ Admin. Correction	D. DOT Crossing Inventory Number 922739G
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Part I: Location and Classification Information

1. Primary Operating Railroad Peninsula Corridor Joint Powers Board - Caltrain [PCJX]		2. State CALIFORNIA	3. County SAN MATEO
4. City / Municipality ☒ In ☐ Near SOUTH SAN FRANCISCO	5. Street/Road Name & Block Number SSF STATION PATHWAY (Street/Road Name) * (Block Number)		6. Highway Type & No. Pathway
7. Do Other Railroads Operate a Separate Track at Crossing? ☐ Yes ☒ No If Yes, Specify RR		8. Do Other Railroads Operate Over Your Track at Crossing? ☒ Yes ☐ No If Yes, Specify RR UP	
9. Railroad Division or Region ☒ None	10. Railroad Subdivision or District ☒ None	11. Branch or Line Name ☒ None	12. RR Milepost 0009.09 (prefix) (nnnn.nnn) (suffix)
13. Line Segment * 105E-909-D	14. Nearest RR Timetable Station * SOUTH SAN FRANCISCO	15. Parent RR (if applicable) ☐ N/A PCJX	16. Crossing Owner (if applicable) ☐ N/A PCJX
17. Crossing Type ☒ Public ☐ Private	18. Crossing Purpose ☐ Highway ☒ Pathway, Ped. ☐ Station, Ped.	19. Crossing Position ☒ At Grade ☐ RR Under ☐ RR Over	20. Public Access (if Private Crossing) ☐ Yes ☒ No
21. Type of Train ☒ Freight ☐ Intercity Passenger ☒ Commuter ☐ Transit ☐ Shared Use Transit ☐ Tourist/Other		22. Average Passenger Train Count Per Day ☐ Less Than One Per Day ☒ Number Per Day 112	
23. Type of Land Use ☐ Open Space ☐ Farm ☐ Residential ☒ Commercial ☐ Industrial ☐ Institutional ☐ Recreational ☐ RR Yard			
24. Is there an Adjacent Crossing with a Separate Number? ☐ Yes ☒ No If Yes, Provide Crossing Number		25. Quiet Zone (FRA provided) ☒ No ☐ 24 Hr ☐ Partial ☐ Chicago Excused Date Established	
26. HSR Corridor ID ☒ N/A	27. Latitude in decimal degrees (WGS84 std: nn.nnnnnnn) 37.656366	28. Longitude in decimal degrees (WGS84 std: -nnn.nnnnnnn) -122.404566	29. Lat/Long Source ☒ Actual ☐ Estimated
30.A. Railroad Use *		31.A. State Use *	
30.B. Railroad Use *		31.B. State Use *	
30.C. Railroad Use *		31.C. State Use *	
30.D. Railroad Use *		31.D. State Use *	
32.A. Narrative (Railroad Use) *		32.B. Narrative (State Use) *	
33. Emergency Notification Telephone No. (posted) 877-723-7245 104 Total Caltrains 112 Total Trains on shared tracks		34. Railroad Contact (Telephone No.) 408-271-4967	35. State Contact (Telephone No.) 415-703-3722

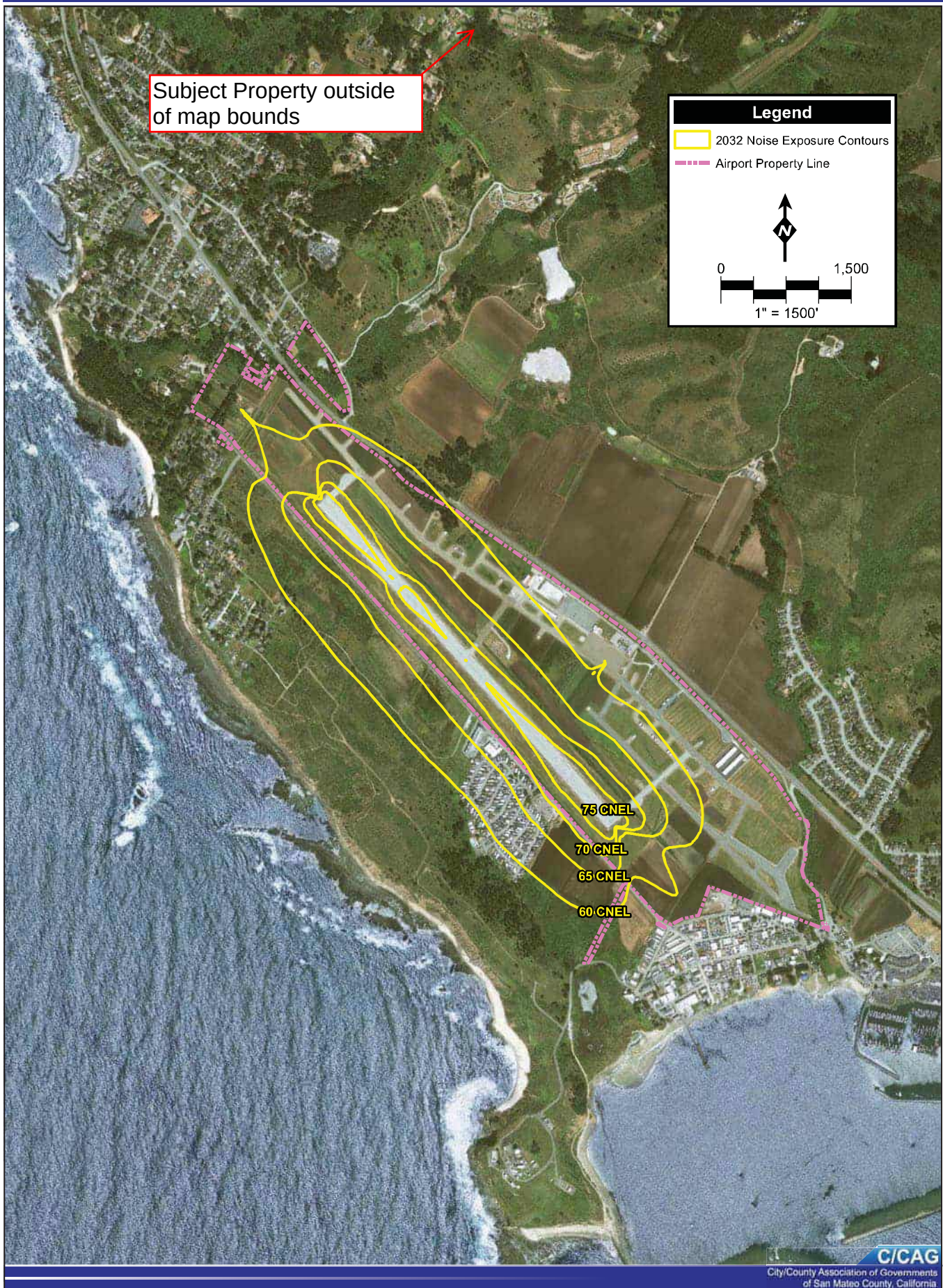
Part II: Railroad Information

1. Estimated Number of Daily Train Movements				
1.A. Total Day Thru Trains (6 AM to 6 PM) 68 ← Caltrain trains	1.B. Total Night Thru Trains (6 PM to 6 AM) 44 ↑ 36 Caltrain trains 8 UP trains	1.C. Total Switching Trains 4	1.D. Total Transit Trains 0	1.E. Check if Less Than One Movement Per Day How many trains per week? ☐
2. Year of Train Count Data (YYYY) 2024		3. Speed of Train at Crossing 3.A. Maximum Timetable Speed (mph) 70 3.B. Typical Speed Range Over Crossing (mph) From 5 to 70		
4. Type and Count of Tracks Main 2 Siding 0 Yard 3 Transit 0 Industry 0				
5. Train Detection (Main Track only) ☐ Constant Warning Time ☐ Motion Detection ☒ AFO ☒ PTC ☐ DC ☐ Other ☐ None				
6. Is Track Signaled? ☒ Yes ☐ No		7.A. Event Recorder ☒ Yes ☐ No		7.B. Remote Health Monitoring ☐ Yes ☒ No

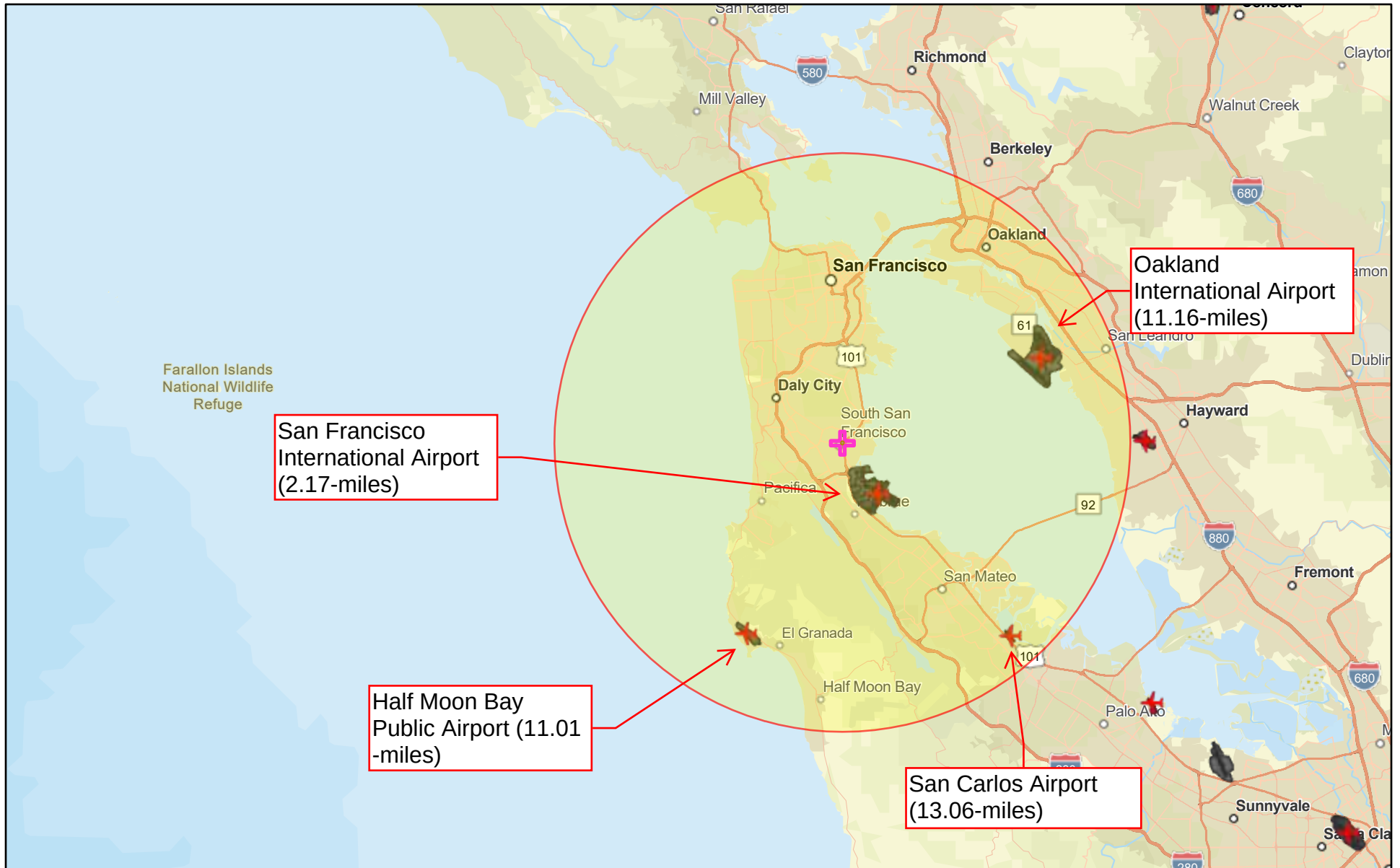
U. S. DOT CROSSING INVENTORY FORM

A. Revision Date (MM/DD/YYYY) 12/30/2024		PAGE 2		D. Crossing Inventory Number (7 char.) 922739G	
Part III: Highway or Pathway Traffic Control Device Information					
1. Are there Signs or Signals? ☒ Yes ☐ No		2. Types of Passive Traffic Control Devices associated with the Crossing			
2.A. Crossbuck Assemblies (count) 0		2.B. STOP Signs (R1-1) (count) 0	2.C. YIELD Signs (R1-2) (count)	2.D. Advance Warning Signs (Check all that apply; include count) ☒ None ☐ W10-1 ☐ W10-3 ☐ W10-11 ☐ W10-2 ☐ W10-4 ☐ W10-12	
2.E. Low Ground Clearance Sign (W10-5) ☐ Yes (count _____) ☐ No		2.F. Pavement Markings ☐ Stop Lines ☐ Dynamic Envelope ☐ RR Xing Symbols ☐ None		2.G. Channelization Devices/Medians ☐ All Approaches ☐ Median ☐ One Approach ☐ None	
2.H. EXEMPT Sign (R15-3) ☐ Yes ☒ No		2.I. ENS Sign (I-13) Displayed ☒ Yes ☐ No			
2.J. Other MUTCD Signs Specify Type _____ Count _____ Specify Type _____ Count _____ Specify Type _____ Count _____		2.K. Private Crossing Signs (if private) ☐ Yes ☐ No		2.L. LED Enhanced Signs (List types)	
3. Types of Train Activated Warning Devices at the Grade Crossing (specify count of each device for all that apply)					
3.A. Gate Arms (count) Roadway 0 Pedestrian 2		3.B. Gate Configuration ☒ 2 Quad ☐ Full (Barrier) ☐ 3 Quad Resistance ☐ 4 Quad Median Gates		3.C. Cantilevered (or Bridged) Flashing Light Structures (count) Over Traffic Lane 0 ☐ Incandescent Not Over Traffic Lane 0 ☐ LED	
3.D. Mast Mounted Flashing Lights (count of masts) 2 ☐ Incandescent ☒ LED ☒ Back Lights Included ☐ Side Lights Included		3.E. Total Count of Flashing Light Pairs 2			
3.F. Installation Date of Current Active Warning Devices: (MM/YYYY) 09 / 2021 ☐ Not Required		3.G. Wayside Horn ☐ Yes Installed on (MM/YYYY) ____/____ ☒ No		3.H. Highway Traffic Signals Controlling Crossing ☐ Yes ☒ No	
3.I. Bells (count) 2		3.J. Non-Train Active Warning ☐ Flagging/Flagman ☐ Manually Operated Signals ☐ Watchman ☐ Floodlighting ☒ None			
3.K. Other Flashing Lights or Warning Devices Count 0 Specify type _____		4.A. Does nearby Hwy Intersection have Traffic Signals? ☐ Yes ☒ No			
4.B. Hwy Traffic Signal Interconnection ☒ Not Interconnected ☐ For Traffic Signals ☐ For Warning Signs		4.C. Hwy Traffic Signal Preemption ☐ Simultaneous ☐ Advance		5. Highway Traffic Pre-Signals ☐ Yes ☐ No Storage Distance * _____ Stop Line Distance * _____	
6. Highway Monitoring Devices (Check all that apply) ☐ Yes - Photo/Video Recording ☐ Yes - Vehicle Presence Detection ☐ None		4. Is Crossing Illuminated? (Street lights within approx. 50 feet from nearest rail) ☐ Yes ☒ No			
Part IV: Physical Characteristics					
1. Traffic Lanes Crossing Railroad Number of Lanes _____ ☐ One-way Traffic ☐ Two-way Traffic ☐ Divided Traffic		2. Is Roadway/Pathway Paved? ☒ Yes ☐ No		3. Does Track Run Down a Street? ☐ Yes ☒ No	
5. Crossing Surface (on Main Track, multiple types allowed) Installation Date * (MM/YYYY) 08 / 2021 Width * _____ Length * _____ ☐ 1 Timber ☐ 2 Asphalt ☐ 3 Asphalt and Timber ☒ 4 Concrete ☐ 5 Concrete and Rubber ☐ 6 Rubber ☐ 7 Metal ☐ 8 Unconsolidated ☐ 9 Composite ☐ 10 Other (specify) _____					
6. Intersecting Roadway within 500 feet? ☐ Yes ☒ No If Yes, Approximate Distance (feet) _____		7. Smallest Crossing Angle ☐ 0° - 29° ☐ 30° - 59° ☒ 60° - 90°		8. Is Commercial Power Available? * ☒ Yes ☐ No	
Part V: Public Highway Information					
1. Highway System ☐ (01) Interstate Highway System ☐ (02) Other Nat Hwy System (NHS) ☐ (03) Federal AID, Not NHS ☐ (08) Non-Federal Aid		2. Functional Classification of Road at Crossing ☐ (0) Rural ☐ (1) Urban ☐ (1) Interstate ☐ (5) Major Collector ☐ (2) Other Freeways and Expressways ☐ (3) Other Principal Arterial ☐ (6) Minor Collector ☐ (4) Minor Arterial ☐ (7) Local		3. Is Crossing on State Highway System? ☐ Yes ☐ No	
7. Annual Average Daily Traffic (AADT) Year _____ AADT _____		8. Estimated Percent Trucks _____ %		9. Regularly Used by School Buses? ☐ Yes ☒ No Average Number per Day _____	
10. Emergency Services Route ☐ Yes ☒ No		4. Highway Speed Limit _____ MPH ☐ Posted ☐ Statutory			
5. Linear Referencing System (LRS Route ID) *		6. LRS Milepost *			
Submission Information - This information is used for administrative purposes and is not available on the public website.					
Submitted by _____ Organization _____ Phone _____ Date _____					
Public reporting burden for this information collection is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed and completing and reviewing the collection of information. According to the Paperwork Reduction Act of 1995, a federal agency may not conduct or sponsor, and a person is not required to, nor shall a person be subject to a penalty for failure to comply with, a collection of information unless it displays a currently valid OMB control number. The valid OMB control number for information collection is 2130-0017. Send comments regarding this burden estimate or any other aspect of this collection, including for reducing this burden to: Information Collection Officer, Federal Railroad Administration, 1200 New Jersey Ave. SE, MS-25 Washington, DC 20590.					

APPENDIX D: AIRPORT SUPPORTING DATA

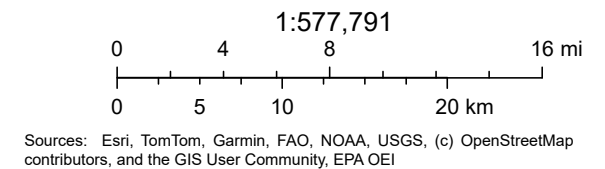


15-Mile Radius Map



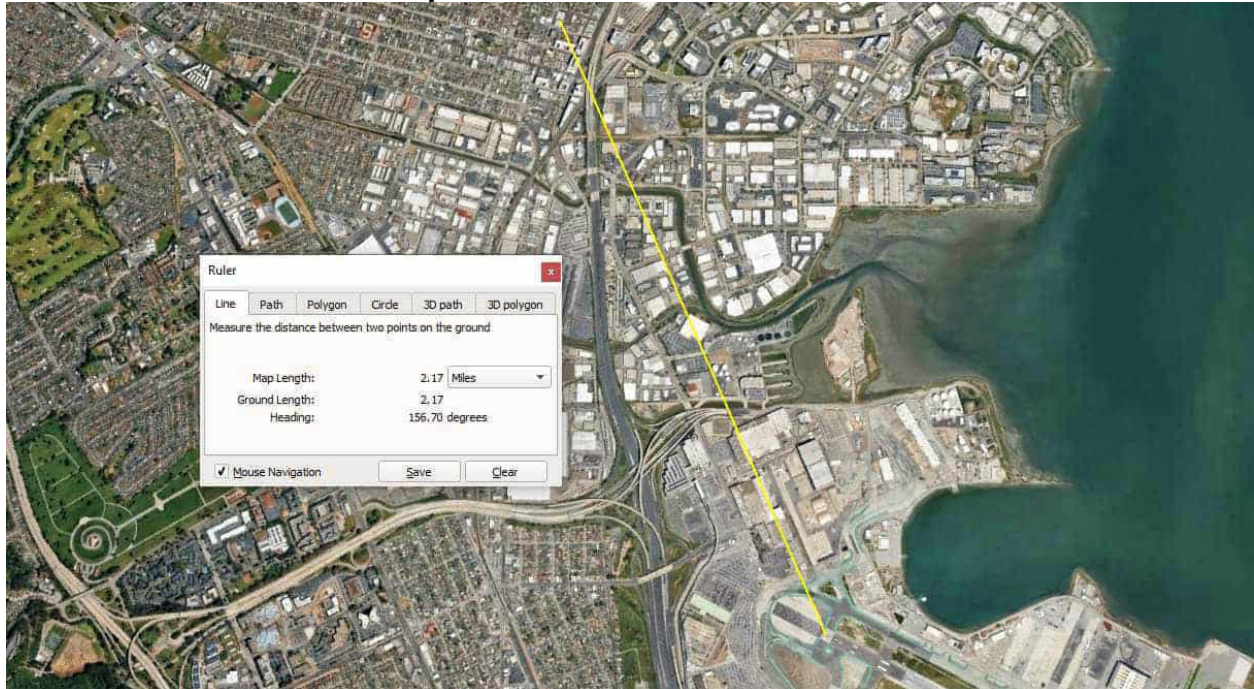
October 20, 2025

-  Project Buffer
-  Airport Points
-  Liberty Bank, aka Rotary Gardens
-  Airport Polygons
-  Search Result (point)

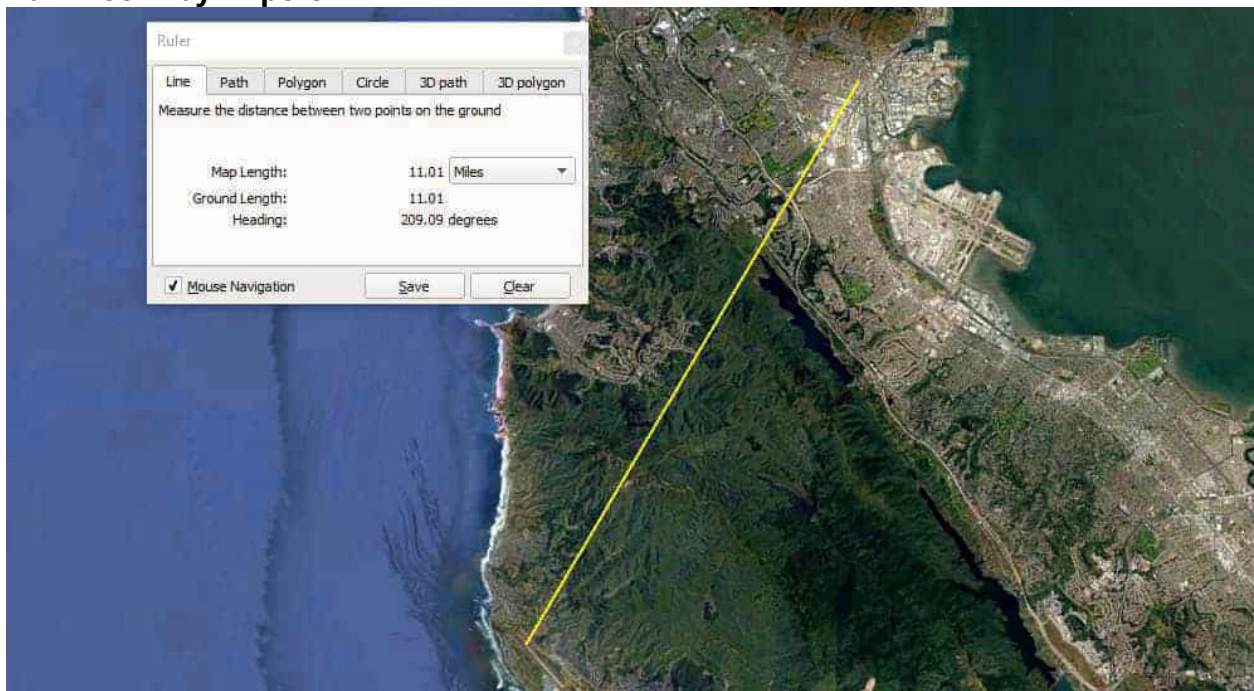




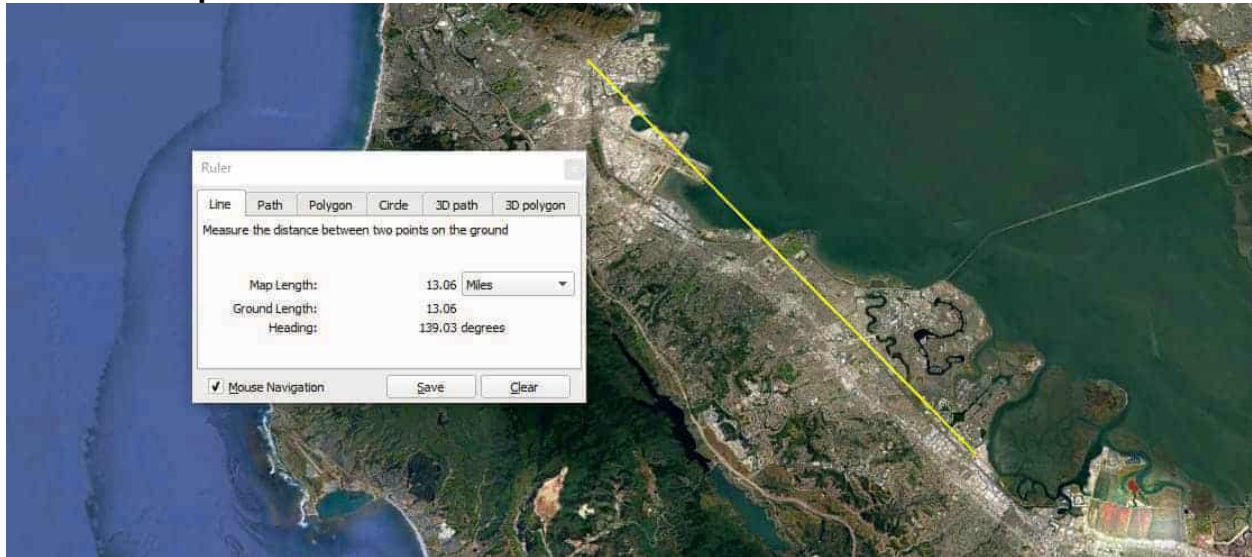
San Francisco International Airport



Half Moon Bay Airport



San Carlos Airport



Oakland International Airport

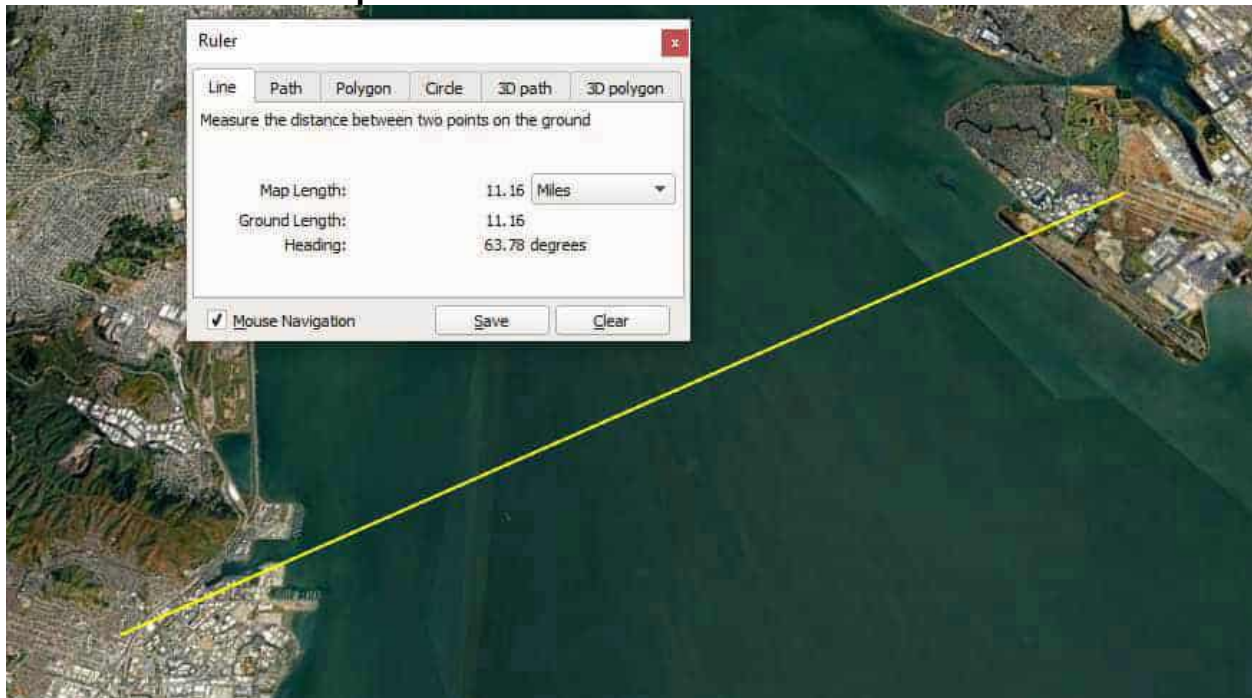


Figure 1
Noise Contour Map (2024 Q4)
Source: AEDT version 3g

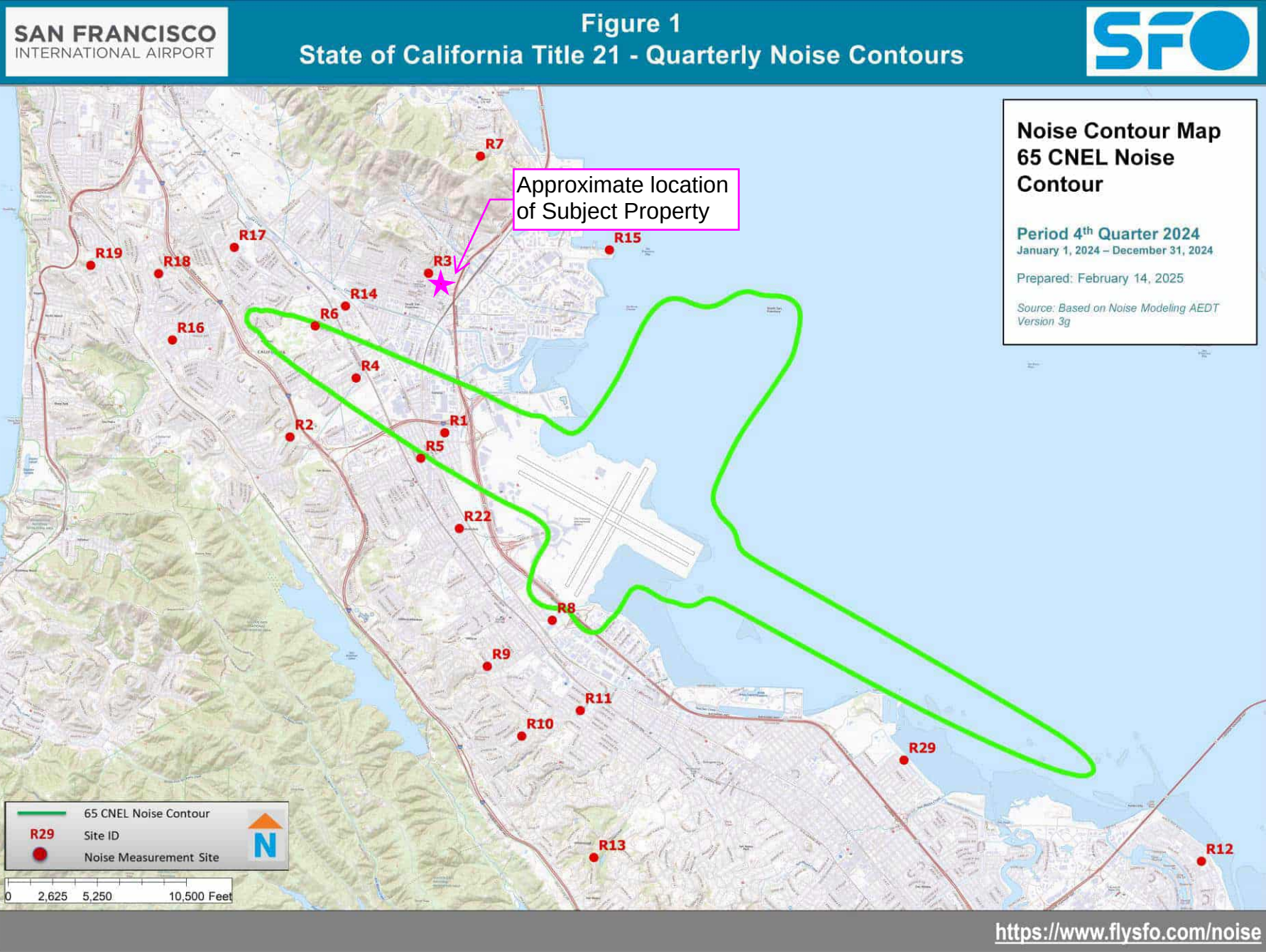


Table 2

Quarterly and Annual Measured Aircraft CNEL (2024 Q4)

Annual Airport Noise Report Summary (Aircraft CNEL)

San Francisco International

Period : January 2024 through December 2024

Metric : Aircraft CNEL



Noise Monitoring Terminals # Community	Monthly Noise Levels												Quarterly Noise Levels				Annual CNEL dBA
	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024	1Q 2024	2Q 2024	3Q 2024	4Q 2024	
1 Site 1, San Bruno	72.3	71.0	71.5	71.4	72.2	72.6	72.8	72.0	73.0	72.2	72.7	73.5	71.6	72.1	72.6	72.8	72.3
2 Site 2, San Bruno	56.4	55.0	55.3	55.2	55.2	54.6	54.2	54.2	54.9	54.5	56.5	57.1	55.6	55.0	54.4	56.1	55.3
3 Site 3, South San Francisco	53.5	51.9	53.3	54.0	52.9	52.6	50.5	50.9	51.1	50.6	52.0	54.8	53.0	53.2	50.8	52.8	52.6
4 Site 4, South San Francisco	66.7	66.0	66.0	66.7	67.0	67.2	67.1	66.8	67.6	66.5	67.2	67.6	66.3	67.0	67.2	67.1	66.9
5 Site 5, San Bruno	65.3	62.9	63.8	63.8	64.3	65.5	65.9	65.4	66.4	65.6	66.7	66.8	64.1	64.6	65.9	66.4	65.4
6 Site 6, South San Francisco	64.3	64.2	64.2	64.6	64.6	64.2	63.4	63.8	63.9	63.2	64.3	64.7	64.2	64.4	63.7	64.1	64.1
7 Site 7, Brisbane	47.4	47.0	48.2	49.1	48.1	48.8	44.6	45.6	46.5	44.8	46.5	47.5	47.6	48.7	45.6	46.4	47.2
8 Site 8, Millbrae	53.4	63.3	61.0	52.2	60.7	49.5	50.8	49.4	52.8	55.7	54.3	57.3	60.9	56.9	51.2	56.0	57.4
9 Site 9, Millbrae	36.9	52.4	51.1	38.5	50.4	35.9	38.9	34.4	35.6	36.0	36.8	41.8	50.0	46.0	36.8	39.1	45.6
10 Site 10, Burlingame	35.5	52.8	57.0	40.1	55.5	34.3	32.8	34.0	33.4	33.2	38.4	44.2	53.6	51.2	33.4	40.7	49.5
11 Site 11, Burlingame	34.1	55.4	51.1	42.4	50.7	35.2	33.3	34.7	33.1	35.4	36.3	44.0	52.0	46.5	33.7	40.4	47.5
12 Site 12, Foster City	61.7	61.9	62.6	62.6	62.7	62.7	62.3	62.4	62.1	61.6	62.3	62.5	62.1	62.7	62.3	62.1	62.3
13 Site 13, Hillsborough	33.8	48.9	49.1	34.1	52.2	35.5	31.7	33.2	31.5	30.1	36.0	41.4	47.0	47.2	32.4	38.3	44.5
14 Site 14, South San Francisco	60.3	60.1	60.7	61.0	61.2	60.6	59.3	59.8	59.7	59.1	60.2	60.5	60.4	60.9	59.6	60.0	60.2
15 Site 15, South San Francisco	58.1	58.5	59.3	59.1	59.1	58.0	56.3	55.9	56.7	56.5	58.2	58.4	58.6	58.8	56.3	57.8	58.0
16 Site 16, South San Francisco	59.1	58.3	58.9	58.8	58.8	58.4	57.2	57.7	57.8	57.6	59.4	59.2	58.8	58.7	57.6	58.8	58.5
17 Site 17, South San Francisco	59.1	58.9	59.6	59.5	59.5	58.6	57.2	58.1	57.9	57.8	59.1	59.1	59.2	59.2	57.8	58.7	58.8
18 Site 18, Daly City	63.3	63.1	63.3	63.5	63.5	63.1	62.4	62.7	63.1	62.7	63.7	63.7	63.2	63.4	62.7	63.4	63.2
19 Site 19, Pacifica	60.5	60.1	60.4	60.4	60.0	59.1	58.0	58.8	59.2	59.4	60.8	60.7	60.4	59.9	58.7	60.3	59.9
20 Site 20, Daly City	50.2	51.2	51.3	50.4	50.5	48.9	49.9	49.8	49.6	51.0	52.1	51.0	51.0	50.0	49.8	51.4	50.6
21 Site 21, San Francisco	41.4	42.1	42.7	40.1	41.0	41.6	43.1	40.4	39.6	38.2	40.1	39.4	42.1	40.9	41.3	39.3	41.0
22 Site 22, San Bruno	54.0	47.4	49.0	50.5	50.2	55.1	56.5	54.3	56.5	54.4	56.2	56.8	51.2	52.5	55.9	55.9	54.4
23 Site 23, San Francisco	53.1	53.8	54.4	54.2	54.2	52.0	52.6	52.3	52.3	52.5	53.3	53.8	53.8	53.6	52.4	53.2	53.3
24 Site 24, San Francisco	48.1	48.3	48.4	47.4	48.5	48.1	49.0	46.7	46.7	47.0	48.6	48.9	48.3	48.0	47.6	48.2	48.0
25 Site 25, San Francisco	39.7	41.3	40.6	39.5	38.9	38.3	39.1	39.2	39.6	39.8	39.6	38.7	40.6	38.9	39.3	39.4	39.6
26 Site 26, San Francisco	36.9	40.4	34.7	36.0	33.8	34.7	37.2	34.3	31.3	31.3	35.6	34.3	37.8	34.9	34.9	34.0	35.7
27 Site 27, San Francisco	38.2	41.0	38.8	38.0	35.0	36.4	33.3	35.1	34.9	37.3	44.8	40.3	39.4	37.0	34.5	41.9	39.1
28 Redwood City	40.2	39.9	38.6	39.0	37.8	35.5	37.1	35.3	34.3	35.2	37.8	37.8	39.7	37.8	35.8	37.1	37.8
29 Site 29, San Mateo	55.2	54.7	54.1	52.9	48.6	49.8	49.5	50.7	49.9	49.8	53.1	52.4	54.7	50.8	50.1	52.0	52.3

* Based on Incomplete Data

* 80-90% Availability

* <80% Availability

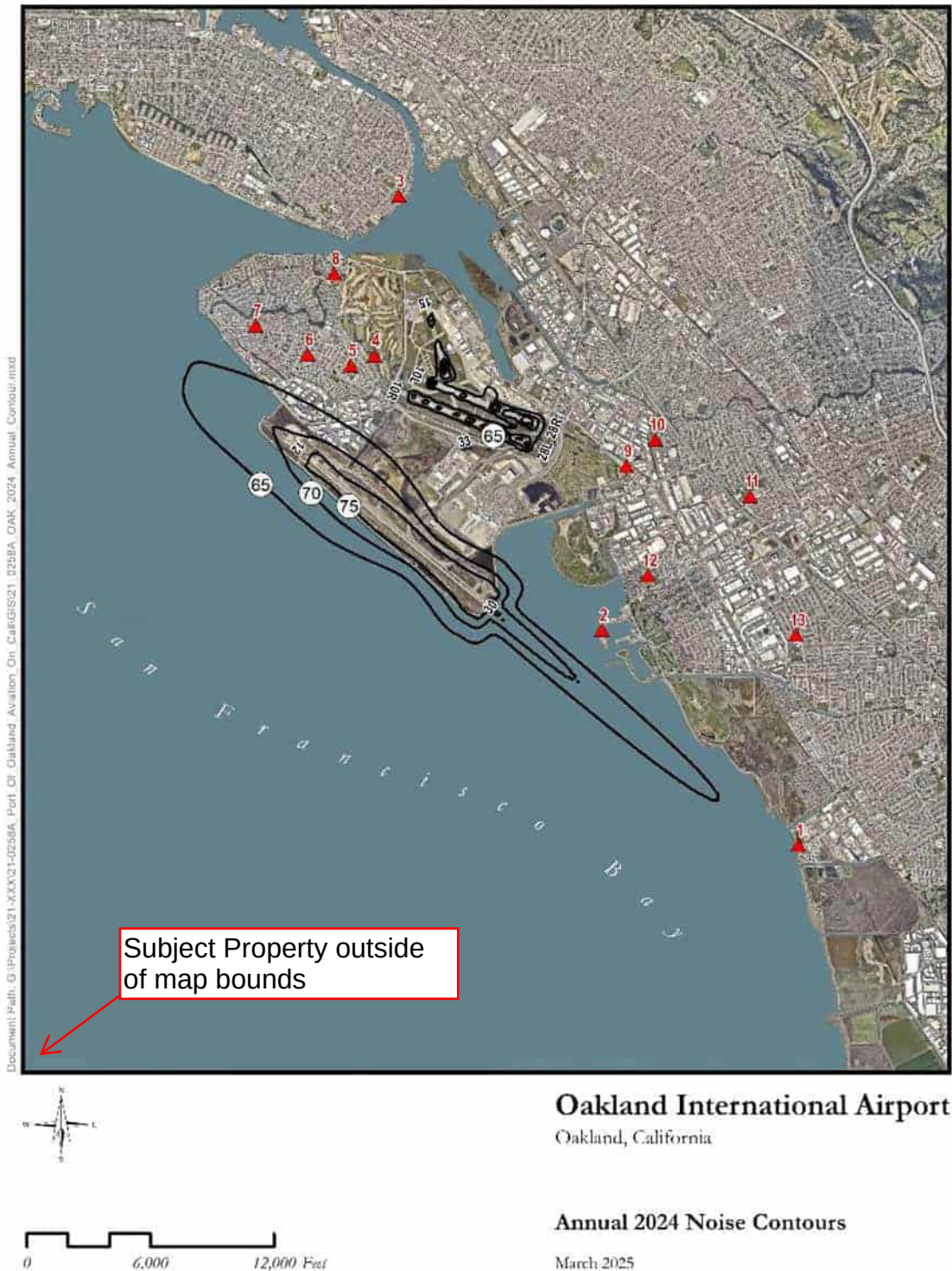
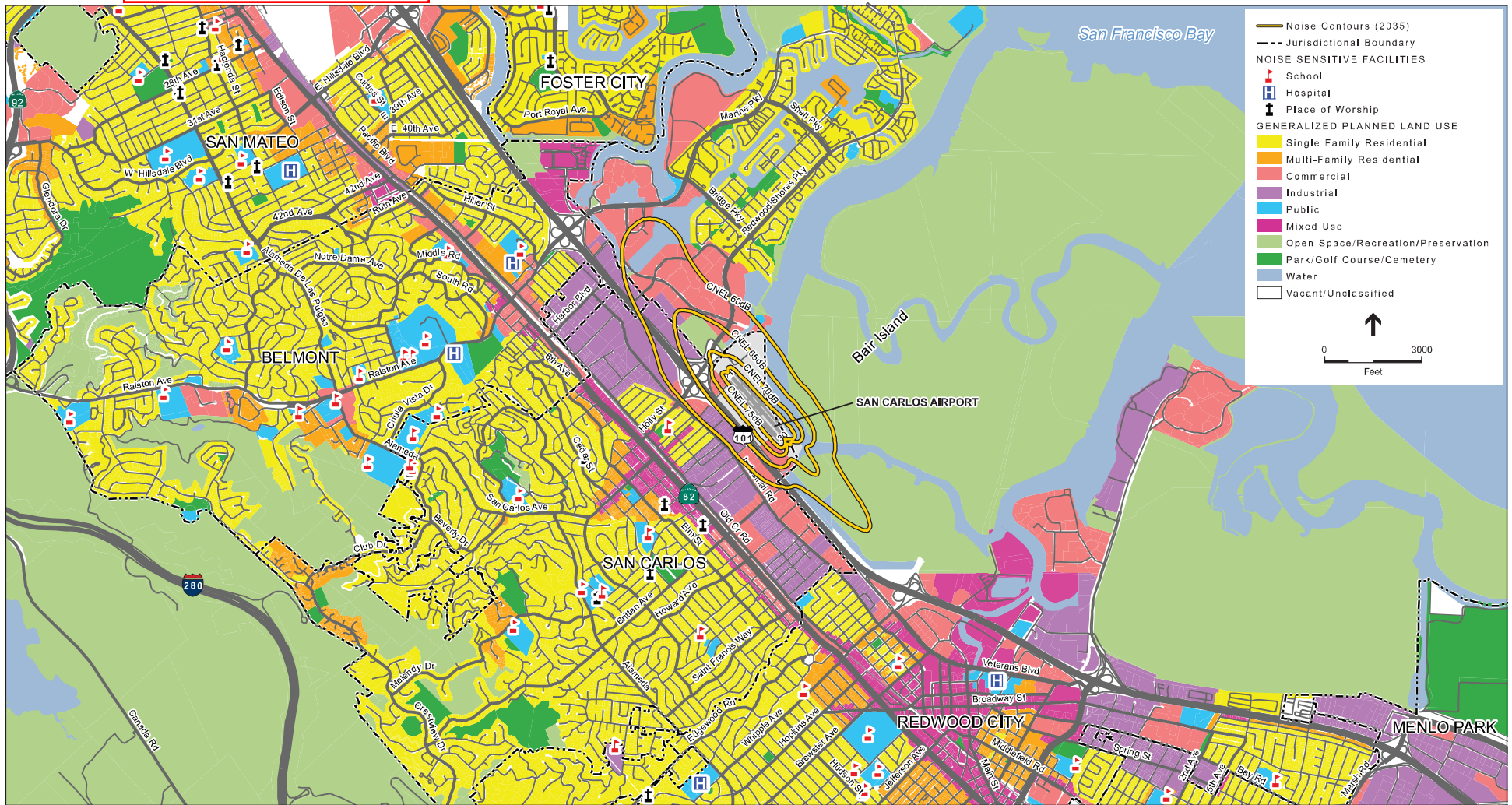


Figure ES-1. Noise Impact Boundary: 12-Month CNEL Contours for January 2024 – December 2024

Source: Port of Oakland ANOMS™ January 1, 2024 through December 31, 2024

Subject Property outside
of map bounds



SOURCE: Belmont, 1982; San Mateo County, 1986; Foster City, 1993; Menlo Park, 1994; San Carlos, 2009; City of San Mateo, 2010; Redwood City, 2010; ESRI, 2014; ESA Airports, 2015

San Carlos Airport ALUCP . 130753

Exhibit 4-1

Future Conditions (2035) Aircraft Noise Contours

APPENDIX E: HUD 10-YEAR DAY-NIGHT NOISE LEVEL CALCULATIONS

Site ID	25-551454.1 - Liberty Bank, aka Rotary Gardens NAL #6 (2035)
Record Date	10/22/2025
User's Name	Partner ESI

Road # 1 Name:	U.S. Route 101
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Road #1

Vehicle Type	Cars ☒	Medium Trucks ☒	Heavy Trucks ☒
Effective Distance	745	745	745
Distance to Stop Sign			
Average Speed	65	65	65
Average Daily Trips (ADT)	248007	7867	4116
Night Fraction of ADT	15	15	15
Road Gradient (%)			0
Vehicle DNL	66	61	64
Calculate Road #1 DNL	69	Reset	

Railroad #1 Track Identifier:	Caltrains
-------------------------------	-----------

Rail # 1

Train Type	Electric ☒	Diesel ☐
------------	--	---------------------------------

Effective Distance	1224	
Average Train Speed	70	
Engines per Train	1	
Railway cars per Train	8	
Average Train Operations (ATO)	104	
Night Fraction of ATO	26	
Railway whistles or horns?	Yes: ☐ No: ☒	Yes: ☐ No: ☐
Bolted Tracks?	Yes: ☐ No: ☒	Yes: ☐ No: ☐
Train DNL	51	0
Calculate Rail #1 DNL	51	Reset

Railroad #2 Track Identifier:	Union Pacific (Main corridor)
--------------------------------------	--

Rail # 2

Train Type	Electric ☐	Diesel ☒
Effective Distance		1224
Average Train Speed		10
Engines per Train		2
Railway cars per Train		50
Average Train Operations (ATO)		8
Night Fraction of ATO		62

Railway whistles or horns?	Yes: ☐ No: ☐	Yes: ☐ No: ☒
----------------------------	--	---

Planning, Analysis, or Review

Yes: ☐ No: ☐

Yes: ☒ No: ☐

Bolted Tracks?

Yes: ☐ No: ☐

Yes: ☒ No: ☐

Train DNL

0

56

Calculate Rail #2 DNL

56

Reset

Railroad #3 Track Identifier:

Union Pacific (east bound)

Rail # 3

Train Type

Electric ☐

Diesel ☒

Effective Distance

2184

Average Train Speed

10

Engines per Train

2

Railway cars per Train

50

Average Train Operations (ATO)

1

Night Fraction of ATO

38

Railway whistles or horns?

Yes: ☐ No: ☐

Yes: ☐ No: ☒

Bolted Tracks?

Yes: ☐ No: ☐

Yes: ☒ No: ☐

Train DNL

0

41

Calculate Rail #3 DNL

41

Reset

Add Road Source

Add Rail Source

Airport Noise Level

52

Loud Impulse Sounds?

☐ Yes ☒ No

Combined DNL for all Road and Rail sources	69
Combined DNL including Airport	69
Site DNL with Loud Impulse Sound	

Calculate

Reset

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative:** Cancel the project at this location
- **Other Reasonable Alternatives:** Choose an alternate site
- **Mitigation**
 - Contact your Field or Regional Environmental Officer (</programs/environmental-review/hud-environmental-staff-contacts/>)
 - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
 - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
 - Incorporate natural or man-made barriers. See *The Noise Guidebook* (</resource/313/hud-noise-guidebook/>)
 - Construct noise barrier. See the Barrier Performance Module (</programs/environmental-review/bpm-calculator/>)

Tools and Guidance

Day/Night Noise Level Assessment Tool User Guide (</resource/3822/day-night-noise-level-assessment-tool-user-guide/>)

Day/Night Noise Level Assessment Tool Flowcharts (</resource/3823/day-night-noise-level-assessment-tool-flowcharts/>)

Site ID	25-551454.1 - Liberty Bank, aka Rotary Gardens NAL #1 (2035)
Record Date	10/22/2025
User's Name	Partner ESI

Road # 1 Name:	U.S. Route 101
----------------	----------------

Road #1

Vehicle Type	Cars ☒	Medium Trucks ☒	Heavy Trucks ☒
Effective Distance	732	732	732
Distance to Stop Sign			
Average Speed	65	65	65
Average Daily Trips (ADT)	248007	7867	4116
Night Fraction of ADT	15	15	15
Road Gradient (%)			0
Vehicle DNL	66	61	64
Calculate Road #1 DNL	69	Reset	

Railroad #1 Track Identifier:	Caltrains
-------------------------------	-----------

Rail # 1

Train Type	Electric ☒	Diesel ☐
------------	--	---------------------------------

Effective Distance	1164	
Average Train Speed	70	
Engines per Train	1	
Railway cars per Train	8	
Average Train Operations (ATO)	104	
Night Fraction of ATO	26	
Railway whistles or horns?	Yes: ☐ No: ☒	Yes: ☐ No: ☐
Bolted Tracks?	Yes: ☐ No: ☒	Yes: ☐ No: ☐
Train DNL	51	0
Calculate Rail #1 DNL	51	Reset

Railroad #2 Track Identifier:

Union Pacific (Main corridor)

Rail # 2

Train Type

Electric ☐

Diesel ☒

Effective Distance		1164
Average Train Speed		10
Engines per Train		2
Railway cars per Train		50
Average Train Operations (ATO)		8
Night Fraction of ATO		62

Railway whistles or horns?

Yes: ☐ No: ☐

Yes: ☐ No: ☒

Planning Analysis of Noise

Yes: ☐ No: ☐

Yes: ☒ No: ☐

Bolted Tracks?

Yes: ☐ No: ☐

Yes: ☒ No: ☐

Train DNL

0

56

Calculate Rail #2 DNL

56

Reset

Railroad #3 Track Identifier:

Union Pacific (east bound)

Rail # 3

Train Type

Electric ☐

Diesel ☒

Effective Distance

2029

Average Train Speed

10

Engines per Train

2

Railway cars per Train

50

Average Train Operations (ATO)

1

Night Fraction of ATO

38

Railway whistles or horns?

Yes: ☐ No: ☐

Yes: ☐ No: ☒

Bolted Tracks?

Yes: ☐ No: ☐

Yes: ☒ No: ☐

Train DNL

0

42

Calculate Rail #3 DNL

42

Reset

Add Road Source

Add Rail Source

Airport Noise Level

52

Loud Impulse Sounds?

☐ Yes ☒ No

Combined DNL for all Road and Rail sources	69
Combined DNL including Airport	69
Site DNL with Loud Impulse Sound	

Calculate

Reset

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative:** Cancel the project at this location
- **Other Reasonable Alternatives:** Choose an alternate site
- **Mitigation**
 - Contact your Field or Regional Environmental Officer (</programs/environmental-review/hud-environmental-staff-contacts/>)
 - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
 - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
 - Incorporate natural or man-made barriers. See *The Noise Guidebook* (</resource/313/hud-noise-guidebook/>)
 - Construct noise barrier. See the Barrier Performance Module (</programs/environmental-review/bpm-calculator/>)

Tools and Guidance

Day/Night Noise Level Assessment Tool User Guide (</resource/3822/day-night-noise-level-assessment-tool-user-guide/>)

Day/Night Noise Level Assessment Tool Flowcharts (</resource/3823/day-night-noise-level-assessment-tool-flowcharts/>)

Site ID	25-551454.1 - Liberty Bank, aka Rotary Gardens NAL #2 (2035)
Record Date	10/22/2025
User's Name	Partner ESI

Road # 1 Name:	U.S. Route 101
----------------	----------------

Road #1

Vehicle Type	Cars ☒	Medium Trucks ☒	Heavy Trucks ☒
Effective Distance	759	759	759
Distance to Stop Sign			
Average Speed	65	65	65
Average Daily Trips (ADT)	248007	7867	4116
Night Fraction of ADT	15	15	15
Road Gradient (%)			0
Vehicle DNL	65	60	64
Calculate Road #1 DNL	68	Reset	

Railroad #1 Track Identifier:	Caltrains
-------------------------------	-----------

Rail # 1

Train Type	Electric ☒	Diesel ☐
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Effective Distance	1278	
Average Train Speed	70	
Engines per Train	1	
Railway cars per Train	8	
Average Train Operations (ATO)	104	
Night Fraction of ATO	26	
Railway whistles or horns?	Yes: ☐ No: ☒	Yes: ☐ No: ☐
Bolted Tracks?	Yes: ☐ No: ☒	Yes: ☐ No: ☐
Train DNL	50	0
Calculate Rail #1 DNL	50	Reset

Railroad #2 Track Identifier:

Union Pacific (Main corridor)

Rail # 2

Train Type	Electric ☐	Diesel ☒
Effective Distance		1278
Average Train Speed		10
Engines per Train		2
Railway cars per Train		50
Average Train Operations (ATO)		8
Night Fraction of ATO		62

Railway whistles or horns?

Yes: ☐ No: ☐

Yes: ☐ No: ☒

Planning, Analysis, or Review

Yes: ☐ No: ☐

Yes: ☒ No: ☐

Bolted Tracks?

Yes: ☐ No: ☐

Yes: ☒ No: ☐

Train DNL

0

55

Calculate Rail #2 DNL

55

Reset

Railroad #3 Track Identifier:

Union Pacific (east bound)

Rail # 3

Train Type

Electric ☐

Diesel ☒

Effective Distance

2301

Average Train Speed

10

Engines per Train

2

Railway cars per Train

50

Average Train Operations (ATO)

1

Night Fraction of ATO

38

Railway whistles or horns?

Yes: ☐ No: ☐

Yes: ☐ No: ☒

Bolted Tracks?

Yes: ☐ No: ☐

Yes: ☒ No: ☐

Train DNL

0

41

Calculate Rail #3 DNL

41

Reset

Add Road Source

Add Rail Source

Airport Noise Level

52

Loud Impulse Sounds?

☐ Yes ☒ No

Combined DNL for all Road and Rail sources	69
Combined DNL including Airport	69
Site DNL with Loud Impulse Sound	

Calculate

Reset

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative:** Cancel the project at this location
- **Other Reasonable Alternatives:** Choose an alternate site
- **Mitigation**
 - Contact your Field or Regional Environmental Officer (</programs/environmental-review/hud-environmental-staff-contacts/>)
 - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
 - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
 - Incorporate natural or man-made barriers. See *The Noise Guidebook* (</resource/313/hud-noise-guidebook/>)
 - Construct noise barrier. See the Barrier Performance Module (</programs/environmental-review/bpm-calculator/>)

Tools and Guidance

Day/Night Noise Level Assessment Tool User Guide (</resource/3822/day-night-noise-level-assessment-tool-user-guide/>)

Day/Night Noise Level Assessment Tool Flowcharts (</resource/3823/day-night-noise-level-assessment-tool-flowcharts/>)

Site ID	25-551454.1 - Liberty Bank, aka Rotary Gardens NAL #3 (2035)
Record Date	10/22/2025
User's Name	Partner ESI

Railroad #1 Track Identifier:	Caltrains
-------------------------------	-----------

Rail # 1

Train Type	Electric ☒	Diesel ☐
Effective Distance	1200	
Average Train Speed	70	
Engines per Train	1	
Railway cars per Train	8	
Average Train Operations (ATO)	104	
Night Fraction of ATO	26	
Railway whistles or horns?	Yes: ☐ No: ☒	Yes: ☐ No: ☐
Bolted Tracks?	Yes: ☐ No: ☒	Yes: ☐ No: ☐
Train DNL	51	0
Calculate Rail #1 DNL	51	Reset

Railroad #2 Track Identifier:	Union Pacific (Main corridor)
-------------------------------	-------------------------------

Railroad #2 Track Identifier:

Union Pacific (main corridor)

Rail # 2

Train Type

Electric ☐

Diesel ☒

Effective Distance

1200

Average Train Speed

10

Engines per Train

2

Railway cars per Train

50

Average Train Operations (ATO)

8

Night Fraction of ATO

62

Railway whistles or horns?

Yes: ☐ No: ☐

Yes: ☐ No: ☒

Bolted Tracks?

Yes: ☐ No: ☐

Yes: ☒ No: ☐

Train DNL

0

56

Calculate Rail #2 DNL

56

Reset

Railroad #3 Track Identifier:

Union Pacific (east bound)

Rail # 3

Train Type

Electric ☐

Diesel ☒

Effective Distance

2073

Average Train Speed

10

Engines per Train

2

Railway cars per Train

50

Railway cars per train	30	30
Average Train Operations (ATO)	1	1
Night Fraction of ATO	38	38
Railway whistles or horns?	Yes: ☐ No: ☐	Yes: ☐ No: ☒
Bolted Tracks?	Yes: ☐ No: ☐	Yes: ☒ No: ☐
Train DNL	0	42
Calculate Rail #3 DNL	42	Reset
Add Road Source Add Rail Source		
Airport Noise Level	52	
Loud Impulse Sounds?	☐ Yes ☒ No	
Combined DNL for all Road and Rail sources	57	
Combined DNL including Airport	58	
Site DNL with Loud Impulse Sound		
Calculate	Reset	

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative:** Cancel the project at this location

Site ID	25-551454.1 - Liberty Bank, aka Rotary Gardens NAL #4 (2035)
Record Date	10/22/2025
User's Name	Partner ESI

Railroad #1 Track Identifier:	Caltrains
-------------------------------	-----------

Rail # 1

Train Type	Electric ☒	Diesel ☐
Effective Distance	1222	
Average Train Speed	70	
Engines per Train	1	
Railway cars per Train	8	
Average Train Operations (ATO)	104	
Night Fraction of ATO	26	
Railway whistles or horns?	Yes: ☐ No: ☒	Yes: ☐ No: ☐
Bolted Tracks?	Yes: ☐ No: ☒	Yes: ☐ No: ☐
Train DNL	51	0
Calculate Rail #1 DNL	51	Reset

Railroad #2 Track Identifier:	Union Pacific (Main corridor)
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Rail # 2

Train Type	Electric ☐	Diesel ☒
Effective Distance		1222

Effective Distance		1000
Average Train Speed		10
Engines per Train		2
Railway cars per Train		50
Average Train Operations (ATO)		8
Night Fraction of ATO		62
Railway whistles or horns?	Yes: ☐ No: ☐	Yes: ☐ No: ☒
Bolted Tracks?	Yes: ☐ No: ☐	Yes: ☒ No: ☐
Train DNL	0	56
Calculate Rail #2 DNL	56	Reset
Railroad #3 Track Identifier:	Union Pacific (east bound)	

Rail # 3

Train Type	Electric ☐	Diesel ☒
Effective Distance		2183
Average Train Speed		10
Engines per Train		2
Railway cars per Train		50
Average Train Operations (ATO)		1
Night Fraction of ATO		38
Railway whistles or horns?	Yes: ☐ No: ☐	Yes: ☐ No: ☒
Bolted Tracks?	Yes: ☐ No: ☐	Yes: ☒ No: ☐
Train DNL	0	41
This is the DNL (in dB) of all Road and Rail noise sources. (this does not include Airport Noise)		
Calculate Rail #3 DNL	41	Reset

Airport Noise Level	52
Loud Impulse Sounds?	☐ Yes ☒ No

Combined DNL for all Road and Rail sources	57
Combined DNL including Airport	58
Site DNL with Loud Impulse Sound	

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative:** Cancel the project at this location
- **Other Reasonable Alternatives:** Choose an alternate site
- **Mitigation**
 - Contact your Field or Regional Environmental Officer (</programs/environmental-review/hud-environmental-staff-contacts/>)
 - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
 - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
 - Incorporate natural or man-made barriers. See *The Noise Guidebook* (</resource/313/hud-noise-guidebook/>)
 - Construct noise barrier. See the **Barrier Performance Module** (</programs/environmental-review/bpm-calculator/>)

Tools and Guidance

[Day/Night Noise Level Assessment Tool User Guide \(/resource/3822/day-night-noise-level-assessment-tool-user-guide/\)](/resource/3822/day-night-noise-level-assessment-tool-user-guide/)

[Day/Night Noise Level Assessment Tool Flowcharts \(/resource/3823/day-night-noise-level-assessment-tool-flowcharts/\)](/resource/3823/day-night-noise-level-assessment-tool-flowcharts/)

Site ID	25-551454.1 - Liberty Bank, aka Rotary Gardens NAL #5 (2035)
Record Date	10/22/2025
User's Name	Partner ESI

Road # 1 Name:	U.S. Route 101
----------------	----------------

Road #1

Vehicle Type	Cars ☒	Medium Trucks ☒	Heavy Trucks ☒
Effective Distance	757	757	757
Distance to Stop Sign			
Average Speed	65	65	65
Average Daily Trips (ADT)	248007	7867	4116
Night Fraction of ADT	15	15	15
Road Gradient (%)			0
Vehicle DNL	65	60	64
Calculate Road #1 DNL	68	Reset	

Railroad #1 Track Identifier:	Caltrains
-------------------------------	-----------

Rail # 1

Train Type	Electric ☒	Diesel ☐
------------	--	---------------------------------

Effective Distance	1202	
Average Train Speed	70	
Engines per Train	1	
Railway cars per Train	8	
Average Train Operations (ATO)	104	
Night Fraction of ATO	26	
Railway whistles or horns?	Yes: ☐ No: ☒	Yes: ☐ No: ☐
Bolted Tracks?	Yes: ☐ No: ☒	Yes: ☐ No: ☐
Train DNL	51	0
Calculate Rail #1 DNL	51	Reset

Railroad #2 Track Identifier:

Union Pacific (Main corridor)

Rail # 2

Train Type	Electric ☐	Diesel ☒
Effective Distance		1202
Average Train Speed		10
Engines per Train		2
Railway cars per Train		50
Average Train Operations (ATO)		8
Night Fraction of ATO		62

Railway whistles or horns?

Yes: ☐ No: ☐

Yes: ☐ No: ☒

Planning, Analysis, or Review

Yes: ☐ No: ☐

Yes: ☒ No: ☐

Bolted Tracks?

Yes: ☐ No: ☐

Yes: ☒ No: ☐

Train DNL

0

56

Calculate Rail #2 DNL

56

Reset

Railroad #3 Track Identifier:

Union Pacific (east bound)

Rail # 3

Train Type

Electric ☐

Diesel ☒

Effective Distance

2074

Average Train Speed

10

Engines per Train

2

Railway cars per Train

50

Average Train Operations (ATO)

1

Night Fraction of ATO

38

Railway whistles or horns?

Yes: ☐ No: ☐

Yes: ☐ No: ☒

Bolted Tracks?

Yes: ☐ No: ☐

Yes: ☒ No: ☐

Train DNL

0

42

Calculate Rail #3 DNL

42

Reset

Add Road Source

Add Rail Source

Airport Noise Level

52

Loud Impulse Sounds?

☐ Yes ☒ No

Combined DNL for all Road and Rail sources	69
Combined DNL including Airport	69
Site DNL with Loud Impulse Sound	

Calculate

Reset

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative:** Cancel the project at this location
- **Other Reasonable Alternatives:** Choose an alternate site
- **Mitigation**
 - Contact your Field or Regional Environmental Officer (</programs/environmental-review/hud-environmental-staff-contacts/>)
 - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
 - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
 - Incorporate natural or man-made barriers. See *The Noise Guidebook* (</resource/313/hud-noise-guidebook/>)
 - Construct noise barrier. See the Barrier Performance Module (</programs/environmental-review/bpm-calculator/>)

Tools and Guidance

Day/Night Noise Level Assessment Tool User Guide (</resource/3822/day-night-noise-level-assessment-tool-user-guide/>)

Day/Night Noise Level Assessment Tool Flowcharts (</resource/3823/day-night-noise-level-assessment-tool-flowcharts/>)

APPENDIX F: STRACAT REPORT

October 24, 2025

HumanGood Affordable Housing
1900 Huntington Drive
Duarte, CA 91010

Subject: **Sound Transmission Classification Assessment Tool (STraCAT) analysis**
Liberty Bank
500 Linden Avenue
South San Francisco, CA 94080
Partner Project No. 25-551454.1

Partner Engineering and Science, Inc. (Partner) is pleased to provide the results of the Sound Transmission Classification Assessment Tool (STraCAT) of the abovementioned address (the "subject property"). This assessment was performed in general accordance with the United States Department of Housing and Urban Development (HUD) guidelines and STraCAT Users Guide, dated 2010, v1.0.

We appreciate the opportunity to provide you with this service. If you have any questions concerning this report, or if we can assist you in any other matter, please contact me at schiu@partneresi.com.

Sincerely,



Drew McCreery
Relationship Manager

Purpose and Scope

This STraCAT analysis is conducted in general accordance with HUD guidelines, as specified in the United States Department of Housing and Urban Development (U.S HUD) guidelines, STraCAT Users Guide, dated August 2010, v1.0.

The STraCAT analysis outlined in this report used the conclusions of a Noise Survey of the subject property that was prepared by Partner on 2/23/2024. This Survey includes exterior noise calculations which take into consideration roadways with a published traffic count within 1,000 feet; railways within 3,000-feet; and airports within a five-mile radius (civil airport) or 15-miles (military airfield). Noise levels were calculated for four residential buildings near the roadway noise source.

The acceptability of noise for the HUD criteria calls for a day-night average sound level (DNL) of less than 65 decibels at the exterior. Any DNL above 75 decibels is deemed unacceptable. DNL values between 65 and 75 decibels may be found to be acceptable through engineering adjustments to the subject property. The STraCAT tool analyzes the Sound Transmission Coefficient (STC) of materials comprising the building envelope, in order to assess whether the exterior wall assembly will reduce noise to acceptable levels (defined as 45 dB or less at the building's interior).

Noise Assessment – Sound Transmission Classification Assessment Tool

The following is a summary of the methodology and assumptions which Partner employed in the use of the STraCAT.

- Information was taken from a set of Drawings titled "Rotary Gardens" dated 8/1/2024.
- The Survey identified an 11-year day-night sound level (DNL) of **69 dB** at locations labeled as "NAL#1" and "NAL#2". These noise levels are considered "Normally Unacceptable" and are the subject of this report.
- Drawings do not provide details of the exterior wall assembly, nor do they identify STC values for walls, windows, or patio doors. Conservative values from the default STraCAT library were used. Partner believes that the actual STC value of the completed construction is likely to be greater than the values used in these calculations.
- One calculation was performed for each elevation of the building, each of which identified adequate noise attenuation.

Conclusion

Noise Source Elements					
Noise Source Locations	Window Area	Wall Area	Required Mitigation	Provided Mitigation	Pass or Fail
North Elevation	937	6,777	27	35.85	Pass
West Elevation	1,079	7,655	27	35.79	Pass
South Elevation	967	6,918	27	35.82	Pass
East Elevation	195	4,727	27	38.3	Pass

Based on the results of the STraCAT, the exterior envelope construction as depicted in the Drawings is likely to conform to HUD's requirements for required sound attenuation.

It is recommended that the development team confirm that building components will achieve minimum STC ratings of 29 for the windows and patio doors and 40 for the walls.

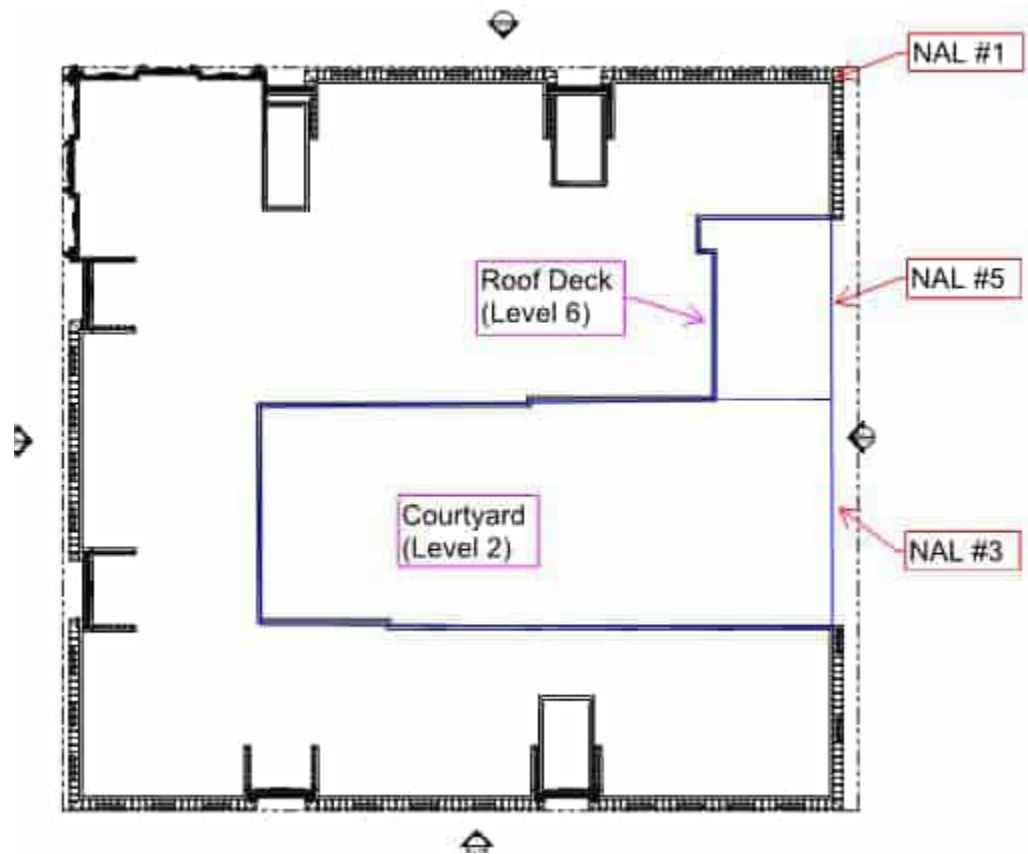
Prepared by:



Brian McDearman, AIA
Construction Analyst

SUPPORTING DOCUMENTS

Site/Floor Plan



Elevations

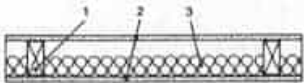


Elevations

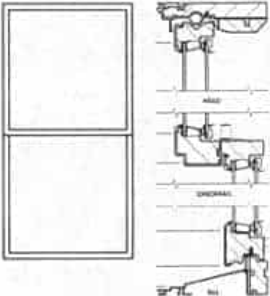


Construction Assemblies

Generic wall assembly – 40 STC:

2"x4" wood studs 24"o.c.; 1/2" gypsum board outside and inside; 2" sound attenuation blanket		A-11 1	1. 2x4" studs spaced 24"o.c. 2. 1/2" gypsum board screwed to studs. 3. 2" thick sound attenuation blanket.	40	
--	---	--------	---	----	--

Generic window assembly – 29 STC:

32"x24"x24" wood- framed aluminum clad double-hung window each sash has one 3/32" and one 1/8" glass panel 13/16" air space		A-24 3	32x24x24" aluminum double-hung windows (32" wide with 24" high upper sash and a 24" high lower sash) where each sash has one 3/32" panel and one 1/8" panel placed 13/16" apart in a wood frame.	29	Glass
---	---	--------	---	----	-------

Home > STraCAT

Sound Transmission Classification Assessment Tool (STraCAT)

Overview

The Sound Transmission Classification Assessment Tool (STraCAT) is an electronic version of Figures 17 and 19 in The HUD Noise Guidebook. The purpose of this tool is to document sound attenuation performance of wall systems. Based on wall, window, and door Sound Transmission Classification (STC) values, the STraCAT generates a composite STC value for the wall assembly as a whole. Users can enter the calculated noise level related to a specific Noise Assessment Location in front of a building facade and STraCAT will generate a target required attenuation value for the wall assembly in STC. Based on wall materials, the tool will state whether the composite wall assembly STC meets the required attenuation value.

How to Use This Tool

Location, Noise Level and Wall Configuration to Be Analyzed

STraCAT is designed to calculate the attenuation provided by the wall assembly for one wall of one unit. If unit exterior square footage and window/door configuration is identical around the structure, a single STraCAT may be sufficient. If units vary, at least one STraCAT should be completed for each different exterior unit wall configuration to document that all will achieve the required attenuation. Additionally, if attenuation is not based on a single worst-case NAL, but there are multiple NALs which require different levels of attenuation around the structure, a STraCAT should be completed for each differing exterior wall configuration associated with each NAL.

Exterior wall configurations associated with an NAL include those with parallel (facing) or near-parallel exposure as well as those with perpendicular exposure. When a facade has parallel or perpendicular exposure to two or more NALs, you should base the required attenuation on the NAL with the highest calculated noise level. For corner units where the unit interior receives exterior noise through two facades, the STraCAT calculation should incorporate the area of wall, window and door materials pertaining to the corner unit's total exterior wall area (i.e., from both walls).

Information to Be Entered

Users first enter basic project information and the NAL noise level that will be used as the basis for required attenuation. This noise level must be entered in whole numbers. STraCAT users then enter information on wall, window and door component type and area. Again, as noted above, the wall, window and door entries are based on one unit and one wall (except for corner units as discussed above). The tool sums total wall square footage based on the combined area of walls, doors and windows for the facade being evaluated.

Users may input STC values for materials in one of two ways. The tool includes a dropdown menu of common construction materials with STC values prefilled. If selected construction materials are not included in this dropdown menu, the user may also enter the STC for a given component manually. Verification of the component STC must be included in the BRB. Documentation includes the architect or construction manager's project plans showing wall material specifications. For new construction or for components that will be newly installed in an existing wall, documentation also includes the manufacturer's product specification sheet (cut sheet) documenting the STC rating of selected doors and windows.

Required STC Rating and Determination of Compliance

Finally, based on project information entered the tool will indicate the required STC rating for the wall assembly being evaluated and whether or not the materials specified will produce a combined rating that meets this requirement. Note that for noise levels above 75 dB (NL), either HUD (for 24 CFR Part 50 reviews) or the Responsible Entity (for 24 CFR Part 58 reviews) must approve the level and type of attenuation, among other processing requirements. Required attenuation values generated by STraCAT for NALs above 75 dB (NL) should therefore be considered tentative pending approval by HUD or the RE.

Part I - Description

Project

Liberty Bank/Notary Gdms

Sponsor/Developer

Location

East Elevation

Prepared by

Noise Level

69

Date

7/12/2025

Primary Sources

Road

Part II - Wall Components

Wall Construction Detail	Area	STC
Wall Area	4727	40
Add new wall		
4,727 Sq. Feet		40

Window Construction Detail	Quantity	Sq Ft/Unit	STC
Window Area	1	195	29
Add new window			

Door Construction Detail	Quantity	Sq Ft/Unit	STC
Add new door			

Part III - Results

Wall Statistics	
Stat	Value
Area:	4727 ft²
Wall STC:	40

Aperture Statistics			
Aperture	Count	Area	% of wall
Windows:	1	195 ft²	4.13%
Doors:	0	0 ft²	0%

Evaluation Criteria	
Criteria	Value
Noise source sound level (dB):	69
Combined STC for wall assembly:	38.3
Required STC rating:	27
Does wall assembly meet requirements?	Yes

Print

Part 4 - Tips

What do you do if the preferred wall design is not sufficient to achieve the required attenuation? Another wall design with more substantial materials will work, but may not be the most cost-effective solution. Try adding some other elements for just a little more attenuation.

For example:

- Staggering the studs in a wall offers approximately 4dB of additional protection.
- Increasing the stud spacing from 16" on center to 24" can increase the STC from 2-5dB.
- Adding a 2" air space can provide 3dB more attenuation.
- Increasing a wall's air space from 3" to 6" can reduce noise levels by an additional 5dB.
- Adding a layer of 1/2" gypsum board on 12" furring channels adds 2dB of attenuation.
- Using resilient channels and clips between wall panels and studs can improve the STC from 2-5dB.
- Adding a layer of 1/2" gypsum board on resilient channels adds 5dB of attenuation.
- Adding acoustical or isolation blankets to a wall's airspace can add 4-10dB of attenuation.
- A 1" rockwool acoustical blanket adds 3dB to the wall's STC.
- Filling the cells of lightweight concrete masonry units with expanded mineral loose-fill insulation adds 2dB to the STC.

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STraCAT Result – North Elevation

PARTNER

Part I - Description

Project

Liberty Bank/Rotary Gdns

Sponsor/Developer

Location

North Elevation

Prepared by

Noise Level

69

Date

10/24/2025

Primary Source(s)

Road

Part II - Wall Components

Wall Construction Detail

Area

STC

Wall Area

6777

40

Add new wall

6,777 Sq. Feet

40

Window Construction Detail

Quantity

Sq Ft/Unit

STC

Window Area

1

937

29

Add new window

Door Construction Detail

Quantity

Sq Ft/Unit

STC

Add new door

Part III - Results

Wall Statistics

Stat	Value
Area:	6777 ft ²
Wall STC:	40

Aperture Statistics

Aperture	Count	Area	% of wall
Windows:	1	937 ft ²	13.83%
Doors:	0	0 ft ²	0%

Evaluation Criteria

Criteria	Value
Noise source sound level (dB):	69
Combined STC for wall assembly:	35.85
Required STC rating:	27
Does wall assembly meet requirements?	Yes

Print

STraCAT Result – West Elevation

Part I - Description

Project

Liberty Bank/Rotary Gdns

Sponsor/Developer

Location

West Elevation

Prepared by

Noise Level

69

Date

10/24/2025

Primary Source(s)

Road

Part II - Wall Components

Wall Construction Detail

Area

STC

Wall Area

7655

40

Add new wall

7,655 Sq. Feet

40

Window Construction Detail

Quantity

Sq Ft/Unit

STC

Window Area

1

1079

29

Add new window

Door Construction Detail

Quantity

Sq Ft/Unit

STC

Add new door

Part III - Results

Wall Statistics

Stat

Value

Area:

7655 ft²

Wall STC:

40

Aperture Statistics

Aperture

Count

Area

% of wall

Windows:

1

ft²

14.1%

Doors:

0

0 ft²

0%

Evaluation Criteria

Criteria

Value

Noise source sound level (dB):

69

Combined STC for wall assembly:

35.79

Required STC rating:

27

Does wall assembly meet requirements?

Yes

Print

PARTNER

STraCAT Result – South Elevation

Part I - Description

Project

Liberty Bank/Rotary Gdns

Sponsor/Developer

Location

South Elevation

Prepared by

Noise Level

69

Date

10/24/2025

Primary Source(s)

Road

Part II - Wall Components

Wall Construction Detail

Area

STC

Wall Area

6918

40

Add new wall

6.918 Sq. Feet

40

Window Construction Detail

Quantity

Sq Ft/Unit

STC

Window Area

1

967

29

Add new window

Door Construction Detail

Quantity

Sq Ft/Unit

STC

Add new door

Part III - Results

Wall Statistics

Stat

Value

Area:

6918 ft²

Wall STC:

40

Aperture Statistics

Aperture

Count

Area

% of wall

Windows:

1

967 ft²

13.98%

Doors:

0

0 ft²

0%

Evaluation Criteria

Criteria

Value

Noise source sound level (dB):

69

Combined STC for wall assembly:

35.82

Required STC rating:

27

Does wall assembly meet requirements?

Yes

Print

PARTNER

STraCAT Result – East Elevation

Part I - Description

Project

Liberty Bank/Rotary Gdns

Sponsor/Developer

Location

East Elevation

Prepared by

Noise Level

69

Date

10/24/2025

Primary Source(s)

Road

Part II - Wall Components

Wall Construction Detail

Area

STC

Wall Area

4727

40

Add new wall

4.727 Sq. Feet

40

Window Construction Detail

Quantity

Sq Ft/Unit

STC

Window Area

1

195

29

Add new window

Door Construction Detail

Quantity

Sq Ft/Unit

STC

Add new door

Part III - Results

Wall Statistics

Stat

Value

Area:

4727 ft²

Wall STC:

40

Aperture Statistics

Aperture

Count

Area

% of wall

Windows:

1

195 ft²

4.13%

Doors:

0

0 ft²

0%

Evaluation Criteria

Criteria

Value

Noise source sound level (dB):

69

Combined STC for wall assembly:

38.3

Required STC rating:

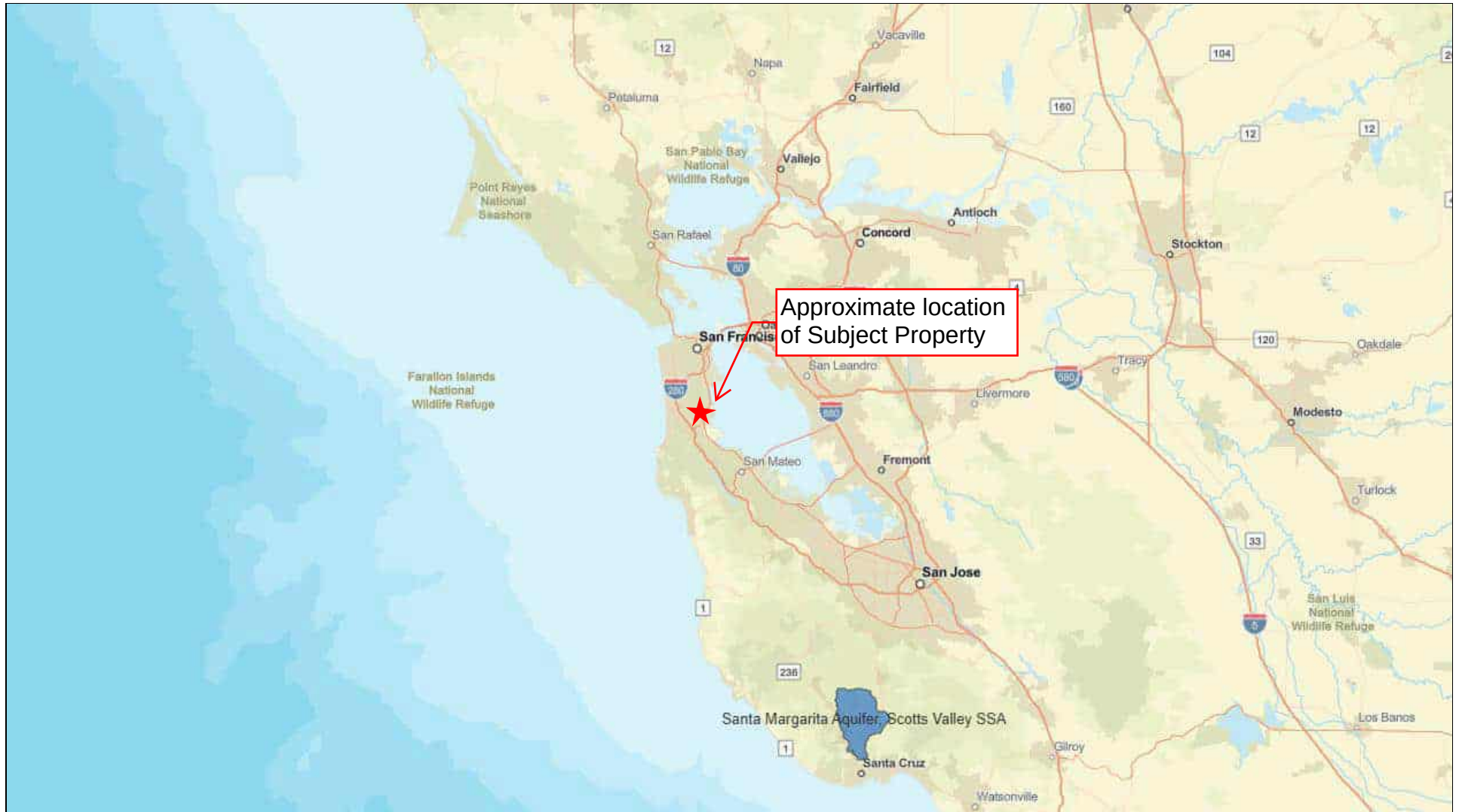
27

Does wall assembly meet requirements?

Yes

Print

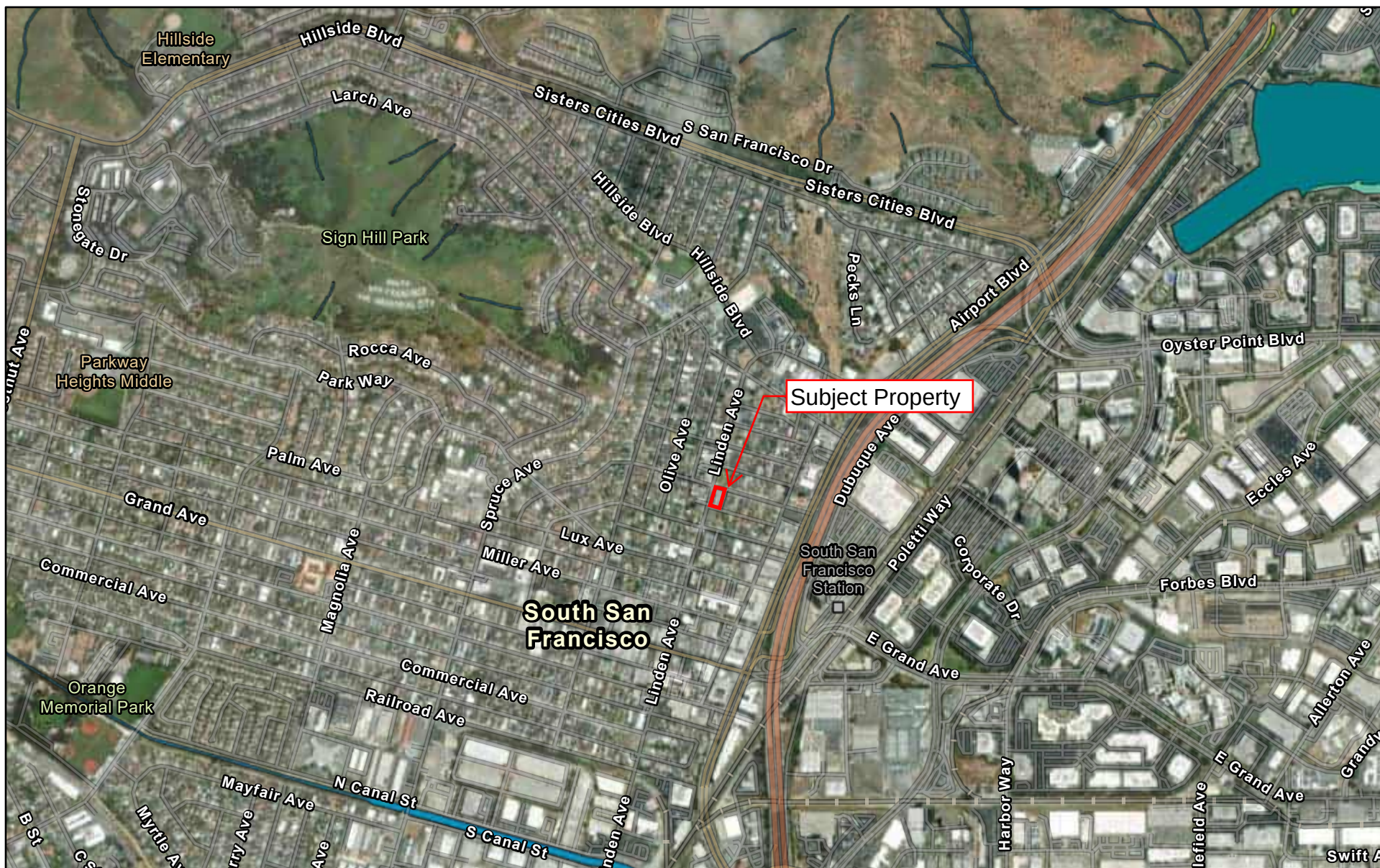
APPENDIX M: SOLE SOURCE AQUIFER



■ Sole_Source_Aquifers

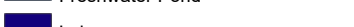
APPENDIX N: WETLANDS

NWI Wetlands Map



10/27/2025

Wetlands

	Freshwater Forested/Shrub Wetland		Riverine
	Estuarine and Marine Deepwater		Freshwater Pond
	Estuarine and Marine Wetland		Lake
	Freshwater Emergent Wetland		Other

High Resolution 30cm Imagery

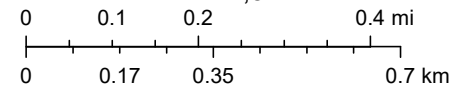
Citations

4.8m Resolution Metadata

Low Resolution 15m Imagery

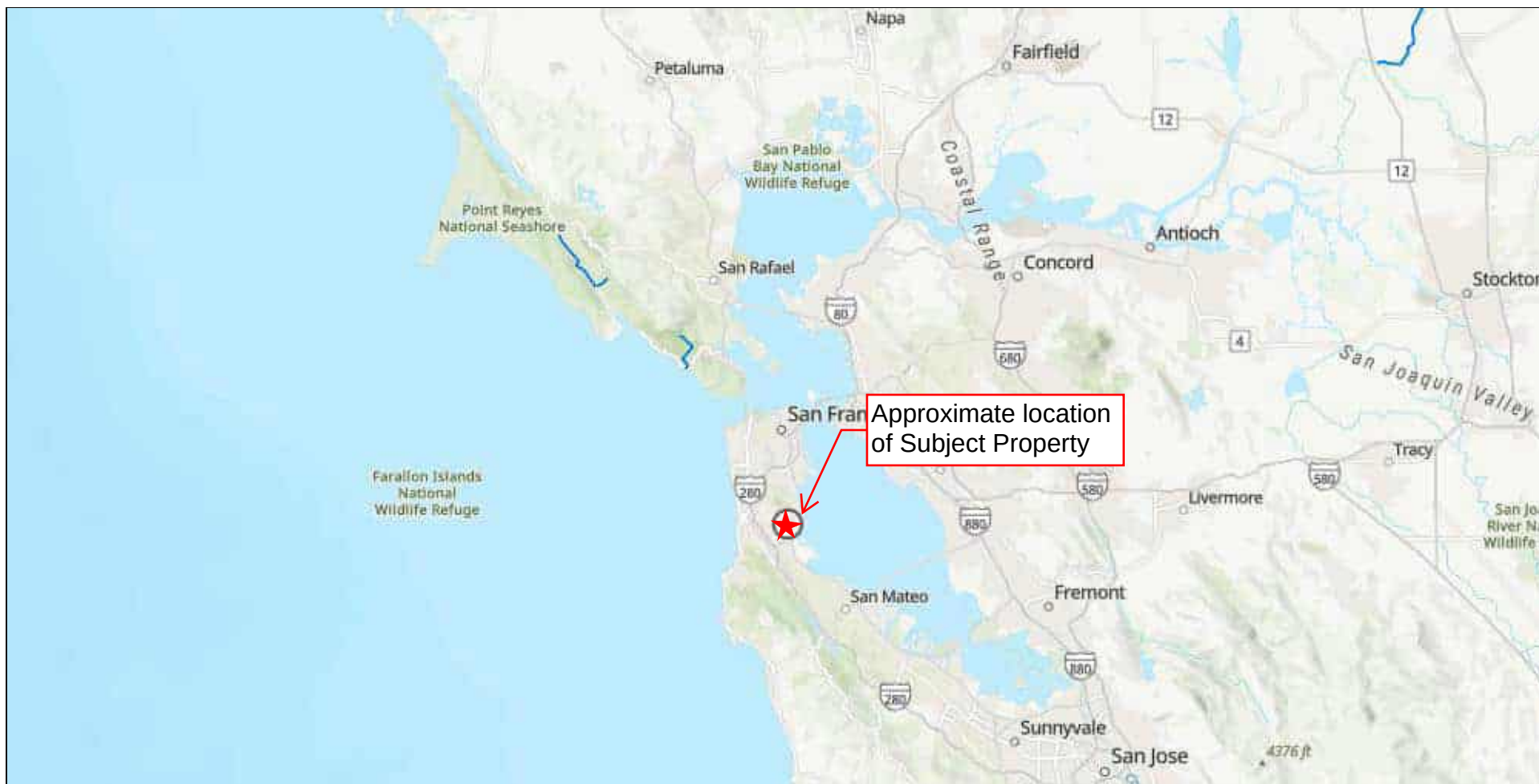
High Resolution 60cm Imagery

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Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

APPENDIX O: WILD AND SCENIC RIVERS



National Park Service
U.S. Department of the Interior



KEY:

Rivers





WILD & SCENIC RIVER STUDIES

Wild & Scenic River Studies

There are two study provisions in the Act — Section 5(a), through which Congress directs the study of select rivers, and Section 5(d)(1), which directs federal agencies to identify potential additions to the National Wild and Scenic Rivers System (National System) through federal agency plans. A brief explanation is provided in the following respective sections.



Choose A State ▼

Choose A River ▼

*While progress should never come to a halt,
there are many places it should never come to
at all. — Paul Newman*

Current Active Studies

Currently, there are three rivers or river systems under "authorized" study—two under Section 5(a) of the Wild & Scenic Rivers Act and one under Section 2(a)(ii). This does not include those that might be under assessment as part of normal agency land-planning processes.

Rivers Currently Under Study

- **Cave, Lake, No Name and Panther Creeks, Oregon** (Public Law 113-291, December 19, 2014) – Under study by the National Park Service.
- **Housatonic River, Connecticut** (Governor Malloy Request for Section 2(a)(ii) Designation, November 16, 2016) – Under study by the National Park Service.
- **York River and associated tributaries, Maine** (Public Law 113-291, December 19, 2014) – Under study by the National Park Service.

Section 2(a)(ii) Studies

Under Section 2(a)(ii) of the Act, a governor (or governors for a river in multiple states) of a state can request that a river be designated, provided certain conditions are met (refer to the [Council White Paper on Section 2\(a\)\(ii\)](#) for specifics). The NPS then conducts a study to determine if certain conditions are met. Here are some of the studies conducted under Section 2(a)(ii). Again, if you don't see a study listed, we do not have a copy.

Section 2(a)(ii) Studies Available for Download

- **Allagash River Study Report, Maine**
- **American River Eligibility Report, California**
- **American River Environmental Impact Statement, California**
- **Big & Little Darby Creeks Study Report & Environmental Assessment, Ohio**
- **Eel River Eligibility Report, California**
- **Eel River Environmental Impact Statement, California**

- Klamath River Eligibility Report, California
- Klamath River Environmental Impact Statement, California
- Klamath River Study Report, Oregon
- Lumber River Study Report, North Carolina
- Smith River Eligibility Report, California
- Smith River Environmental Impact Statement, California
- Trinity River Eligibility Report, California
- Trinity River Environmental Impact Statement, California
- Wallowa River Study Report, Oregon
- Westfield River Study Report & Environmental Assessment (Initial Study 1993), Massachusetts
- Westfield River Draft Study Report (Expansion 2002), Massachusetts

Section 5(d)(1), Agency-Identified Studies

In recent years, hundreds of rivers have been identified for study through Section 5(d)(1) of the Act. This provision directs federal agencies to identify potential addition to the National System through their respective resource and management plans. Its application has resulted in numerous individual river designations, statewide legislation (e.g., Omnibus Oregon Wild and Scenic Rivers Act, P.L. 100-557; Michigan Scenic Rivers Act, P.L. 102-249) and multi-state legislation (e.g., Omnibus Public Land Management Act of 2009, P.L. 111-11). Here are examples of agency-identified studies and transmittal documents (if available).

Section 5(d)(1) Studies Available for Download

- Arctic National Wildlife Refuge Wild & Scenic River Review
- Arizona Bureau of Land Management Statewide Study LEIS (8.6 MB PDF)
- Arizona Bureau of Land Management Statewide Study River Assessments (10.5 MB PDF)
- Blue River & KP Creek (Arizona) (11.9 MB PDF)
- Flathead River Draft Proposed Addition & Environmental Impact Statement, Montana

Utah Statewide Suitability Study:

- Record of Decision (19.9 MB PDF)
- EIS Cover (697 KB PDF)
- Summary & Table of Contents (138 KB PDF)
- Chapter 1 - Purpose & Need (734 KB PDF)
- Chapter 2 - Alternatives (2.8 MB PDF)
- Chapter 3 - Environmental Consequences (1.4 MB PDF)
- Chapter 4 - Consultation & Coordination (109 KB PDF)
- Chapter 5 - Referances (183 KB PDF)
- Chapter 6 - Comments & Responses (22.4 MB PDF)
- Appendix A - Table of Contents (799 KB PDF)
- Appendix A - Ashley NF Suitability Evaluation Report (36.7 MB PDF)
- Appendix A - Dixie & Fishlake NFs Suitability Evaluation Report (13.7 MB PDF)
- Appendix A - Manti La Sal NF Suitability Evaluation Report (10.8 MB PDF)
- Appendix A - Uinta & Wasatch NF Suitability Evaluation Report (52.5 MB PDF)
- Appendix B - BLM & NPS Rivers (686 KB PDF)
- Appendix C - Statutory Requirements (146 KB PDF)
- Appendix D - Effects of Managing Rivers (155 KB PDF)
- Appendix E - Water Rights Maps (16.7 MB PDF)

Congressionally Authorized Study Reports

We have collected a few of the study reports prepared at the direction of Congress (see next section, "Section 5(a), Congressionally Authorized Studies," for the complete list of congressionally authorized studies). If you do not see a report here, we do not have it, and you will have to contact the study agency at the local level for a copy.

Congressionally Authorized Study Reports Available for Download

Section 5(a), Congressionally Authorized Studies

Through Section 5(a), Congress authorizes the study of select rivers and directs one of the four federal river-administering agencies to conduct the study, as outlined in Sections 4(a) and 5(c) of the Wild & Scenic Rivers Act. The enabling legislation of 1968, P.L. 90-542, authorized 27 rivers for study as potential components of the National System. Amendments to the law have increased the number of studies authorized by Congress to 144.

These studies have lead to 48 designations by either Congress or the Secretary of the Interior. One study led to the establishment of a National Recreation Area.

The number of rivers included in the National System differs from the number of rivers authorized for study by Congress for the following reasons:

- Not all rivers studied are found eligible or suitable for designation—many study rivers will not be included in the National System.
- Some rivers are designated by Congress or the Secretary of the Interior without a pre-authorization or 5(a) study (e.g., Niobrara River).
- Some rivers are designated as a result of recommendation in federal agency plans (e.g., 49 rivers designated in Oregon in 1988).

The 144 rivers below have been authorized for study. The agency leading the study is indicated as National Park Service (NPS), Bureau of Outdoor Recreation (BOR), Heritage Conservation and Recreation Service (HCRS), Bureau of Land Management (BLM), or U.S. Forest Service (USFS). Within the Department of the Interior, the study function was transferred from the HCRS (formerly the BOR) to the NPS by Secretarial Order Number 3017, January 25, 1978. All studies indicated as BOR or HCRS were completed by these agencies before the program was transferred to the NPS. The BLM was delegated responsibility for conducting studies on Public Lands on October 11, 1988. The USFS (Department of Agriculture) has always conducted studies on National Forest System Lands and as directed by Congress.

For each study river, the number in parentheses is the approximate number of miles to be studied. If river segments were designated, the total designated mileage appears in the text.

Section 5(a), Congressionally Authorized Studies

For each study river, the number in parentheses is the approximate number of miles to be studied. If river segments were designated, the total designated mileage appears in the text.

Several of these studies are available in the section above (Section 5(a), Congressionally Authorized Studies).

I. Public Law 90-542 (October 2, 1968) — 27 rivers, studies due October 2, 1978

- (1) **Allegheny, Pennsylvania.** (BOR) Letter report to Congress on January 23, 1974. River not qualified. (69.5 miles)
- (2) **Bruneau, Idaho.** (BOR) Report recommending congressional designation transmitted to Congress on May 23, 1977. (121 miles)
- (3) **Buffalo, Tennessee.** (NPS) Report transmitted to Congress on October 2, 1979. Preservation of river by state recommended. (117 miles)
- (4) **Chattooga, North Carolina, South Carolina, and Georgia.** (USFS) Fifty-six point nine miles added to the National System, Public Law 93-279, May 10, 1974. (56.9 miles)
- (5) **Clarion, Pennsylvania.** (BOR) Letter report to Congress on February 22, 1974. River not qualified. (90 miles)
- (6) **Delaware, Pennsylvania and New York.** (BOR) Seventy-five point four miles added to the National System, Public Law 95-625, November 10, 1978. (75.4 miles)
- (7) **Flathead, Montana.** (USFS) Two hundred nineteen miles added to the National System, Public Law 94-486, October 12, 1976. (219 miles)

miles)

(8) **Gasconade, Missouri.** (BOR) Report transmitted to Congress on May 23, 1977. Preservation of river by state recommended. (265 miles)

(9) **Illinois, Oregon.** (USFS) Fifty point four miles added to the National System, Public Law 98-494, October 19, 1984. (88 miles)

(10) **Little Beaver, Ohio.** (BOR) Thirty-three miles added to the National System by the Secretary of the Interior on October 23, 1975. Report transmitted to Congress on February 10, 1976. (33 miles)

(11) **Little Miami, Ohio.** (BOR) Sixty-six miles added to the National System by the Secretary of the Interior on August 20, 1973. Report transmitted to Congress on November 5, 1973. An additional 28-mile segment was added by the Secretary of the Interior on January 28, 1980. (94 miles)

(12) **Maumee, Ohio and Indiana.** (BOR) Report transmitted to Congress on September 13, 1974. River not qualified. (236 miles)

(13) **Missouri, Montana.** (BOR) One hundred forty-nine miles added to the National System, Public Law 94-486, October 12, 1976. (180 miles)

(14) **Moyie, Idaho.** (USFS) Report transmitted to Congress on September 13, 1982. Designation not recommended. (26.1 miles)

(15) **Obed, Tennessee.** (BOR/NPS) Forty-five miles added to the National System, Public Law 94-486, October 12, 1976. Report transmitted to Congress on April 26, 1985. Submission of final report was in abeyance pending completion of a mineral evaluation. Further designation was not recommended. (100 miles)

(16) **Penobscot, Maine.** (BOR) Report transmitted to Congress on May 23, 1977. Preservation of river by state recommended. (327 miles)

(17) **Pere Marquette, Michigan.** (USFS) Sixty-six point four miles added to the National System, Public Law 95-625, November 10, 1978. (153 miles)

(18) **Pine Creek, Pennsylvania.** (NPS) Report transmitted to Congress on October 2, 1979. Preservation of river by state recommended. (51.7 miles)

(19) **Priest, Idaho.** (USFS) Report recommending congressional designation transmitted to Congress on October 2, 1979. (67 miles)

(20) **Rio Grande, Texas.** (BOR) One hundred ninety-one point two miles added to the National System, Public Law 95-625, November 10, 1978. (556 miles)

(21) **Saint Croix, Minnesota and Wisconsin.** (BOR) Twenty-seven mile federally administered segment added to the National System by Public Law 92-560, October 25, 1972. Twenty-five mile state-administered segment added by the Secretary of the Interior on June 17, 1976. (52 miles)

(22) **St. Joe, Idaho.** (USFS) Sixty-six point three miles added to the National System, Public Law 95-625, November 10, 1978. (132.1 miles)

(23) **Salmon, Idaho.** (USFS) One hundred twenty-five miles added to the National System, Public Law 96-312, July 23, 1980. Additional 53 miles subject to provisions of Section 7(a) of Public Law 90-542. (237 miles)

(24) **Skagit, Washington.** (USFS) One hundred fifty-seven point five miles added to the National System, Public Law 95-625, November 10, 1978. (166.3 miles)

(25) **Suwannee, Florida and Georgia.** (BOR) Report transmitted to Congress on March 15, 1974. Preservation of river by state recommended. (272 miles)

(26) **Upper Iowa, Iowa.** (BOR) Report transmitted to Congress on May 11, 1972. Preservation of river by state recommended. (80 miles)

(27) **Youghigheny, Maryland and Pennsylvania.** (NPS) Report transmitted to Congress on October 2, 1979. Preservation of river by state recommended. (49 miles)

II. Public Law 93-621 (January 3, 1975) — 29 rivers, studies due October 2, 1979, except the Dolores River due October 2, 1976, and the Green and Yampa Rivers due January 1, 1987

(28) **American, California.** (USFS) Thirty-eight point three miles added to the National System, Public Law 95-625, November 10, 1978. (41.1 miles)

(29) **AuSable, Michigan.** (USFS) Twenty-three miles added to the National System, Public Law 98-444, October 4, 1984. (165 miles)

(30) **Big Thompson, Colorado.** (NPS) Report transmitted to Congress on October 2, 1979. Designation not recommended. (13.6 miles)

(31) **Cache la Poudre, Colorado.** (USFS) Seventy-six miles added to the National System, Public Law 99-590, October 30, 1986. (76 miles)

(32) **Cahaba, Alabama.** (USFS) Report transmitted to Congress on December 14, 1979. River not qualified. (116 miles)

(33) **Clarks Fork, Wyoming.** (USFS) Twenty point five miles added to the National System, Public Law 101-628, November 28, 1990. (23 miles)

(34) **Colorado, Colorado and Utah.** (NPS) Report transmitted to Congress on April 26, 1985. Designation not recommended. (75.7 miles)

(35) **Conejos, Colorado.** (USFS) Report recommending congressional designation transmitted to Congress on September 13, 1982. (48.8 miles)

(36) **Elk, Colorado.** (USFS) Report recommending congressional designation transmitted to Congress on September 13, 1982. (35 miles)

(37) **Encampment, Colorado.** (USFS) Report recommending congressional designation transmitted to Congress on October 2, 1979. (19.5 miles)

(38) **Green, Colorado and Utah.** (NPS) Report transmitted to Congress in combination with the Yampa River on November 14, 1983. The river was determined eligible, but the Secretary did not include a recommendation for designation. (91 miles)

(39) **Gunnison, Colorado.** (NPS) Report recommending congressional designation transmitted to Congress on October 2, 1979. (29 miles)

(40) **Illinois, Oklahoma.** (HCRS) Report transmitted to Congress on October 2, 1979. Preservation of river by state recommended. (115 miles)

(41) **John Day, Oregon.** (NPS) One hundred forty-seven point five miles added to the National System, Public Law 100-557, October 28, 1988. (149 miles)

(42) **Kettle, Minnesota.** (NPS) Report transmitted to Congress on October 2, 1979. Preservation of river by state recommended. (79 miles)

(43) **Los Pinos, Colorado.** (USFS) Report recommending congressional designation transmitted to Congress on September 13, 1982. (54 miles)

(44) **Manistee, Michigan.** (USFS) Twenty-six miles added to the National System, Public Law 102-249, March 3, 1992. (232 miles)

(45) **Nolichucky, Tennessee and North Carolina.** (NPS) Report transmitted to Congress on April 26, 1985. River not qualified. (110 miles)

(46) **Owyhee, Oregon.** (NPS) One hundred twenty miles added to the National System, Public Law 98-494, October 19, 1984. (192 miles)

(47) **Piedra, Colorado.** (USFS) Report recommending congressional designation transmitted to Congress on September 13, 1982. (53 miles)

(48) **Shepaug, Connecticut.** (NPS) Report transmitted to Congress on October 2, 1979. Preservation of river by state and local action recommended. (28 miles)

(49) **Sipsey Fork, Alabama.** (USFS) Sixty-one miles added to the National System, Public Law 100-547, October 28, 1988. (71 miles)

(50) **Snake, Wyoming.** (USFS) Report recommending congressional designation transmitted to Congress on September 13, 1982. (50 miles)

(51) **Sweetwater, Wyoming.** (NPS) Report transmitted to Congress on November 14, 1979. Designation not recommended. (9.5 miles)

(52) **Tuolumne, California.** (NPS/USFS) Eighty-three miles added to the National System, Public Law 98-425, September 28, 1984. (92 miles)

(53) **Upper Mississippi, Minnesota.** (BOR) Report recommending congressional designation transmitted to Congress on August 25, 1977. (466 miles)

(54) **Wisconsin, Wisconsin.** (NPS/USFS) Report transmitted to Congress on October 2, 1979. Preservation of river by state recommended. (82.4 miles)

(55) **Yampa, Colorado.** (NPS) Report transmitted to Congress in combination with Green River on November 14, 1983. The river was determined eligible, but the Secretary did not include a recommendation for designation. (47 miles)

(56) **Dolores, Colorado.** (BOR/USFS) Report recommending Congressional designation transmitted to Congress on May 23, 1977. (105 miles)

III. Public Law 94-199 (December 31, 1975) — 1 river, study due October 1, 1979

(57) **Snake, Washington, Oregon and Idaho.** (NPS) Report transmitted to Congress on April 26, 1985. Designation not recommended. (33 miles)

IV. Public Law 94-486 (October 12, 1976) — 1 river, study due October 1, 1980

(58) **Housatonic, Connecticut.** (NPS) Report transmitted to Congress on October 2, 1979. Preservation of river by state and local action recommended. (51 miles)

V. Public Law 95-625 (November 10, 1978) — 17 rivers, studies due October 1, 1984

(59) **Kern (North Fork), California.** (USFS) One hundred fifty-one miles of the North and South Forks added to the National System, Public Law 100-174, November 24, 1987. (74 miles)

(60) **Loxahatchee, Florida.** (NPS) Seven point five miles added to the National System by the Secretary of the Interior on May 17, 1985. (25 miles)

(61) **Ogeechee, Georgia.** (NPS) Report transmitted to Congress on April 26, 1985. Preservation of river by state recommended. (246 miles)

(62) **Salt, Arizona.** (USFS) Report transmitted to Congress on September 13, 1982. Designation not recommended. (22 miles)

(63) **Verde, Arizona.** (USFS) Forty point five miles added to the National System, Public Law 98-406, August 28, 1984. (78 miles)

(64) **San Francisco, Arizona.** (USFS) Report transmitted to Congress on September 13, 1982. Designation not recommended. (29 miles)

(65) **Fish Creek, East Branch, New York.** (NPS) Report transmitted to Congress on April 26, 1985. Preservation of river by state and local action recommended. (49 miles)

(66) **Black Creek, Mississippi.** (USFS) Twenty-one miles added to the National System, Public Law 99-590, October 30, 1986. (122.8 miles)

(67) **Allegheny, Pennsylvania.** (USFS) Eighty-five miles added to the National System, Public Law 102-271, April 20, 1992. (128 miles)

(68) **Cacapon, West Virginia.** (NPS) Report transmitted to Congress on April 26, 1985. Preservation of river by state and local action recommended. (114 miles)

(69) **Escatawpa, Alabama and Mississippi.** (NPS) Report transmitted to Congress on April 26, 1985. Preservation of river by state and local action recommended. (72 miles)

(70) **Myakka, Florida.** (NPS) Report transmitted to Congress on April 26, 1985. Preservation of river by state recommended. (37 miles)

(71) **Soldier Creek, Alabama.** (NPS) Report transmitted to Congress on April 26, 1985. River not qualified. (.2 miles)

(72) **Red, Kentucky.** (USFS) Nineteen point four miles added to the National System, Public Law 103-170, December 2, 1993. (19.4 miles)

(73) **Bluestone, West Virginia.** (NPS) Ten miles added to the National System, Public Law 100-534, October 26, 1988. (40 miles)

(74) **Gauley, West Virginia.** (NPS) A 25-mile segment established as a National Recreation Area on October 26, 1988. (164 miles)

(75) **Greenbrier, West Virginia.** (USFS) Report transmitted to Congress on January 7, 1993. Preservation of river by state and local action recommended. (175 miles)

VI. Public Law 96-199 (March 5, 1980) — 1 river, study due October 1, 1984

(76) **Birch, West Virginia.** (NPS) Report transmitted to Congress on April 26, 1985. Preservation of river by state and local action recommended. (20 miles)

VII. Public Law 96-487 (December 2, 1980) — 12 rivers, studies due October 1, 1984, except the Sheenjek and Squirrel Rivers due January 1, 1987. The following rivers were added for study by the Alaska National Interest Lands Conservation Act (ANILCA.)

(77) **Colville, Alaska.** (NPS) Study submitted to Congress on April 12, 1979, as part of 105(c) study mandated by Public Law 94-258. This was prior to passage of ANILCA. (428 miles)

(78) **Etivluk-Nigu, Alaska.** (NPS) Study submitted to Congress on April 12, 1979, as part of 105(c) study mandated by Public Law 94-258. This was prior to passage of ANILCA. (160 miles)

(79) **Utukok, Alaska.** (NPS) Study submitted to Congress on April 12, 1979, as part of 105(c) study mandated by Public Law 94-258. This was prior to passage of ANILCA. (250 miles)

(80) **Kanektok, Alaska.** (NPS) Report transmitted to Congress on April 26, 1985. Designation not recommended. (75 miles)

(81) **Kisaralik, Alaska.** (NPS) Report transmitted to Congress on April 26, 1985. Designation not recommended. (75 miles)

(82) **Melozitna, Alaska.** (NPS) Report transmitted to Congress on April 26, 1985. River not qualified. (270 miles)

(83) **Sheenjek (lower segment), Alaska.** (NPS) Report recommending congressional designation transmitted to Congress on January 19, 2001. (109 miles)

(84) **Situk, Alaska.** (USFS) Report transmitted to Congress on April 26, 1985. Designation not recommended. (21 miles)

(85) **Porcupine, Alaska.** (NPS) Report transmitted to Congress on April 26, 1985. Designation not recommended. (75 miles)

(86) **Yukon (Ramparts section), Alaska.** (NPS) Report transmitted to Congress on April 26, 1985. Designation not recommended. (128 miles)

(87) **Squirrel, Alaska.** (Initiated by NPS/Completed by BLM) Final report/EIS issued January 26, 1999. Designation not recommended. (72 miles)

(88) **Koyuk, Alaska.** (NPS) Report transmitted to Congress on April 26, 1985. River not qualified. (159 miles)

VIII. Public Law 98-323 (June 6, 1984) — 1 river, study due October 1, 1990

(89) **Wildcat Creek, New Hampshire.** (NPS) Fourteen point five miles added to the National System, Public Law 100-554, October 28, 1988. (21 miles)

IX. Public Law 98-484 (October 17, 1984) — 1 river, study due October 17, 1987

(90) **Horsepasture, North Carolina.** (USFS) Four point two miles added to the National System, Public Law 99-530, October 27, 1986. (4.2 miles)

X. Public Law 98-494 (October 19, 1984) — 1 river, study due October 1, 1988

(91) **North Umpqua, Oregon.** (USFS) Thirty-three point eight miles added to the National System, Public Law 100-557, October 28, 1988. (33.8 miles)

XI. Public Law 99-590 (October 30, 1986) — 2 rivers, studies due October 30, 1989, for the Great Egg Harbor and October 1, 1990, for the Farmington

(92) **Farmington, West Branch, Connecticut and Massachusetts.** (NPS) Fourteen miles added to the National System, Public Law 103-313, August 26, 1994. Report transmitted to Congress on December 13, 1995. (25 miles)

(93) **Great Egg Harbor, New Jersey.** (NPS) One hundred twenty-nine miles added to the National System, Public Law 102-536, October 26, 1992. (127 miles)

XII. Public Law 99-663 (November 17, 1986) — 2 rivers, studies due October 1, 1990

(94) **Klickitat, Washington.** (USFS) Draft report issued June 1990. Final report completed, but not transmitted to Congress. (30 miles)

(95) **White Salmon, Washington.** (USFS) Twenty miles added to the National System, Public Law 109-44, August 2, 2005. The portion designated was added to the study by the USFS and is the headwaters above the segment authorized for study. (13.5 miles)

XIII. Public Law 100-33 (May 7, 1987) — 3 rivers, studies due October 1, 1990

(96) **Maurice, New Jersey.** (NPS) Ten point five miles added to the National System, Public Law 103-162, December 1, 1993. (14 miles)

(97) **Manumuskin, New Jersey.** (NPS) Fourteen point three miles added to the National System, Public Law 103-162, December 1, 1993. (3.5 miles)

(98) **Menantico Creek, New Jersey.** (NPS) Seven point nine miles added to the National System, Public Law 103-162, December 1, 1993. (7 miles)

XIV. Public Law 100-149 (November 2, 1987) — 1 river, study due October 1, 1991

(99) **Merced, California.** (BLM) Eight miles added to the National System, Public Law 102-432, October 23, 1992. (8 miles)

XV. Public Law 100-557 (October 28, 1988) — 6 rivers, studies due October 1, 1992

(100) **Blue, Oregon.** (USFS) Study initiated in 1989. River determined ineligible, but report not transmitted to Congress. (9 miles)

(101) **Chewaucan, Oregon.** (USFS) Study initiated in 1989. River determined ineligible, but report not transmitted to Congress. (23 miles)

(102) **North Fork Malheur, Oregon.** (BLM) River determined eligible, but report not transmitted to Congress. (15 miles)

(103) **South Fork McKenzie, Oregon.** (USFS) Study initiated in 1989. River determined eligible, with plans to complete the study at revision of the Willamette National Forest Land and Resource Management Plan. (26 miles)

(104) **Steamboat Creek, Oregon.** (USFS) Final report completed in 1993. River determined eligible, but report not transmitted to Congress. (24 miles)

(105) **Wallowa, Oregon.** (USFS) Ten miles added to the National System by the Secretary of the Interior on July 25, 1996. (10 miles)

XVI. Public Law 101-356 (August 10, 1990) — 1 river, study due August 10, 1993

(106) **Merrimack, New Hampshire.** (NPS) Draft report issued October 7, 1999. River was determined eligible, but final report not transmitted to Congress. (22 miles)

XVII. Public Law 101-357 (August 10, 1990) — 1 river, study due August 10, 1993

(107) **Pemigewasset, New Hampshire.** (NPS) Report transmitted to Congress on May 5, 1998. Designation not recommended. (36 miles)

XVIII. Public Law 101-364 (August 15, 1990) — 1 river, study due August 15, 1993

(108) **St. Marys, Florida.** (NPS) Draft report issued on March 16, 1994. River was determined eligible, but final report not transmitted to Congress. (120 miles)

XIX. Public Law 101-538 (November 8, 1990) — 1 river, study due September 30, 1994

(109) **Mills, North Carolina.** (USFS) Final report completed in 1996 but not transmitted to Congress. (33 miles)

XX. Public Law 101-628 (November 28, 1990) — 1 river, study due September 30, 1994

(110) **Concord, Assabet and Sudbury, Massachusetts.** (NPS) Twenty-nine miles added to the National System, Public Law 106-20, April 9, 1999. (29 miles)

XXI. Public Law 102-50 (May 24, 1991) — 1 river, study due September 30, 1994

(111) **Niobrara, Nebraska.** (NPS) Six miles added to the National System, Public Law 102-50, May 24, 1996. (6 miles)

XXII. Public Law 102-214 (December 11, 1991) — 1 river, study due December 11, 1994

(112) **Lamprey, New Hampshire.** (NPS) Eleven point five miles added to the National System, Public Law 104-333, November 12, 1996. Twelve miles added to the National System, Public Law 106-192, May 5, 2000. (10 miles)

XXIII. Public Law 102-215 (December 11, 1991) — 1 river, study due December 11, 1994

(113) **White Clay Creek, Pennsylvania and Delaware.** (NPS) One hundred ninety miles added to the National System, Public Law 106-357, October 24, 2000. (23+ miles)

XXIV. Public Law 102-249 (March 3, 1992) — 11 rivers, studies due September 30, 1995

(114) **Brule, Michigan and Wisconsin.** (USFS) River determined eligible; suitability study not completed. (33 miles)

(115) **Carp, Michigan.** (USFS) River determined eligible; suitability study not completed. (7.6 miles)

(116) **Little Manistee, Michigan.** (USFS) River determined eligible; suitability study not completed. (42 miles)

(117) **White, Michigan.** (USFS) River determined eligible; suitability study not completed. (75.4 miles)

(118) **Ontonagon, Michigan.** (USFS) River determined eligible; suitability study not completed. (32 miles)

(119) **Paint, Michigan.** (USFS) River determined eligible; suitability study not completed. (70 miles)

(120) **Presque Isle, Michigan.** (USFS) River determined eligible; suitability study not completed. (13 miles)

(121) **Sturgeon (Ottawa National Forest), Michigan.** (USFS) River determined eligible; suitability study not completed. (36 miles)

(122) **Sturgeon (Hiawatha National Forest), Michigan.** (USFS) River determined eligible; suitability study not completed. (18.1 miles)

(123) **Tahquamenon, Michigan.** (USFS) River determined eligible; suitability study not completed. (103.5 miles)

(124) **Whitefish, Michigan.** (USFS) River determined eligible; suitability study not completed. (26 miles)

XXV. Public Law 102-271 (April 20, 1992) — 2 rivers, studies due September 30, 1995

(125) **Clarion, Pennsylvania.** (USFS) Fifty-one point seven miles added to the National System, Public Law 104-333, October 19, 1996. (104 miles)

(126) **Mill Creek, Pennsylvania.** (USFS) River determined eligible, suitability study not completed. (18 miles)

XXVI. Public Law 102-301 (June 19, 1992) — 5 rivers, studies due September 30, 1995

(127) **Piru Creek, California.** (USFS) Seven point three miles of area below Pyramid Lake added to the National System, Public Law 111-11, March 30, 2009. Two areas of river authorized for study—source to Pyramid Lake and 300 feet below Pyramid Lake to Lake Piru. Study of area above Pyramid Lake completed in revision of Los Padres National Forest Land and Resource Management Plan. (49 miles)

(128) **Little Sur, California.** (USFS) Study completed in revision of Los Padres National Forest Land and Resource Management Plan. River determined eligible, but report not transmitted to Congress. (23 miles)

(129) **Matilija Creek, California.** (USFS) Study completed in revision of Los Padres National Forest Land and Resource Management Plan. River determined ineligible, but report not transmitted to Congress. (16 miles)

(130) **Lopez Creek, California.** (USFS) Study completed in revision of Los Padres National Forest Land and Resource Management Plan. River determined ineligible, but report not transmitted to Congress. (11 miles)

(131) **Sespe Creek, California.** (USFS) Study completed in revision of Los Padres National Forest Land and Resource Management Plan. River determined eligible, but report not transmitted to Congress. (10.5 miles)

XXVII. Public Law 102-432 (October 23, 1992) — 1 river, study due September 30, 1995

(132) **North Fork Merced, California.** (BLM) Study has been completed through the Folsom Resource Management Plan. River determined ineligible, but report not transmitted to Congress. (15 miles)

XXVIII. Public Law 102-460 (October 23, 1992) — 1 river, study due October 23, 1993

(133) **Delaware, Pennsylvania and New Jersey.** (NPS) Sixty-seven point three miles added to the National System, Public Law 106-418, November 1, 2000. (70 miles)

XXIX. Public Law 102-525 (October 26, 1992) — 1 river, study due October 26, 1993

(134) [New, Virginia and West Virginia](#). (NPS) Report transmitted to Congress on April 8, 2011. Designation not recommended. (20 miles) [Transmittal Memos](#)

XXX. Public Law 103-242 (May 4, 1994) — 1 river, study due May 4, 1997

(135) [Rio Grande, New Mexico](#). (BLM) Final report issued on January 4, 2000, but not transmitted to Congress. Seven point six miles determined eligible. (8 miles)

XXXI. Public Law 104-311 (October 19, 1996) — 1 river, study due October 19, 1998

(136) [Wekiva, Florida](#). (NPS) Forty-one point six miles added to the National System, Public Law 106-299, October 13, 2000. (27 miles)

XXXII. Public Law 106-318 (October 19, 2000) — 1 river, study due October 19, 2003

(137) [Taunton, Massachusetts](#). (NPS) Forty point zero miles added to the National System, Public Law 111-11, March 30, 2009. (22 miles)

XXXIII. Public Law 107-65 (November 6, 2001) — 1 river, study due November 6, 2004

(138) [Eight Mile, Connecticut](#). (NPS) Twenty-five point three miles added to the National System, Public Law 110-229, May 8, 2008. (15 miles)

XXXIV. Public Law 109-370 (November 27, 2006) — 1 river, study due November 27, 2009

(139) [Lower Farmington and Salmon Brook, Connecticut](#). (NPS) Sixty-one point seven miles added to the National System, Public Law 116-9, March 12, 2019. (70 miles) (70 miles)

XXXV. Public Law 111-11 (March 3, 2009) — 1 river, study due March 30, 2012

(140) [Missisquoi and Trout, Vermont](#). (NPS) Forty-six point one miles added to the National System, Public Law 113-291, December 19, 2014. (70 miles)

XXXVI. Public Law 113-291 (December 19, 2014) — 4 rivers, studies due 3 years after the date on which funds are made available to conduct the studies

(141) [Lake Creek, Lower Cave Creek, Lake Creek, No Name Creek, Panther Creek, and Upper Cave Creek, Oregon](#). (NPS) Lake Creek and Upper Cave Creek found eligible and suitable for designation; No Name Creek, Panther Creek, and Upper Cave Creek found ineligible. Report transmitted to Congress April 7, 2020. (8.3 miles) [Transmittal Letters](#)

(142) [Beaver, Chipuxet, Queen, Wood and Pawcatuck Rivers, Rhode Island and Connecticut](#). (NPS) One hundred ten miles added to the National System, Public Law 116-9, March 12, 2019. (86 miles)

(143) [Nashua River, Massachusetts](#). (NPS) Fifty-two point eight miles added to the National System, Public Law 116-9, March 12, 2019. (32.5 miles)

(144) [York River, Maine](#). (NPS) (11.3 miles)

Study completed; [transmitted to Congress July 13, 2021](#).

For each study river, the number in parentheses is the approximate number of miles to be studied. If river segments were designated, the total designated mileage appears in the text.



Designated Rivers

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National System

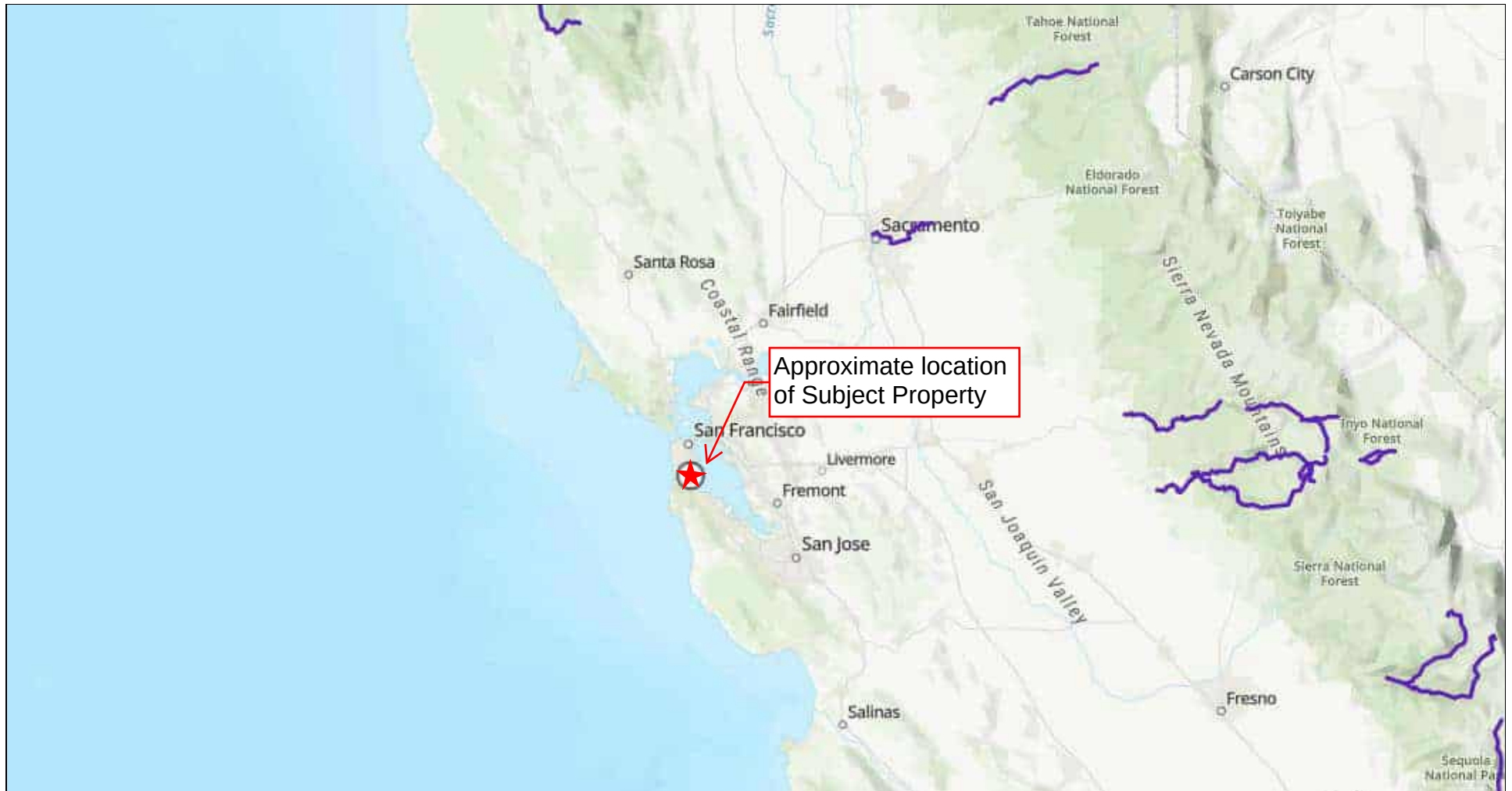
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National Park Service
U.S. Department of the Interior



KEY:

Wild Rivers



APPENDIX P: ENVIRONMENTAL JUSTICE

Presidential Documents

Executive Order 14173 of January 21, 2025

Ending Illegal Discrimination and Restoring Merit-Based Opportunity

By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered:

Section 1. *Purpose.* Longstanding Federal civil-rights laws protect individual Americans from discrimination based on race, color, religion, sex, or national origin. These civil-rights protections serve as a bedrock supporting equality of opportunity for all Americans. As President, I have a solemn duty to ensure that these laws are enforced for the benefit of all Americans.

Yet today, roughly 60 years after the passage of the Civil Rights Act of 1964, critical and influential institutions of American society, including the Federal Government, major corporations, financial institutions, the medical industry, large commercial airlines, law enforcement agencies, and institutions of higher education have adopted and actively use dangerous, demeaning, and immoral race- and sex-based preferences under the guise of so-called “diversity, equity, and inclusion” (DEI) or “diversity, equity, inclusion, and accessibility” (DEIA) that can violate the civil-rights laws of this Nation.

Illegal DEI and DEIA policies not only violate the text and spirit of our longstanding Federal civil-rights laws, they also undermine our national unity, as they deny, discredit, and undermine the traditional American values of hard work, excellence, and individual achievement in favor of an unlawful, corrosive, and pernicious identity-based spoils system. Hard-working Americans who deserve a shot at the American Dream should not be stigmatized, demeaned, or shut out of opportunities because of their race or sex.

These illegal DEI and DEIA policies also threaten the safety of American men, women, and children across the Nation by diminishing the importance of individual merit, aptitude, hard work, and determination when selecting people for jobs and services in key sectors of American society, including all levels of government, and the medical, aviation, and law-enforcement communities. Yet in case after tragic case, the American people have witnessed first-hand the disastrous consequences of illegal, pernicious discrimination that has prioritized how people were born instead of what they were capable of doing.

The Federal Government is charged with enforcing our civil-rights laws. The purpose of this order is to ensure that it does so by ending illegal preferences and discrimination.

Sec. 2. *Policy.* It is the policy of the United States to protect the civil rights of all Americans and to promote individual initiative, excellence, and hard work. I therefore order all executive departments and agencies (agencies) to terminate all discriminatory and illegal preferences, mandates, policies, programs, activities, guidance, regulations, enforcement actions, consent orders, and requirements. I further order all agencies to enforce our longstanding civil-rights laws and to combat illegal private-sector DEI preferences, mandates, policies, programs, and activities.

Sec. 3. *Terminating Illegal Discrimination in the Federal Government.* (a) The following executive actions are hereby revoked:

- (i) Executive Order 12898 of February 11, 1994 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations);
 - (ii) Executive Order 13583 of August 18, 2011 (Establishing a Coordinated Government-wide Initiative to Promote Diversity and Inclusion in the Federal Workforce);
 - (iii) Executive Order 13672 of July 21, 2014 (Further Amendments to Executive Order 11478, Equal Employment Opportunity in the Federal Government, and Executive Order 11246, Equal Employment Opportunity); and
 - (iv) The Presidential Memorandum of October 5, 2016 (Promoting Diversity and Inclusion in the National Security Workforce).
- (b) The Federal contracting process shall be streamlined to enhance speed and efficiency, reduce costs, and require Federal contractors and subcontractors to comply with our civil-rights laws. Accordingly:
- (i) Executive Order 11246 of September 24, 1965 (Equal Employment Opportunity), is hereby revoked. For 90 days from the date of this order, Federal contractors may continue to comply with the regulatory scheme in effect on January 20, 2025.
 - (ii) The Office of Federal Contract Compliance Programs within the Department of Labor shall immediately cease:
 - (A) Promoting “diversity”;
 - (B) Holding Federal contractors and subcontractors responsible for taking “affirmative action”; and
 - (C) Allowing or encouraging Federal contractors and subcontractors to engage in workforce balancing based on race, color, sex, sexual preference, religion, or national origin.
 - (iii) In accordance with Executive Order 13279 of December 12, 2002 (Equal Protection of the Laws for Faith-Based and Community Organizations), the employment, procurement, and contracting practices of Federal contractors and subcontractors shall not consider race, color, sex, sexual preference, religion, or national origin in ways that violate the Nation’s civil rights laws.
 - (iv) The head of each agency shall include in every contract or grant award:
 - (A) A term requiring the contractual counterparty or grant recipient to agree that its compliance in all respects with all applicable Federal anti-discrimination laws is material to the government’s payment decisions for purposes of section 3729(b)(4) of title 31, United States Code; and
 - (B) A term requiring such counterparty or recipient to certify that it does not operate any programs promoting DEI that violate any applicable Federal anti-discrimination laws.
 - (c) The Director of the Office of Management and Budget (OMB), with the assistance of the Attorney General as requested, shall:
 - (i) Review and revise, as appropriate, all Government-wide processes, directives, and guidance;
 - (ii) Excise references to DEI and DEIA principles, under whatever name they may appear, from Federal acquisition, contracting, grants, and financial assistance procedures to streamline those procedures, improve speed and efficiency, lower costs, and comply with civil-rights laws; and
 - (iii) Terminate all “diversity,” “equity,” “equitable decision-making,” “equitable deployment of financial and technical assistance,” “advancing equity,” and like mandates, requirements, programs, or activities, as appropriate.

Sec. 4. Encouraging the Private Sector to End Illegal DEI Discrimination and Preferences. (a) The heads of all agencies, with the assistance of the

Attorney General, shall take all appropriate action with respect to the operations of their agencies to advance in the private sector the policy of individual initiative, excellence, and hard work identified in section 2 of this order.

(b) To further inform and advise me so that my Administration may formulate appropriate and effective civil-rights policy, the Attorney General, within 120 days of this order, in consultation with the heads of relevant agencies and in coordination with the Director of OMB, shall submit a report to the Assistant to the President for Domestic Policy containing recommendations for enforcing Federal civil-rights laws and taking other appropriate measures to encourage the private sector to end illegal discrimination and preferences, including DEI. The report shall contain a proposed strategic enforcement plan identifying:

- (i) Key sectors of concern within each agency's jurisdiction;
- (ii) The most egregious and discriminatory DEI practitioners in each sector of concern;
- (iii) A plan of specific steps or measures to deter DEI programs or principles (whether specifically denominated "DEI" or otherwise) that constitute illegal discrimination or preferences. As a part of this plan, each agency shall identify up to nine potential civil compliance investigations of publicly traded corporations, large non-profit corporations or associations, foundations with assets of 500 million dollars or more, State and local bar and medical associations, and institutions of higher education with endowments over 1 billion dollars;
- (iv) Other strategies to encourage the private sector to end illegal DEI discrimination and preferences and comply with all Federal civil-rights laws;
- (v) Litigation that would be potentially appropriate for Federal lawsuits, intervention, or statements of interest; and
- (vi) Potential regulatory action and sub-regulatory guidance.

Sec. 5. *Other Actions.* Within 120 days of this order, the Attorney General and the Secretary of Education shall jointly issue guidance to all State and local educational agencies that receive Federal funds, as well as all institutions of higher education that receive Federal grants or participate in the Federal student loan assistance program under Title IV of the Higher Education Act, 20 U.S.C. 1070 *et seq.*, regarding the measures and practices required to comply with *Students for Fair Admissions, Inc. v. President and Fellows of Harvard College*, 600 U.S. 181 (2023).

Sec. 6. *Severability.* If any provision of this order, or the application of any provision to any person or circumstance, is held to be invalid, the remainder of this order and the application of its provisions to any other persons or circumstances shall not be affected thereby.

Sec. 7. *Scope.* (a) This order does not apply to lawful Federal or private-sector employment and contracting preferences for veterans of the U.S. armed forces or persons protected by the Randolph-Sheppard Act, 20 U.S.C. 107 *et seq.*

(b) This order does not prevent State or local governments, Federal contractors, or Federally-funded State and local educational agencies or institutions of higher education from engaging in First Amendment-protected speech.

(c) This order does not prohibit persons teaching at a Federally funded institution of higher education as part of a larger course of academic instruction from advocating for, endorsing, or promoting the unlawful employment or contracting practices prohibited by this order.

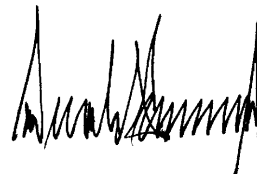
Sec. 8. *General Provisions.* (a) Nothing in this order shall be construed to impair or otherwise affect:

- (i) the authority granted by law to an executive department, agency, or the head thereof; or

(ii) the functions of the Director of the Office of Management and Budget relating to budgetary, administrative, or legislative proposals.

(b) This order shall be implemented consistent with applicable law and subject to the availability of appropriations.

(c) This order is not intended to and does not create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.



THE WHITE HOUSE,
January 21, 2025.

APPENDIX Q: ENVIRONMENTAL ASSESSMENT FACTORS – ANALYSIS





2024

WATER QUALITY REPORT

**BAYSHORE
DISTRICT**

South San Francisco System

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.



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WELCOME

At California Water Service (Cal Water), we are committed to providing safe, clean, reliable water to our customers and communities, 24 hours per day, 7 days per week, 365 days per year. We treat the water to make it safe to use and drink, test it to confirm it meets all standards, and stay on top of emerging water quality regulations, focusing on your water so you don't have to. As regulations become more stringent, we prepare early and will add or adjust treatment as needed to confirm that the water we deliver continues to meet or surpass all standards—because protecting our customers' health and safety is our highest priority.

IN THIS SYSTEM IN 2024, WE CONDUCTED 13,153 TESTS ON 2,089 WATER SAMPLES FOR 223 CONSTITUENTS. WE ARE PLEASED TO CONFIRM THAT WE MET EVERY PRIMARY AND SECONDARY FEDERAL AND STATE WATER QUALITY STANDARD LAST YEAR.

But, our promise to provide quality, service, and value means more than just treating and testing water. It means maintaining and upgrading the water system infrastructure needed to transport water from its source through a vast network of pumps, tanks, and pipes to your tap. It means having expert professionals available both to assist with routine services safely and efficiently, and to handle emergencies that could arise in the middle of the night. It also means that, even as costs keep increasing nationwide, we do everything we can to operate as efficiently as possible to keep your water service affordable.

I encourage you to read this year's local water quality report, formally called your Consumer Confidence Report. It details any constituents detected in your water supply in 2024 and shows how your water compares to federal and state standards. It also provides information on current hot topics and steps we take to protect your health and safety.

If you have any questions, we are here to help. You can contact your local office by phone or by using the Contact Us form at www.calwater.com. You can also get water service news on our web site, in your monthly bill, and via our Facebook, X, and Instagram pages. Please also keep your contact information up to date by visiting ccu.calwater.com or myaccount.calwater.com so you can receive emergency and other important information.

Sincerely,
Ross Moilan, District Manager, Bayshore District

Bayshore District
341 North Delaware Street
San Mateo, CA 94401-1727
(650) 558-7800

ACTION ITEMS

There were no significant issues in your water system in 2024, and we have no recommended action items for our customers in this area.



YOUR WATER SYSTEM

YOUR WATER

Cal Water has provided high-quality water utility services in South San Francisco since 1931. To meet our customers' needs in 2024, we used a combination of local groundwater and surface water purchased from San Francisco Public Utilities Commission (SFPUC). Our South San Francisco system includes 160 miles of main, 13 storage tanks, one collecting tank, 18 booster pumps, six groundwater wells, and one groundwater treatment plant.

Our company-wide water quality assurance program includes vigilant monitoring throughout our systems and testing at our state-of-the-art laboratory. Additionally, we proactively maintain and upgrade facilities to provide a reliable, high-quality supply.

CHLORAMINES

Chloramines are most commonly formed when ammonia is added to chlorine. They are used as a disinfectant to treat your drinking water and provide long-lasting disinfection as water moves through pipes to consumers.

WATER RESOURCE SUSTAINABILITY

Cal Water helps our customers conserve water by offering programs and incentives to reduce indoor and outdoor water use, develop more efficient habits, and educate the next generation about the importance of managing water resources sustainably. We also continue to invest diligently in our infrastructure to reduce the amount of water lost to pipeline leaks and, in 2022, completed an updated assessment of the impacts of climate change on water supply and demand. Whether in wet or dry years, it's important that we make saving water every day a way of life. Using water wisely will ensure that we have enough water in periods of drought and for generations to come.

Visit www.calwater.com/conservation for details.

If you have any questions or concerns, please contact our local office by phone at (650) 558-7800 or through the Contact Us link at www.calwater.com.



THE WATER QUALITY LAB

Water professionals collect samples from throughout the water system for testing at our recently upgraded, state-of-the-art water quality laboratory, which is certified each year through the stringent Environmental Laboratory Accreditation Program (ELAP).

Our laboratory team tests the water for 326 constituents with equipment so sensitive it can detect levels as low as one part per trillion. In order to maintain the ELAP certification, all of our scientists must pass blind-study proficiency tests for every water quality test performed. Water quality test results are entered into our Laboratory Information Management System (LIMS), a sophisticated software program that enables us to react quickly to changes in water quality and analyze water quality trends in order to plan effectively for future needs.

CROSS-CONNECTION CONTROL

Cal Water has a robust cross-connection control program that protects the high-quality water we deliver. Cross-connection control is critical to making sure that activities on customers' properties do not affect the public water system. Our certified cross-connection control specialists confirm that all the existing backflow prevention assemblies are tested annually, identify the risk posed by service connections, and enforce and manage the installation of new commercial and residential assemblies.

Backflow is the undesired or unintended reversal of flow of water and/or other liquids, gases, or other substances into the public water supply. Backflow can occur when certain pressure conditions exist within the public water system or a customer's plumbing, so our customers are our first line of defense to prevent it. A minor home improvement project—without the proper protections—can create a potentially hazardous situation, so careful adherence to plumbing codes and standards will ensure the community's water supply remains safe. Please be sure to utilize the advice or services of a qualified plumbing professional.

Many water-use activities involve substances that, if allowed to enter the distribution system, would be aesthetically displeasing or could even present health concerns.

Some common cross-connections are:

- Garden hoses connected to a hose bib without a simple hose-type vacuum breaker (available at a home improvement store).
- Improperly installed toilet tank fill valves that do not have the required air gap between the valve or refill tube.
- Landscape irrigation systems that do not have the proper backflow prevention assembly installed on the supply line.

The list of materials that could potentially contaminate the water system is vast. According to the United States Environmental Protection Agency (EPA), a wide variety of substances have contaminated drinking water systems throughout the country because of poor cross-connection control. Examples include:

- Antifreeze from a heating system.
- Lawn chemicals from a garden hose or sprinkler head.
- Blue water from a toilet tank.
- Carbonated water from a soda dispenser.

Customers must check that all plumbing is in conformance with local plumbing codes. Additionally, state law requires certain types of facilities to install and maintain backflow prevention assemblies at the water meter. Cal Water's cross-connection control staff will determine whether you need to install a backflow prevention assembly based on water use at your location.



PROTECTING OUR WATERSHEDS

The SFPUC conducts watershed sanitary surveys for the Hetch Hetchy source annually and for the local water sources and Upcountry Non-Hetch Hetchy Source (UNHHS) every five years. The latest sanitary surveys for the local watersheds and the UNHHS watershed were completed in 2021 for the period of 2016-2020.

All of these surveys, together with our stringent watershed protection management activities, were completed with support from partner agencies including the National Park Service and U.S. Forest Service. The purpose of the surveys is to evaluate the sanitary conditions and water quality of the watersheds, and to review results of watershed management activities conducted in the preceding years. Wildfire, wildlife, livestock, and human activities continue to be the potential contamination sources.

You may contact the DDW San Francisco District office at (510) 620-3474 to review these reports.

We encourage customers to join us in our efforts to prevent water pollution and protect our most precious natural resource.



YOUR 2024 RESULTS

FLUORIDE

State law requires Cal Water to add fluoride to drinking water if public funding is available to pay for it, and it is a practice endorsed by the American Medical Association and the American Dental Association to prevent tooth decay. In this area, local water is blended with purchased water that has fluoride in it. Show the table in this report to your dentist to see if he or she recommends giving your children fluoride supplements.

WATER HARDNESS

Hardness is a measure of the magnesium, calcium, and carbonate minerals in the water. Water is considered soft if its hardness is less than 75 parts per million (ppm), moderately hard at 75 to 150 ppm, hard between 150 and 300 ppm, and very hard at 300 ppm or higher.

Hard water is generally not a health concern, but it can have an impact on how well soap lathers and is significant for some industrial and manufacturing processes. Hard water may also lead to mineral buildup in pipes or water heaters.

Some people with hard water opt to buy a water softener for aesthetic reasons; however, some water softeners add salt to the water, which can cause problems at wastewater treatment plants. Additionally, people on low-sodium diets should be aware that some water softeners increase the sodium content of the water.

For more information on water hardness, visit www.calwater.com/video/hardness.

More information about fluoridation, oral health, and related issues can be found on the [DDW web site](http://www.calwater.com).

For general information on water fluoridation, visit us online at www.calwater.com.



POSSIBLE CONTAMINANTS

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.

More information about contaminants and potential health effects can be obtained by calling the EPA Safe Drinking Water Hotline at (800) 426-4791.

The sources of drinking water (both tap and bottled) include rivers, lake, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals—and in some cases radioactive material—and can pick up substances resulting from the presence of animals or human activities. Prior to entering the distribution system, source water with constituents over maximum contaminant levels is treated to reduce levels to meet standards set by public health experts.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic compounds, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural applications, and septic systems.
- Radioactive contaminants, which can be naturally occurring or the result of oil and gas production and mining activities.

In order to keep tap water safe to drink, the EPA and DDW prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised people, such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, and those with HIV/AIDS or other immune system disorders; some elderly people; and infants can be particularly at risk from infections. These people should seek advice from their health care providers about drinking water contaminants. EPA and Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline.



As the issue of lead in water continues to be top of mind for many Americans, Cal Water wants to assure you about the quality of your water. We are compliant with health and safety codes mandating use of lead-free materials in water system replacements, repairs, and new installations. We have no known lead service lines in our systems. We test and treat (if necessary) water sources to confirm that the water delivered to customer meters meets all water quality standards and is not corrosive toward plumbing materials.

The water we deliver to your home meets lead standards. However, if present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing (for example, lead solder used to join copper plumbing, and brass and other lead-containing fixtures).

Cal Water is responsible for providing high-quality drinking water to our customers' meters, but cannot control the variety of materials used in properties' plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking.

If you are concerned about lead in your water, you may wish to have your water tested by a certified lab. More information about lead in drinking water can be found through the Safe Drinking Water Hotline (1-800-426-4791) or at www.epa.gov/safewater/lead.

TESTING FOR LEAD IN SCHOOLS

The State of California required that all public schools built before 2010 test for lead in their drinking water. We are committed to supporting our school districts' efforts to protect students and confirm that the drinking water at their school sites are below regulatory limits. We completed those tests, working with all school districts in our service area that serve kindergarten through 12th grade to develop sampling plans, test samples, and conduct follow-up monitoring, if needed, for corrective actions. The state will require us to retest most schools beginning in 2027.

Please see our [Testing for Lead in Schools](#) web page for more information. For specific information regarding local school data, see the [state web portal lead sampling in schools page](#).

LEAD AND COPPER RULE

The Lead and Copper Rule requires us to test water inside a representative number of homes that have plumbing most likely to contain lead and/or lead solder to determine the presence of lead and copper or any action

level exceedance. An action level is the concentration of a contaminant which, when exceeded, triggers corrective actions before it becomes a health concern. If action levels are exceeded, either at a customer's home or system-wide, we work with the customer to investigate the issue and/or implement corrosion control treatment to reduce lead levels.

LEAD SERVICE LINE INVENTORY (LSLI)

Protecting our customers' health and safety is our highest priority. As part of this commitment, we have been working to identify any old water service lines and fittings that may contain lead so that customers can make necessary replacements. This effort complies with EPA's 2021 Lead and Copper Rule Revisions, which require that public water systems comply with the regulations starting on October 16, 2024. These requirements include an initial service line inventory. You can find a list of maps that provide details of our ongoing service line inventory at www.calwater.com/lsl.

In your system, results from our lead monitoring program, conducted in accordance with the Lead and Copper Rule, were below the action level for the presence of lead.



In April 2024, the EPA finalized a National Primary Drinking Water Regulation (NPDWR) for six PFAS in drinking water):

- MCL of 4 ppt for PFOS and PFOA.
- MCL of 10 ppt for PFHxS, PFNA, and GenX.
- Hazard Index of 1.0 combined for PFHxS, PFNA, PFBS, and GenX.

Water systems must begin monitoring for these PFAS within three years (2027), and must comply with the regulation within five years (2029).

At Cal Water, protecting our customers' health and safety is our highest priority, and we are committed to complying with all requirements set by the public health experts. We had prepared for the EPA regulation and its potential impact on—and any treatment needed in—our systems, and had already evaluated the impact of the proposed regulation so that we were prepared to comply with the final MCLs.

We also have protocols to test our water sources for compliance with the new MCLs. We have long followed recommendations from DDW, and even went beyond by testing every active source in our California systems years ago. Although not required at the time, we believed it was the right thing to do. In any cases across our service areas where detections were above the levels at which state public health experts have recommended water suppliers take action (the previous response level), we took the affected sources out of service until treatment was/could be installed.

Our active water sources are in compliance with current California response levels, based on the running annual average at each site. The response level, which is the level at which a water system should make operational changes to reduce the concentration of a compound, is set with a margin of protection for all people (including sensitive populations) over a lifetime of exposure.

Additionally, we believe a comprehensive approach is needed to properly address the situation. We urged the EPA to establish a consistent, science-based standard as quickly as feasible, and strongly supported state legislation that will prohibit the sale and use of certain products that contain PFAS, require the certification of accurate testing methods for PFAS, and establish a publicly accessible database that houses the sources of PFAS entering water supplies. We have also filed lawsuits to hold PFAS manufacturers responsible—and ultimately prevent our customers from bearing the costs of treatment, to the extent possible—and are pursuing grants where available to further offset customer cost impacts.

As background, PFAS are manmade compounds that have been used to make carpets, clothing, fabrics for furniture, paper packaging for food, and other materials (e.g., cookware) that are resistant to water, grease, or stains. These compounds are also used for firefighting at airfields, which is one way they have found their way into groundwater in certain areas.

Studies indicate that long-term exposure to PFAS over certain levels could have adverse health effects, including developmental effects to fetuses during pregnancy or infants; cancer; or impacts on liver, immunity, thyroid, and other functions. Potential health effects related to PFAS are still being studied, and research is still evolving on this issue.

**More information on
PFAS is available
on the DDW web site.**



IN COMPLIANCE: Does not exceed any applicable MCL, SMCL, or action level, as determined by DDW. For some compounds, compliance is determined by averaging the results for one source over a one-year period.

LEVEL 1 ASSESSMENT: A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in the system.

LEVEL 2 ASSESSMENT: A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in the system on multiple occasions.

MAXIMUM CONTAMINANT LEVEL (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs (SMCLs) are set to protect the odor, taste, and appearance of drinking water.

MAXIMUM CONTAMINANT LEVEL GOAL (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency.

MAXIMUM RESIDUAL DISINFECTANT LEVEL (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MAXIMUM RESIDUAL DISINFECTANT LEVEL GOAL (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NOTIFICATION LEVEL (NL) AND RESPONSE LEVEL (RL): Health-based advisory levels for unregulated contaminants in drinking water. They are used by DDW to provide guidance to drinking water systems.

PRIMARY DRINKING WATER STANDARDS (PDWS): MCLs, MRDLs, and TTs for contaminants that affect health along with their monitoring, reporting, and water treatment requirements.

PUBLIC HEALTH GOAL (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency without regard to technological or economic feasibility.

REGULATORY ACTION LEVEL (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

TREATMENT TECHNIQUE (TT): A required process intended to reduce the level of a contaminant in drinking water.

VARIANCES AND EXEMPTIONS: Permissions from the State Board to exceed an MCL or not comply with a TT under certain conditions.

STANDARD ABBREVIATIONS

AL	Action level
Max	Maximum
MFL	Million fibers per liter
Min	Minimum
N/A	Not applicable
ND	Contaminant not detected
NL	Notification level
NTU	Nephelometric turbidity unit
pCi/L	Picocuries per liter (a measure of radiation)
ppb	Parts per billion or micrograms per liter (µg/L)
ppm	Parts per million or milligrams per liter (mg/L)
ppq	Parts per quadrillion or picogram per liter (pg/L)
ppt	Parts per trillion or nanograms per liter (ng/L)
RAA	running annual average
µS/cm	Microsiemens/centimeter



Every year, Cal Water performs hundreds of thousands of tests to monitor the quality of our water. If any contaminants are detected, they are included in this annual water quality report. However, most of the contaminants we test for are not detected, so they are not listed.

See the [Potential Contaminants web page](#) for a complete list of contaminants we test for.

In the table, water quality test results are divided into four major sections: “Primary Drinking Water Standards,” “Secondary Drinking Water Standards,” “State-Monitored Contaminants with Notification Levels,” and “Unregulated Compounds.” Primary standards protect public health by limiting the levels of certain constituents in drinking water. Secondary standards are set for substances that don’t impact health but could affect the water’s taste, odor, or appearance. Some unregulated substances (hardness and sodium, for example) are included for your information. The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

SUBSTANCE SOURCES

DI	Byproduct of drinking water disinfection	IM	Discharge from industrial manufacturers
DS	Drinking water disinfectant added for treatment	IO	Substances that form ions when in water
EN	Naturally present in the environment	IW	Industrial waste
ER	Erosion of natural deposits	OC	Runoff from orchards; glass and electronics production waste
FE	Human and animal waste	OD	Discharges of oil-drilling waste and from metal refineries
FL	Water additive that promotes strong teeth; discharge from fertilizer and aluminum factories	OM	Naturally occurring organic materials
FR	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage	RU	Runoff/leaching from natural deposits
IA	Discharge from industrial and agricultural chemical factories; leaching from hazardous waste sites; used as cleaning and maintenance solvent, paint and varnish remover, and cleaning and degreasing agent; byproduct of production of other compounds and pesticides	RS	Residue from some surface water treatment processes
IC	Internal corrosion of household plumbing systems	SO	Soil runoff
		SW	Seawater influence
		WD	Leaching from wood preservatives
		UR	Unregulated constituents with no source listed and that do not have standardized “source of substance” language

Our testing equipment is so sensitive, it can detect constituents as small as 1 part per trillion. That is equivalent to 1 inch over 15 million miles.



2024 WATER QUALITY

PRIMARY DRINKING WATER STANDARDS

						Distribution System-Wide				
Microbiological	Year Tested	Unit	MCL	PHG (MCLG)	In Compliance	Highest Monthly				Source
Fecal coliform and E. coli ¹	2024	Positive Samples	0	(0)	Yes	0				FE
	Year Tested	MCL		PHG (MCLG)		Level 1 Assessment Required and Completed				Source
Coliform assessment ²	2024	TT		N/A		1				N/A
Radiological	Year Tested	Unit	MCL	PHG (MCLG)	In Compliance	Groundwater				Source
						Range		Average		
Uranium	2024	pCi/L	20	0.43 (0)	Yes	ND–1.8		ND		ER
Inorganic Chemicals	Year Tested	Unit	MCL	PHG (MCLG)	In Compliance	Groundwater		SFPUC ³		Source
						Range/Result	Average	Range	Average	
Aluminum	2024	ppm	1	0.6	Yes	ND	ND	ND–0.06	ND	ER, RS
Arsenic	2024	ppb	10	0.004 (0)	Yes	ND–3.6	2.7	N/A	ND	ER, OC
Barium	2024	ppm	1	2 (2)	Yes	ND–0.13	ND	N/A	ND	ER, OD
Hexavalent chromium ⁴	2024	ppb	10	0.02	Yes	0.52–1.2	0.84	ND–0.2	0.1	ER, IM
Fluoride	2024	ppm	2	1 (4.0)	Yes	ND–0.55	ND	0.5–0.8	0.7	ER, FL
Nitrate as N	2024	ppm	10	10 (10)	Yes	ND–1.7	1.3	ND–0.4	ND	ER, FR
Lead and Copper	Year Tested	Unit	AL	PHG (MCLG)	In Compliance	Distribution System-Wide				Source
						90 th Percentile		Samples > AL		
Copper	2022	ppm	1.3	0.3	Yes	0.08		0 of 34		IC, ER, WD
Lead	2022	ppb	15	0.2	Yes	ND		0 of 34		IC, IM, ER

¹ Exceeds if routine sample and a repeat sample are both total coliform-positive, and one of these is also E. coli-positive; system fails to take repeat samples following E. coli-positive routine sample; or system fails to analyze total coliform-positive repeat sample for E. coli.

² Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct an assessment to identify the problem and to correct any problems that were found during the assessment. During the past year, we were required to conduct one Level 1 assessment, which was completed. In addition, we were required to take four corrective actions, and we completed all four of these actions.

³ SFPUC supply data reported is from 2024.

⁴ While your drinking water meets the federal total chromium and state hexavalent chromium standards, it does contain low levels. Some people who drink water containing hexavalent chromium in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminants not detected (ND) are not listed.



2024 WATER QUALITY

Synthetic Organic Contaminants (SOCs) Including Pesticides and Herbicides	Year Tested	Unit	MCL	PHG (MCLG)	In Compliance	Groundwater		SFPUC		Source
						Range	Average	Range	Average	
1,2,3-Trichloropropane ¹	2024	ppt	5	0.7	Yes	ND–7	ND	N/A	ND	IA
Disinfection Byproducts	Year Tested	Unit	MCL	PHG (MCLG)	In Compliance	Distribution System-Wide				Source
						Range		Highest Annual Average		
Total haloacetic acids (THAA)	2024	ppb	60	N/A	Yes	8.1–54		36		DI
Total trihalomethane (TTHM)	2024	ppb	80	N/A	Yes	12–51		38		DI
Disinfectants	Year Tested	Unit	MRDL	MRDLG	In Compliance	Distribution System-Wide				Source
						Range		Average		
Chloramine	2024	ppm	4	4	Yes	1.3–3.6		2.9		DS
Surface Water—Turbidity	Year Tested	Unit	MCL	PHG (MCLG)	In Compliance	SFPUC Water				Source
						Highest Level		Lowest Monthly Percent		
Turbidity ²	2024	NTU	TT	N/A	Yes	0.40		99.97%		SO

¹ In one sample in the South San Francisco system, 1,2,3-trichloropropane exceeded the MCL of 5 ppt due to switching the sample bottles upon collection. A follow-up sample was collected, and the result was ND. Compliance with the MCL is based on an RAA, and the annual average is less than the MCL. We are monitoring the levels to confirm we do not exceed the MCL RAA. Some people who drink water containing 1,2,3-trichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.

² For surface water systems, the TT dictates that the turbidity level of the filtered water be less than or equal to 0.3 NTU in 95% of measurements taken each month and not exceed 1 NTU for more than one continuous hour. Turbidity is a measurement of cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

Contaminants not detected (ND) are not listed.



2024 WATER QUALITY

SECONDARY DRINKING WATER STANDARDS

Contaminants	Year Tested	Unit	SMCL	PHG (MCLG)	In Compliance	Groundwater		SFPUC		Source
						Range/Result	Average	Range	Average	
Aluminum	2024	ppb	200	600	Yes	ND	ND	ND–59	ND	ER, RS
Chloride	2022–2024	ppm	500	N/A	Yes	3.6–140	96	ND–9.9	9.3	RU, SW
Color, apparent	2022–2024	CU	15	N/A	Yes	ND–10	5.0	N/A	N/A	OM
Iron	2024	ppb	300	N/A	Yes	ND	ND	ND–41	14	RU, IW
Manganese	2024	ppb	50	N/A	Yes	ND	ND	ND–2.7	ND	RU
Specific conductance	2022–2024	µS/cm	1600	N/A	Yes	1000–1200	1060	31–317	193	SW, IO
Sulfate	2022–2024	ppm	500	N/A	Yes	1.7–160	96	1–41	18	RU, IW
Total dissolved solids	2022–2024	ppm	1000	N/A	Yes	590–650	616	24–169	102	RU
Turbidity (groundwater)	2022–2024	NTU	5	N/A	Yes	0.20–4.2	2.2	N/A	N/A	SO
Zinc	2024	ppm	5	N/A	Yes	ND–0.86	ND	N/A	N/A	RU, IW

STATE-REGULATED CONTAMINANTS WITH NOTIFICATION LEVELS

Contaminants	Year Tested	Unit	NL	PHG (MCLG)	In Compliance	Groundwater		SFPUC		Source
						Range/Result	Average	Range	Average	
Boron	2024	ppm	1	N/A	Yes	ND	ND	0.02–0.07	0.04	UR
Chlorate ¹	2021–2024	ppb	800	N/A	Yes	ND	ND	24–597	144	UR
Methyl isobutyl ketone	2024	ppb	120	N/A	Yes	ND–5.5	ND	N/A	N/A	UR
Vanadium	2024	ppb	50	N/A	Yes	ND–6.0	ND	N/A	N/A	UR

¹ The detected chlorate in the treated water is a degradation product of sodium hypochlorite used by the San Francisco Regional Water System (SFRWS) for water disinfection.

Contaminants not detected (ND) are not listed.



UNREGULATED COMPOUNDS AND UNREGULATED CONTAMINANT MONITORING RULE (UCMR)

Constituents	Year Tested	Unit	MCL	PHG (MCLG)	In Compliance	Groundwater		SFPUC		Source
						Range	Average	Range	Average	
Alkalinity (total)	2022–2024	ppm	N/A	N/A	N/A	220–310	260	7.4–120	60	UR
Bromide	2024	ppb	N/A	N/A	N/A	N/A	N/A	ND–29	ND	UR
Calcium	2024	ppm	N/A	N/A	N/A	50–102	80	3.2–28	15	UR
Giardia lamblia	2024	cyst/L	N/A	N/A	N/A	N/A	N/A	0–0.06	0.02	UR
Hardness (total)	2024	ppm	N/A	N/A	N/A	286–444	369	8.4–106	60	UR
Potassium	2024	ppm	N/A	N/A	N/A	2.2–5.0	4.0	N/A	N/A	UR
Lithium	2024	ppb	N/A	N/A	N/A	ND–21	11	ND–4	ND	UR
Magnesium	2024	ppm	N/A	N/A	N/A	26–64	42	0.2–9.5	5.7	UR
pH	2024	Units	N/A	N/A	N/A	6.3–9.7	8.6	N/A	N/A	UR
Silica	2024	ppm	N/A	N/A	N/A	N/A	N/A	4.9–9.9	7.5	UR
Sodium	2024	ppm	N/A	N/A	N/A	67–99	81	3.1–24	16	UR
Total organic carbon (TOC) ¹	2024	ppm	N/A	N/A	N/A	N/A	N/A	1.1–1.8	1.5	UR

¹ The range and average values of TOC were from operational monitoring results at Tesla treatment facilities.

Contaminants not detected (ND) are not listed.





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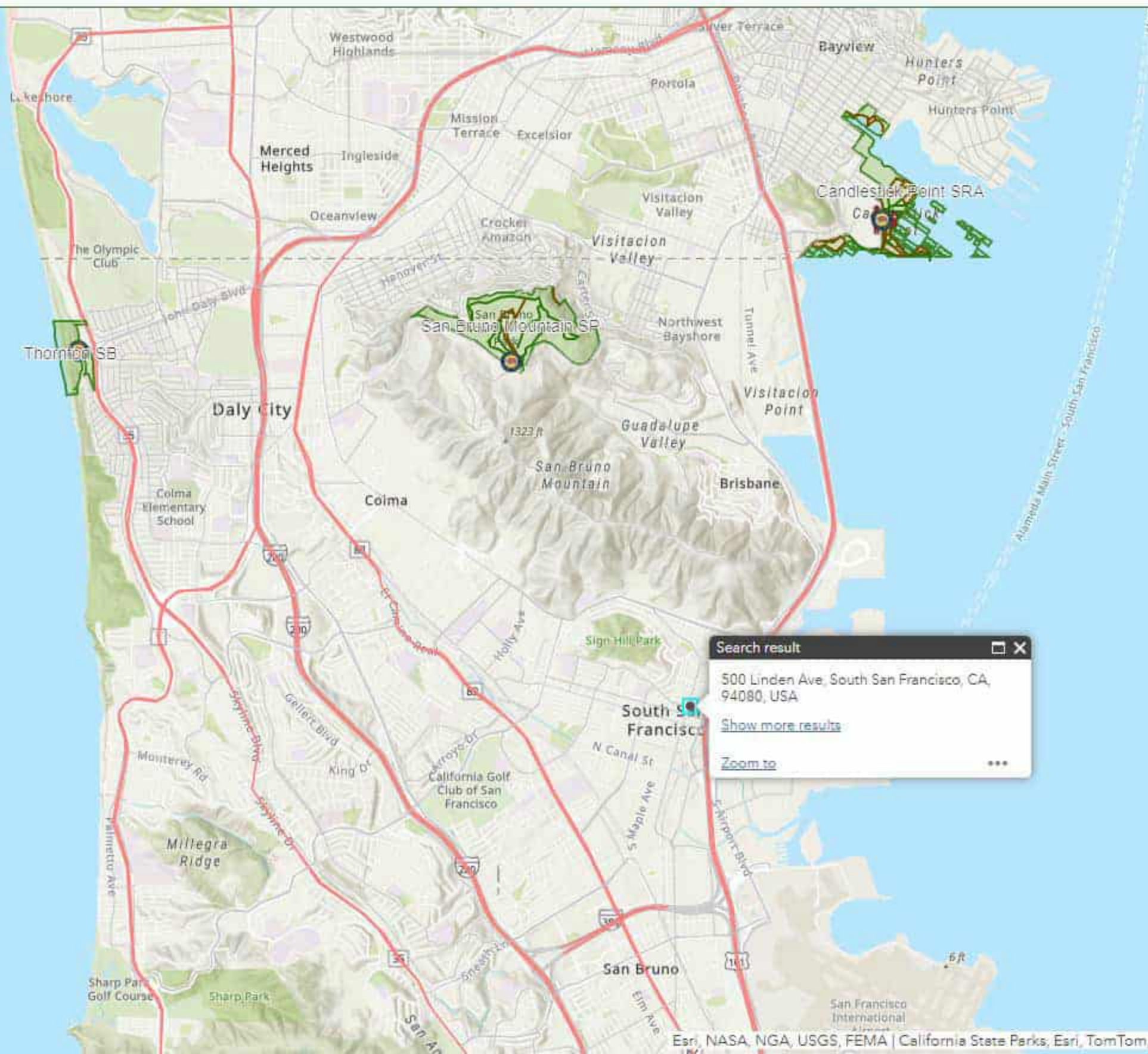


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500 Linden Ave, South San Francisco, CA, 94080, USA

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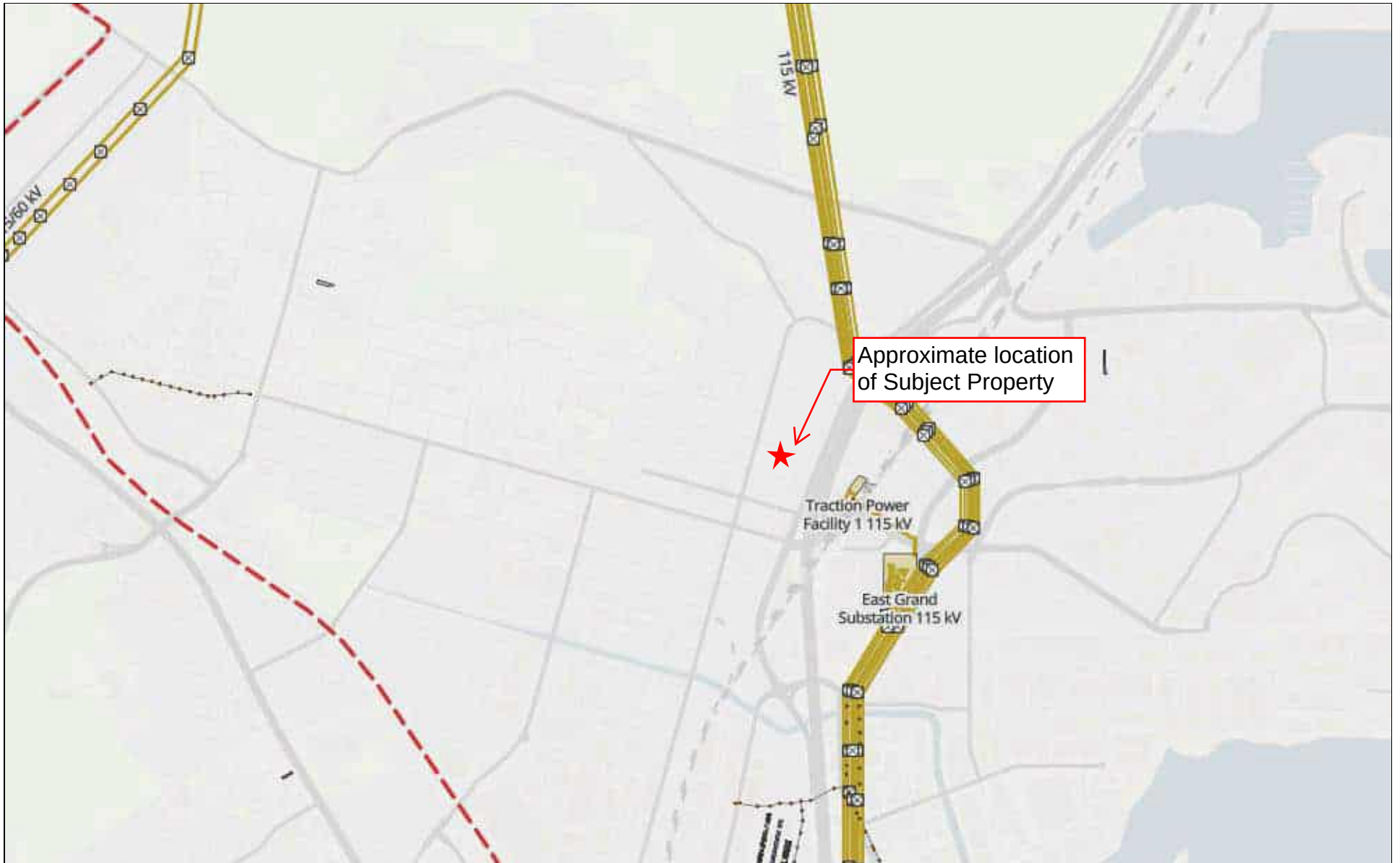


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Presidential Documents

Executive Order 14148 of January 20, 2025

Initial Rescissions of Harmful Executive Orders and Actions

By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered as follows:

Section 1. *Purpose and Policy.* The previous administration has embedded deeply unpopular, inflationary, illegal, and radical practices within every agency and office of the Federal Government. The injection of “diversity, equity, and inclusion” (DEI) into our institutions has corrupted them by replacing hard work, merit, and equality with a divisive and dangerous preferential hierarchy. Orders to open the borders have endangered the American people and dissolved Federal, State, and local resources that should be used to benefit the American people. Climate extremism has exploded inflation and overburdened businesses with regulation.

To commence the policies that will make our Nation united, fair, safe, and prosperous again, it is the policy of the United States to restore common sense to the Federal Government and unleash the potential of the American citizen. The revocations within this order will be the first of many steps the United States Federal Government will take to repair our institutions and our economy.

Sec. 2. *Revocation of Orders and Actions.* The following executive actions are hereby revoked:

(a) Executive Order 13985 of January 20, 2021 (Advancing Racial Equity and Support for Underserved Communities Through the Federal Government).

(b) Executive Order 13986 of January 20, 2021 (Ensuring a Lawful and Accurate Enumeration and Apportionment Pursuant to the Decennial Census).

(c) Executive Order 13987 of January 20, 2021 (Organizing and Mobilizing the United States Government To Provide a Unified and Effective Response To Combat COVID–19 and To Provide United States Leadership on Global Health and Security).

(d) Executive Order 13988 of January 20, 2021 (Preventing and Combating Discrimination on the Basis of Gender Identity or Sexual Orientation).

(e) Executive Order 13989 of January 20, 2021 (Ethics Commitments by Executive Branch Personnel).

(f) Executive Order 13990 of January 20, 2021 (Protecting Public Health and the Environment and Restoring Science To Tackle the Climate Crisis).

(g) Executive Order 13992 of January 20, 2021 (Revocation of Certain Executive Orders Concerning Federal Regulation).

(h) Executive Order 13993 of January 20, 2021 (Revision of Civil Immigration Enforcement Policies and Priorities).

(i) Executive Order 13995 of January 21, 2021 (Ensuring an Equitable Pandemic Response and Recovery).

(j) Executive Order 13996 of January 21, 2021 (Establishing the COVID–19 Pandemic Testing Board and Ensuring a Sustainable Public Health Workforce for COVID–19 and Other Biological Threats).

(k) Executive Order 13997 of January 21, 2021 (Improving and Expanding Access to Care and Treatments for COVID–19).

(l) Executive Order 13999 of January 21, 2021 (Protecting Worker Health and Safety).

(m) Executive Order 14000 of January 21, 2021 (Supporting the Reopening and Continuing Operation of Schools and Early Childhood Education Providers).

(n) Executive Order 14002 of January 22, 2021 (Economic Relief Related to the COVID–19 Pandemic).

(o) Executive Order 14003 of January 22, 2021 (Protecting the Federal Workforce).

(p) Executive Order 14004 of January 25, 2021 (Enabling All Qualified Americans To Serve Their Country in Uniform).

(q) Executive Order 14006 of January 26, 2021 (Reforming Our Incarceration System To Eliminate the Use of Privately Operated Criminal Detention Facilities).

(r) Executive Order 14007 of January 27, 2021 (President’s Council of Advisors on Science and Technology).

(s) Executive Order 14008 of January 27, 2021 (Tackling the Climate Crisis at Home and Abroad).

(t) Executive Order 14009 of January 28, 2021 (Strengthening Medicaid and the Affordable Care Act).

(u) Executive Order 14010 of February 2, 2021 (Creating a Comprehensive Regional Framework To Address the Causes of Migration, To Manage Migration Throughout North and Central America, and To Provide Safe and Orderly Processing of Asylum Seekers at the United States Border).

(v) Executive Order 14011 of February 2, 2021 (Establishment of Inter-agency Task Force on the Reunification of Families).

(w) Executive Order 14012 of February 2, 2021 (Restoring Faith in Our Legal Immigration Systems and Strengthening Integration and Inclusion Efforts for New Americans).

(x) Executive Order 14013 of February 4, 2021 (Rebuilding and Enhancing Programs To Resettle Refugees and Planning for the Impact of Climate Change on Migration).

(y) Executive Order 14015 of February 14, 2021 (Establishment of the White House Office of Faith-Based and Neighborhood Partnerships).

(z) Executive Order 14018 of February 24, 2021 (Revocation of Certain Presidential Actions).

(aa) Executive Order 14019 of March 7, 2021 (Promoting Access to Voting).

(bb) Executive Order 14020 of March 8, 2021 (Establishment of the White House Gender Policy Council).

(cc) Executive Order 14021 of March 8, 2021 (Guaranteeing an Educational Environment Free From Discrimination on the Basis of Sex, Including Sexual Orientation or Gender Identity).

(dd) Executive Order 14022 of April 1, 2021 (Termination of Emergency With Respect to the International Criminal Court).

(ee) Executive Order 14023 of April 9, 2021 (Establishment of the Presidential Commission on the Supreme Court of the United States).

(ff) Executive Order 14027 of May 7, 2021 (Establishment of the Climate Change Support Office).

(gg) Executive Order 14029 of May 14, 2021 (Revocation of Certain Presidential Actions and Technical Amendment).

(hh) Executive Order 14030 of May 20, 2021 (Climate-Related Financial Risk).

(ii) Executive Order 14031 of May 28, 2021 (Advancing Equity, Justice, and Opportunity for Asian Americans, Native Hawaiians, and Pacific Islanders).

(jj) Executive Order 14035 of June 25, 2021 (Diversity, Equity, Inclusion, and Accessibility in the Federal Workforce).

(kk) Executive Order 14037 of August 5, 2021 (Strengthening American Leadership in Clean Cars and Trucks).

(ll) Executive Order 14044 of September 13, 2021 (Amending Executive Order 14007).

(mm) Executive Order 14045 of September 13, 2021 (White House Initiative on Advancing Educational Equity, Excellence, and Economic Opportunity for Hispanics).

(nn) Executive Order 14049 of October 11, 2021 (White House Initiative on Advancing Educational Equity, Excellence, and Economic Opportunity for Native Americans and Strengthening Tribal Colleges and Universities).

(oo) Executive Order 14050 of October 19, 2021 (White House Initiative on Advancing Educational Equity, Excellence, and Economic Opportunity for Black Americans).

(pp) Executive Order 14052 of November 15, 2021 (Implementation of the Infrastructure Investment and Jobs Act).

(qq) Executive Order 14055 of November 18, 2021 (Nondisplacement of Qualified Workers Under Service Contracts).

(rr) Executive Order 14057 of December 8, 2021 (Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability).

(ss) Executive Order 14060 of December 15, 2021 (Establishing the United States Council on Transnational Organized Crime).

(tt) Executive Order 14069 of March 15, 2022 (Advancing Economy, Efficiency, and Effectiveness in Federal Contracting by Promoting Pay Equity and Transparency).

(uu) Executive Order 14070 of April 5, 2022 (Continuing To Strengthen Americans' Access to Affordable, Quality Health Coverage).

(vv) Executive Order 14074 of May 25, 2022 (Advancing Effective, Accountable Policing and Criminal Justice Practices To Enhance Public Trust and Public Safety).

(ww) Executive Order 14075 of June 15, 2022 (Advancing Equality for Lesbian, Gay, Bisexual, Transgender, Queer, and Intersex Individuals).

(xx) Executive Order 14082 of September 12, 2022 (Implementation of the Energy and Infrastructure Provisions of the Inflation Reduction Act of 2022).

(yy) Executive Order 14084 of September 30, 2022 (Promoting the Arts, the Humanities, and Museum and Library Services).

(zz) Executive Order 14087 of October 14, 2022 (Lowering Prescription Drug Costs for Americans).

(aaa) Executive Order 14089 of December 13, 2022 (Establishing the President's Advisory Council on African Diaspora Engagement in the United States).

(bbb) Executive Order 14091 of February 16, 2023 (Further Advancing Racial Equity and Support for Underserved Communities Through the Federal Government).

(ccc) The Presidential Memorandum of March 13, 2023 (Withdrawal of Certain Areas off the United States Arctic Coast of the Outer Continental Shelf from Oil or Gas Leasing).

(ddd) Executive Order 14094 of April 6, 2023 (Modernizing Regulatory Review).

(eee) Executive Order 14096 of April 21, 2023 (Revitalizing Our Nation's Commitment to Environmental Justice for All).

(fff) Executive Order 14099 of May 9, 2023 (Moving Beyond COVID-19 Vaccination Requirements for Federal Workers).

(ggg) Executive Order 14110 of October 30, 2023 (Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence).

(hhh) Executive Order 14115 of February 1, 2024 (Imposing Certain Sanctions on Persons Undermining Peace, Security, and Stability in the West Bank).

(iii) Executive Order 14124 of July 17, 2024 (White House Initiative on Advancing Educational Equity, Excellence, and Economic Opportunity Through Hispanic-Serving Institutions).

(jjj) Executive Order 14134 of January 3, 2025 (Providing an Order of Succession Within the Department of Agriculture).

(kkk) Executive Order 14135 of January 3, 2025 (Providing an Order of Succession Within the Department of Homeland Security).

(lll) Executive Order 14136 of January 3, 2025 (Providing an Order of Succession Within the Department of Justice).

(mmm) Executive Order 14137 of January 3, 2025 (Providing an Order of Succession Within the Department of the Treasury).

(nnn) Executive Order 14138 of January 3, 2025 (Providing an Order of Succession Within the Office of Management and Budget).

(ooo) Executive Order 14139 of January 3, 2025 (Providing an Order of Succession Within the Office of the National Cyber Director).

(ppp) The Presidential Memorandum of January 3, 2025 (Designation of Officials of the Council on Environmental Quality to Act as Chairman).

(qqq) The Presidential Memorandum of January 3, 2025 (Designation of Officials of the Office of Personnel Management to Act as Director).

(rrr) The Presidential Memorandum of January 3, 2025 (Designation of Officials of the Office of Science and Technology Policy to Act as Director).

(sss) The Presidential Memorandum of January 3, 2025 (Designation of Officials of the United States Agency for Global Media to Act as Chief Executive Officer).

(ttt) The Presidential Memorandum of January 3, 2025 (Designation of Officials of the United States Agency for International Development to Act as Administrator).

(uuu) The Presidential Memorandum of January 3, 2025 (Designation of Officials of the United States International Development Finance Corporation to Act as Chief Executive Officer).

(vvv) The Presidential Memorandum of January 6, 2025 (Withdrawal of Certain Areas of the United States Outer Continental Shelf from Oil or Natural Gas Leasing).

(www) The Presidential Memorandum of January 6, 2025 (Withdrawal of Certain Areas of the United States Outer Continental Shelf from Oil or Natural Gas Leasing).

(xxx) The Presidential Memorandum of January 14, 2025 (Certification of Rescission of Cuba's Designation as a State Sponsor of Terrorism).

(yyy) The Presidential Memorandum of January 14, 2025 (Revocation of National Security Presidential Memorandum 5).

(zzz) Executive Order 14143 of January 16, 2025 (Providing for the Appointment of Alumni of AmeriCorps to the Competitive Service).

Sec. 3. Implementation. (a) To effectuate the revocations described in section 2 of this order, the heads of each agency shall take immediate steps to end Federal implementation of unlawful and radical DEI ideology.

(b) The Director of the Domestic Policy Council (DPC) and the Director of the National Economic Council (NEC) shall review all Federal Government actions taken pursuant to the orders, memoranda, and proclamations listed in section 2 of this order and take necessary steps to rescind, replace, or amend such actions as appropriate. Within 45 days of the date of this order, the Director of the DPC and the Director of the NEC shall submit to the President an additional list of orders, memoranda, and proclamations issued by the prior administration that should be rescinded, as well as a list of replacement orders, memoranda, or proclamations, to increase American prosperity.

(c) The National Security Advisor (NSA) shall immediately begin a complete and thorough review of all National Security Memoranda (NSMs) issued from January 20, 2021, through January 20, 2025, for harm to national security, domestic resilience, and American values. No later than 45 days from the date of this order, the NSA shall recommend to the President NSMs for rescission.

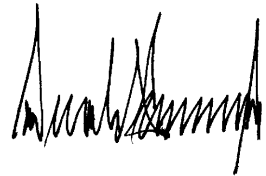
Sec. 4. General Provisions. (a) Nothing in this order shall be construed to impair or otherwise affect:

(i) the authority granted by law to an executive department or agency, or the head thereof; or

(ii) the functions of the Director of the Office of Management and Budget relating to budgetary, administrative, or legislative proposals.

(b) This order shall be implemented consistent with applicable law and subject to the availability of appropriations.

(c) This order is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.

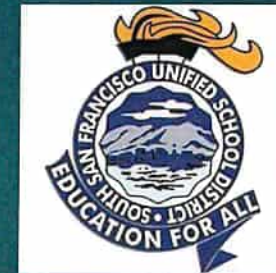


THE WHITE HOUSE,
January 20, 2025.

South San Francisco Unified School District

1

LONG RANGE FACILITY MASTER PLAN



Board of Trustees:

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Dr. Shawnterra Moore

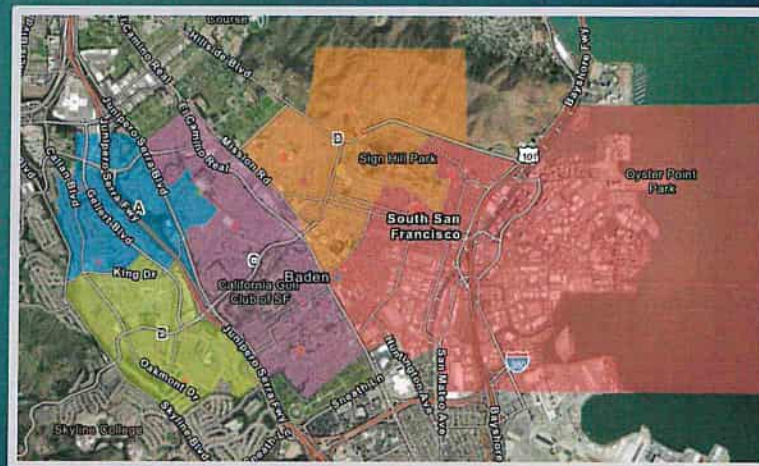
Asst. Supt., Business Services:

Mr. Ted O

Agenda

2

- Introduction
- Demographics and Enrollment Projections
- Classroom Inventory and Capacity Study
- Facility Needs Assessment and Project Prioritization
- Capital Improvement Plan
- Next Steps
- Discussion



Introduction

3

- Long Range Facility Master Plan (LRFMP) is an important study that:
 - Identifies educational needs of the spaces at sites
 - Projects student enrollment
 - Calculates classroom capacity
 - Assesses facility conditions
 - Identifies education specifications and improvements needed
 - Identifies funding options and opportunities

Demographics and Enrollment Projections

Demographics and Enrollment Projections

5

- In conducting our enrollment study, EH&A utilized data derived from a number of sources:
 - ✓ United States Census Bureau
 - ✓ Statewide enrollment data from State of California
 - ✓ California Department of Public Health
 - ✓ The California Longitudinal Pupil Achievement Data System

Population Forecast

6

- The population within the District was outpacing the State of California's growth
- From 2010 to 2019, the District's population grew from 77,916 to 84,539
 - An increase of 6,623 (8.5%)
 - The overall population in California grew 5.6%
- Slowdowns in births and immigration coupled with an increase in deaths as well as increased "out-migration" have resulted in California's population returning to 2016 levels in 2021 of 39.2 Million
- In 2015, North San Mateo County had 98,000 households
- By 2050, projected to have 166,000 Households – 70% Growth (pre-Pandemic projection)

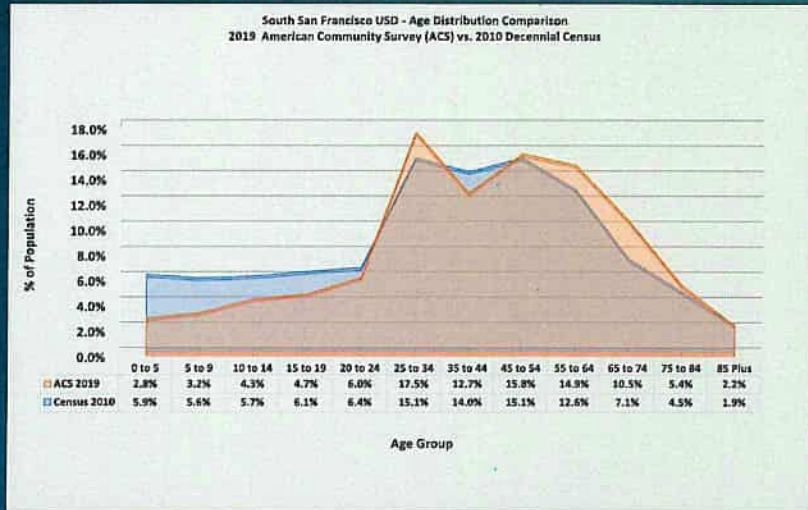
Housing Units with the SSFUSD

7

- 26,335 housing units in 2010
 - 25,297 (96.1%) were occupied
 - 1,038 (3.9%) were vacant
- 28,429 housing units in 2019
 - 27,477 (96.7%) were occupied
 - 952 (3.3%) were vacant
- 31,379 housing units expected by 2030

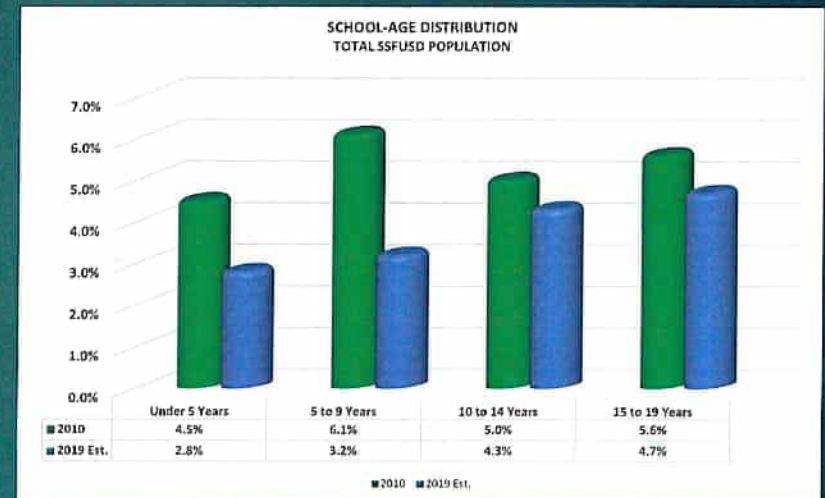
Age Distribution

8



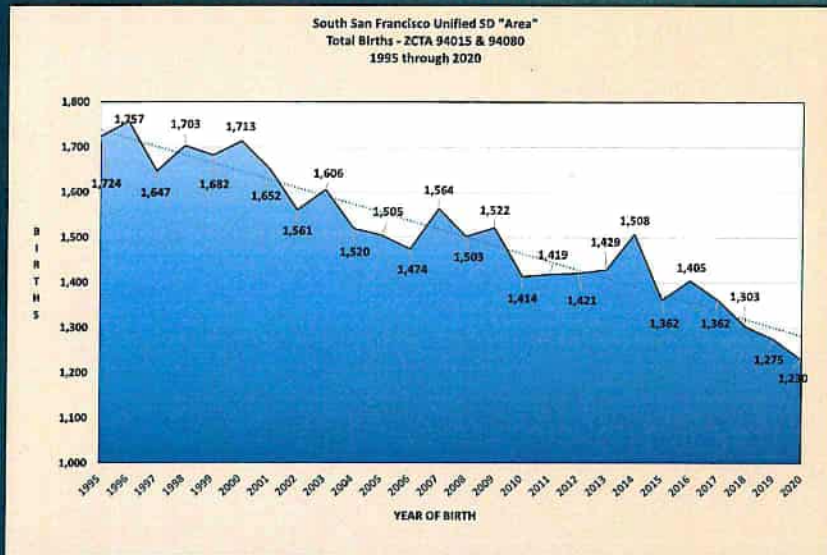
Between 2010 & 2019

- Median Age rose from 39.4 to 43.7
- School age population (5-19) dropped from 17.4% of the population to 12.2%



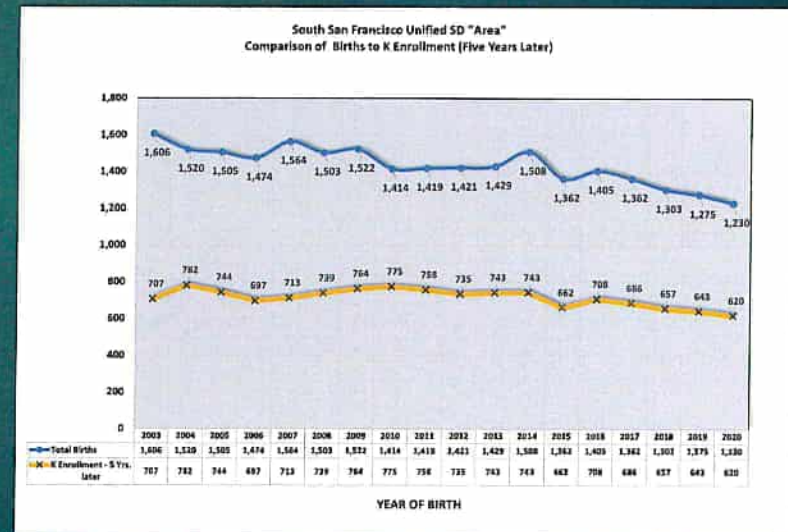
Birth Data

9



Births have been on a downward trajectory since the mid-90's with some "ups" and "downs"; but have had a more sustained decline since 2007

- In 1995, births in the region were at 1,724 and have declined to 1,230 in 2020



Comparison of Births to Kindergarten Enrollment

10

Birth Year	# of Births	Incr./ Decr. from Prior Year	Kinder Year	K Enrollment	Ratio of K's to Births
2004	1,520	(5.35%)	2009	782	51.4%
2005	1,505	(0.99%)	2010	744	49.4%
2006	1,474	(2.06%)	2011	697	47.3%
2007	1,564	6.11%	2012	713	45.6%
2008	1,503	(3.90%)	2013	739	49.2%
2009	1,522	1.26%	2014	764	50.2%
2010	1,414	(7.10%)	2015	775	54.8%
2011	1,419	0.35%	2016	758	53.4%
2012	1,421	0.14%	2017	735	51.7%
2013	1,429	0.56%	2018	743	52.0%
2014	1,508	5.53%	2019	743	49.3%
2015	1,362	(9.68%)	2020	662	48.6%
2016	1,405	3.26%	2021	613	43.6%

Historical Enrollment

11

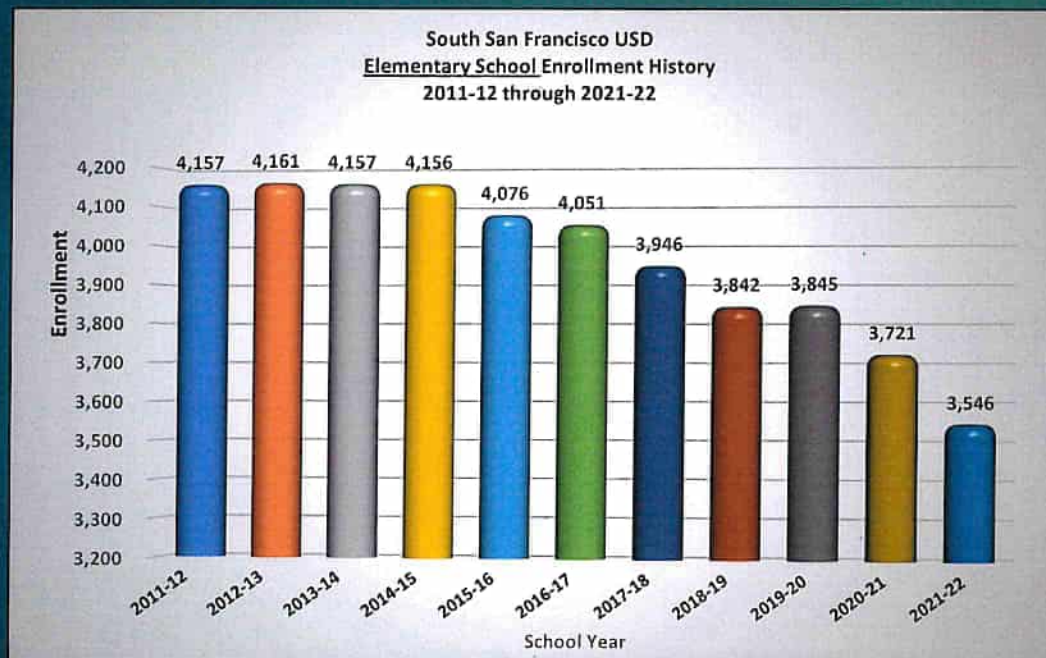


- As of the 2021-22 school year, the District served a population of 7,933 students
- Over the past 11 years, the District's enrollment has steadily decreased for reasons previously mentioned
 - 2011-12 – 9,348 students
 - 2021-22 – 7,933 students

An 11-year decrease of 1,415 or 15%!

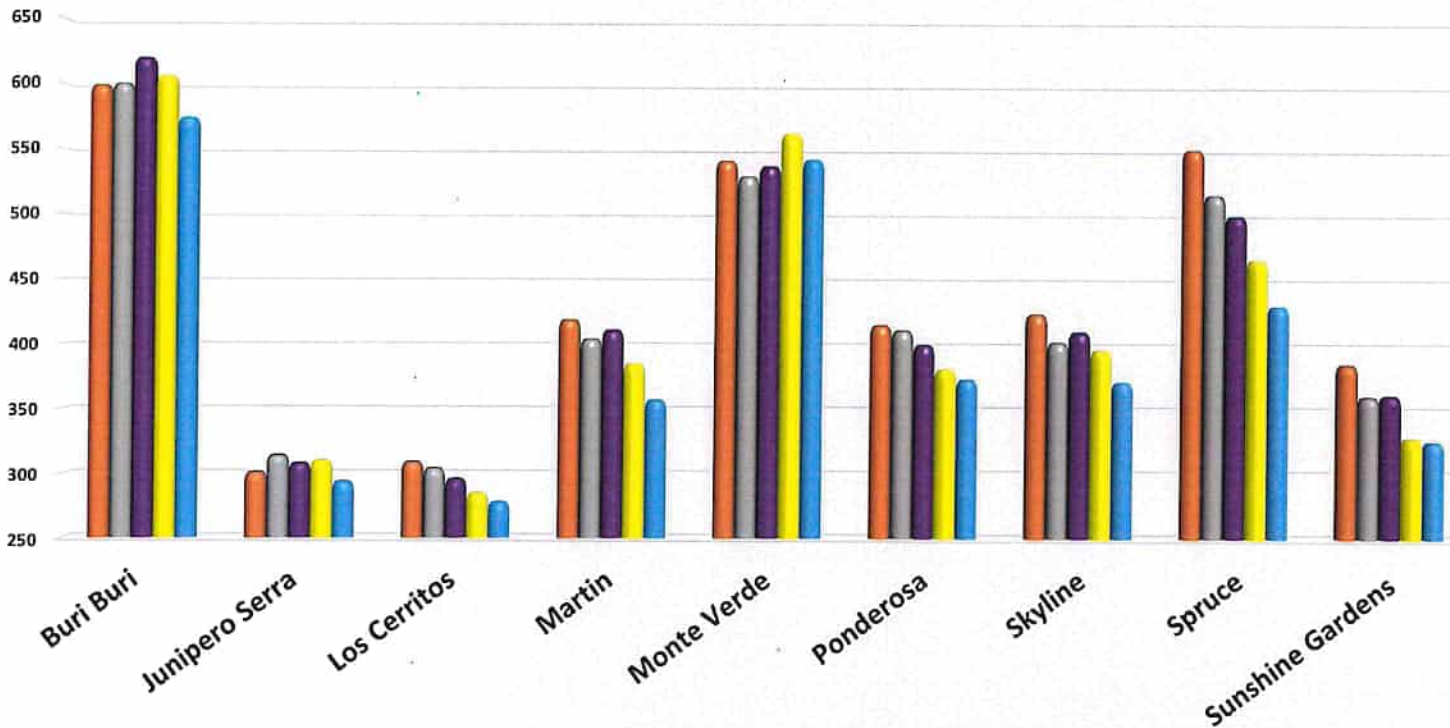
Elementary Schools Enrollment History

12

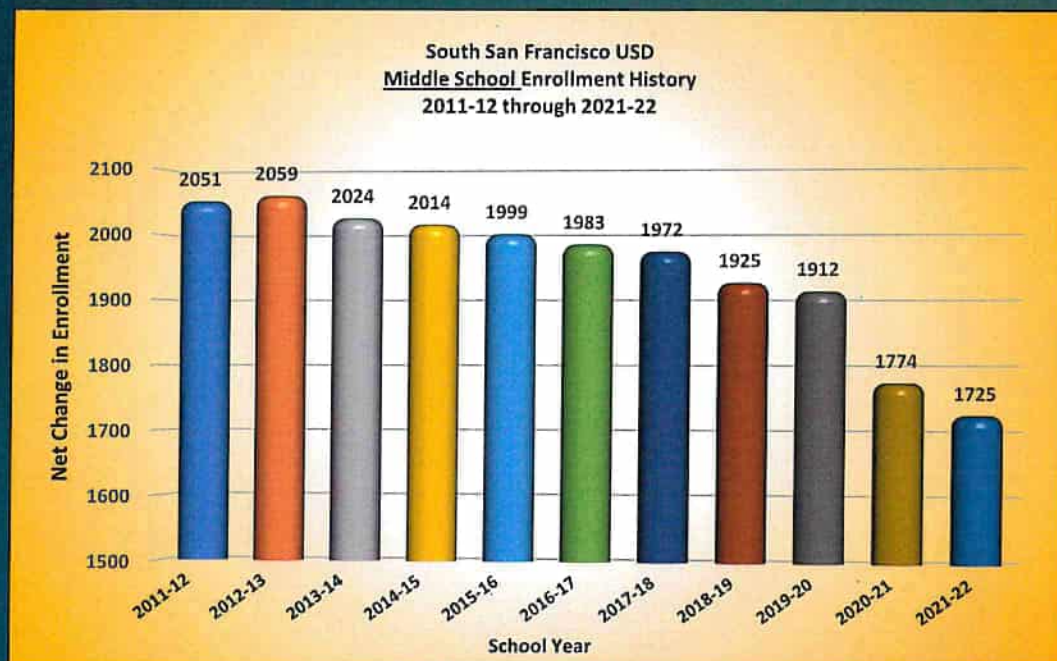


14.7% Drop over past 11 years!

South San Francisco USD
Elementary School Enrollment History
2017-18 through 2020-21

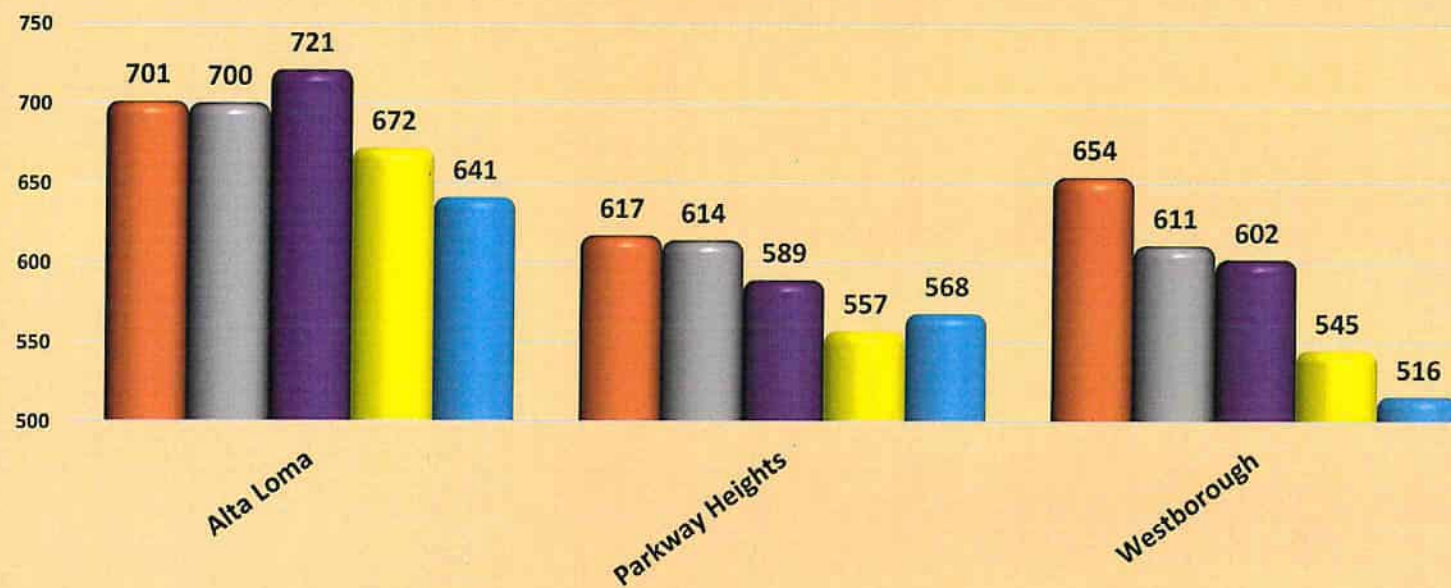


	Buri Buri	Junipero Serra	Los Cerritos	Martin	Monte Verde	Ponderosa	Skyline	Spruce	Sunshine Gardens
2017-18	600	301	309	419	542	415	424	551	385
2018-19	601	314	304	404	530	411	402	516	360
2019-20	621	308	296	411	538	400	410	500	361
2020-21	607	310	285	385	563	381	396	466	328
2021-22	575	294	278	357	543	373	371	430	325

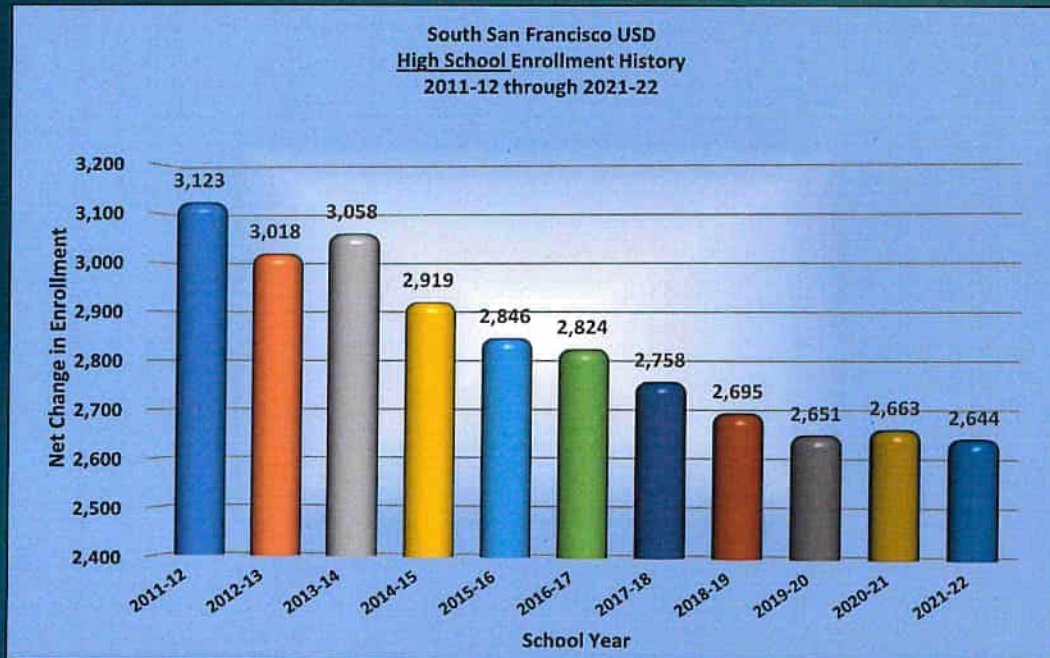


15.9% Drop over past 11 years!

South San Francisco Unified SD
Middle School Enrollment History
2017-18 through 2021-22

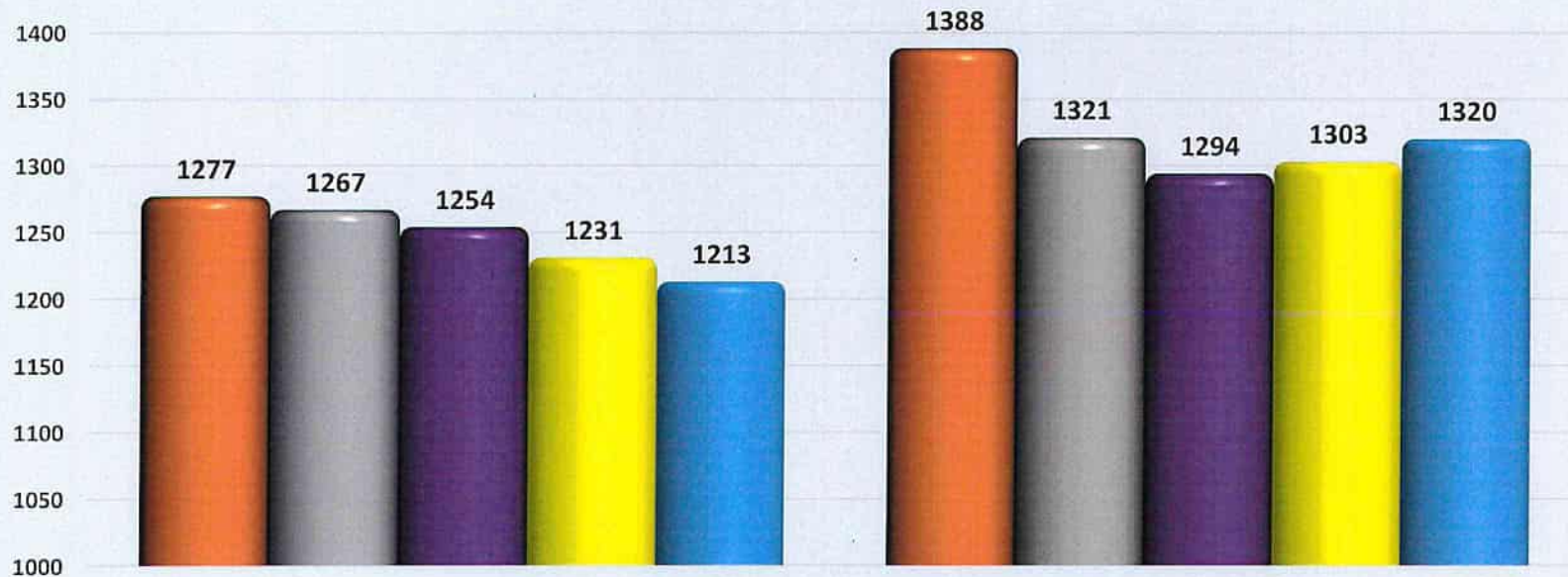


	Alta Loma	Parkway Heights	Westborough
2017-18	701	617	654
2018-19	700	614	611
2019-20	721	589	602
2020-21	672	557	545
2021-22	641	568	516



15.3% Drop over past 11 years!

South San Francisco USD
High School Enrollment History
2017-18 through 2021-22



	El Camino	South San Francisco
2017-18	1277	1388
2018-19	1267	1321
2019-20	1254	1294
2020-21	1231	1303
2021-22	1213	1320

Enrollment Projections

18

Critical Factors

- Cohort Survival Trends
- Residential Development
- Student Generation Factors
- State/Local Economic Conditions
- “In/Out”-migration
- Methodology employed

Enrollment Projections, Cont'd

19

- Enrollment absent residential development would have been projected as follows:
 - 7,933 to 6,863 students through the remainder of the decade
 - Would have represented a 1,070 loss in student population or 13.5%
 - Anticipate 2,950 new residential dwelling units over the decade
 - Projected to add 1,055 students over the next 5-7 years based on historical student generation factors (SGF)

Enrollment History & Projections

20

South San Francisco USD
Enrollment History & Projections (including Growth)
2010-11 through 2030-31



	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23 P	23-24 P	24-25 P	25-26 P	26-27 P	27-28 P	28-29 P	29-30 P	30-31 P
■ Baseline (No Growth)	9,312	9,348	9,265	9,263	9,111	8,941	8,879	8,707	8,485	8,438	8,182	7,933	7,807	7,655	7,463	7,311	7,222	7,137	7,016	6,929	6,863
■ With Growth	9,312	9,348	9,265	9,263	9,111	8,941	8,879	8,707	8,485	8,438	8,182	7,933	7,807	7,898	8,088	8,164	7,993	7,833	7,630	7,495	7,351

Student Generation Rates

21

School Type	Students Generated per New Residential Housing Unit
Elementary School	.1584
Middle School	.0784
High School	.1112
TOTAL	.3480

Impact of Enrollment Growth

22

Based on the SGFs, the 2,950 new residential dwelling units are projected to generate:

- 477 Elementary School students
- 240 Middle School students
- 338 High School students

Enrollment Projections by School *Including Growth*

23

SCHOOL	21-22	22-23	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31
Buri Burl	606	617	607	617	592	594	580	580	571	560
Junipero Serra	298	281	267	261	247	250	244	246	242	238
Los Cerritos	301	315	325	368	453	512	463	435	394	353
Martin	351	337	338	381	355	348	329	322	311	300
Monte Verde	540	518	488	475	458	453	437	431	425	418
Ponderosa	369	351	333	334	318	317	306	307	304	301
Skyline	396	406	402	388	394	394	407	406	399	392
Spruce	461	437	435	430	425	430	436	438	430	424
Sunshine Gdns.	322	318	320	319	389	428	411	395	369	344
Alta Loma	665	645	643	638	642	646	636	625	615	593
Parkway Hts.	563	579	562	587	660	706	693	677	669	652
Westborough	548	548	544	528	521	505	498	487	485	469
Baden (Cont.)	101	100	96	98	92	93	89	91	87	85
El Camino	1233	1193	1139	1157	1173	1193	1162	1168	1128	1114
S. San Francisco	1288	1244	1190	1289	1332	1354	1322	1322	1273	1265
NPS	21	21	21	21	21	21	21	21	21	21
CDS & DO	9	9	9	9	9	9	9	9	9	9

School most highly affected based on location of the new development:

- Los Cerritos
- Parkway Heights
- Sunshine Gardens
- South San Francisco
- El Camino

Enrollment Projections vs. Capacity

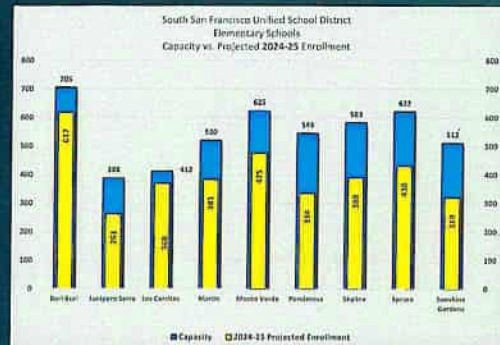
(based on location of development)

School Site	District Capacity	2024-25		2027-28		2030-31	
		Projected Enrollment	Utilization	Projected Enrollment	Utilization	Projected Enrollment	Utilization
Elementary Schools							
Buri Buri	705	617	88%	580	82%	560	79%
Junipero Serra	388	261	67%	244	63%	238	61%
Los Cerritos	412	368	89%	463	112%	353	86%
Martin	520	381	73%	329	63%	300	58%
Monte Verde	625	475	76%	437	70%	418	67%
Ponderosa	545	334	61%	306	56%	301	55%
Skyline	583	388	67%	407	70%	392	67%
Spruce	622	430	69%	436	70%	424	68%
Sunshine Gardens	512	319	62%	411	80%	344	67%
Subtotal	4,912	3,573	73%	3,614	74%	3,331	68%
Middle Schools							
Alta Loma	715	638	89%	636	89%	593	83%
Parkway Heights	599	587	98%	693	116%	652	109%
Westborough	553	528	96%	498	90%	469	85%
Subtotal	1,868	1,753	94%	1,827	98%	1,714	92%
High Schools							
El Camino	1,273	1,157	91%	1,162	91%	1,114	87%
South San Francisco	1,391	1,289	93%	1,322	95%	1,265	91%
Baden	127	98	77%	89	70%	85	67%
Subtotal	2,791	2,544	91%	2,573	92%	2,463	88%
Other							
None							
Subtotal	0						
GRAND TOTAL	9,571	7,870	82%	8,014	84%	7,508	78%

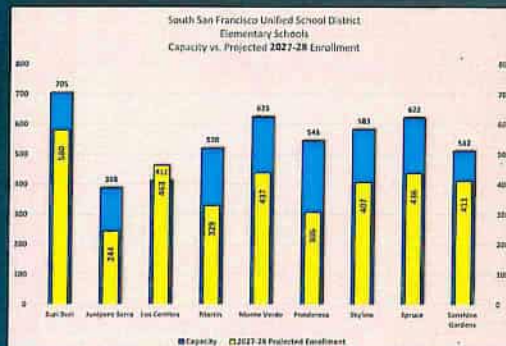
Capacity Utilization Legend

> 90%
> 79% < 90%
60% - 79%
> 50% < 60%
< 50%

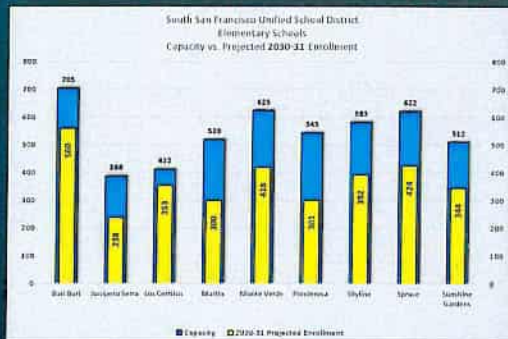
Elementary School Capacity Utilization



2024-25 Projected			
School	Enrollment	Capacity	% Utilization
Buri Buri	617	705	88%
Junipero Serra	261	388	67%
Los Cerritos	368	412	89%
Martin	381	520	73%
Monte Verde	475	625	76%
Ponderosa	334	545	61%
Skyline	388	583	67%
Spruce	430	622	69%
Sunshine Gardens	319	512	62%
TOTAL	3,573	4,912	73%

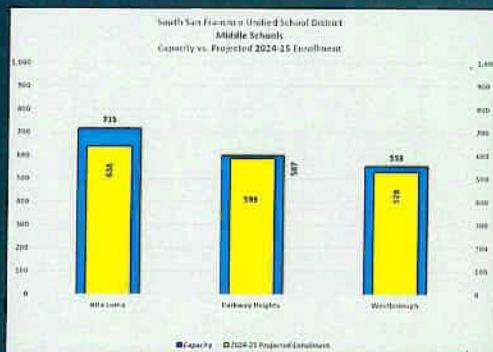


2027-28 Projected			
School	Enrollment	Capacity	% Utilization
Buri Buri	580	705	82%
Junipero Serra	244	388	63%
Los Cerritos	463	412	112%
Martin	329	520	63%
Monte Verde	437	625	70%
Ponderosa	306	545	56%
Skyline	407	583	70%
Spruce	436	622	70%
Sunshine Gardens	411	512	80%
TOTAL	3,614	4,912	74%

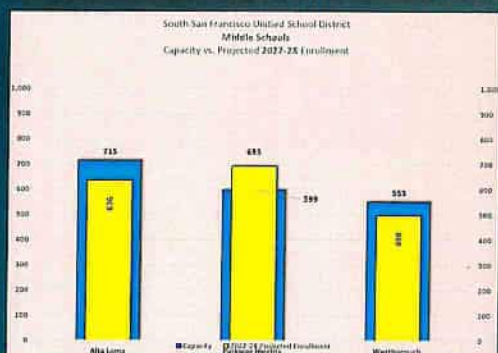


2030-31 Projected			
School	Enrollment	Capacity	% Utilization
Buri Buri	560	705	79%
Junipero Serra	238	388	61%
Los Cerritos	353	412	86%
Martin	300	520	58%
Monte Verde	418	625	67%
Ponderosa	301	545	55%
Skyline	392	583	67%
Spruce	424	622	68%
Sunshine Gardens	344	512	67%
TOTAL	3,331	4,912	68%

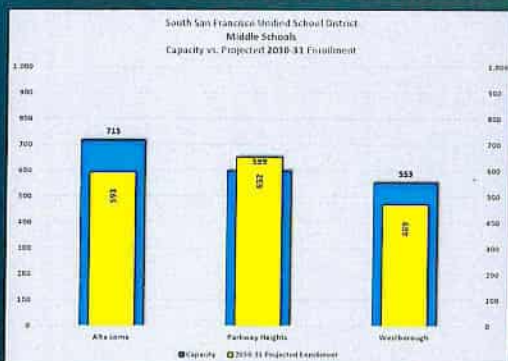
Middle School Capacity Utilization



School	2024-25 Projected Enrollment	Capacity	% Utilization
Alta Loma	638	715	89%
Parkway Heights	587	599	98%
Westborough	528	553	96%
TOTAL	1,753	1,868	94%

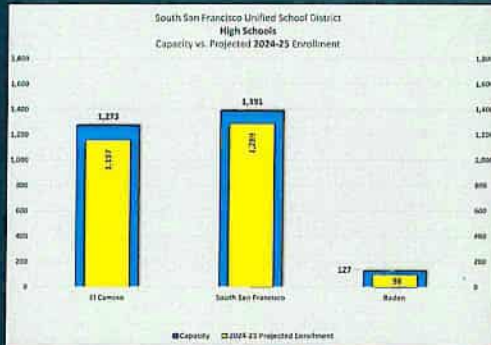


School	2027-28 Projected Enrollment	Capacity	% Utilization
Alta Loma	636	715	89%
Parkway Heights	693	599	116%
Westborough	498	553	90%
TOTAL	1,827	1,868	98%

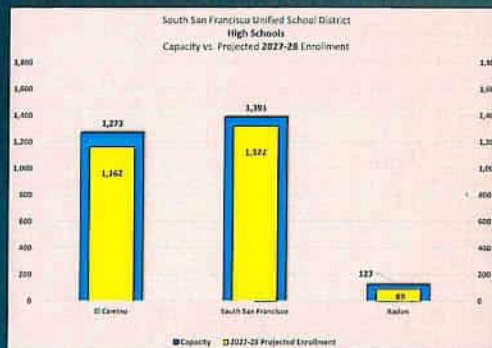


School	2030-31 Projected Enrollment	Capacity	% Utilization
Alta Loma	593	715	83%
Parkway Heights	652	599	109%
Westborough	469	553	85%
TOTAL	1,714	1,868	92%

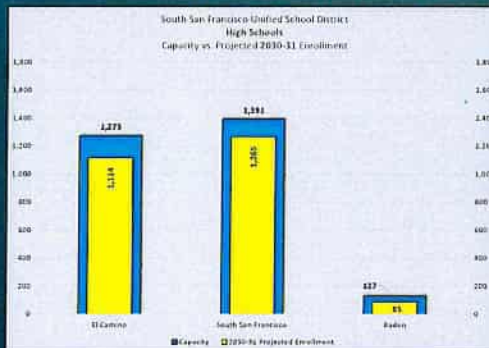
High School Capacity Utilization



School	2024-25 Projected Enrollment	Capacity	% Utilization
El Camino	1,137	1,273	91%
South San Francisco	1,289	1,391	93%
Baden	98	127	77%
TOTAL	2,544	2,791	91%



School	2027-28 Projected Enrollment	Capacity	% Utilization
El Camino	1,162	1,273	91%
South San Francisco	1,322	1,391	95%
Baden	89	127	70%
TOTAL	2,573	2,791	92%



School	2030-31 Projected Enrollment	Capacity	% Utilization
El Camino	1,114	1,273	87%
South San Francisco	1,265	1,391	91%
Baden	85	127	67%
TOTAL	2,463	2,791	88%

Capacity to Projected Enrollment

28

- Illustrates the capacity utilization at 3-year intervals beginning in 2024-25 and extending through 2030-31
- Portable classrooms currently account for 4% of the total classroom inventory District-wide
- Of the 4% (18 portables), most are currently being used for non-instructional purposes; but could be put into use for educational purposes and relocated, if necessary.

Facility Needs Assessment and Project Prioritization

Facility Needs Data Sources

30

Facility Needs were established using a number of sources including:

- SSFUSD 2017 Facilities Master Plan
- Feedback provided by site leadership
- Information provided the District's Facilities Department
- Original cost estimating provided by **Cumming Group**
- Cost data was subsequently escalated to 2025 Dollars (established as the mid-point of construction)

Total Facility Needs by Program

31

Total Facilities Needs/Costs were divided into six categories and identified with the following level of projected needs:

❖ Elementary Schools	\$201,726,369
❖ Middle Schools	\$146,391,050
❖ High Schools	\$311,851,145
❖ Other Sites	\$71,355,153
❖ Other Closed/Leased Sites	\$59,280,276
❖ District-wide Needs	<u>\$136,500,000</u>
<u>TOTAL NEEDS – ALL PROGRAMS</u>	<u>\$858,853,994</u>

Prioritized Facility Needs by Program

Once Total Project Costs were established, a tentative prioritization on a program-by-program basis was performed using information from the sites as well as the Facilities Department. The approximate allocation (rounded) of resources based on identified needs of prioritized projects was as follows:

❖ Elementary Schools	\$109,000,000
❖ Middle Schools	\$72,000,000
❖ High Schools	\$141,000,000
❖ Other Sites (included leased/closed)	\$14,000,000
❖ District-wide Projects	\$87,000,000
❖ Project Management & Risk Reserve	<u>\$13,000,000</u>
TOTAL ALL NEEDS	<u>\$436,000,000</u>

General Summary of Bond Measure Scope & Budget

33

SOUTH SAN FRANCISCO UNIFIED SCHOOL DISTRICT BOND MEASURE PLANNING SCOPE & BUDGETS

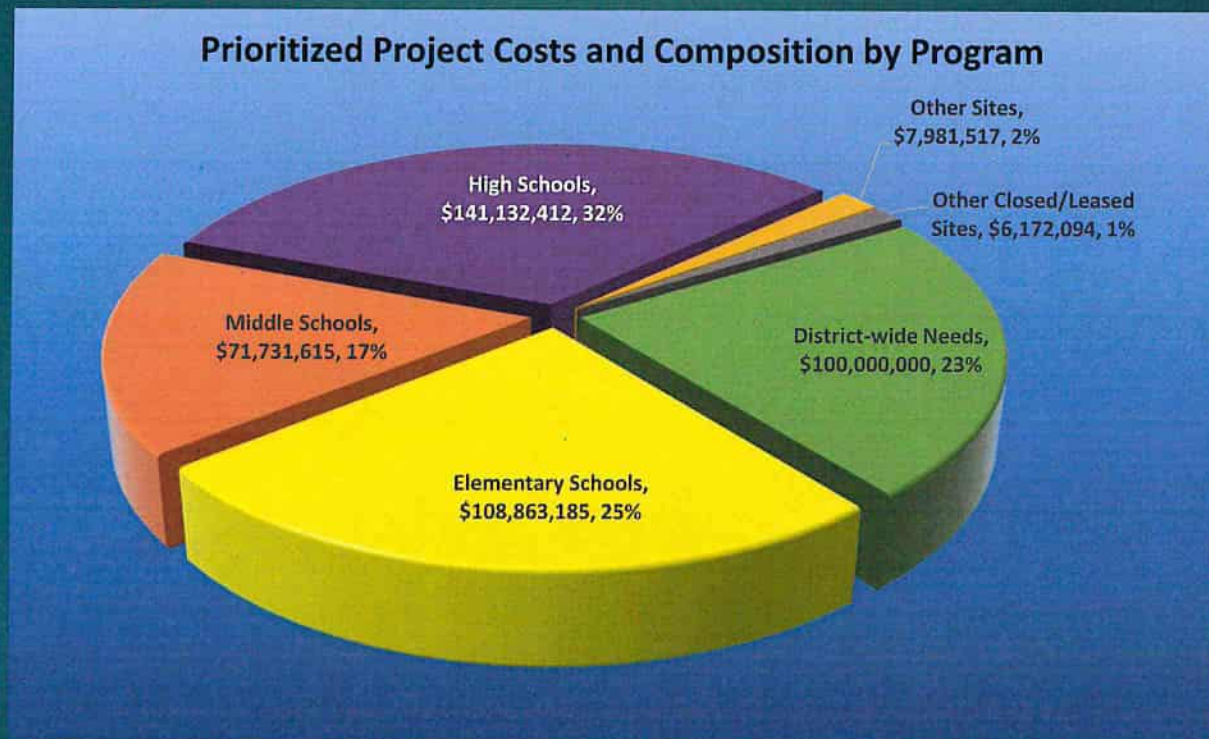
SCOPE OF WORK SUMMARY

Safety and Security--Additional Security Cameras, Site Fencing & Gates, Access Control
HVAC Upgrades--improve learning environment for students and working environment for staff
Infrastructure Improvements--sewer lines, site drainage, water lines
Building envelope upgrades--roofing, walls, windows
Site Improvements--Playgrounds, Parking/Drop-off, Fields
Resiliency upgrades--Keep campuses operational during power outages
Exploratorium/Library for Los Cerritos & Sunshine Gardens--educational program parity with other sites.
Transitional Kindergarten/Early Education Classrooms
Theater Renovations at El Camino HS and South San Francisco HS
New Gym/Locker/Athletic Facilities at Secondary School sites
Other Sites Basic Repairs--at leased, other sites--roofing, HVAC, safety
Central Kitchen Upgrades--kitchen equipment, expanded capacity
Workforce Housing--project funding to ensure long-term affordability for staff
District-wide Projects--Technology, Furniture/Equipment

SITES	PLANNING BUDGET	REFERENCE
ELEMENTARY SCHOOLS	\$109,000,000	Buri, Junipero Serra, Los Cerritos, Martin, Monte Verde, Ponderosa, Skyline, Spruce, Sunshine Gardens
MIDDLE SCHOOLS	\$72,000,000	Alta Loma, Parkway, Westborough
HIGH SCHOOLS	\$141,000,000	ECBS, SSFHS, Baden (Adult Ed)
OTHER SITES	\$14,000,000	Hillside, Childrens Center, Serra Vista, District Offices
DISTRICT-WIDE PROJECTS	\$87,000,000	Workforce Housing, Central Kitchen, Technology, F&E
MANAGEMENT & RESERVE	\$13,000,000	Program costs and risk reserve
TOTAL PLANNING BUDGET	\$436,000,000	

Prioritized Project Costs by Program

34



Profile Sheet – Los Cerritos ES

35



210 West Orange Ave.
South San Francisco, CA 94080
Acreage: 2.0
Year Built: 1948

2021-22 School Overview

- ❖ Los Cerritos ES had a 2021-22 population of 278 TK-5th grade students. All students have access to a laptop and every primary student also has access to an iPad. The school is committed to encouraging students to collaborate about their successes and challenges. The school provides a caring and enthusiastic environment to the community of scholars.
- ❖ The school has nineteen teaching area (5 buildings, two portables/1 library, MUR and Administration Offices) providing education for grades TK-5. The District takes great effort to ensure that all schools are clean, safe and functional. All bathrooms, classrooms and offices are cleaned daily. District maintenance staff ensures necessary repairs to keep the school in good condition and work orders are completed in a timely manner. The facilities work order process is used to ensure efficient service and that emergency repairs are given the highest priority.

Profile Sheet – Los Cerritos ES

36

Architectural drawings were submitted to replace old portables during the 2014-2015 school year. Funds from a local bond measure may be used to construct two new modular classrooms and a library/media center.

IMPROVEMENTS

- ❖ Construct New Exploratorium & Library
- ❖ Upgrade & enhance safety and security measures including security cameras, site fencing, gates, and access controls
- ❖ Replace, upgrade and/or install major building and utility systems
- ❖ Upgrade/replace HVAC systems
- ❖ Upgrade infrastructure including sewer lines, site drainage, water lines
- ❖ Improve site playgrounds, parking/drop-off areas and fields
- ❖ Improve campus resiliency (power outages)
- ❖ Add TK/Early Ed. CRs
- ❖ Improve campus accessibility
- ❖ Make sustainability improvements including sustainable and efficient energy and/or water systems
- ❖ Make improvements and enhance technology
- ❖ Window Replacements

TOTAL PRIORITY NEEDS/IMPROVEMENTS (\$2025)

\$20,308,833

Profile Sheet – Parkway Heights MS

37



650 Sunset Ave.
South San Francisco, CA 94080
Acreage: 14.9
Year Built: 1953

2021-22 School Overview

- ❖ The school reopening to in-person teaching and learning began in the Fall of 2021. Parkway Heights Middle School student community is comprised of diverse learners with similar needs and aspirations. The school is committed to providing a rigorous standards-based curriculum that will prepare all of our students for high school success.
- ❖ The school has forty-one teaching stations, MUR, Counseling Center, Locker Rooms and Administration Offices providing education for grades 6-8. The District takes great effort to ensure that all schools are clean, safe and functional. All bathrooms, classrooms and offices are cleaned daily. District maintenance staff ensures that the repairs necessary to keep the school in good repair and working order are completed in a timely manner. The facilities work order process is used to ensure efficient service and that emergency repairs are given the highest priority.

Profile Sheet – Parkway Heights MS

38

Architectural planning for replacing the entire school began during the 2013/2014 school year. Local bond funds were used. The new classrooms, library, and MUR were occupied by students in the 2019-2020 school year.

IMPROVEMENTS

- ❖ Construct new gym/locker/athletic facilities
- ❖ Upgrade & enhance safety and security measures including security cameras, site fencing, gates, and access controls
- ❖ Replace, upgrade and/or install major building and utility systems including building envelope
- ❖ Upgrade/replace HVAC systems
- ❖ Upgrade infrastructure including sewer lines, site drainage, water lines
- ❖ Improve site playgrounds, parking/drop-off areas and fields
- ❖ Improve campus resiliency (power outages)
- ❖ Make improvements to accessibility throughout the campus
- ❖ Make sustainability improvements including sustainable and efficient energy or water systems
- ❖ Make improvement to technology as needed to support education programs
- ❖ Seismic evaluation & upgrades

TOTAL PRIORITY NEEDS/IMPROVEMENTS (\$2025)

\$21,621,899

Profile Sheet – El Camino HS

39



1320 Mission Rd.
South San Francisco, CA 94080
Acreage: 29.0
Year Built: 1960

2021-22 School Overview

- ❖ El Camino High School is located in the city of South San Francisco, a growing biotechnology center and home of the historical sign "South San Francisco: The Industrial City," which can be seen from both air and land. The school was established in 1961 and during the 2021-22 1,206 students were enrolled in grades nine through twelve.
- ❖ The school has sixty-six teaching stations, two gyms, cafeteria, theatre, pool, locker rooms, library and administration offices providing education for grades 9-12. The District takes great effort to ensure that all schools are clean, safe and functional. All bathrooms, classrooms and offices are cleaned daily. District maintenance staff ensures that the repairs necessary to keep the school in good repair and working order are completed in a timely manner. The facilities work order process is used to ensure efficient service and that emergency repairs are given the highest priority.

Profile Sheet – El Camino HS

40

IMPROVEMENTS

- ❖ New Gym/Locker/Athletic Facilities
- ❖ Cafeteria Reconfiguration
- ❖ Structural retrofit & modernization of Little Theater
- ❖ Additional seismic upgrades
- ❖ Mechanical, electrical and plumbing upgrades
- ❖ Upgrade & enhance safety and security measures including security cameras, site fencing, gates, and access controls
- ❖ Replace, upgrade and/or install major building and utility systems
- ❖ Upgrade/replace HVAC systems
- ❖ Improve infrastructure including sewer lines, site drainage, water lines
- ❖ Improve site parking/drop-off areas and fields
- ❖ Improve campus resiliency (power outages)
- ❖ Make improvements to accessibility throughout the campus
- ❖ Make sustainability improvements including sustainable and efficient energy or water systems
- ❖ Make improvement to technology as needed to support education programs

TOTAL PRIORITY NEEDS/IMPROVEMENTS (\$2025)

\$49,906,411

Priority Needs by Site
Other Sites

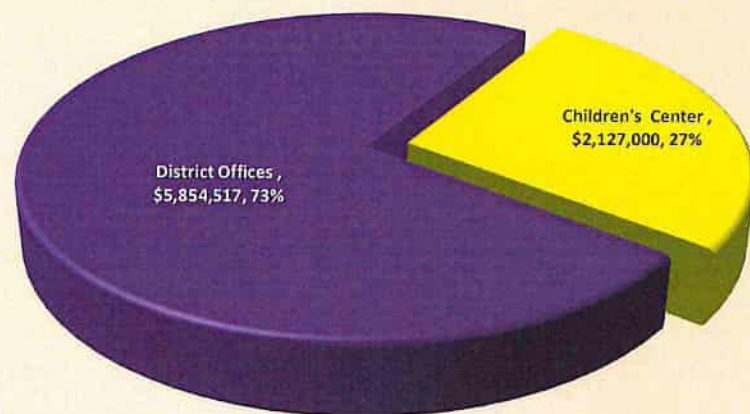
41

❖ District Office	<u>\$5,854,517</u>
❖ Children's Center	<u>\$2,127,000</u>
Total Other Sites	<u>\$7,981,517</u>

Projected Allocation of Resources

Other Sites

Prioritized Project Needs by Site
Other Sites



Priority Needs by Site
Other Closed/Leased Sites

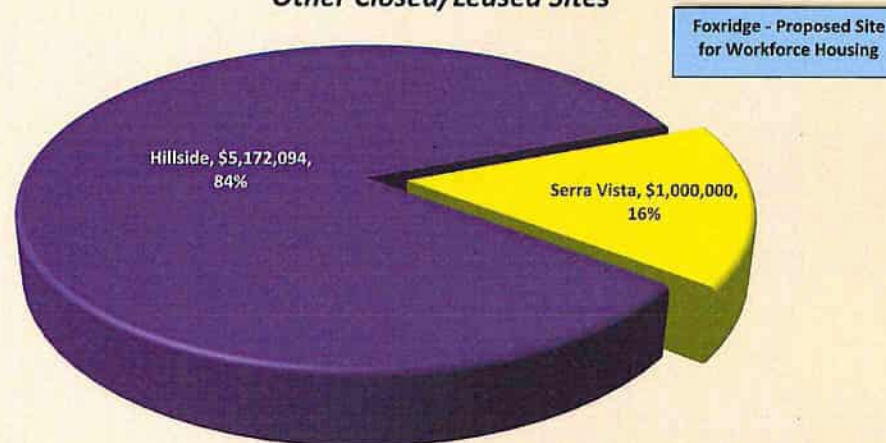
43

❖ Hillside	\$5,172,094
❖ Serra Vista	<u>\$1,000,000</u>
Total Other Sites	<u>\$6,172,094</u>

Projected Allocation of Resources

Other Closed/ Leased Sites

Prioritized Project Needs by Site
Other Closed/Leased Sites



Priority Needs by Site

District-wide Programs

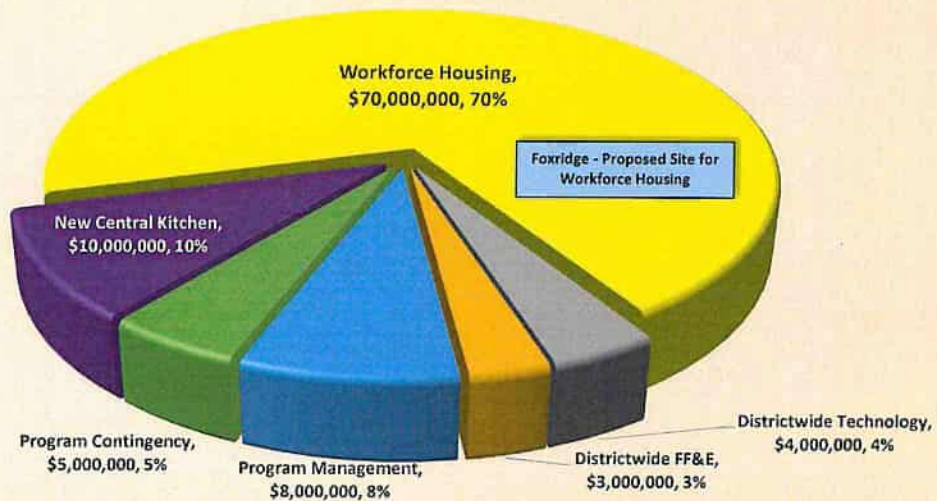
45

❖ New Central Kitchen	<u>\$10,000,000</u>
❖ Workforce Housing (Foxridge)	\$70,000,000
❖ Districtwide Technology	\$4,000,000
❖ Districtwide FF&E	\$3,000,000
❖ Program Management	<u>\$8,000,000</u>
❖ Program Contingency	<u>\$5,000,000</u>
Total District-wide Programs	<u>\$100,000,000</u>

Projected Allocation of Resources

District-wide Programs

Prioritized Project Needs by Site
District-wide Programs



Potential Funding Resources

47

Fund Description	June 30, 2021 Unaudited Actuals
Building Fund – Fund 21	\$5,512,239
Capital Facilities – Fund 25	\$6,045,284
Special Reserves for Capital Outlay Projects – Fund 40	\$4,403,517
GRAND TOTAL	\$15,961,040

Summary

48

- Enrollment declines, otherwise likely are partially offset and deferred by planned residential development
- In general, capacity utilization does not present an issue going forward although middle and high schools will likely be the most impacted
- The District will need to frequently update and revisit the CIP planning documents
- The District's Total Needs of \$852+ Million exceeds its current funding capabilities – but is quite common given the general age and condition of many California schools
- The FMP should be considered a living document and can be utilized as a general roadmap in fulfilling the community's facility needs

Next Steps

- ❖ Board to receive, comment and approve the Master Plan
- ❖ Continue the prioritization process to ensure the highest priorities are completed
- ❖ Continue to pursue State funding
- ❖ District to periodically review and update the Master Plan
 - ✓ Enrollment projections
 - ✓ Classroom inventories
 - ✓ Condition assessment of facilities
 - ✓ Funding options

Thank You!

EH&A appreciates the opportunity
to be of service to the South San
Francisco Unified School District
and the community you serve

Questions & Discussion



Fire Station

South San Francisco Fire Department
480 N Canal St, South San Francisco, CA 94080
0.6mi

South San Francisco Fire Station 62
249 Harbor Wy, South San Francisco, CA 94080
0.8mi

South San Francisco Fire Station 65
1151 S San Francisco Dr, South San Francisco, CA 94080
1mi

South San Francisco Fire Station 63
33 Arroyo Dr, South San Francisco, CA 94080
1.5mi

North County Fire Authority
25 Park Pl suite b, Brisbane, CA 94008
2.1mi

Brisbane Fire Department
3445 Bayshore Blvd, Brisbane, CA 94008
2.1mi

San Bruno Fire Department
555 El Camino Real, San Bruno, CA 94066
2.3mi

San Francisco Airport Fire Station 1
650 W Field Rd, San Francisco, CA 94133
2.5mi

South San Francisco Fire Dept Station 1
South San Francisco, CA 94080, United States
2.7mi

San Francisco Airport Fire Station 2
1064 N Access Rd, San Francisco, CA 94133
2.8mi

Fire Station 52
1999 Earl Ave, San Bruno, CA 94066
3.1mi

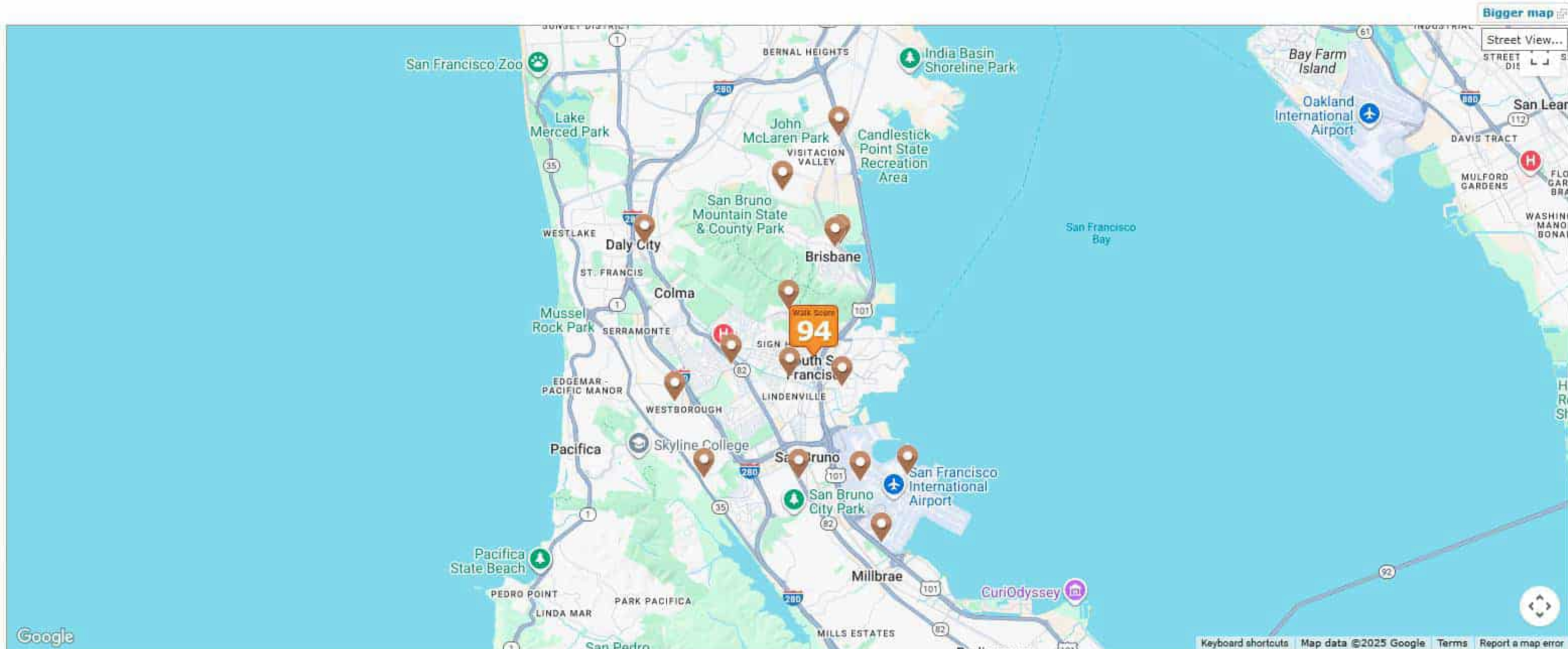
Daly City Fire Department Station 93
464 Martin St, Daly City, CA 94015
3.1mi

San Francisco Airport Fire Station 3
12 S McDonnell Rd, San Francisco, CA 94133
3.7mi

Colma Fire Protection District
150 Reiner St, Colma, CA 94014, United States
3.8mi

San Francisco Fire Department Station 1
1298 Girard St, San Francisco, CA 94133
4.1mi

[More Fire Station](#)



✕

UCSF Health Hyde Hospital
900 Hyde St. San Francisco, CA 94143 9.1mi

15



Street View...

22

01862145

2

Tassajon

MANDORESKI

W



Please



Verona

100

Surf

2

SAN JOSE 

[Return to top](#)

[Add a place](#)

Something missing? [Add a place](#)

Parks

Cypress and Pine Playlot
717 Airport Blvd

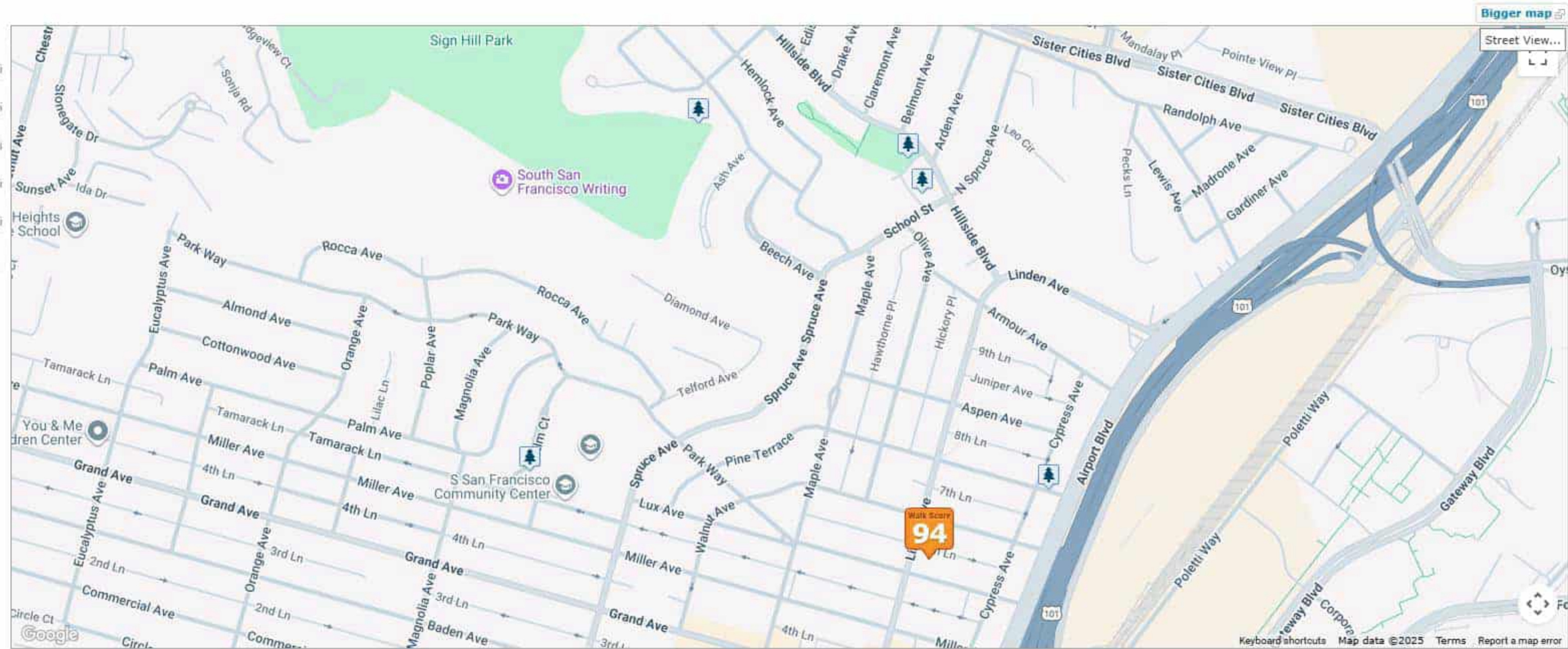
Hillside Recreation Center

Paradise Valley Park

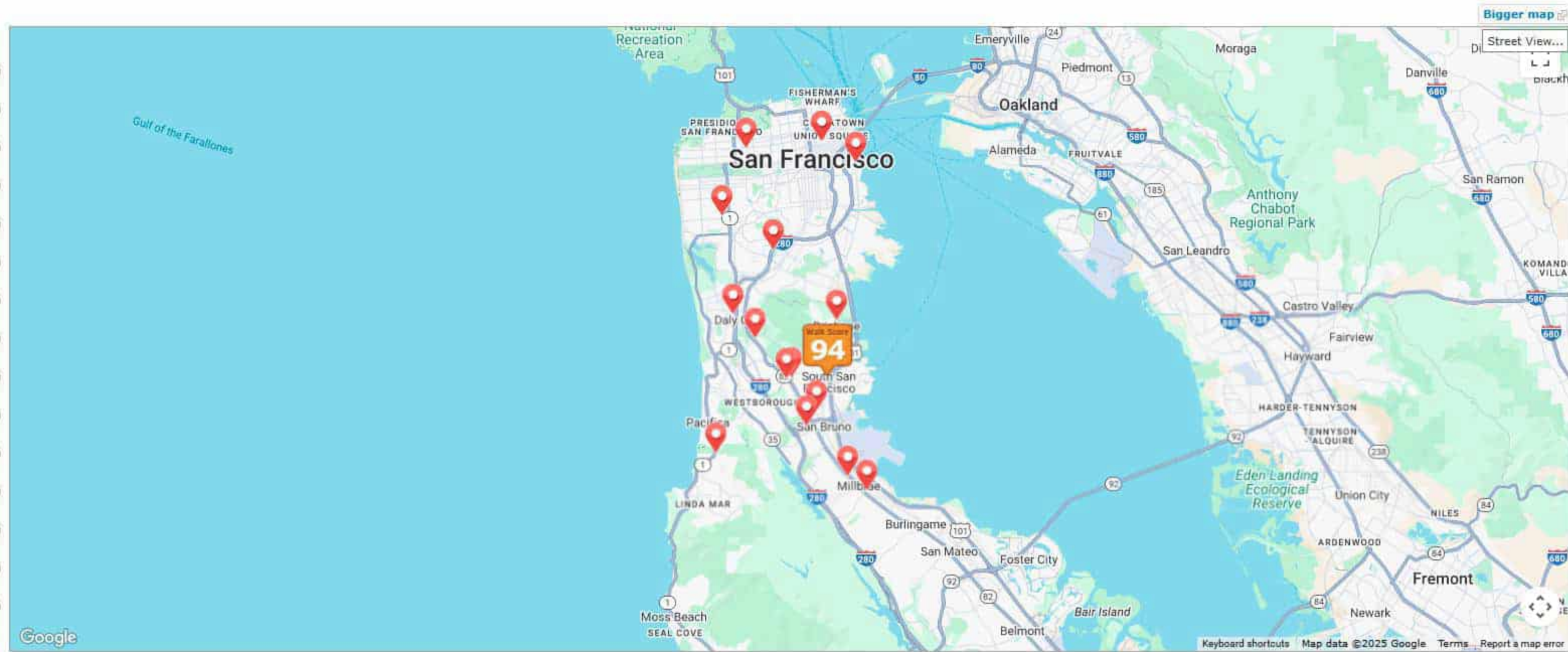
Elm Court Recreation Building
505 Elm Ct

Paradise Valley Park
431 Larch Ave

More Parks



- Police Station**
- South San Francisco Police Depart...**
1 Chestnut Ave, South San Franci... 1.3mi
- San Bruno Police Department**
1177 Huntington Ave E, San Brun... 1.4mi
- South San Francisco Police Depart...**
33 Arroyo Dr C, South San Franci... 1.5mi
- The Police Credit Union San Bruno ...**
1250 Grundy Ln, San Bruno, CA 9... 2.1mi
- Brisbane Police Department**
147 Valley Dr, Brisbane, CA 94005... 2.1mi
- Colma City Police Department**
1199 El Camino Real, Colma, CA ... 3mi
- Millbrae City Police Department**
581 Magnolia Ave, Millbrae, CA 94... 3.9mi
- Daly City Police Department**
333 90th St, Daly City, CA 94015,... 4.2mi
- Burlingame Police Department**
1111 Trousdale Dr, Burlingame, C... 4.5mi
- Pacifica Police Department**
2075 Pacific Coast Hwy, Pacifica, ... 5.1mi
- Ingleside Police Station**
1 Sgt John V Young Ln, San Franci... 5.1mi
- Taraval Police Station**
2345 24th Ave, San Francisco, CA... 7.2mi
- San Francisco Police Department**
1251 3rd St, San Francisco, CA 94... 8mi
- SFPD Tenderloin Station**
301 Eddy St, San Francisco, CA 9... 8.7mi
- SFPD Richmond Station**
461 6th Ave, San Francisco, CA 9... 9mi
- More Police Station**



- Schools
- All Souls Catholic Elementary School

479 Miller Ave

.3mi
- Spruce Elementary School

501 Spruce Ave

.4mi
- Martin Elementary School

35 School St

.4mi
- Roger Williams Academy

600 Grand Ave

.6mi
- Community Day

201 W Orange Ave

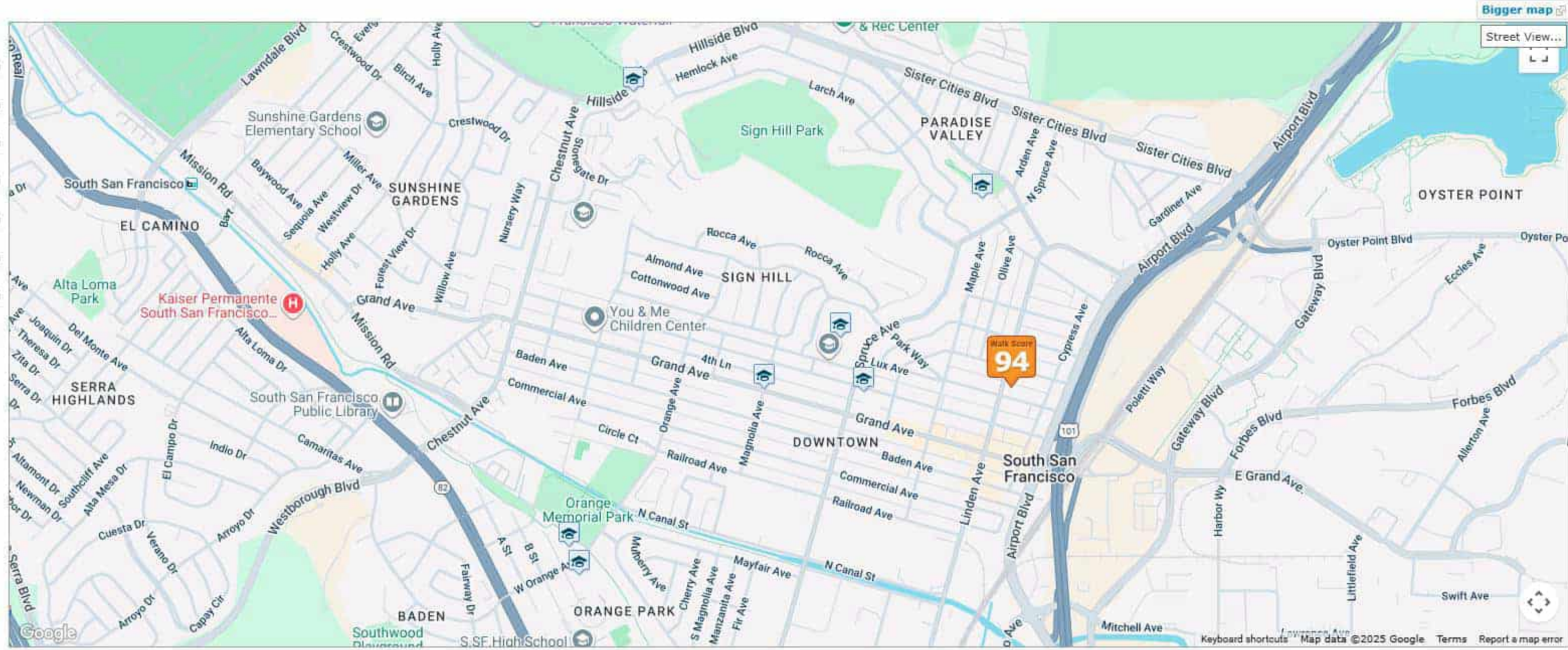
1.1mi
- Los Cerritos Elementary School

210 West Orange Ave

1.1mi
- Hillside Christian Academy

1415 Hillside Blvd

1.1mi
- More Schools



Bigger map

Street View...

Social services

Social Vocational Services
860 Dubuque Ave, South San Fra... 0.4mi

YMCA Community Resource Center
1486 Huntington Ave # 100, Sout... 1.2mi

San Francisco Substance Abuse
205 Kenwood Way, South San Fra... 1.4mi

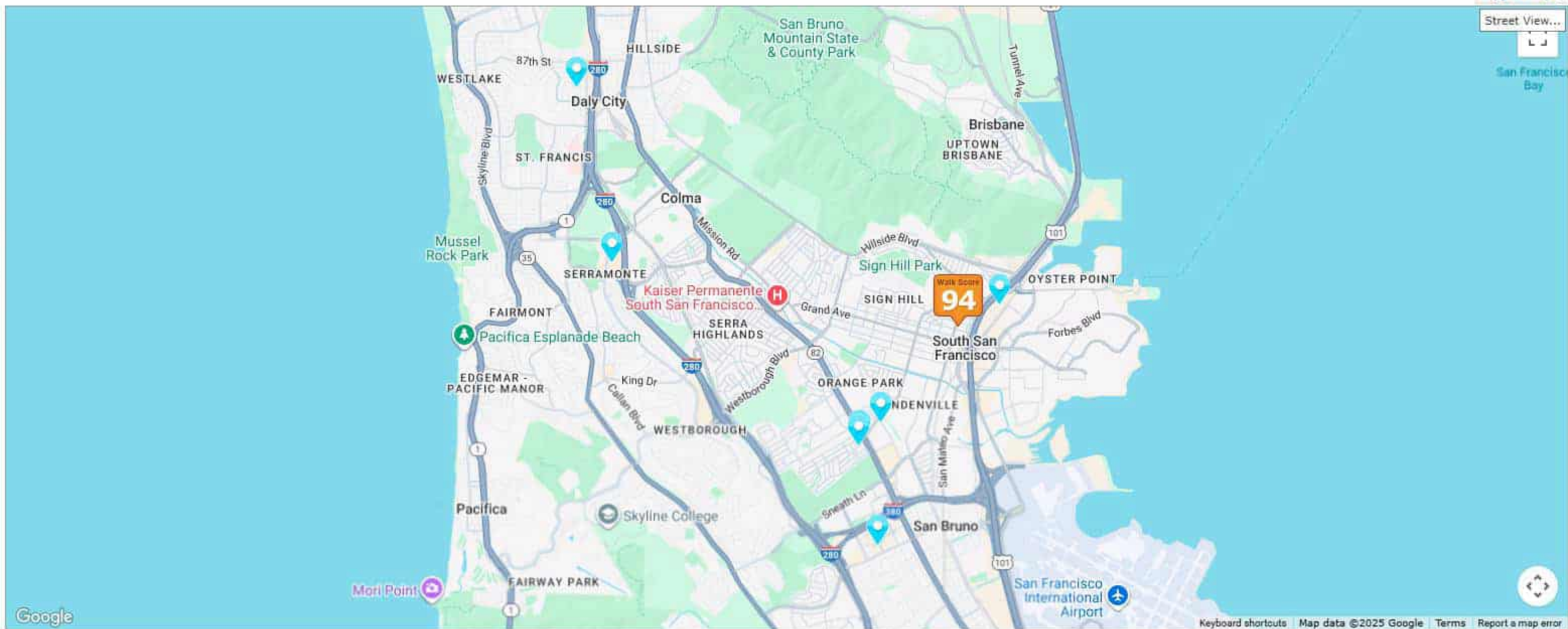
Teen Addiction Recovery San Franc...
132 Brentwood Dr, South San Fra... 1.5mi

Social Service Department
851 Traeger Ave # 360, San Brun... 2.2mi

Social Security Administration
355 Gellert Blvd #201, Daly City, ... 3.3mi

San Mateo County Human Services
271 92nd St, Daly City, CA 94015... 4.2mi

More Social services



Bigger map

Street View...



San Francisco Bay

Google

Soil Map—San Mateo County, Eastern Part, and San Francisco County, California



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

10/20/2025
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Mateo County, Eastern Part, and San Francisco County, California

Survey Area Data: Version 21, Aug 29, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
131	Urban land	1.0	97.6%
132	Urban land-Orthents, cut and fill complex, 0 to 5 percent slopes	0.0	2.4%
Totals for Area of Interest		1.0	100.0%

500 Linden Avenue

South San Francisco (/CA/South_San_Francisco), California, 94080

Add scores to your site (</professional/badges.php?address=500 Linden Avenue South San Francisco, CA 94080>).

Commute to **Downtown South San Francisco (/compare#edit-commutes)**

1 min 7 min 2 min 11 min

Favorite

Map

Nearby South San Francisco Apartments on Redfin (<https://www.redfin.com/city/18672/CA/South-San-Francisco/apartments-for-rent>)

More about 500 Linden Avenue (<https://www.redfin.com/CA/South-San-Francisco/200-Linden-Ave-94080/unit-500/home/181103053>)

Walk Score

94

Walker's Paradise

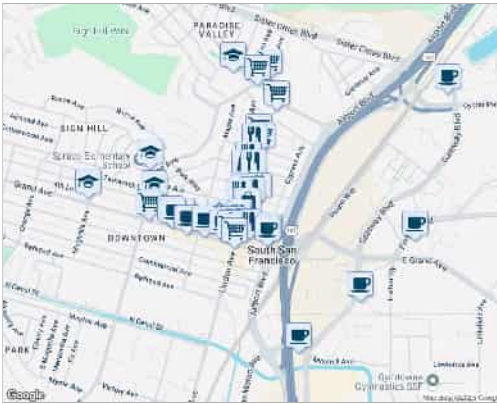
Daily errands do not require a car.

73

Very Bikeable

Biking is convenient for most trips.

About your score



About this Location



(<https://maps.google.com/maps/@37.6575154,-122.4089605,0q,73.12y,185.775x90t/data=!3m1!1e3!1m2!1spBBrochewQ4EHEZ3EBBvGjKwD4PGHFA4GEFAY1-8?cbp=1,185.775,,0.014,0&hl=en-US>)

500 Linden Avenue has a Walk Score of 94 out of 100. This location is a Walker's Paradise so daily errands do not require a car.

500 Linden Avenue is a 10 minute walk from the Express, the Limited and the Local Weekday at the South San Francisco Caltrain Southbound stop.

This location is in South San Francisco. Nearby parks include Cypress and Pine Playlot, Hillside Recreation Center and Paradise Valley Park.

Nearby Public Transit

Rail lines:			
Local Weekday	0.2 mi	Local Weekend	0.2 mi
Limited	0.2 mi	Express	0.2 mi
More ▼			

City of South San Francisco

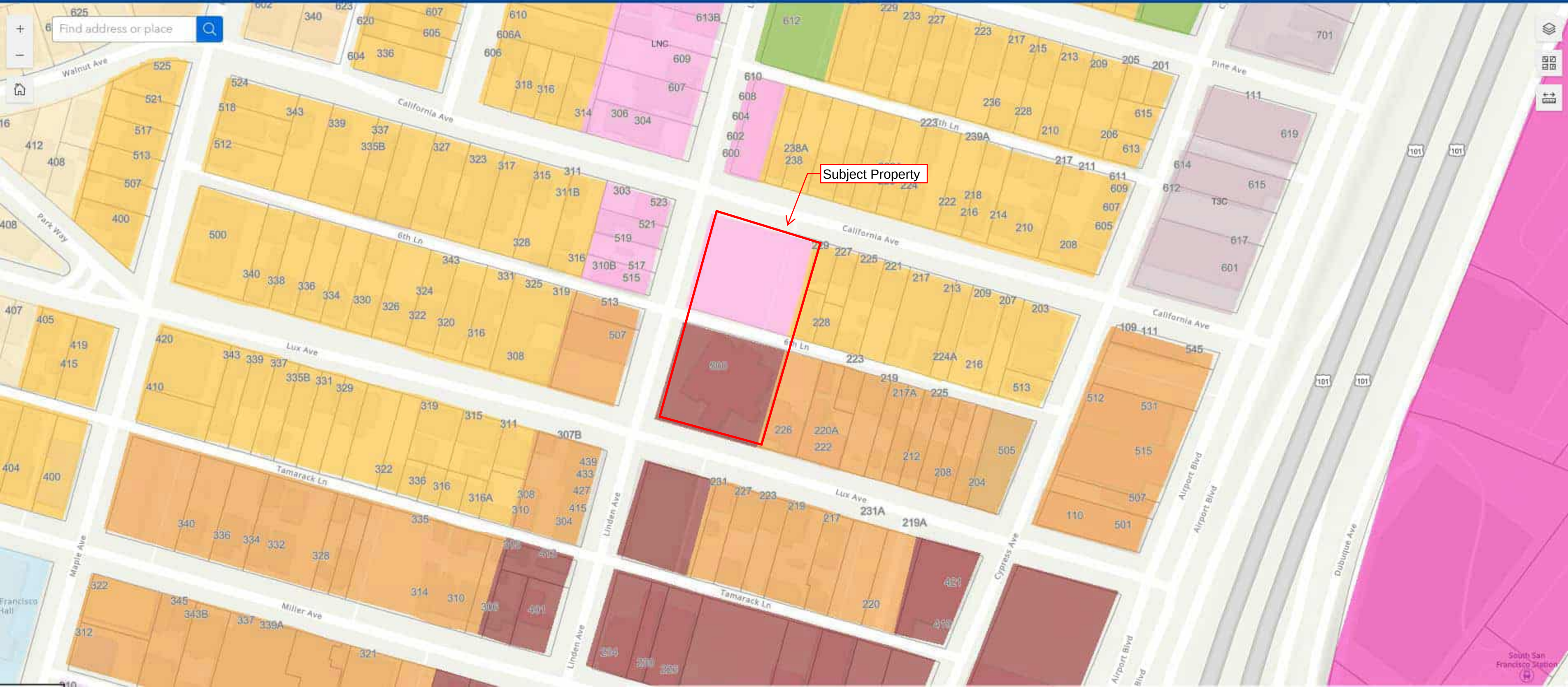
This location is in the city of South San Francisco, CA. South San Francisco has an average Walk Score of 63 and has 63,632 residents.

[Learn More About South San Francisco \(/CA/South_San_...](#)

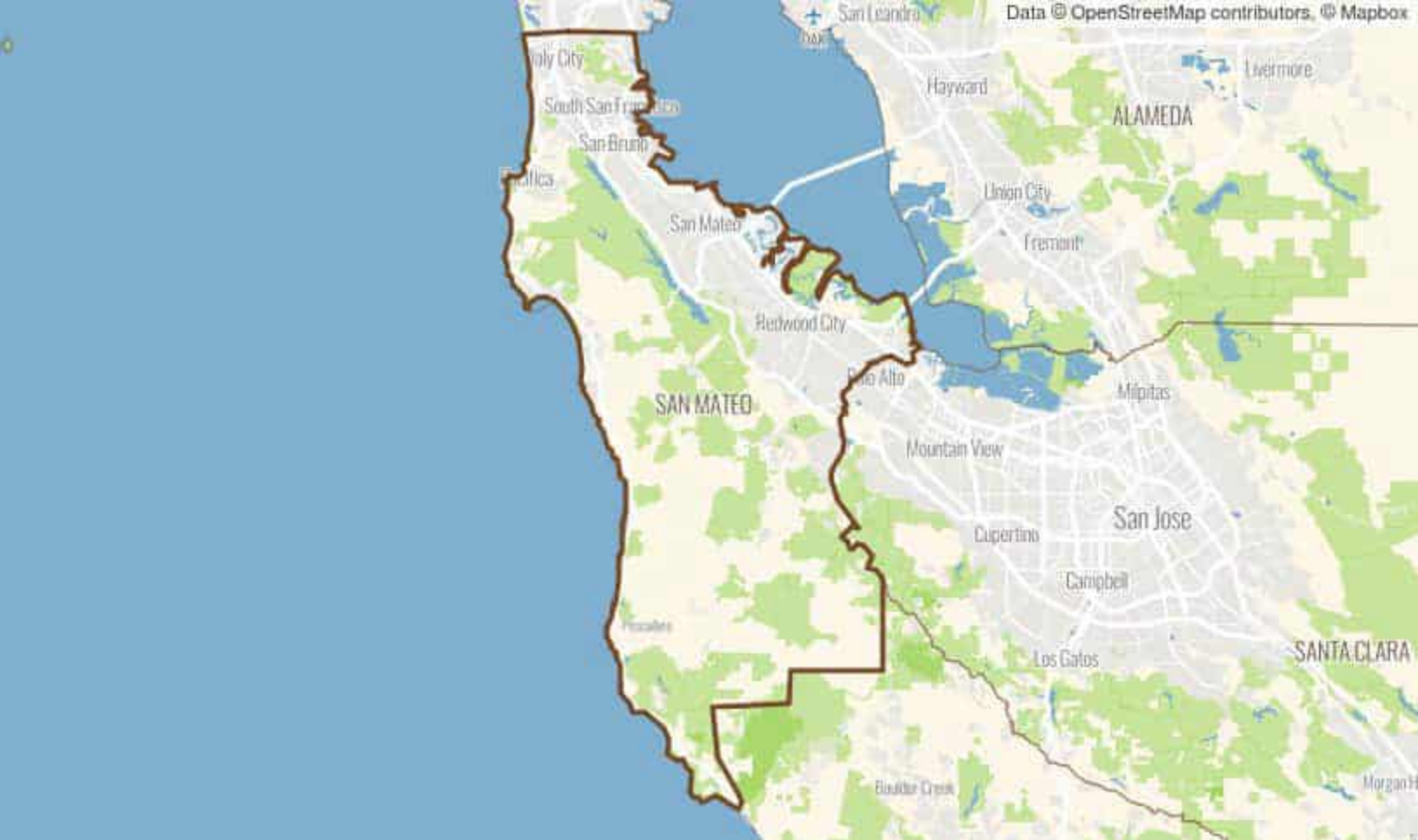
[United States \(/cities-and-neighborhoods/](#) [California \(/CA/](#) **[South San Francisco \(/CA/South_San_Francisco\)](#)**

Walk Score (/	Professional (/professional/)
About (/about.shtml)	Walk Score Widget (/professional/walk-score-widget.php)
How It Works (/how-it-works/)	Walk Score APIs (/professional/walk-score-apis.php)
Press (/press/)	Data Services (/professional/research.php)
Terms & Privacy (/terms-of-use.shtml)	Real Estate Professionals (/professional/real-estate-professionals.php)
Feedback (/contact)	Walkability Research (/professional/walkability-research.php)
	Badges (/professional/badges.php)

If you are using a screen reader or having trouble reading this website, please call Walk Score customer service at (253) 256-1634.



APPENDIX R: ADDITIONAL INFORMATION (IF WARRANTED)



SAN MATEO COUNTY 2025 Affordable Housing Needs Report



**California
Housing
Partnership**

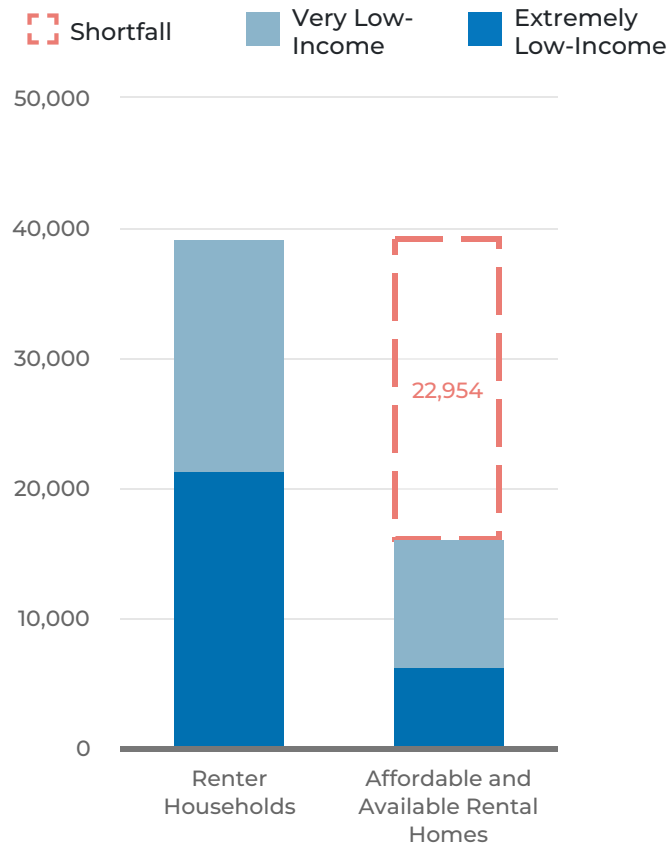
*California's Experts on Affordable
Housing Finance, Advocacy & Policy*

KEY FINDINGS

- **22,954 low-income renter households** in San Mateo County do not have access to an affordable home.
- State and federal funding for housing production and preservation in San Mateo County is \$79 million, a **75% decrease** from the year prior.
- **81% of extremely low-income (ELI) households** in San Mateo County are paying more than half of their income on housing costs compared to 2% of moderate-income households.
- In 2024 in San Mateo County, there were only **1,551 beds** available in the interim housing supply for persons experiencing homelessness.
- Renters in San Mateo County need to earn \$66.59 per hour - **3.7 times** the City of San Mateo minimum wage - to afford the average monthly asking rent of \$3,463.

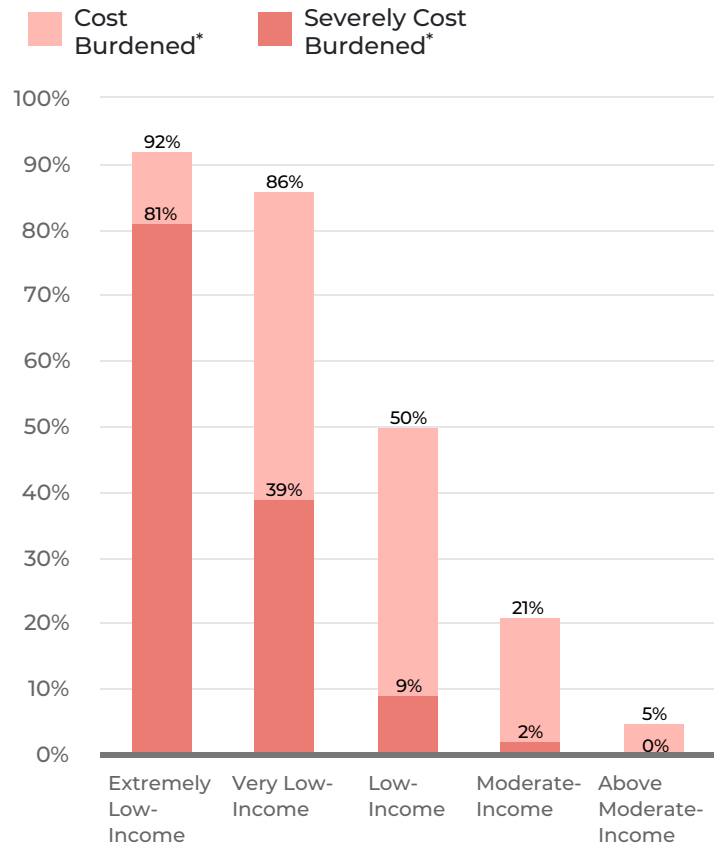
AFFORDABLE RENTAL HOMES

22,954 low-income renter households in San Mateo County do not have access to an affordable home (2023).



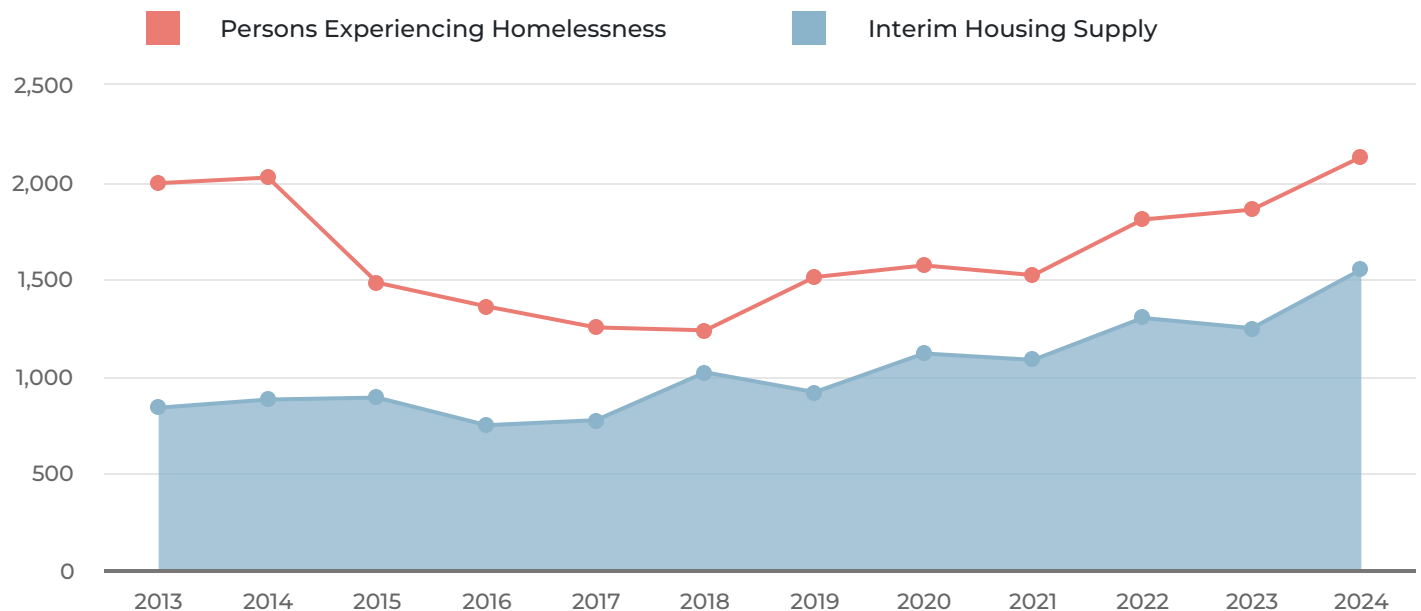
COST BURDENED HOUSEHOLDS

81% of ELI households in San Mateo County are paying more than half of their income on housing costs compared to 2% of moderate-income households (2023).



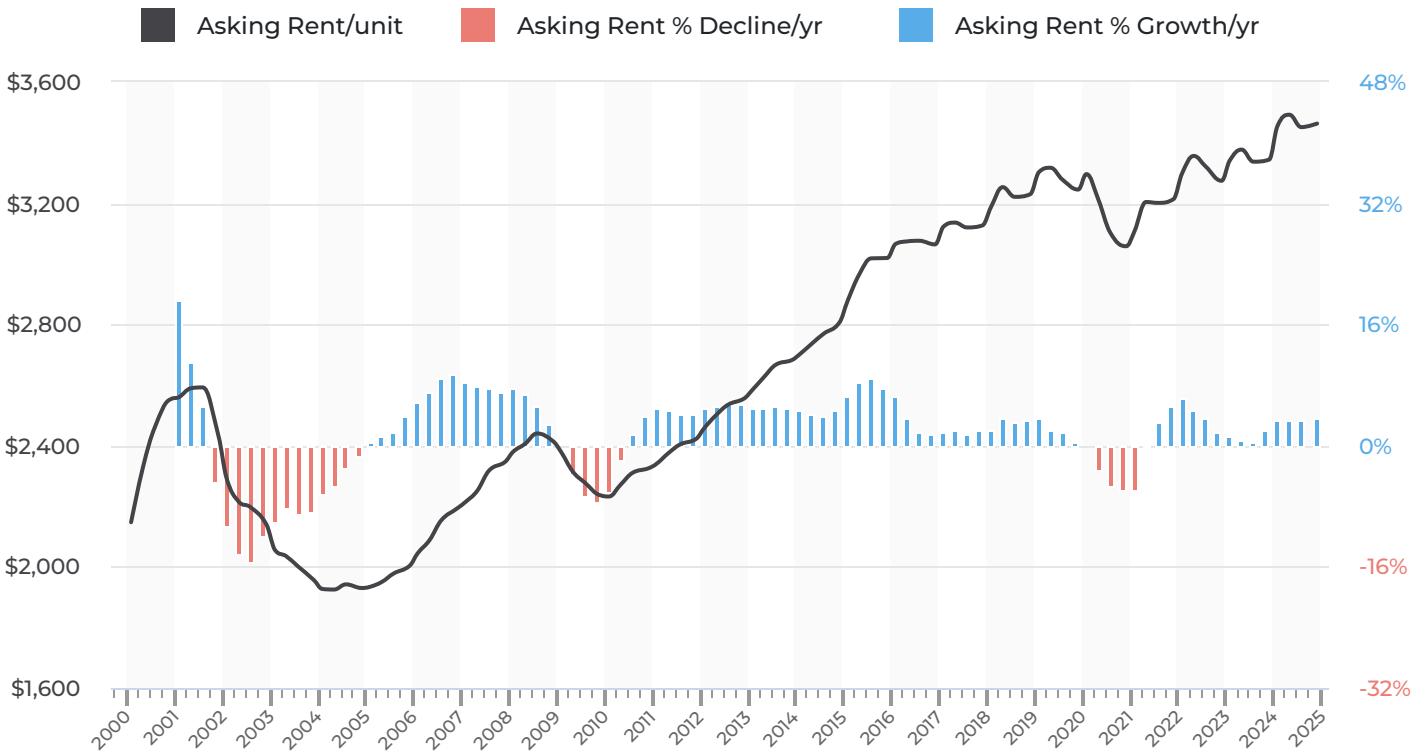
HOUSING FOR PERSONS EXPERIENCING HOMELESSNESS

In 2024 in San Mateo County, there were only **1,551 beds** available in the interim housing supply for persons experiencing homelessness.



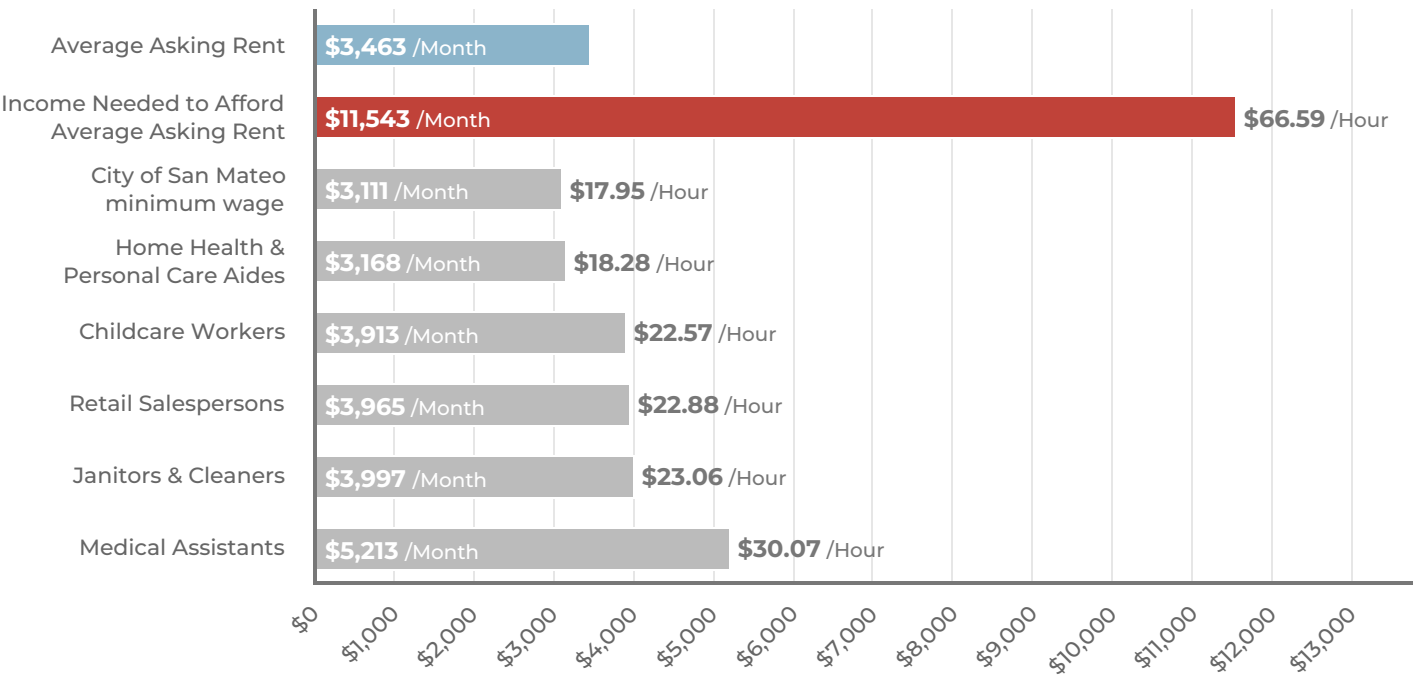
ASKING RENT TRENDS

Asking rents in San Mateo County have **increased by 6.7% (\$218)** between Q4 2019 and Q4 2024.



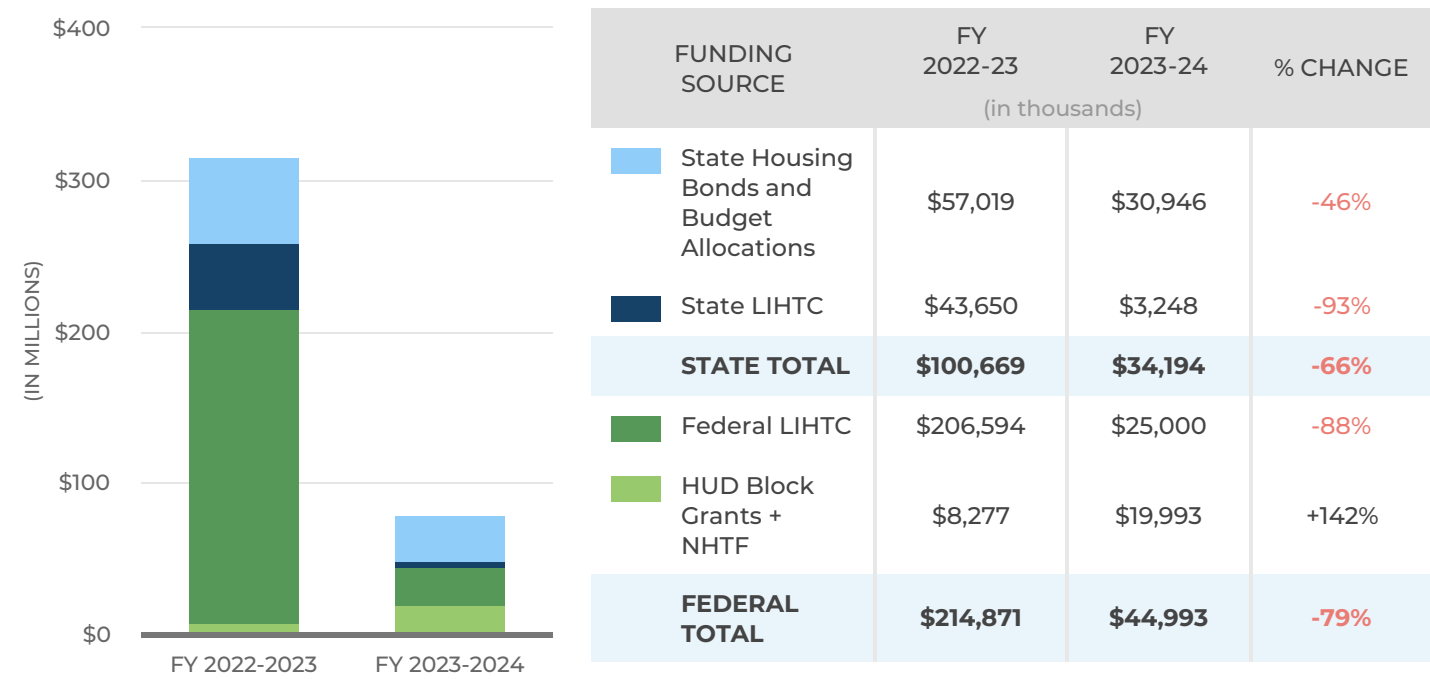
WHO CAN AFFORD TO RENT

Renters need to earn **3.7 times** the minimum wage to afford the average asking rent in San Mateo County.



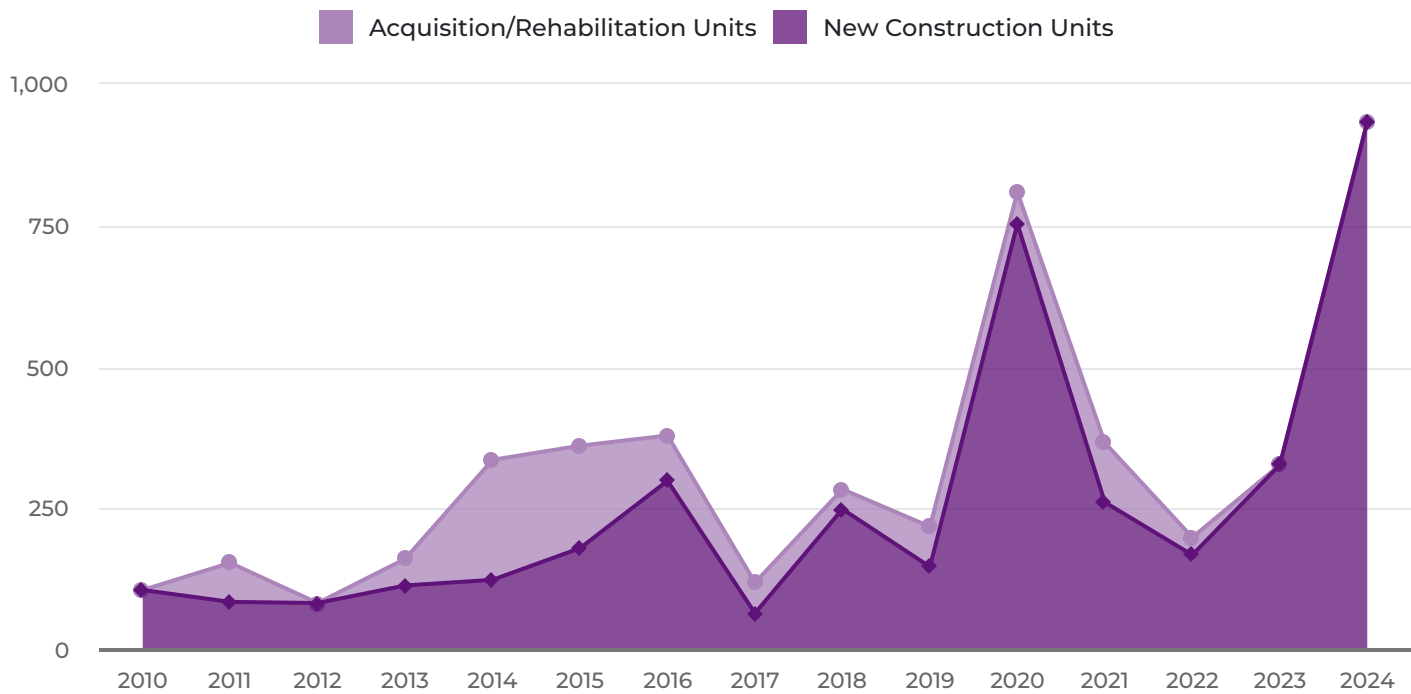
STATE & FEDERAL FUNDING

State and federal funding for housing production and preservation in San Mateo County is \$79 million, a **75% decrease** from the year prior.



LIHTC PRODUCTION AND PRESERVATION

Low-Income Housing Tax Credit production and preservation in San Mateo County **increased by 185%** between 2023 and 2024.



WHAT CAN STATE LEADERS DO TO HELP?

Solving California's affordable housing crisis requires a long-term, comprehensive, evidence-based set of policy solutions at scale, similar to those described in the [Roadmap Home 2030](#).

By pairing clear goals with synergistic policy and system-change strategies that can have an effect over time, the investments made today will bring about the outcomes many Californians have been longing for.



Roadmap Home 2030

The Roadmap provides a bold vision for solving California's affordable housing and homelessness challenges.

Learn more at roadmaphome2030.org

The Partnership supports a robust slate of 2025 legislative priorities on the State Policy page of chpc.net

DATA SOURCES & NOTES

AFFORDABLE RENTAL HOMES

California Housing Partnership analysis of 2022 and 2023 1-year American Community Survey (ACS) Public Use Microdata Sample (PUMS) data with HUD income levels. Methodology was adapted from NLIHC gap methodology.

COST BURDENED HOUSEHOLDS

California Housing Partnership analysis of 2022 and 2023 1-year American Community Survey (ACS) Public Use Microdata Sample (PUMS) data with HUD income levels. Methodology was adapted from NLIHC gap methodology.

*Cost burdened households spend 30% or more of their income towards housing costs. Severely cost burdened households spend more than 50%.

HOUSING FOR PERSONS EXPERIENCING HOMELESSNESS

HUD Point-in-Time (PIT) Housing Inventory Count (HIC) reports, 2013–2024. California Housing Partnership's Preservation Database, March 2025.

ASKING RENT TRENDS

CoStar Group average asking rent for two-bedroom apartments (accessed February 2025).

WHO CAN AFFORD TO RENT

CoStar Group average asking rent for two bedroom as of February 2025. Bureau of Labor Statistics (BLS) Occupational Employment and Wage Statistics (OES) for California Occupations, 2024.

FUNDING FOR HOUSING

California Housing Partnership analysis of HCD Program Awards and Annual Reports, U.S. Department of Housing and Urban Development (HUD) CPD Appropriations Budget Reports, California Housing Finance Agency (CalHFA) Mixed Income Program, California Business, Consumer Services and Housing Agency (BCHS) Program Reports, California Strategic Growth Council (SGC) Affordable Housing Sustainable Communities Program, and federal and state Low-Income Housing Tax Credits (LIHTC).

LIHTC PRODUCTION AND PRESERVATION

California Housing Partnership's Preservation Database, April 2025. Please note that this data does not include manager units or market rate units created through the LIHTC program.

This report was produced by the California Housing Partnership | chpc.net

Lead Researcher: Ray McPherson, Senior Research Associate

ALL CALIFORNIA COUNTIES: chpc.net/publications/housing-need-reports



**California
Housing
Partnership**

*California's Experts on Affordable
Housing Finance, Advocacy & Policy*



GENERAL PLAN POLICIES

UPDATED JANUARY 2013

COUNTY_{OF} **SAN MATEO**
PLANNING AND BUILDING

Policies

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CHAPTER 6: PARK AND RECREATION RESOURCES.....	6.1P
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CHAPTER 12: TRANSPORTATION.....	12.1P
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CHAPTER 15: NATURAL HAZARDS.....	15.1P
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VEGETATIVE, WATER, FISH AND WILDLIFE RESOURCES POLICIES

The County will:

GOALS AND OBJECTIVES

1.1 **Conserve, Enhance, Protect, Maintain and Manage Vegetative, Water, Fish and Wildlife Resources**

Promote the conservation, enhancement, protection, maintenance and managed use of the County's Vegetative, Water, Fish and Wildlife Resources.

1.2 **Protect Sensitive Habitats**

Protect sensitive habitats from reduction in size or degradation of the conditions necessary for their maintenance.

1.3 **Protection and Productive Use of Economically Valuable Vegetative, Water, Fish and Wildlife Resources**

Protect the availability and encourage the productive use of the County's economically valuable vegetative, water, fish and wildlife resources in a manner which minimizes adverse environmental impacts.

1.4 **Access to Vegetative, Water, Fish and Wildlife Resources**

Protect and promote existing rights of public access to vegetative, water, fish and wildlife resources for purposes of study and recreation consistent with the need to protect public rights, rights of private property owners and protection and preservation of such resources.

DEFINITIONS

1.5 **Definition of Vegetative Resources**

Define vegetative resources as plants and plant communities, including timber but excluding agricultural crops.*

* Agricultural crops and additional discussion of timber resources are presented in the Rural Land Use Chapter.

1.6 Definition of Water Resources

Define water resources as all surface water bodies, groundwater bodies and recharge areas, including perennial and intermittent streams.

1.7 Definition of Fish and Wildlife Resources

Define fish and wildlife resources as all non-domesticated animals.

1.8 Definition of Sensitive Habitats

Define a sensitive habitat as any area where the vegetative, water, fish and wildlife resources provide especially valuable and rare plant and animal habitats that can be easily disturbed or degraded. These areas include but are not limited to: (1) habitats containing or supporting rare or unique species; (2) riparian corridors; (3) marine and estuarine habitats; (4) wetlands; (5) sand dunes; (6) wildlife refuges, reserves, and scientific study areas; and (7) important nesting, feeding, breeding or spawning areas.

1.9 Definition of Rare or Unique Species

Define rare or unique species as any plant or animal that is determined to be rare, endangered, threatened, unique to the County and adjacent areas or protected by Federal or State law and State and County EIR guidelines.

1.10 Definition of Riparian Corridors

Define riparian corridors as the vegetative and wildlife areas adjacent to perennial and intermittent streams and other freshwater bodies, such as lakes, ponds, and reservoirs. Delineate these riparian corridors by the "limit of riparian vegetation," i.e., a line determined by the existence of plant species normally found near streams, lakes, and other freshwater bodies.

1.11 Definition of Marine and Estuarine Habitats

Define marine and estuarine habitats as habitats of any marine-dependent plant or animal located in or near the Pacific Ocean or San Francisco Bay, including beaches, offshore reefs, kelp beds, tide pools, sea caves, islets and offshore rocks, sea cliffs, bays and estuaries.

1.12 Definition of Wetlands

Define wetland as an area where the water table is at, near, or above the land surface long enough to bring about the formation of hydric soils or to support the growth of plants which normally grow in water or wet ground. Wetlands include

fresh or salt water marshes, mud flats, brackish, tidal or seasonal wet areas and can occur along the margins of streams, lakes and ponds.

1.13 Definition of Wildlife Refuges, Reserves, and Scientific Study Areas

Define wildlife refuges, reserves, and scientific study areas as those areas designated by public and/or owned by private agencies for the purposes of protecting, maintaining, and studying important vegetative, water, fish and wildlife resources.

1.14 Definition of Buffer Zones

Define Buffer Zones as those areas adjacent to sensitive habitats which are necessary to allow for periodic, seasonal, or ecological changes, including the impacts of climate change, which could affect the boundaries of sensitive habitats.

1.15 Definition of Climate Change

Define climate change as a term to imply a significant change from one climatic condition to another, including natural changes in climate.

1.16 Definition of Productive Uses of Vegetative, Water, Fish and Wildlife Resources

Define productive use as any activity involving the use, removal or alteration of vegetative, water, fish and wildlife resources from their natural environment for human use or economic purposes.

1.17 Definition of Economically Valuable Vegetative, Water, Fish and Wildlife Resources

Define economically valuable vegetative, water, fish and wildlife resources as those resources which are important to the economy because they:

1. Provide income, employment or tax benefits accruing to the landowner or operator;
2. Support experimental or research and development activities which hold future commercial potential;
3. Are essential to the continuance of other economic activity;
4. Are significant components of the scenic quality and uniqueness of San Mateo County which add to the value of property or attract visitors.

1.18 Definition of Incompatible Vegetation, Fish and Wildlife

Define incompatible vegetation, fish and wildlife as any plant, fish, or animal, or concentration of plants or animals which are found to be harmful to the surrounding environment or pose a threat to public health, safety and welfare.

1.19 Definition of Development

Define development as the construction, reconstruction, conversion, relocation or enlargement of any structure; the division of a parcel of land into two or more parcels; any mining, excavation, landfill or land disturbance including grading; and changes in land uses.

DESIGNATIONS

1.20 Designation of Sensitive Habitats

Designate as sensitive habitats those areas which meet the definition of sensitive habitats. Recognize the Sensitive Habitats Map (dated December 1984) or subsequent updates or refinements as indicative of the distribution of sensitive habitats within San Mateo County, based upon the best and most current information available.

GENERAL POLICIES

1.21 Importance of Sensitive Habitats

Consider areas designated as sensitive habitats as a priority resource requiring protection.

1.22 Importance of Economically Valuable Vegetative, Water, Fish and Wildlife Resources

Consider Vegetative, Water, Fish and Wildlife Resources which are economically valuable as a priority resource to be enhanced, utilized, managed and maintained for the needs of present and future generations.

REGULATION OF DEVELOPMENT

1.23 Regulate Development to Protect Vegetative, Water, Fish and Wildlife Resources

- a. Regulate land uses and development activities to prevent, and if infeasible mitigate to the extent possible, significant adverse impacts on vegetative, water, fish and wildlife resources.

- b. Place a priority on the managed use and protection of vegetative, water, fish and wildlife resources in rural areas of the County.

1.24 Regulate Location, Density and Design of Development to Protect Vegetative, Water, Fish and Wildlife Resources

Regulate the location, density and design of development to minimize significant adverse impacts and encourage enhancement of vegetative, water, fish and wildlife resources.

RESOURCE PROTECTION

1.25 Protect Vegetative Resources

Ensure that development will: (1) minimize the removal of vegetative resources and/or; (2) protect vegetation which enhances microclimate, stabilizes slopes or reduces surface water runoff, erosion or sedimentation; and/or (3) protect historic and scenic trees.

1.26 Protect Water Resources

Ensure that development will: (1) minimize the alteration of natural water bodies, (2) maintain adequate stream flows and water quality for vegetative, fish and wildlife habitats; (3) maintain and improve, if possible, the quality of groundwater basins and recharge areas; and (4) prevent to the greatest extent possible the depletion of groundwater resources.

1.27 Protect Fish and Wildlife Resources

Ensure that development will minimize the disruption of fish and wildlife and their habitats.

SENSITIVE HABITATS

1.28 Regulate Development to Protect Sensitive Habitats

Regulate land uses and development activities within and adjacent to sensitive habitats in order to protect critical vegetative, water, fish and wildlife resources; protect rare, endangered, and unique plants and animals from reduction in their range or degradation of their environment; and protect and maintain the biological productivity of important plant and animal habitats.

1.29 Establish Buffer Zones

- a. Establish necessary buffer zones adjacent to sensitive habitats which include areas that directly affect the natural conditions in the habitats and

areas expected to experience changing vulnerabilities due to impacts of climate change.

- b. As part of Countywide efforts to foster resilience and adapt to impacts of climate changes, establish wildlife corridors in appropriate locations to maintain a functional network of connected wildlands, to support native biodiversity, and to encourage movement of wildlife species.

1.30 Uses Permitted in Sensitive Habitats

Within sensitive habitats, permit only those land uses and development activities that are compatible with the protection of sensitive habitats, such as fish and wildlife management activities, nature education and research, trails and scenic overlooks and, at a minimum level, necessary public service and private infrastructure.

1.31 Uses Permitted in Buffer Zones

Within buffer zones adjacent to sensitive habitats, permit the following land uses and development activities: (1) land uses and activities which are compatible with the protection of sensitive habitats, such as fish and wildlife management activities, nature education and research, trails and scenic overlooks, and at a minimum level, necessary public and private infrastructure; (2) land uses which are compatible with the surrounding land uses and will mitigate their impact by enhancing or replacing sensitive habitats; and (3) if no feasible alternative exists, land uses which are compatible with the surrounding land uses.

1.32 Regulate the Location, Siting and Design of Development in Sensitive Habitats

Regulate the location, siting and design of development in sensitive habitats and buffer zones to minimize to the greatest extent possible adverse impacts, and enhance positive impacts.

1.33 Performance Criteria and Development Standards

Establish performance criteria and development standards for development permitted within sensitive habitats and buffer zones, to prevent and if infeasible mitigate to the extent possible significant negative impacts, and to enhance positive impacts.

PRODUCTIVE USES

1.34 Regulate Productive Uses of Vegetative, Water, Fish and Wildlife Resources

Regulate resource productive uses which are subject to local control in order to prevent and if infeasible mitigate to the extent possible significant adverse

impacts on vegetative, water, fish and wildlife resources and to maintain and enhance the (1) productivity of forests and other vegetative resources; (2) productive capacity and quality of groundwater basins and recharge areas, streams, reservoirs, and other water bodies; (3) productivity of fisheries and other fish and wildlife resources; and (4) the recreational value and aesthetic value of these areas.

1.35 Protect Productive Uses of Vegetative, Water, Fish and Wildlife Resources

Regulate development in order to protect and promote the managed use of vegetative, water, fish and wildlife resources.

1.36 Protect the Productive Use of Timber Resources

Ensure that land uses and development within timber harvesting areas will not significantly detract from or inhibit the use of the property for the growing and harvesting of timber.

1.37 Protect the Productive Use of Water Resources

Ensure that land uses and development on or near water resources will not impair the quality or productive capacity of these resources.

1.38 Encourage Aquaculture

Encourage the development of aquacultural uses in a manner which minimizes adverse environmental impacts on surrounding vegetative, water, fish and wildlife resources and sensitive habitats.

CONTROL OF INCOMPATIBLE VEGETATIVE, FISH AND WILDLIFE RESOURCES

1.39 Control Incompatible Vegetation, Fish and Wildlife

Encourage and support the control of vegetation, fish and wildlife resources which are harmful to the surrounding environment or pose a threat to public health, safety and welfare.

1.40 Minimize Adverse Impacts of Programs Controlling Incompatible Vegetation, and Fish and Wildlife

Minimize the negative impacts and risks of programs controlling incompatible vegetation, fish and wildlife.

RESOURCE MANAGEMENT COORDINATION

1.41 Encourage Coordinated, Countywide Management of Vegetative, Water, Fish and Wildlife Resources

Encourage all Federal, State, regional, County, and city agencies with jurisdiction in San Mateo County to cooperate and coordinate the management and protection of vegetative, water, fish and wildlife resources.

ACQUISITION AND MANAGEMENT OF SENSITIVE HABITATS

1.42 Encourage Public Agencies and Private Groups to Acquire Significant Sensitive Habitats

Encourage public agencies and private groups to acquire and manage significant sensitive habitats because of the (1) biological and scientific significance of the habitat, (2) degree of endangerment from development or other activities, and (3) accessibility for educational and scientific uses and vulnerability to overuse.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

1.43 Develop a Sensitive Habitat Information Base

Develop and maintain clear, detailed and comprehensive maps and other information identifying sensitive habitats in the unincorporated area of San Mateo County.

1.44 Develop Standard Mitigation Measures

Develop mitigation measures which could be the basis for measures recommended to protect sensitive habitats, vegetative, water, fish and wildlife resources and their productive uses from development activities in the County.

1.45 Improvement of Damaged Resources

Encourage programs which repair and/or enhance damaged vegetative, water, fish and wildlife resources and sensitive habitats, with the goal of returning them to their natural condition.

1.46 Consolidate Regulations Protecting Sensitive Habitats in Rural Areas

- a. Consolidate existing performance criteria and development standards to regulate all development in sensitive habitats in rural areas.

- b. Consider using the consolidated regulations as an overlay zoning district.

1.47 Develop Performance Criteria and Development Standards for Sensitive Habitats in Urban Areas

- a. Develop a set of performance criteria and development standards to protect sensitive habitats in urban areas.
- b. Consider using the regulations as an overlay zoning district.

1.48 Develop Guidelines for Vegetation and Debris Control in Riparian Corridors

Develop guidelines for vegetation and debris control in riparian corridors. Such guidelines should set forth clear direction on procedures to: (1) facilitate the abatement of avoidable flood hazards and (2) minimize adverse impacts on riparian communities.

1.49 Encourage the Management of Riparian Corridors

Encourage and, to the maximum extent feasible, reward the efforts of those responsible for managing riparian corridors in a manner that is consistent with County and State guidelines.

ROLE OF OTHER PUBLIC AGENCIES

1.50 Support Resource Management Efforts of Other Agencies

Recognize, encourage and cooperate with the efforts of public agencies and private groups which are consistent with the goals, objectives and policies of this chapter.

1.51 Develop Programs to Adapt to the Impacts of Climate Change

- a. Integrate advances in research of the impact of climate change into the assessment of vulnerabilities of sensitive species, sensitive habitats, and vegetative, fish, and wildlife resources.
- b. Protect sensitive habitats and resources from the impacts of climate change.
- c. Coordinate with other local, State, and national agencies to understand and respond to new, exacerbated, or changing vulnerabilities that result from the impacts of climate change.

SOIL RESOURCES POLICIES

The County will:

GOALS AND OBJECTIVES

2.1 Protect and Preserve Soil as a Resource

Protect and preserve the availability and quality of soil as a resource for its ability to sustain healthy plant, animal, and human life within San Mateo County.

2.2 Minimize Soil Erosion

Minimize soil erosion through application of appropriate conservation practices.

2.3 Prevention of Soil Contamination

Prevent soil contamination through the appropriate use, storage, and disposal of toxic substances.

2.4 Protection of Productive Soil Resources

Protect productive soil resources from abuse, misuse, and degradation.

2.5 Minimize Depletion of Productive Soil Resources in Agricultural Areas

Minimize depletion of productive soil resources in agricultural areas through application of appropriate management practices.

DEFINITIONS

2.6 Definition of Productive Soil Resources

Define productive soil resources as soils in rural areas capable of feasible or economic agricultural and timber production.

2.7 Definition of Soils with Agricultural Capability

As designated on the Productive Soils Resources Map, define productive soils with agricultural capability as including, but not limited to:

- a. Soils with the best combination of physical and chemical features for the production of agricultural crops, or

- b. Soils which have a good combination of natural, physical, and chemical characteristics for producing agricultural products,¹ and for which a dependable source of irrigation water is available, or
- c. Soils that are of statewide importance for the production of food, feed, fiber, forage and oilseed crops, or
- d. Soils other than identified in subsection c that are used for the production of specific high value food and fiber crops, or
- e. Soils that have been identified as having local importance for agriculture by the County with the assistance of the Agricultural Advisory Committee, or
- f. Soils which are or recently have been in agricultural production, or
- g. Soils which support vegetation, whether grown naturally or managed, feasible for grazing or browsing of livestock.

2.8 Definition of Productive Soils With Timber Capability

Define productive soils with timber capability as including, but not limited to:

- a. Soils which have a combination of physical and chemical characteristics necessary for productive timber growth.
- b. Soils which are supporting productive timber growth.

2.9 Definition of Soil Erosion

Define soil erosion as the process by which soil is detached and transported by running water, wind, and gravity. Include naturally occurring soil erosion, and that accelerated by human activity.

2.10 Definition of Soil Contamination

Define soil contamination as the addition of chemical or other degrading substances to soil such that the soil becomes toxic or injurious to plant or animal life.

¹ As determined by the State Department of Conservation--Advisory Guidelines for the Farmland Monitoring Program (Sections 201.1, 202.1) April, 1984.

2.11 Definition of Protective Use of Productive Soil

Define protective use of productive soil as any activity which preserves, renews, and sustains the ability of the soil to support plant and animal life.

2.12 Definition of Good Soil Conservation Techniques

Define good soil conservation techniques as any activity which preserves, renews and sustains the ability of the soil to support plant and animal life; including, but not limited to, public or private land in a natural condition, and properly managed agriculture and forestry.

2.13 Definition of Nonprotective Use of Productive Soil

Define nonprotective use of productive soil as any activity which eliminates, depletes, or significantly alters the availability and capacity of soil to support plant and animal life.

2.14 Definition of Improper Soil Conservation Techniques

Define improper soil conservation techniques as any activity which significantly alters the availability and capacity of soil to support plant and animal life.

2.15 Definition of Soil Conversion

Define soil conversion as the process of (a) transforming productive soil from a protective use to a nonprotective use, or (b) shifting from good soil conversion techniques to poor soil conversion techniques.

DESIGNATIONS

2.16 Designation of Productive Soil Resources

Recognize the Productive Soil Resources Map (dated December 1984), and subsequent updates, as representative of the distribution of productive soil resources within San Mateo County, based upon the best and most current information available.

REGULATION OF DEVELOPMENT

2.17 Regulate Development to Minimize Soil Erosion and Sedimentation

Regulate development to minimize soil erosion and sedimentation; including, but not limited to, measures which consider the effects of slope, minimize removal of vegetative cover, ensure stabilization of disturbed areas and protect

and enhance natural plant communities and nesting and feeding areas of fish and wildlife.

2.18 Encouragement of Soil Protective Uses

Encourage the continuance and expansion of soil protective uses in rural areas, specifically agriculture and forestry, for their ability to protect soil as an available resource, as well as produce beneficial food, fiber, and decorative crops.

2.19 Preferred Uses in Areas With Productive Soil Resources

Give preference to soil protective land uses in areas with productive soil resources. Allow other land uses which are compatible with soil protective uses and which minimally impact the continued availability and productivity of productive soil resources.

2.20 Regulate Location and Design of Development in Areas With Productive Soil Resources

Regulate location and design of development in a manner which is most protective of productive soil resources, including, but not limited to, measures which require clustering of structures.

2.21 Protect Productive Soil Resources Against Soil Conversion

Regulate land use and subdivision of productive soil resources and encourage appropriate management practices to protect against soil conversion. Regulations should place priorities according to the relative productive characteristics of the resource.

2.22 Regulate Forestry Operations Against Accelerated Soil Erosion

Regulate forestry operations to protect against accelerated soil erosion and sedimentation through measures which include construction of water breaks, slope stabilization, restricted seasonal operation, and streamside protection.

2.23 Regulate Excavation, Grading, Filling, and Land Clearing Activities Against Accelerated Soil Erosion

Regulate excavation, grading, filling, and land clearing activities to protect against accelerated soil erosion and sedimentation.

2.24 Regulate Surface Mining Operations Against Accelerated Soil Erosion

Regulate surface mining operations to protect against accelerated soil erosion and sedimentation through measures which ensure siltation control and site reclamation.

2.25 Regulate Topsoil Removal Operations Against Accelerated Soil Erosion

Regulate topsoil removal operations to protect against accelerated soil erosion and sedimentation through measures which ensure slope stabilization and surface drainage control.

2.26 Regulate Oil and Gas Well Operations Against Accelerated Soil Erosion

Regulate oil and gas well operations to protect against accelerated soil erosion and sedimentation through measures which include establishment of streamside buffer strips, construction of water breaks, roadside berms, and site revegetation.

2.27 Regulate Development and Agriculture Against Soil Contamination

Regulate development and agriculture to protect against soil contamination through measures which ensure proper use, storage, and disposal of toxic chemicals and pesticides.

2.28 Regulate Agricultural Activities Against Soil Depletion in Agricultural Areas

Regulate agricultural activities to minimize against soil depletion.

RESOURCE MAINTENANCE

2.29 Promote and Support Soil Erosion Stabilization and Repair Efforts

Promote and support efforts aimed at stabilization of ongoing soil erosion and repair of erosion caused land scars.

2.30 Emergency Creekside Erosion Control

Assure timely implementation of emergency creekside erosion control activities.

2.31 Support and Reward Soil Improvement Efforts

Support and, to the maximum extent feasible, reward the efforts of individuals who have voluntarily enhanced soil productivity and nutrient level.

PROGRAM RESPONSIBILITIES

ROLE OF OTHER AGENCIES

2.32 Support Soil Protection Efforts of Other Agencies

Recognize, encourage and cooperate with the efforts of public agencies and private groups which are consistent with the goals, objectives and policies of this chapter.

MINERAL RESOURCES POLICIES

The County will:

GOALS AND OBJECTIVES

3.1 Mineral Resource Identification, Protection and Extraction

Identify Significant Mineral Resource Areas, protect the availability of mineral resources located within these areas and encourage their extraction in a manner which minimizes adverse environmental impacts.

3.2 Protection of Significant Mineral Resource Areas

Protect Significant Mineral Resource Areas from encroachment by incompatible land uses.

3.3 Prevention of Environmental Impacts

Minimize the impact of mineral extraction activities on the surrounding natural and built environment through the application of appropriate management practices including, but not limited to, minimizing surface disturbance, air pollution, water pollution, noise pollution, vibration, and traffic impacts.

3.4 Reclamation of Mineral Extraction Areas

Plan for the rehabilitation and reuse of mineral extraction areas.

DEFINITIONS

3.5 Definition of Significant Mineral Resource Areas

Define Significant Mineral Resource Areas as lands in rural areas containing minerals capable of being extracted for commercial use, including, but not limited to:

- a. Lands on which minerals are being extracted for commercial use.
- b. Lands classified as Mineral Resource Zone 2 (MRZ-2) by the State Geologist, and designated by the State Mining and Geology Board as containing mineral deposits of regional or statewide significance.

3.6 Definition of Buffer Lands

Define buffer lands as lands which are used to protect public safety by providing sufficient distance and screening between mineral extraction activities and incompatible land uses.

DESIGNATIONS

3.7 Designation of Significant Mineral Resource Areas

Designate Significant Mineral Resource Areas as those meeting the definition in Policy 3.5, including, but not limited to, those areas shown as Significant Mineral Resource Areas on the Mineral Resources Map.

REGULATION OF DEVELOPMENT

3.8 Identify and Protect Significant Mineral Resource Areas from Incompatible Land Uses

Identify and protect Significant Mineral Resource Areas from preclusive and incompatible land uses both within and adjacent to the site to insure that mineral resources continue to be available as needed.

3.9 Permitted Uses Within Significant Mineral Resource Areas

Regulate development within Significant Mineral Resource Areas permitting only those land uses which are compatible with existing or potential mineral resource extraction operations.

3.10 Permitted Uses Adjacent to Significant Mineral Resource Areas

Regulate development adjacent to Significant Mineral Resource Areas (within the impact area) permitting only those land uses which are compatible with mineral extraction activities and other land uses which protect public safety.

3.11 Encourage the Extraction of Minerals Located Within Significant Mineral Resource Areas

Encourage the extraction of minerals located within Significant Mineral Resource Areas provided the mineral resource extraction would not be in serious conflict with existing land uses, land uses proposed in the General Plan and area plans, and sensitive habitats.

3.12 Extraction of Minerals Located Outside of Significant Mineral Resource Areas

Allow the extraction of minerals located outside of Significant Mineral Resource Areas provided the mineral resource extraction would not be in serious conflict with existing land uses, land uses proposed in the General Plan and area plans, and sensitive habitats.

3.13 Locating New Quarries

Allow new quarries to be located in areas where the resulting impacts, including, but not limited to, those on visual quality, noise levels (both absolute and relative to ambient noise levels), air quality and traffic can be mitigated to levels compatible with existing land uses, land uses proposed in the General Plan and area plans, and sensitive habitats.

3.14 Establishing Buffer Lands Adjacent to Quarry Operations

Establish buffer lands adjacent to existing and new quarry operations to protect them from incompatible land uses and to assure that existing land uses, particularly residential uses, are protected from the negative impacts resulting from the extraction operation.

3.15 Regulation of Quarrying and Dredging Operations

Regulate the quarrying for crushed and broken stone or limestone and the dredging for shells to encourage the development of these resources and to protect the environment, including, but not limited to, minimizing air pollution, impedance of groundwater movement and water quality degradation, damage to wildlife habitats, flooding, erosion, degradation of scenic quality, noise pollution, and traffic impacts.

3.16 Regulation of Onshore Oil and Gas Operations

Regulate onshore oil and gas operations, including, but not limited to, the regulation of the exploration, production, removal, storage and transportation of oil and gas and other incidental operations in a manner which encourages the development of onshore oil and gas resources and protects natural resources, freshwater sources and agriculture.

3.17 Amending Onshore Oil and Gas Well Regulations

Prior to amending County regulations governing onshore oil and gas development, consider both the costs to the applicant to meet the proposed new or revised requirements and the environmental and land use benefits.

3.18 Compatibility of Onshore Oil and Gas Development with the Productive Use of Surface Resources

Permit the extraction of onshore oil and gas on lands designated for the productive use of surface resources such as agriculture and timber harvesting provided that the overall productivity of the surface resource is not significantly diminished and feasible alternative extraction sites are not available.

3.19 Protection of Natural Resources

Regulate land uses and require environmental review of extraction operations in a manner which fosters protection of natural resources.

3.20 Onshore Facilities for Offshore Oil Development

Prohibit onshore facilities for offshore oil development.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

3.21 Update Significant Mineral Resources Map

Periodically update the map identifying Significant Mineral Resource Areas in San Mateo County as new information is made available by the State Geologist, State Board of Mining and Geology, or other sources.

3.22 Opposition to the Development of Offshore Oil Resources Which Could Affect San Mateo County

Advise State and Federal agencies on the County's objections to the development of offshore oil resources.

3.23 Implementation of Reclamation Plans

At the time quarrying operations are terminated, develop and implement land use designations which are consistent with quarry reclamation plans.

VISUAL QUALITY POLICIES

The County will:

GOALS AND OBJECTIVES

4.1 Protection of Visual Quality

- a. Protect and enhance the natural visual quality of San Mateo County.
- b. Encourage positive visual quality for all development and minimize adverse visual impacts.
- c. Encourage citizen awareness and interest in San Mateo County's scenic resources.

4.2 Protection of Shorelines

- a. Protect and enhance the visual quality of and from shorelines of bodies of water including lakes, reservoirs, streams, bays, ocean, sloughs.
- b. Maximize the preservation of significant public ocean views.

4.3 Protection of Vegetation

Minimize the removal of visually significant trees and vegetation to accommodate structural development.

4.4 Appearance of Rural and Urban Development

Promote aesthetically pleasing development in rural and urban areas.

DEFINITIONS

4.5 Definition of Development

Define development as the construction, reconstruction, conversion, relocation or enlargement of any structure; the division of a parcel of land into two or more parcels; any mining, excavation, landfill or land disturbance; and changes in land uses.

4.6 Definition of Structure

Define a structure as anything constructed for use or occupancy whether constructed or erected on, above, or below the surface of land or water. This

does not include roads, paved areas or temporary structures. Temporary structures are without a foundation or footings and can be removed when the designated time or use for which the structure was erected has ceased.

4.7 Definition of Ridgelines and Skylines

- a. Define ridgelines as the tops of hills or hillocks normally viewed against a background of other hills.
- b. Define skylines as the line where sky and land masses meet.

4.8 Definition of Visual Resources

Define visual resources as those attractive visible elements of the natural and developed landscape, such as landforms, vegetative forms, water bodies, structures and communities.

4.9 Definition of Visual Quality

Define visual quality as the visual attributes of natural landscapes, structures and communities.

4.10 Definition of Public View

Define public view as a range of vision from a public road or other public facility.

4.11 Definition of Scenic Road

Define a scenic road as a designated travel route providing outstanding views of natural landscapes and attractive man-made development.

4.12 Definition of Scenic Corridors

Define a scenic corridor as land adjacent to a scenic road right-of-way which, when seen from the road, provides outstanding views of natural landscapes and attractive man-made development.

4.13 Definition of Distributed Energy Resources

Define distributed energy resources as small, modular energy generation and storage technologies that provide electric capacity or energy located on-site or close to where it is needed, whether connected to the local electric power grid or isolated in stand-alone applications. These systems generally produce less than 10 megawatts (MW) of power and include wind turbines, photovoltaics (PV), fuel cells, microturbines, and energy storage systems.

GENERAL POLICIES

4.14 Public Education

Encourage private citizen awareness and interest in protecting the visual quality of the County through educational programs.

4.15 Appearance of New Development

- a. Regulate development to promote and enhance good design, site relationships and other aesthetic considerations.
- b. Regulate land divisions to promote visually attractive development.

4.16 Supplemental Design Guidelines for Communities

Encourage the preparation of supplemental site and architectural design guidelines for communities that include, but are not limited to, criteria that reflect local conditions, characteristics and design objectives and are flexible enough to allow individual creativity.

4.17 Protections for Coastal Features

Regulate coastal development to protect and enhance natural landscape features and visual quality through measures that ensure the basic integrity of sand dunes, cliffs, bluffs and wetlands.

4.18 Oil and Gas Well Operations

Regulate the appearance of oil and gas well operations to protect against damaging visual quality through measures which limit the size of the pad and require equipment to be screened, painted and limited in height. To the greatest extent practicable, require revegetation and restoration.

4.19 Surface Mining Operations

Regulate surface mining operations to protect visual quality through measures requiring revegetation and restoration, to the extent practicable.

4.20 Large Agricultural Structures

Use appropriate landscaping wherever necessary and feasible to mitigate the negative impacts of large agricultural structures (i.e., greenhouses, storage buildings, etc.) from public view.

4.21 Utility Structures

Minimize the adverse visual quality of utility structures, including roads, roadway and building signs, overhead wires, utility poles, T.V. antennae, distributed energy resources, solar water heaters, and satellite dishes.

4.22 Scenic Corridors

Protect and enhance the visual quality of scenic corridors by managing the location and appearance of structural development.

4.23 Forest Lands

Protect the basic scenic character of forest lands by promoting the regulation of thinning and commercial harvesting.

RURAL AREAS

4.24 Rural Development Design Concept

Regulate the location and siting of structures in rural areas to encourage positive visual quality in relation to the scenic character of the natural landscape.

RURAL SITE PLANNING

4.25 Location of Structures

- a. Locate, site and design all structures and paved areas to carefully conform with the natural vegetation, landforms and topography of the site so that their presence is compatible with the pre-existing character of the site.
- b. Locate and design future structures to minimize the impacts of noise, light, glare and odors on adjacent properties and roads.
- c. Locate structures adjacent to or in forested areas rather than in open grasslands, wherever possible and make compatible with timber harvesting activities and use of solar energy.

4.26 Earthwork Operations

- a. Keep grading or earth-moving operations to a minimum.
- b. Where grading is necessary, make graded areas blend with adjacent landforms through the use of contour grading rather than harsh cutting or terracing of the site.

4.27 Water Bodies

- a. Allow for the development of approved dams and impoundments and stream clearance operations.
- b. Discourage structures which would adversely impact the appearance of a stream and associated riparian habitat.
- c. Discourage the alteration of streams and other natural drainage systems which would affect their appearance, reduce underground water recharge, or cause drainage, erosion or flooding problems.

4.28 Ridgelines and Skyline

- a. Discourage structures on open ridgelines and skylines, when seen as part of a public view in order to preserve visual integrity.
- b. Allow structures on open ridgelines and skylines as part of a public view when no alternative building site exists.
- c. Require structures on ridgelines in forested areas, which are part of a public view to: (1) blend with the existing silhouette; (2) not break or cause gaps within the ridgeline silhouette by removing tree masses; and (3) relate to the ridgeline form.
- d. Define public view as a range of vision from a public road or other public facility.

4.29 Trees and Vegetation

- a. Preserve trees and natural vegetation except where removal is required for approved development or safety.
- b. Replace vegetation and trees removed during construction wherever possible. Use native plant materials or vegetation compatible with the surrounding vegetation, climate, soil, ecological characteristics of the region and acceptable to the California Department of Forestry.
- c. Provide special protection to large and native trees.

4.30 Landscaping and Screening

- a. Provide a smooth transition between development and adjacent forested or open space areas through the use of landscaping.

- b. Limit landscaping in open grasslands to areas immediately surrounding structures.
- c. Where it is appropriate to screen uses from view, use natural vegetation rather than solid fencing.

4.31 Public Utilities

Encourage the placement of new and existing public utility lines underground.

4.32 Roads

Locate and develop roads which are integrated well with the physical environment.

4.33 Rural Design Review District

Regulate the site planning of all development in rural areas by using a consolidated set of design standards.

RURAL SERVICE CENTERS AND SUBDIVISIONS

4.34 Rural Service Centers Design Concept

Ensure that future development in rural service centers occurs in an orderly and harmonious fashion which is compatible with established architectural character, design standards, and character of the surrounding natural environment.

4.35 Rural Subdivisions Design Concept

Encourage new development in rural subdivisions to be compatible with established architectural styles and patterns of development present in adjacent older structures and to respect the character of the surrounding natural landscape.

URBAN AREAS

4.36 Urban Area Design Concept

- a. Maintain and, where possible, improve upon the appearance and visual character of development in urban areas.
- b. Ensure that new development in urban areas is designed and constructed to contribute to the orderly and harmonious development of the locality.

4.37 Improving Visual Quality in Urban Areas

Conduct special studies in unincorporated urban areas to identify and mitigate design problems in commercial and mixed density residential areas.

URBAN DEVELOPMENT DESIGN REGULATIONS

4.38 Urban Design Review District

Develop design review regulations which incorporate guidelines on managing design problems found in predominantly urban areas.

4.39 Commercial Signs and Outdoor Advertisements

Regulate commercial signs and outdoor advertising by using a consolidated set of standards.

SCENIC ROADS AND CORRIDORS

4.40 Scenic Roads

Give special recognition and protection to travel routes in rural and unincorporated urban areas which provide outstanding views of scenic vistas, natural landscape features, historical sites and attractive urban development.

4.41 Coordination of Scenic Roadway Standards and Design

Coordinate standards of roadway and right-of-way design, improvements, and maintenance with cities in order to maintain a consistent approach in applying scenic conservation standards.

4.42 Role of the Cities in Urban Scenic Corridor Regulation

Encourage cities to give special recognition and regulation to development in designated scenic corridors within their jurisdiction in order to support and supplement the City, County and State network of scenic roads.

4.43 Criteria for Scenic Road Designation

- a. Select a variety of road types irrespective of their traffic functions, as long as the visual quality afforded justifies the selection.
- b. Select roads in rural areas representative of the variety and quality of scenery available in the County such as those which provide views of unusual natural landforms (i.e., exposed rock faces, sea cliffs, steep noticeable slopes, etc.), unique vegetative communities (i.e., large plants

or trees, unusually large groups of plants, heritage trees), the coastline, streams, natural and man-made bodies of water, waterfalls, vista points, structures of architectural interest and open space areas where agricultural operations may be viewed.

- c. Select roads in urban areas which display attractive urban development (i.e., State and County historical sites, singular and multiple structures of architectural interest, engineering constructs, and other archaeological, historical, or cultural sites), and provide views of natural scenery in an urban setting.
- d. Consider routes which provide access to and connect public recreation areas and places of historic and cultural interest.

4.44 Road Design and Construction

- a. Require the design and construction of new roads and road improvements to be sensitive to the visual qualities and character of the scenic corridor. This includes width, alignment, grade, slope, grading, and drainage facilities.
- b. Encourage the construction and maintenance of scenic turnouts, selective clearing of vegetation to open new vistas, development of picnic and rest areas at selected locations along the scenic road system.

4.45 Designation of Scenic Roads and Corridors

- a. Designate those State and County travel routes listed in Table 4.6 as Scenic Roads.
- b. Designate those portions of land shown on the Map of Scenic Corridors abutting either side of select rural travel routes as Scenic Corridors.

4.46 Scenic Corridor Definition Program

- a. Develop a program to define consistent temporary scenic corridors on either side of the road right-of-way, until a permanent corridor is defined for select travel routes outside the Coastal Zone.
- b. Develop a program for defining permanent scenic corridors using the designation procedure outlined in the Appendix as a guide.

TABLE 4.6

DESIGNATED STATE AND COUNTY SCENIC ROADS

State Designated Routes

- | | |
|------------------------|--|
| Cabrillo Highway | - State Route No. 1 (from southern limits of the City of Half Moon Bay to Santa Cruz County) |
| Junipero Serra Freeway | - Interstate Route No. 280 (from Millbrae to Santa Clara County) |
| Skyline Boulevard | - State Route No. 35 (from State Route No. 92 to Santa Clara County) |

County Designated Routes

- | | |
|--------------------------|---|
| Alameda de las Pulgas | - (from Woodside Road to Crystal Springs Road) |
| Alpine Road | - (from Alameda de las Pulgas to Portola Road and from Skyline Boulevard to Pescadero Road) |
| Cabrillo Highway | - (from Junipero Serra Freeway to northern limits of the City of Half Moon Bay) |
| Canada Road | |
| Canyon Road | - (from Skyline Boulevard to Easton Drive) |
| Cloverdale Road | |
| Crystal Springs Road | |
| John Daly Boulevard | |
| Junipero Serra Freeway | - (from San Francisco to San Bruno) |
| Easton Drive | - (from Canyon Road to El Camino Real) |
| Edgewood Road | - (from Alameda de las Pulgas to Canada Road) |
| El Camino Real | - (from Easton Drive to Crystal Springs Road) |
| Gazos Creek Road | - (from Cabrillo Highway to Cloverdale Road) |
| Guadalupe Canyon Parkway | |
| Half Moon Bay Road | - State Route No. 92 |
-

TABLE 4.6 (continued)

DESIGNATED STATE AND COUNTY SCENIC ROADS

Higgins-Purissima Road

Kings Mountain Road

La Honda Road - State Route No. 84

Pescadero Road

Polhemus Road

Portola Road

Portola State Park Road

Purissima Creek Road

Ralston Avenue - (from Alameda de las Pulgas to J. Arthur Younger Freeway)

Sand Hill Road

Sharp Park Road

Skyline Boulevard - (from San Francisco to Half Moon Bay Road)

Stage Road

Tunitas Creek Road

Westborough Boulevard - (from Skyline Boulevard to Junipero Serra Freeway)

Woodside Road - State Route No. 84 (from Alameda de las Pulgas to La Honda Road)

J. Arthur Younger Freeway - State Route No. 92

4.47 Regulation of Development in Scenic Corridors

Institute special controls to regulate both site and architectural design of structures located within rural scenic corridors in order to protect and enhance the visual quality of select rural landscapes.

ARCHITECTURAL DESIGN STANDARDS FOR RURAL SCENIC CORRIDORS

4.48 Topography and Vegetation

Design structures which conform to the natural topography and blend rather than conflict with the natural vegetation.

4.49 Scale

Design structures which are compatible in size and scale with their building site and surrounding environment, including adjacent man-made or natural features.

4.50 Lot Coverage

Limit lot coverage for parcels five acres or less in size in rural areas.

4.51 Stack, Vents and Antennae

Group stacks, vents, antennae, satellite dishes and other equipment together, to the extent feasible, and place them in the least viewable location. Where appropriate, screen antennae and satellite dishes from view.

4.52 Colors and Materials

Depending on the design problems of the site, use colors and materials which: (1) blend with or complement the surrounding natural environment, (2) do not dominate or overpower the site, (3) are compatible with the size, scale, and architectural style of the structure, and (4) with the exception of greenhouses, are not highly reflective.

4.53 Height

- a. Limit the height of structures or appurtenances in forested areas so as not to exceed the height of the forest canopy.
- b. Limit the height of structures in grassland areas in order to maintain a low horizontal profile.
- c. Allow distributed energy resources, and chimneys to extend beyond these height limits where required for safety or efficient operation.

4.54 Accessory Structures

Design accessory structures to be:

- a. Architecturally compatible with main structures; and
- b. Where feasible, located in the immediate vicinity of main structures.

4.55 Commercial Signs

- a. Limit on- and off-site outdoor commercial advertising, including billboards, in order to protect visual quality.
- b. Design signs to harmonize in color and materials with:
 - (1) the architectural character of the structure it identifies; and
 - (2) the visual qualities of the natural surroundings.
- c. Integrate signs with the architectural design of the building and do not extend them above the roofline of the structure.
- d. Prohibit bright or self-illuminated, rotating, moving, reflective, blinking or flashing signs.
- e. Discourage permanent use of pennants or streamers.

SITE PLANNING FOR RURAL SCENIC CORRIDORS

4.56 Building Setbacks

- a. Prevent the obstruction of important views by setting buildings in rural scenic corridors back from the road right-of-way, unless topographic features or the size of the site makes it infeasible or unnecessary.
- b. Consider a variety of setbacks; however, establish minimum distance.

4.57 Cluster Development

In scenic corridors, discourage high density clustering or grouping of residential uses which are highly visible from the road.

4.58 Tree and Vegetation Removal

- a. Allow the removal of trees and natural vegetation when done in accordance with existing regulations.

- b. Prohibit the removal of more than 50% of the tree coverage except as allowed by permit.

4.59 Views

To the extent practicable, locate development in scenic corridors so it does not obstruct views from scenic roads or disrupt the visual harmony of the natural landscape.

4.60 Outdoor Lighting

Minimize exterior lighting in scenic corridors and, where used, employ warm colors rather than cool tones and shield the scenic corridor from glare.

4.61 Roads and Driveways

- a. Design and construct new roads, road improvements and driveways to be sensitive to the visual qualities and character of the scenic corridor, including such factors as width, alignment, grade, slope, grading and drainage facilities.
- b. Limit number of access roads connecting to a scenic road to the greatest extent possible.
- c. Share driveways where possible to reduce the number of entries onto scenic roads.

4.62 Parking and Paved Areas

Integrate paved areas with their site, encourage the use of alternative paving technologies that minimize hardscape, and landscape and/or screen them to reduce visual impact from the scenic corridor.

4.63 Storage Areas

Screen areas used for the storage of equipment, supplies or debris by fencing, landscaping or other means so they are not visible from scenic roadways, trails, parks, and neighborhoods.

4.64 Utilities in State Scenic Corridors

- a. Install new distribution lines underground.

- b. Install existing overhead distribution lines underground where they are required to be relocated in conjunction with street improvements, new utility construction, etc.
- c. Consider exceptions where it is not physically practical due to topographic features; however, utilities should not be substantially visible from any public road or developed public trail.

4.65 Utilities in County Scenic Corridors

- a. Install new distribution lines underground.
- b. Consider exceptions for certain circumstances including, but not limited to, financial hardship, topographic conditions or land use conflicts.

4.66 Large Scale Power Transmission Lines

Encourage P.G.& E. to mitigate the adverse visual impact created by large scale power transmission lines.

4.67 Fences

Encourage fences which minimize visual impact.

4.68 Mobile Homes

Prohibit mobile homes on permanent foundations in scenic corridors.

4.69 Rural Scenic Corridor District

Regulate the architectural and site design of structures within scenic corridors by using a consolidated set of design standards.

HISTORICAL AND ARCHAEOLOGICAL RESOURCES POLICIES

The County will:

GOALS AND OBJECTIVES

5.1 Historic Resource Protection

Protect historic resources for their historic, cultural, social and educational values and the enjoyment of future generations.

5.2 Rehabilitation of Historic Structures

Encourage the rehabilitation, preservation and use of historically significant structures.

5.3 Protection of Archaeological/Paleontological Sites

Protect archaeological/paleontological sites from destruction in order to preserve and interpret them for future scientific research, and public educational programs.

5.4 Historical Resources Inventory

Encourage the development of inventories of historical resources which have national, State and Countywide significance.

5.5 Planning and Historic Preservation

Integrate historical preservation into the planning process of the County.

5.6 Increase Public Awareness

Develop increased public awareness of the County's heritage to foster widespread support and understanding for the need to preserve historical resources.

DEFINITIONS

5.7 Definition of Historic Resource

Define historic resources as buildings, structures, signs, features, sites, places, areas or other objects of scientific, educational, cultural, architectural, archaeological, historical or paleontological significance to the citizens of the County.

5.8 Definition of Historic District

Define historic district as a geographically defined area containing historic resources which have a special, historical interest or aesthetic value or which represent one or more architectural periods or styles typical to the history of the County, and which improvements constitute a distinct section of the County that has been designated an historic district.

5.9 Definition of Historic Landmark

Define historic landmark as any historic resource, district or paleontological site that has exceptional scientific, historic, cultural, archaeological, aesthetic character, interest, or value.

GENERAL POLICIES

5.10 Educational Programs

Encourage cooperative educational programs by educational and historic groups.

5.11 Recognition of Historic Resources

- a. Identify high priority resources in the comprehensive inventory and apply for their designation as State Point of Historic Interest, State Historical Landmark, or inclusion in the National Register of Historic Places.
- b. Establish historic districts for areas which include concentrations of historic resources found in the comprehensive inventory.

5.12 Rehabilitation of Historic Structures

Encourage the rehabilitation and recycling of historic structures.

5.13 Use of Innovative Techniques

Encourage the use of innovative techniques such as density transfer, facade easements, etc., to protect historic structures.

5.14 Registration of Significant Archaeological/Paleontological Sites

Recommend State and/or national register status for significant archaeological/paleontological sites.

REGULATION OF DEVELOPMENT

PROTECTION OF HISTORICAL RESOURCES

5.15 Character of New Development

- a. Encourage the preservation and protection of historic resources, districts and landmarks on sites which are proposed for new development.
- b. Ensure that new development in historic districts is compatible in bulk, height, material and design with that of the historic character and qualities of the district.
- c. Encourage the use of the Secretary of the Interior's guidelines and standards for rehabilitation of historic structures by: (1) those undertaking the rehabilitation of historic structures, and (2) those responsible for the architectural review and permit approval.

5.16 Demolition of Resources

Discourage the demolition of any designated historic district or landmark.

5.17 Designation of Historic Resources

Establish criteria and procedures for the designation of County landmarks and districts. Include a provision requiring approval to alter, demolish or relocate designated landmarks or districts.

5.18 Development of County Historic Sites

Develop County-owned historic sites in park and recreation areas in accordance with the performance criteria and development standards contained in Appendix D of this Chapter.

5.19 Economic Use

- a. Encourage compatible and adaptive residential, commercial or public uses of historic structures as a means for their protection.
- b. Permit commercial uses such as crafts, stores, bookshops and art shops if they preserve and enhance the resource.

PROTECTION OF ARCHAEOLOGICAL/PALEONTOLOGICAL RESOURCES

5.20 Site Survey

Determine if sites proposed for new development contain archaeological/paleontological resources. Prior to approval of development for these sites, require that a mitigation plan, adequate to protect the resource and prepared by a qualified professional, be reviewed and implemented as a part of the project.

5.21 Site Treatment

- a. Encourage the protection and preservation of archaeological sites.
- b. Temporarily suspend construction work when archaeological/paleontological sites are discovered. Establish procedures which allow for the timely investigation and/or excavation of such sites by qualified professionals as may be appropriate.
- c. Cooperate with institutions of higher learning and interested organizations to record, preserve, and excavate sites.

ROLE OF THE COUNTY

PRESERVATION TECHNIQUES

5.22 Comprehensive Inventory of Historical Resources

- a. Investigate all funding sources for developing a comprehensive inventory.
- b. Expand and maintain a comprehensive inventory of all historic resources located in both unincorporated and incorporated areas.
- c. Establish a hierarchy within the inventory by which the more significant resources and those requiring additional measures to ensure their preservation are identified.
- d. Coordinate with the State Historic Preservation Officer, cities and historical groups in the development of the inventory.
- e. Request the Historic Resources Advisory Board to review the inventory annually to ensure that all structures and sites are included and that the list is current.

5.23 Acquisition of Structures

Encourage and coordinate efforts with groups to acquire structures of historic merit in order to prevent their loss and/or promote their adaptation for other uses.

5.24 Historic Preservation Certification

Seek certification of the County Preservation Program by the Secretary of the Interior in order to take advantage of and participate directly in the Federal preservation programs.

ARCHAEOLOGICAL AND PALEONTOLOGICAL RESOURCES

5.25 Archaeological/Paleontological Resource Data Base

Maintain and update a comprehensive archaeological/paleontological data base.

5.26 Discovering Unrecorded Archaeological/Paleontological Sites

Support comprehensive studies to discover unrecorded archaeological and paleontological sites, particularly in areas under pressure for development.

PROGRAM RESPONSIBILITIES

5.27 Role of the Historic Resources Advisory Board

- a. Serve as an advisory body to the Planning Commission and Department on implementation of the Historic Resources Chapter.
- b. Advise the Board of Supervisors, Parks and Recreation Commission, Planning Commission, and other appropriate County Departments on all matters pertaining to the recognition, acquisition, preservation designation and alteration of historic resources in San Mateo County.
- c. Advise the Board of Supervisors on methods of funding from Federal, State and private sources for historic preservation.
- d. Review and recommend on the implementation of appropriate legislation at the Federal, State or local level that deals with historic preservation.
- e. Review and recommend to the Planning Commission and Board of Supervisors all applications for registration of historic resources as Points of Historical Interest, State Historic Landmarks and National Register of Historic Places.

- f. Act as a coordination body for various historic preservation activities of public agencies, civic groups, and citizens interested in historic preservation.
- g. Promote public information programs which explain the advantages of historic preservation by sponsoring exhibits, lectures and meetings on the subject.
- h. Develop increased public awareness of the County's heritage to foster widespread support and understanding for the need to preserve historical resources.
- i. Inform property owners of historic structures of the financial benefits of preservation.
- j. Review and update the inventory of historic resources.

PARK AND RECREATION RESOURCES POLICIES

GOALS AND OBJECTIVES

The County will encourage all providers of park and recreation facilities to:

6.1 Equitable and Balanced System of Facilities

Provide for a balanced and equitable system of park and recreation facilities. Consider identified and/or changing needs and the impact upon environmental, service, competing land use, fiscal and organizational constraints.

6.2 Meet Recreational Need

Meet identified relative park and recreation needs in a manner which best enhances the physical, mental and spiritual quality of life of San Mateo County residents.

GENERAL POLICIES

6.3 Build Upon Existing System

- a. Design all park and recreation systems on the strengths and potentials of existing facilities and develop programs for meeting current and future needs.
- b. Consider the feasibility of redesigning and/or expanding existing park and recreation facilities to meet future needs while developing new acquisition and development programs.

6.4 Environmental Compatibility

- a. Protect and enhance the environmental quality of San Mateo County when developing park and recreation facilities.
- b. Mitigate, to the extent feasible, the impacts of those recreation uses which may adversely affect the environment and adjoining private ownership.

6.5 Access to Park and Recreation Facilities

- a. Attempt to provide appropriate access and conveniences for all people in park and recreation facilities.
- b. Encourage access to the park and recreation system by transportation means other than private automobiles, where feasible.

- c. Attempt to provide adequate access for emergency services.

DEFINITIONS

6.6 Definition of Public Park and Recreation Facilities

Define public park and recreation facilities as lands and facilities serving a range of recreation and/or preservation functions and owned by public agencies or other nonprofit organizations. Such facilities include, but are not limited to, public beaches, parks, recreation areas (including golf courses), natural preserves, wild areas and trails.

6.7 Definition of Private or Commercial Park and Recreation Facilities

Define private or commercial park and recreation facilities as facilities serving a recreation function and owned by private businesses. Such facilities include, but are not limited to, private beaches, stables, specialty stores, golf courses and racket clubs.

6.8 Definition of Private Nonprofit Park and Recreation Facilities

Define private and nonprofit park and recreation facilities as those serving primarily a recreation function and owned by private nonprofit organizations. Such facilities include, but are not limited to, scout camps, YMCA camps, religious camps, music camps, sports-training camps and day camps.

REGULATION OF DEVELOPMENT

ALL PARK AND RECREATION FACILITY PROVIDERS

The County will:

6.9 Locate Suitable Park and Recreation Facilities in Urban Areas

Generally, encourage all providers to locate active park and recreation facilities in urban areas, taking advantage of existing service infrastructure systems and maximizing the recreational use of limited available land. Consider the following activities to be generally compatible with active park and recreation facilities such as group games, swimming, and tennis.

6.10 Locate Suitable Park and Recreation Facilities in Rural Areas

Generally, encourage all providers to locate passive park and recreation facilities in rural areas in order to protect and preserve environmentally sensitive and open space lands. Consider the following activities to be generally

compatible with passive park and recreation facilities such as camping, hiking, picnicking, horseback riding, and nature study.

6.11 Coastal Recreation and Access

- a. Regulate coastal development to delineate appropriate locations and development standards for recreation and visitor serving facilities.
- b. Regulate development to increase public access to the shoreline and along the coast through measures which include, but are not limited to, establishing criteria for when and where access will be provided and how the access will be developed and maintained.
- c. Develop programs to increase and enhance public access to and along the shoreline.

6.12 Minimize Agricultural Land Use Conflicts

Preserve the best agricultural land for agricultural uses. On other lands capable of supporting agriculture, permit the location of park and recreation facilities when efforts are made to lease land not needed for recreational purposes to farm operations, and clearly defined buffer areas such as strips of land are established between these two uses to minimize land use conflicts.

6.13 Development Plans

- a. Encourage all providers to prepare development plans for proposed facilities which contain provisions that easily adapt to changing conditions.
- b. Encourage all development plans to include restroom facilities and ensure that these correspond in size and detail to the type of park and recreation facility proposed.

6.14 Site Planning for Public and Private Facilities

- a. Encourage all providers to design sites to accommodate recreation uses that minimize adverse effects on the natural environment and adjoining private ownership.
- b. Encourage all providers to design, where feasible, park and recreation sites that accommodate a variety of recreational activities.

6.15 Building Materials and Service Technology for Public and Private Facilities

- a. Encourage the use of materials and technologies that achieve low development, maintenance and operation costs while maintaining environmental compatibility.
- b. Encourage innovative technologies for conserving energy, water and other utilities for park and recreation facilities.

6.16 Prioritizing Facility Development

- a. Encourage all providers to give priority to the development of those facilities that meet the greatest recreational need.
- b. Encourage the phased development of recreation facilities in order to assess whether full development is warranted.

6.17 Techniques for Providing Park and Recreation Facilities

- a. Regulate development to provide new or improved park and recreation facilities. Use one or a combination of the following techniques: (1) offer of dedication, (2) grant of fee interest, and (3) in lieu fees.
- b. Encourage the dedication of easements to implement trails programs.
- c. Base the requirements for the provision of park and recreation facilities on the: (1) size and type of development, (2) benefit to the developer, (3) burden to the public, and (4) within the Coastal Zone, priority given to the type of development under the Coastal Act.

COUNTY PARK AND RECREATION FACILITIES

For County-owned park and recreation facilities, the County will:

6.18 Regulation of Encroachment

Regulate the encroachment into park and recreation facilities by non-park uses. When encroachment is deemed necessary, minimize adverse impacts by considering the following measures:

- a. Use the Creative Road Design Guide (San Mateo County Planning Division, 1978) where appropriate to minimize environmental effects when improving roadways or building new ones in or through park and recreation resources.

- b. Discourage the use of park and recreation facilities as access routes for private users. Where such access is deemed necessary, develop these routes in accordance with standards established by the Parks and Recreation Division.
- c. Require restoration or other mitigation measures for damaged parkland.

6.19 Development of County Park and Recreation Facilities

Use the planning and management guidelines and development standards contained in Appendix D as additional standards for the development of County-owned facilities.

PARK ACQUISITION AND DISPOSAL

ALL PARK AND RECREATION FACILITY PROVIDERS

The County will encourage all providers of park and recreation facilities to:

6.20 Consider Land Banking

- a. Utilize land banking as a method of acquiring land for future park and recreation use when conditions are prudent.
- b. Seek to place land banked sites into environmentally compatible interim uses. Provide for the protection and maintenance of these sites.

6.21 Transfer of Unused School Land

Encourage school districts to transfer idle, unused land to appropriate agencies for park and recreation use.

COUNTY PARK AND RECREATION FACILITIES

For County-owned park and recreation facilities, the County will:

6.22 Determination of Recreation Needs

- a. Determine recreation needs through the adoption of a process which: (1) is responsive to present and projected needs and priorities of the County and its residents, and (2) comprehensively measures relative recreation needs.
- b. Periodic updates should: (1) reflect changes in the park and recreation system; (2) assess new recreation needs as they arise; (3) take advantage of new needs assessment technology; (4) assess the needs of future

populations; and (5) weigh the fiscal, organizational, environmental, service and competing land use constraints.

6.23 Site Selection Process for County Facilities

Establish a process for evaluating and selecting sites for County park and recreation facilities which will include consideration of, but not be limited to, the following criteria: (1) meeting of identified recreation needs; (2) environmental conditions; (3) existing infrastructure and services; (4) proximity to urban areas; (5) fiscal feasibility; (6) threat of loss; (7) opportunity for joint action; (8) inholdings and boundary round outs; and (9) conditions which would lead to better management of property and resources. Meeting identified recreation needs will be given greater weight than all other considerations.

6.24 Timing Acquisition

Consider the following criteria in determining when to acquire sites: (1) that the site meets present or future identified recreation needs; (2) the existence of unusually favorable acquisition opportunities; (3) the likelihood that the site might be lost to development; (4) the fact the site is appreciating in value at rates greater than inflation (Consumer Price Index); and (5) the existence of advantageous opportunities to cooperate with other public agencies and/or the private sector.

6.25 Cost of Maintenance and Operation for New Acquisitions

- a. Consider potential maintenance and operation costs as important criteria in acquiring and developing park and recreation facilities.
- b. Submit to the Board of Supervisors an estimate of maintenance and operation costs at the time any acquisition and/or development project is recommended.

6.26 Acquisition and Development Program

Encourage the Park and Recreation Division to use the "Site Selection Process for County Facilities" (Policy 6.23) and the "Timing Acquisition" (Policy 6.24) policies to develop a comprehensive acquisition and development program.

6.27 Fiscal Compatibility Programs

Establish a park and recreation system based on acquisition and development programs which are compatible with the County's fiscal capability to provide protection, operation and maintenance.

6.28 Conveyance of Park and Recreation Facilities

- a. Retain all County park and recreation facilities to the greatest extent possible.
- b. Establish criteria for the conveyance of park and recreation facilities. Allow conveyance only when the proceeds from a sale of a park and recreation facility would be used for the acquisition and/or development of other County park and recreation facilities and: (1) another park and recreation provider would maintain the facility, or (2) conveyance is in the overriding public interest.
- c. Encourage the Park and Recreation Commission to develop specific criteria to determine when it is no longer necessary to retain park and recreation facilities.
- d. Modify the Planning Division General Plan Conformity procedures to include the Parks and Recreation Commission in the review of all projects concerning the conveyance of park and recreation facilities.
- e. Encourage the Park and Recreation Commission and the Planning Commission to use the following criteria when reviewing park and recreation facility conveyance projects: (1) the desirability of maintaining the facility as parkland; (2) the extent to which future development of the site, if disposed of, can be regulated to protect remaining park and recreation facilities; (3) how proceeds of a sale may be used to enhance County park and recreation facilities; and (4) the desirability of offering land to other park and recreation facility providers.

MAINTENANCE AND OPERATION

ALL PARK AND RECREATION FACILITY PROVIDERS

The County will encourage all providers of park and recreation facilities to:

6.29 Protection, Operation and Maintenance

Make provisions to protect, operate and maintain park and recreation systems and related easements.

6.30 Minimize Traffic and Litter Problems

- a. Coordinate with CalTrans and/or SamTrans to increase recreational transit through such programs as a Park and Ride service or increased weekend service for recreationists in order to lessen traffic and parking problems.

- b. Encourage recreationists to properly dispose of litter in park and recreation facilities.
- c. Encourage the adequate maintenance and improvement of roads and highways needed to serve recreation facilities.

COUNTY PARK AND RECREATION FACILITIES

For County-owned park and recreation facilities, the County will:

6.31 Charge User Fees

Charge reasonable user fees to offset maintenance and operation costs as needed.

6.32 Limited Closing of Park and Recreation Facilities

Consider closing park and recreation facilities temporarily during the day, week or year when utilization could be detrimental to resources or the public.

6.33 Transfer of Facilities

Consider transferring park and recreation facilities to other appropriate public agencies if it would result in more effective and efficient operation.

6.34 Use of Volunteer Programs

- a. Support, encourage and recognize volunteer and docent programs to help maintain and operate the County park and recreation system and to educate the public in the understanding and appreciation of its facilities.
- b. Provide interpretation programs which will encourage the support of volunteer assistance. Also provide coordinative senior citizen and handicapped recreation programs.

6.35 Encouragement of Forest Resilience Studies

Support the use of County-owned forests or public lands for studies of long-term forest resilience, carbon sequestration, or adaptation to changing climate, which would be compatible with park and recreation activities.

MULTI-JURISDICTIONAL COORDINATION AND COOPERATION

ALL PARK AND RECREATION FACILITY PROVIDERS

The County will encourage all providers of park and recreation facilities to:

6.36 Coordinate Services

Cooperate and coordinate their efforts to achieve efficient and effective park and recreation services which meet identified needs and avoid duplication.

COUNTY PARK AND RECREATION FACILITIES

For County-owned park and recreation facilities, the County will:

6.37 Coastal Beaches

Promote and be actively involved in State or Federal acquisition of lands for coastal beaches. Explore the possibility of establishing contractual agreements which would allow the County to develop, maintain and operate these facilities with reimbursed funds.

6.38 Bayfront Coordination

Support, encourage and participate in the development of a coordinated and linked system of recreation facilities and public access along San Francisco Bay.

6.39 Trail System Coordination

- a. Support, encourage and participate in the development of a system of trails that link existing and proposed park and recreation facilities within this County and adjacent counties.
- b. Particularly encourage the development of: trails that link park and recreation facilities on San Francisco Bay to those on the Pacific Coast; multi-use trails where appropriate and trails in County lands under management by other public agencies. Ensure that these trails do not adversely affect adjacent land uses.

FINANCE

ALL PARK AND RECREATION FACILITY PROVIDERS

The County will encourage all providers of park and recreation facilities to:

6.40 Consider Alternative Acquisition Methods

Consider alternative methods to the outright fee purchase of sites (e.g., gifts, leases, trail easements) in order to reduce the costs of providing park and recreation facilities.

6.41 Alternative Revenue Sources

Initiate, promote and support liaisons with other governmental agencies and the private sector to develop alternative revenue sources, including, but not limited to, new legislation so that the cost of protecting, maintaining and operating park and recreation facilities will be borne equitably by the County and other bodies.

COUNTY PARK AND RECREATION FACILITIES

For County-owned park and recreation facilities, the County will:

6.42 Development of Financial Management Program

Establish a financial management program which will efficiently allocate funds for acquisition and development in response to identified recreation needs of County residents.

6.43 Use of Private Sector Sponsors and Concessionaires

- a. Encourage, where feasible, sponsors (i.e., foundations, nonprofit organizations) to maintain and operate special use parks and facilities (i.e., historical sites, nature exhibits).
- b. Solicit, where appropriate, private concessionaires to operate park and recreation facilities. Further, examine the current system of contracting with concessionaires to determine how it can be improved.
- c. Retain, where they exist, structures on newly acquired parkland for use as caretaker residences.

6.44 Cooperative Agreement

Pursue to the maximum extent possible the establishment of cooperative agreements with other public agencies and encourage the private sector to provide park and recreation facilities and services.

PROGRAM RESPONSIBILITIES

ROLE OF ALL PARK AND RECREATION FACILITY PROVIDERS

The County will:

6.45 Role of the Federal Government

Encourage the Federal government to provide park and recreation facilities of national significance.

6.46 Role of the State Department of Parks and Recreation

- a. Encourage the State Department of Parks and Recreation to give priority to developing existing facilities.
- b. Encourage the State Department of Parks and Recreation to provide park and recreation facilities of statewide significance.
- c. Designate the State Department of Parks and Recreation as the principal agency to acquire, develop and maintain coastal beaches.

6.47 Role of the Cities

Encourage the cities to provide park and recreation facilities suitable to accommodate active recreation activities which address the needs of the affected community.

6.48 Role of the Midpeninsula Regional Open Space District

Encourage the Midpeninsula Regional Open Space District to acquire, protect, and make available for public use open space lands in rural areas and open space of regional significance in urban areas in cooperation with San Mateo County.

6.49 Role of Private Sector

Encourage the private sector to provide park and recreation facilities and services.

ROLE OF THE COUNTY FOR COUNTY-OWNED PARK AND RECREATION FACILITIES

6.50 Provision of Countywide Facilities

Provide and maintain, either independently or through joint agreements, park and recreation facilities which are of Countywide significance (i.e., serving more than one city and/or unincorporated community).

6.51 Outdoor Recreation and Programs

Provide County park and recreation facilities for primarily outdoor rather than indoor recreation. Facilities should emphasize the enjoyment and appreciation of natural outdoor settings.

6.52 Park and Recreation Facilities for Unincorporated Areas

Encourage the provision of park and recreation facilities for use by local residents in unincorporated areas consistent with community plans.

ROLE OF THE PARKS AND RECREATION COMMISSION

6.53 Plan Development

- a. Work with the public in the formulation of specific Concept Plans, Master Plans, including planning and management guidelines and development plan proposals.
- b. Encourage and solicit public comment through hearings on acquisition and development programs and on planning proposals.
- c. Continue to communicate and cooperate with other agencies, public and private, e.g., Midpeninsula Regional Open Space District, Historical Resources Advisory Board, San Mateo County Historical Association, Golden Gate Natural Recreation Area, etc., where appropriate.
- d. Classify all new and existing park and recreation facilities accordingly: Park, Recreation Area, Natural Preserve, Wild Area, Linear Park and Trail, Cultural Facility and Historic Site. Use for each facility the planning and management guidelines and development standards detailed in Appendix D of this Chapter. Solicit public input during the classification process.

GENERAL LAND USE POLICIES

The County will:

GOALS AND OBJECTIVES

7.1 Fiscal

Distribute the designation of land uses to balance the costs of providing public services and facilities with generating public revenues.

7.2 Local Economies

Designate land uses in order to support and strengthen existing local economies (i.e., jobs, incomes and housing to support local populations).

7.3 Infrastructure

Distribute land uses where public services and facilities exist or can be feasibly provided (e.g., sewer and water systems) in order to achieve maximum efficiency.

7.4 Natural Resources

Designate land uses in order to enhance the protection and management of natural resources.

7.5 Energy

Distribute land use designations in order to minimize the demand for energy consumption and maximize the effectiveness of energy consumed.

7.6 Natural and Man-Made Hazards

Designate land uses in order to minimize the danger of natural and man-made hazards to life and property.

7.7 Land Use Patterns

Distribute the designation of land uses in order to achieve orderly, understandable, coherent and workable land use patterns.

DEFINITIONS

7.8 Definition of Urban Area

Define urban areas as lands which are generally suitable for urban land use because they meet one or more of the following criteria: (1) surrounded by incorporated areas, (2) adjacent to an incorporated area, generally divided into parcels 5,000 sq. ft. to 5 acres and served by sanitary sewers, or (3) adjacent to an incorporated area and the major transportation corridors of Highways 101 and 280.

7.9 Definition of Rural Areas

Define rural areas as lands which are generally suitable for lower density/intensity land uses because they meet one or more of the following criteria: (1) used for agriculture, timber production, general open space, or as a watershed for a public water supply, (2) isolated subdivided areas and commercial centers which are not adjacent to incorporated areas, (3) divided into parcels 5 acres or more next to an urban unincorporated areas, and (4) subdivided areas that use on-site wastewater management systems which are adjacent to but not surrounded by incorporated areas.

7.10 Definition of Urban/Rural Boundary

Define an urban/rural boundary as a line separating urban from rural areas in order to indicate clearly where intensive urban development, and less intensive rural development will be permitted in the County.

7.11 Definition of Feasible

Define feasible as capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.

DESIGNATIONS

7.12 Designation of Urban Areas

Designate as urban those lands shown within the urban/rural boundary on the Land Use Plan maps.

7.13 Designation of Rural Areas

Designate as rural those lands shown outside the urban/rural boundary on the Land Use Plan maps.

7.14 Designation of Urban/Rural Boundary

Designate an urban/rural boundary on the Land Use Plan maps.

7.15 Designation of Land Uses

Establish land use designations in Table 7.1P, describe their primary associated uses which can be accomplished in a feasible manner and apply these designations where appropriate to urban and rural areas to meet land use objectives.

URBAN AREAS

7.16 Land Use Objectives for Urban Areas

Locate land use designations in urban areas (urban unincorporated areas) in order to: (1) maximize the efficiency of public facilities, services and utilities, (2) minimize energy consumption, (3) encourage the orderly formation and development of local government agencies, (4) protect and enhance the natural environment, (5) revitalize existing developed areas, and (6) discourage urban sprawl.

7.17 Appropriate Land Use Designations for Urban Areas

In order to meet land use objectives, primarily plan for the following generalized land use designations in urban areas: (1) Residential, (2) Commercial, (3) Office, (4) Industrial, (5) Airport, (6) Institutional, (7) Recreation, and (8) General Open Space.

RURAL AREAS

7.18 Land Use Objectives for Rural Areas

Locate land use designations in rural areas in order to: (1) preserve natural resources, (2) provide for the managed productive use and monitoring of resources, (3) provide outdoor recreation, and (4) protect public health and safety.

7.19 Appropriate Land Use Designations for Rural Areas

- a. In order to meet land use objectives, primarily plan for the following generalized land use designations in rural areas: (1) Agriculture, (2) Lower Density Residential, (3) Recreation, (4) General Open Space, (5) Timber Production, and (6) Solid Waste Disposal Facility.

TABLE 7.1P

GENERAL PLAN LAND USE DESIGNATIONS

LAND USE DESIGNATION	DESCRIPTION OF PRIMARY FEASIBLE USES ASSOCIATED WITH LAND USE DESIGNATIONS
The primary feasible uses associated with land use designations are described below and are intended to be very general. A detailed list of permitted uses may be found in specific zoning district regulations.	
<u>Very Low Density Residential</u>	At densities ranging from 0-0.2 dwelling units/acre, residential uses including but not limited to space for non-transient housing.
<u>Low Density Residential</u>	At densities ranging from 0.3-2.3 dwelling units/acre, residential uses including but not limited to space for non-transient housing.
<u>Medium Low Density Residential</u>	At densities ranging from 2.4-6.0 dwelling units/acre, residential uses including but not limited to space for non-transient housing.
<u>Medium Density Residential</u>	At densities ranging from 6.1-8.7 dwelling units/acre, residential uses including but not limited to space for non-transient housing.
<u>Medium High Density Residential</u>	At densities ranging from 8.8-17.4 dwelling units/acre, residential uses including but not limited to space for non-transient housing.
<u>High Density Residential</u>	At densities ranging from 17.5 plus dwelling units/acre, residential uses including but not limited to space for non-transient housing.
<u>General Commercial</u>	Trade and distribution uses including but not limited to wholesale trade, retail trade; service uses including but not limited to business and professional offices, hotels, and motels.
<u>Neighborhood Commercial</u>	Trade and distribution uses including but not limited to retail trade; service uses including but not limited to business and professional offices.

TABLE 7.1P (continued)

GENERAL PLAN LAND USE DESIGNATIONS

<u>LAND USE DESIGNATION</u>	<u>DESCRIPTION OF PRIMARY FEASIBLE USES ASSOCIATED WITH LAND USE DESIGNATIONS</u>
<u>Coastside Commercial Recreation</u>	Trade and distribution uses including but not limited to retail trade; service uses including but not limited to commercial amusement, hotels, and motels.
<u>Office Commercial</u>	Service uses including but not limited to business and professional offices; trade and distribution uses including but not limited to retail trade.
<u>Office/Residential</u>	Service uses including but not limited to business and professional offices; residential uses including but not limited to space for non-transient housing.
<u>Solid Waste Site</u>	Utility uses including but not limited to sanitary landfills, transfer stations, and waste-to-energy facilities.
<u>General Industrial</u>	Manufacturing and processing uses including but not limited to fabricating, assembling, and storing products.
<u>Heavy Industrial</u>	Manufacturing and processing uses including but not limited to refining, smelting, fabricating, assembling, and storing products.
<u>Airport</u>	Transportation uses including air transportation and related terminal transfer, maintenance and landing area facilities.
<u>Institutional</u>	Cultural and educational and public service uses including but not limited to schools, libraries, hospitals, and churches.
<u>Public Recreation</u>	Recreation uses including but not limited to publicly-owned park and recreation facilities such as playgrounds, parks, golf courses, and natural preserves.
<u>Private Recreation</u>	Recreation uses including but not limited for privately-owned park and recreation facilities such as golf courses, camps, and beaches.

TABLE 7.1P (continued)

GENERAL PLAN LAND USE DESIGNATIONS

<u>LAND USE DESIGNATION</u>	<u>DESCRIPTION OF PRIMARY FEASIBLE USES ASSOCIATED WITH LAND USE DESIGNATIONS</u>
<u>General Open Space</u>	Resource management and production uses including but not limited to agriculture, oil and gas exploration. Recreation uses including but not limited to stables and riding academies; and residential uses including but not limited to non-transient housing. Service uses including but not limited to hotels and motels.
<u>Agriculture</u>	Resource management and production uses including but not limited to agriculture and uses considered accessory and ancillary to agriculture.
<u>Timber Production</u>	Resource management and production uses including but not limited to growing, harvesting, and processing of timber products.

- b. Additionally, plan for the following land use designations in rural service centers: (7) Residential, (8) Commercial and (9) Institutional.

GROWTH MANAGEMENT

7.20 Countywide Coordinated Land Use Planning

Promote the cooperation and coordination among the County, Cities, LAFCo and the Regional Planning Committee (RPC) in planning for the present and future location of urban and rural land uses.

SPHERES OF INFLUENCE

7.21 Suitable Land Within City Sphere of Influence

Consider that lands may be included within a city sphere of influence only if they are generally suitable for urban services (e.g., public sewer systems, public water supplies, fire and police protection) and urban land uses.

7.22 Unsuitable Land Within City Sphere of Influence

Consider that rural lands should not be included within a city sphere of influence (and therefore consider it not suitable for urban land uses) if they are in one of the following areas: (1) flood hazard areas, (2) seismic and geotechnical hazard areas, (3) solid waste disposal sites, (4) productive soil resources in rural areas, and (5) watershed lands.

7.23 Sphere and Urban/Rural Boundary Conformance

Promote the establishment of city sphere of influence lines in conformance with the urban/rural boundary.

7.24 Urban Unincorporated Areas Within City Sphere of Influence

Encourage cities to annex urban unincorporated areas within designated city spheres of influence.

7.25 Rural Unincorporated Areas Within City Spheres of Influence

Encourage LAFCo, when conducting sphere of influence studies, to evaluate the suitability of retaining rural areas within city spheres of influence.

URBAN LAND USE POLICIES

The County will:

GOALS AND OBJECTIVES

8.1 Urban Land Use Planning

Plan for a compatible and harmonious arrangement of land uses in urban areas by providing a type and mix of functionally well-integrated land uses which meets general social and economic needs.

8.2 Land Use Objectives for Urban Communities

- a. Plan Urban Communities to be balanced, self-contained areas which have a sufficient mix of urban land uses to support the internal housing, employment, shopping, and recreation needs of the community;
- b. Provide a mix of residential, commercial, and industrial land uses which will generate sufficient tax revenues to pay for the costs of providing desired levels of services and facilities;
- c. Provide a mix of commercial and industrial uses in order to maintain, support, and strengthen local economies;
- d. Provide a mix and an amount of residential land uses which will provide a substantial amount of housing opportunities in unincorporated areas;
- e. Establish land use patterns which give Urban Communities strong, individual and identifiable characters.

8.3 Land Use Objectives for Urban Neighborhoods

- a. Plan Urban Neighborhoods to be primarily, though not exclusively, single-family residential areas which appear and function as residential neighborhoods of contiguous cities.
- b. Provide a mix of residential and commercial land uses to balance generated tax revenues with the costs of providing desired levels of public services and facilities.
- c. Encourage the integration of land uses to provide neighborhood-serving uses and facilitate clean transportation options, such as pedestrian and bicycle activity.

- d. Establish land use patterns which make Urban Neighborhoods compatible, functional and identifiable with adjoining cities.

8.4 Land Use Objectives for Special Urban Areas

- a. For Olympic Country Club, California Golf Club, Peninsula Golf and Country Club, Edgewood County Park, San Bruno Mountain County Park, Sweeney Ridge Skyline Preserve and Hassler Lands, maintain current private or public park and recreational uses. For private park and recreation uses, allow some land to be converted to residential, commercial, or commercial recreational uses if it would be physically compatible with the facility and contribute to its economic viability.
- b. For San Francisco Jail and San Francisco International Airport, maintain current uses and allow redevelopment and expansion if compatible with adjacent land uses and other General Plan policies.
- c. For Guadalupe Valley Quarry and Ideal Cement, encourage: (1) the redevelopment of these industrial areas to improve the quality of industrial development, or (2) the conversion of these areas to new and appropriate uses which would be compatible with existing land use plans and adjacent land uses.
- d. For Harbor Industrial area, encourage the enhancement of the quality of industrial development.
- e. For McLellan Nursery and Horgan Ranch, allow the redevelopment of these floricultural areas to relatively higher residential densities which would be compatible with adjacent land uses.
- f. For Bayshore Mobile Home Parks, preserve these sites as valuable sources of affordable housing.
- g. For the Benedetti Lands, accommodate land uses which reflect the geologic and infrastructural constraints of the land and are compatible with adjoining communities, as determined in future land use studies.
- h. For Stanford Lands, plan for an arrangement of land uses which provides for the academic needs of the University, preserves important natural resources, and is compatible with the general plans of adjoining communities as determined in future land use studies.

DEFINITIONS

8.5 Definition of Urban Community

Define Urban Communities as those large, populated unincorporated areas which contain a wide range of residential land use densities and a mix of land uses which provide services to surrounding areas and meet, in part, the internal shopping, employment and recreational needs of the community residents.

8.6 Definition of Urban Neighborhood

Define Urban Neighborhoods as those unincorporated areas which are primarily devoted to residential land uses and are generally functionally integrated with adjacent incorporated areas.

8.7 Definition of Transit-Oriented Land Uses

Define Transit-Oriented Land Uses as land uses that are integrated with multimodal transportation systems, facilitating creation of Complete Streets by equally supporting all types of transportation, including pedestrian, bicycle, and vehicular traffic.

8.8 Definition of Special Urban Areas

Define Special Urban Unincorporated Areas as urban areas which are devoted primarily, but not necessarily or exclusively, to non-residential or special uses.

DESIGNATIONS

8.9 Designation of Existing Urban Communities

Designate North Fair Oaks and Montara-Moss Beach-El Granada as existing Urban Communities.

8.10 Designation of Existing Urban Neighborhoods

Designate as existing Urban Neighborhoods: (1) Broadmoor, (2) Unincorporated Colma, (3) Country Club Park, (4) Burlingame Hills, (5) the Highlands/Baywood Park, (6) Devonshire, (7) Palomar Park, (8) Emerald Lake Hills and Oak Knoll, (9) Kensington Square, (10) Sequoia Tract, (11) West Menlo Park, (12) Menlo Oaks, (13) Park Forest/Watkins, (14) Weekend Acres, (15) Ladera, (16) Los Trancos Woods, and (17) Vista Verde.



**The Urban Land Use Map is
Located in the Map Component
on page 8.1M.**

8.11 Designation of Existing Special Urban Areas

Designate as existing Special Urban Unincorporated Areas: (1) Olympic Country Club, (2) California Golf Club, (3) San Bruno Mountain, (4) Peninsula Golf and Country Club, (5) Edgewood County Park, (6) Sweeney Ridge Skyline Preserve, (7) the Hassler property, (8) San Francisco Jail, (9) San Francisco International Airport, (10) Stanford University Lands, (11) Guadalupe Valley Quarry, (12) Ideal Cement, (13) Harbor Industrial Area, (14) McLellan Nursery, (15) Horgan Ranch, (16) Bayshore Mobile Home Parks, and (17) lands of Benedetti.

8.12 General Plan Land Use Designations for Urban Areas

- a. Adopt the land use designations, and amendments thereto, of the: (1) Local Coastal Program, (2) Emerald Lake Hills Community Plan, and (3) North Fair Oaks Community Plan and other future area plans as the proposed General Plan land use designations in these urban areas.
- b. Reflect these adopted area plan land use designations on the General Plan Proposed Land Use Maps.
- c. Use the policies of the General Plan Urban Land Use Chapter to provide guidance when: (1) designating the remaining portions of urban areas on the General Plan Proposed Land Use Maps, (2) conducting land use studies and/or preparing future area plans, and (3) amending the land use designations of existing area plans.
- d. Adopt the proposed land use maps for Urban Areas as part of the County's land use plan.

8.13 Future Area Plans and Land Use Studies

Consider conducting land use studies and/or preparing future area plans for: (1) Colma, (2) lands of Benedetti, (3) Sequoia Tract, (4) West Menlo Park, and (5) Stanford lands. Combine land use designations in these areas with a Future Study designation.

GENERAL POLICIES

8.14 Appropriate Land Use Designations and Locational Criteria for Urban Unincorporated Areas

- a. Utilize, as guidelines only, the designations and densities shown in Table 8.1P to achieve stated land use objectives within unincorporated Urban Communities, Urban Neighborhoods and Special Urban Areas.



The Land Use (North County Area) Map is Located in the Map Component on page 8.2M.

- b. Use the criteria in Table 8.1P, as guidelines only, to locate land use designations in urban unincorporated areas.

RESIDENTIAL LAND USE

8.15 Land Use Compatibility

- a. Protect and enhance the character of existing single-family areas.
- b. Protect existing single-family areas from adjacent incompatible land use designations which would degrade the environmental quality and economic stability of the area.
- c. Encourage transit-oriented development in appropriate locations and a mixture of appropriate land uses that would enhance neighborhood quality and support pedestrian and bicycle activity.

COMMERCIAL LAND USE

8.16 Land Use Compatibility

Ensure that commercial development is compatible with adjacent land uses and supports a mixture of commercial activity with appropriate service-oriented and transit-oriented land uses.

8.17 Commercial Recreation

Where appropriate, separate neighborhood commercial land uses from commercial recreation land uses.

8.18 Commercial Buffers

Buffer commercial land uses when needed to protect contiguous residential uses, while maintaining connectivity and walkability.

8.19 Standards

Regulate commercial development by enforcing development standards (e.g., site planning, design, and construction standards) and performance standards to ensure high quality commercial development.

8.20 Redevelopment

Encourage the redevelopment of existing commercial land uses in a manner which is compatible with surrounding land uses.



The Land Use (Mid-Bayside Area) Map is Located in the Map Component on page 8.3M.

TABLE 8.1P**APPROPRIATE LAND USE DESIGNATIONS, DENSITIES AND LOCATIONAL CRITERIA IN URBAN AREAS**

LAND USE DESIGNATION	URBAN COMMUNITY	URBAN NEIGHBORHOOD	SPECIAL URBAN AREA	LOCATIONAL CRITERIA¹
Low Density Residential (0.3-2.3 du/net ac)		X		(1) Existing low density areas. (2) Hillside areas with steep slopes. (3) Adjacent to sensitive habitats. (4) Hazardous areas. (5) Not within areas of high perceived noise levels.
Medium Low Density Residential (2.4-6.0 du/net ac)		X		(1) Existing medium low density areas. (2) Hillside areas with steep slopes. (3) Adjacent to sensitive habitats. (4) Hazardous areas. (5) Not within areas of high perceived noise levels.
Medium Density Residential (6.1-8.7 du/net ac)	X	X		(1) Existing medium density areas. (2) Where there are adequate public services and facilities. (3) Along or near major transportation corridors. (4) Not within areas of high perceived noise levels.
Medium High Density Residential (8.8-17.4 du/net ac)	X	X	X	(1) Existing medium high density areas. (2) Along transportation corridors. (3) Adjacent to or in conjunction with commercial land uses. (4) Near employment centers. (5) Next to public services and facilities. (6) On large vacant parcels on the edge or outside of single-family neighborhoods. (7) Not within areas of high perceived noise levels.



The Land Use (South Bayside Area) Map is Located in the Map Component on page 8.4M.

TABLE 8.1P (continued)

APPROPRIATE LAND USE DESIGNATIONS, DENSITIES AND LOCATIONAL CRITERIA IN URBAN AREAS

LAND USE DESIGNATION	URBAN COMMUNITY	URBAN NEIGHBORHOOD	SPECIAL URBAN AREA	LOCATIONAL CRITERIA¹
High Density Residential (17.5-87.0 du/net ac)	X	X	X	(1) Existing medium high density areas. (2) Along transportation corridors. (3) Adjacent to or in conjunction with commercial land uses. (4) Near employment centers. (5) Next to public services and facilities. (6) On large vacant parcels on the edge or outside of single-family neighborhoods. (7) Not within areas of high perceived noise levels.
General Commercial	X	X		(1) Where there is a demand for general commercial services. (2) Where a variety of compatible commercial uses can be concentrated. (3) Next or close to major transportation routes, but not in long, continuous strips or isolated spots. (4) Where there is convenient automobile access. (5) Where parking facilities and other improvements can be provided.
Neighborhood Commercial	X	X		(1) Where there is a demand for neighborhood commercial services. (2) Where a variety of compatible commercial uses can be concentrated. (3) Next or close to major transportation routes, but not in long, continuous strips or isolated spots. (4) Proximate to residential areas. (5) Where there is convenient automobile, transit, pedestrian, and/or bicycle access. (6) Where parking facilities and other improvements can be provided.



**The Land Use (Mid-Coast Area)
Map is Located in the Map
Component on page 8.5M.**

TABLE 8.1P (continued)

APPROPRIATE LAND USE DESIGNATIONS, DENSITIES AND LOCATIONAL CRITERIA IN URBAN AREAS

LAND USE DESIGNATION	URBAN COMMUNITY	URBAN NEIGHBORHOOD	SPECIAL URBAN AREA	LOCATIONAL CRITERIA¹
Commercial Recreation	X			(1) Where there is a demand for commercial recreation services. (2) Where a variety of compatible commercial uses can be concentrated. (3) Next or close to major transportation routes, but not in long, continuous strips or isolated spots. (4) Where there is convenient automobile, transit, pedestrian, and/or bicycle access. (5) Where parking facilities and other improvements can be provided. (6) Where a natural and/or man-made setting (e.g., access to a marina) make the area attractive to visitors.
Office Commercial	X	X	X	(1) Existing office areas. (2) Along transportation corridors. (3) Near employment centers. (4) Where commercial and residential uses need to be buffered. (5) Where there is convenient automobile, transit, pedestrian and/or bicycle access.
Office/Residential	X	X	X	(1) Where residential uses need to be buffered from major transportation routes. (2) Where existing residential and commercial uses need to be buffered by a transition zone.

TABLE 8.1P (continued)

APPROPRIATE LAND USE DESIGNATIONS, DENSITIES AND LOCATIONAL CRITERIA IN URBAN AREAS

LAND USE DESIGNATION	URBAN COMMUNITY	URBAN NEIGHBORHOOD	SPECIAL URBAN AREA	LOCATIONAL CRITERIA¹
General Industrial	X		X	(1) Existing industrial areas. (2) Accessible to housing opportunities. (3) Where sufficient existing or potential urban services are available. (4) Proximate and convenient to major transportation facilities (roads, transit, rail).
Heavy Industrial	X		X	(1) Existing industrial areas. (2) Close to housing opportunities. (3) Where sufficient existing or potential urban services are available. (4) Proximate and convenient to major transportation facilities (roads, transit, rail).
Industrial Buffer	X		X	(1) Between industrial areas and areas sensitive to industrial, traffic noise, glare, odor, etc., particularly residential areas.
Institutional	X	X	X	(1) Existing educational facilities, government facilities, other public facilities. (2) On parcels owned by public agencies and suitable for development of institutional uses.
Airport Airport/Transportation Related ²	X		X	(1) Existing airports and adjoining airport land.
Public Recreation	X	X	X	(1) On parcels owned and managed by a public park and recreation agency.

TABLE 8.1P (continued)

APPROPRIATE LAND USE DESIGNATIONS, DENSITIES AND LOCATIONAL CRITERIA IN URBAN AREAS

LAND USE DESIGNATION	URBAN COMMUNITY	URBAN NEIGHBORHOOD	SPECIAL URBAN AREA	LOCATIONAL CRITERIA¹
Private Recreation	X	X	X	(1) On parcels owned and managed by a private recreational organization.
General Open Space	X	X	X	(1) Where natural resources are in need of protection. (2) Where there is managed production of resources. (3) Where it is necessary to protect the public and health and safety. (4) Where outdoor recreation is or could be suitably provided.

NOTES:

1. The locational criteria are intended to be guidelines to be used when making appropriate land use designations for urban communities, urban neighborhoods, and special urban areas. They link the policies of the General Plan to the designations on the proposed land use map. When using the table, any individual criterion or combination of criteria may justify a particular land use designation. However, the presence of one or more criteria does not necessarily make that designation mandatory, nor the most appropriate because other, more important land use objectives may call for another designation.
2. San Francisco International Airport Land west of Highway 101 designated for Airport use is intended to be used for transportation-related facilities.

INDUSTRIAL LAND USE

8.21 Industrial Planning

Plan for industrial land uses to provide an adequate tax base and source of employment.

8.22 Industrial Expansion

Designate land to allow for future industrial expansion.

8.23 Concentration of Uses

Concentrate the location of industrial land uses in order to achieve an efficient use of transportation facilities and energy supplies.

8.24 Land Use Compatibility

Ensure that industrial development is compatible with adjacent land uses.

8.25 Buffers

Buffer industrial development when needed to protect adjacent land uses.

8.26 Large Parcels

In order to achieve greater site planning flexibility and compatibility with adjacent land uses, consider industrial designations as more appropriate for large parcels.*

RECREATIONAL LAND USE

8.27 Recreational Land Use Planning

Plan for recreational land uses to provide recreational opportunities.

REGULATION OF DEVELOPMENT IN URBAN AREAS

8.28 Parcel Consolidation

Where necessary to achieve quality site planning and greater design flexibility, encourage the consolidation of smaller parcels which are designated for intense land uses, including, but not limited to, Industrial, Medium High and High Density Residential.

*Large parcels are generally 20,000 square feet or greater.

8.29 Density Bonuses

Consider allowing density bonuses for developments which consolidate smaller parcels that are designated Medium High to High Density Residential.

8.30 Infilling

Encourage the infilling of urban areas where infrastructure and services are available.

8.31 Mixed Use

Encourage development which contains a combination of land uses (mixed-use development), particularly commercial and residential developments along major transportation corridors.

8.32 Overcoming Constraints to Development

- a. Encourage efficient and effective infrastructure (e.g., water supply, wastewater, roads) necessary to serve the level of development allowable within urban areas.
- b. Encourage improvements which minimize the dangers of natural and man-made hazards to human safety and property.

ANNEXATION

8.33 Cooperation Toward Annexation

Work with the residents of unincorporated urban areas and the government and residents of adjacent cities to increase an understanding of the implications of annexation.

8.34 Annexation of County-Owned Facilities

Where practicable, initiate annexation of County-owned facilities located in urban areas and adjacent to a city.

GENERAL DEVELOPMENT STANDARDS

8.35 Zoning Regulations

To ensure that development is consistent with land use designations, continue to use zoning districts which regulate development by applying specific standards.

8.36 Uses

Allow uses in zoning districts that are consistent with the overall land use designation.

8.37 Density

Regulate maximum allowable densities in zoning districts in order to: (1) ensure a level of development that is consistent with land use designations, (2) plan for the efficient provision of public facilities, services, and infrastructure, and (3) minimize exposure to natural and man-made hazards.

8.38 Parcel Sizes

Regulate minimum parcel sizes in zoning districts in an attempt to: (1) ensure that parcels are usable and developable, (2) establish orderly and compatible development patterns, (3) protect public health and safety, and (4) minimize significant losses of property values.

8.39 Height, Bulk, and Setbacks

Regulate height, bulk, and setback requirements in zoning districts in order to: (1) ensure that the size and scale of development is compatible with parcel size, (2) provide sufficient light and air in and around structures, (3) ensure that development of permitted densities is feasible, and (4) ensure public health and safety.

8.40 Parking Requirements

Regulate minimum on-site parking requirements and parking development standards in order to: (1) accommodate the parking needs of the development, (2) provide convenient and safe access, (3) prevent congestion of public streets, (4) establish orderly development patterns, and (5) discourage an over-reliance on auto travel to the exclusion of other travel modes.

ENERGY

8.41 Land Divisions

When creating new land divisions, align streets and parcels to maximize solar access.

8.42 Solar Access

Minimize the obstruction of solar access by: (1) protecting structures from encroachment, (2) landscaping with appropriate plant materials, and (3) clustering structures where beneficial.

8.43 Buildings

Encourage the construction of energy-efficient buildings which use renewable resources and resource-efficient design to the maximum extent possible.

RURAL LAND USE POLICIES

The County will:

GOALS AND OBJECTIVES

9.1 Goal for Land Use Planning in the Rural Area

Provide a compatible and harmonious arrangement of land uses in the rural area by concentrating development in specific areas in order to encourage the conservation and the managed production of natural resources which meet general social and economic needs.

9.2 Land Use Objectives for Rural Service Centers

Encourage the continuation and development of Rural Service Centers in order to: (1) provide commercial facilities which support local residents and the surrounding agricultural, timber harvesting, resource extraction and recreational economy; (2) meet the housing needs which are generated by local employment; (3) concentrate development and services to minimize impact upon surrounding resources and maximize compatibility of land uses; (4) facilitate the provision of services and infrastructure; and (5) promote local employment opportunities and enhance creative enterprise through development of appropriately zoned parcels and/or adaptive reuse of non-residential structures that are consistent with the protection of neighborhood quality.

9.3 Land Use Objectives for Rural Residential Subdivisions

Encourage the continuation and development of designated Rural Residential Subdivisions in order to: (1) provide housing opportunities in the rural areas; (2) concentrate new residential development in existing residential areas where services are likely to be available; and (3) protect surrounding resources from the potential adverse impacts of development.

9.4 Land Use Objectives for the Rural Lands

Protect and enhance the resources of the Rural Lands in order to: (1) protect and conserve vegetation, water, fish and wildlife resources, productive soil resources for agriculture and forestry, and other resources vital to the sustenance of the local economy; (2) carefully manage and enhance the use, production, conservation or extraction of soils, timber, minerals and other natural resources; (3) protect and enhance the unique scenic quality and pastoral character of the rural lands; (4) provide a diversity of outdoor recreational opportunities for existing and future County residents; (5) protect the public health and safety by minimizing the location of new development in

potentially hazardous areas and directing infrastructure improvements to areas that will benefit the greatest number of rural residents and visitors; (6) minimize the amount of environmental damage caused by construction of major and minor roads or other infrastructure improvements; and (7) promote local employment opportunities and enhance creative enterprise by encouraging visitor-serving facilities, ancillary and accessory uses vital to resource production operations, and adaptive reuse of existing non-residential structures consistent with protection of surrounding resources.

DEFINITIONS

9.5 Rural Service Centers

Define Rural Service Centers as small rural communities having a combination of land uses which provide services to surrounding rural areas.

9.6 Rural Residential Subdivisions

Define Rural Residential Subdivisions as clusters of residential development subdivided into parcels that are generally less than or slightly larger than five acres. Rural Residential Subdivisions can include vacant parcels or neighborhood commercial uses, but are predominately developed with single-family homes.

9.7 Rural Lands

Define Rural Lands as those rural areas outside of Rural Service Centers and Rural Residential Subdivisions. Rural lands include, but are not limited to, those generally developed to lower residential densities, agricultural activities, resource extraction, timber harvesting, resource conservation, public or private recreation or open space. Rural lands can also include institutional uses and public service uses, such as solid waste disposal sites.

DESIGNATIONS

9.8 General Plan Land Use Designations for Rural Areas

- a. Adopt the land use designations of the Local Coastal Program, the Skyline Area General Plan Amendment, other future area plans, and amendments to these plans as the General Plan land use designations in the rural areas.
- b. Reflect these adopted area plan land use designations on the General Plan Proposed Land Use map.

- c. Use the policies of the General Plan Rural Land Use Chapter to provide guidance when: (1) designating the remaining portions of rural areas on the General Plan Proposed Land Use map; (2) preparing future area plans; and/or (3) amending the land use designations of existing area plans.

9.9 Designation of Existing Rural Service Centers

Designate San Gregorio, Pescadero and La Honda as existing Rural Service Centers.

9.10 Designation of Existing Rural Residential Subdivisions

a. Skyline Area Rural Residential Subdivisions

Designate as Rural Residential Subdivisions: (1) Quail Lane, (2) Sierra Morena Woods, (3) Redwood Park, (4) Kings Mountain Park, (5) Sky Ranch Estates, (6) Skylonda, (7) La Honda Vista, (8) Heacox Road, (9) Middleton Tract, and (10) Bear Gulch Road-East.

b. La Honda/Loma Mar Area Rural Residential Subdivisions

Designate as Rural Residential Subdivisions: (1) Alpine Creek Tract, (2) La Honda/Redwood Properties, (3) Redwood Terrace, (4) Loma Mar, (5) Pescadero Creek Park Subdivision, and (6) Guthrie Subdivision.

c. Coastal Zone Rural Residential Subdivisions

Designate as Rural Residential Subdivisions: (1) Dearborn Park, (2) Butano Falls, and (3) Portola Heights.

9.11 Designation of Rural Lands

Designate as Rural Lands the remaining rural areas outside of the Rural Service Centers and Rural Residential Subdivisions.

GENERAL POLICIES

9.12 Land Use Designations and Locational Criteria for the Rural Areas

- a. In order to meet the land use objectives for the Rural Service Centers, Rural Residential Subdivisions, and Rural Lands, utilize as guidelines the land use designations and the range of allowable densities shown in Table 9.1P.



**The Rural Land Use Map is
Located in the Map Component
on page 9.2M.**

TABLE 9.1P

APPROPRIATE LAND USE DESIGNATIONS, DENSITIES² AND LOCATIONAL CRITERIA IN RURAL AREAS

LAND USE DESIGNATION ¹	RURAL SERVICE CENTER	RURAL RESIDENTIAL SUBDIVISION	RURAL LANDS	LOCATIONAL CRITERIA ³
<u>Very Low Density Residential</u> (approximately or slightly less than 0.2 d.u./net acre)		X	X	(1) Substantially divided to densities of approximately 1 d.u./5 acres, or slightly above 5 acres. (2) Developed with existing very low density residential uses. (3) Located in proximity to existing developed areas. (4) Hazardous areas.
<u>Low Density Residential</u> (0.3-2.3 d.u./net acre)	X	X		(1) Substantially divided to low density residential densities. (2) Developed with existing low density residential uses. (3) Septic systems can be accommodated on lots divided to a maximum of 2.3 d.u./net acre. (4) Water supply is limited. (5) Hazardous areas.
<u>Medium-Low Density Residential</u> (2.4-6.0 d.u./net acre)	X	X		(1) Substantially divided to medium-low density residential densities. (2) Developed with existing medium-low density residential uses. (3) Septic systems can be accommodated on lots divided to a maximum of 6.0 d.u./net acre. (4) Located near major transportation corridors. (5) Water supply is available. (6) Hazards are easily mitigable.
<u>Medium Density Residential</u> (6.1-8.7 d.u./net acre)	X			(1) Substantially divided to medium density residential densities. (2) Developed with existing medium density residential uses. (3) Septic systems can be accommodated on lots divided to a maximum of 8.7 d.u./net acre or other sewage disposal technologies that meet local and regional public health requirements can be provided. (4) Located near major transportation corridors or major junctions. (5) Water and other public services are available. (6) Hazards are mitigable.

TABLE 9.1P (continued)

APPROPRIATE LAND USE DESIGNATIONS, DENSITIES² AND LOCATIONAL CRITERIA IN RURAL AREAS

LAND USE DESIGNATION ¹	RURAL SERVICE CENTER	RURAL RESIDENTIAL SUBDIVISION	RURAL LANDS	LOCATIONAL CRITERIA ³
<u>Neighborhood Commercial</u>	X	X		(1) Developed with existing neighborhood scale commercial uses. (2) The proposed commercial use will complement and serve the surrounding neighborhood. (3) Located near major transportation corridors where there is convenient automobile, transit, bicycle or pedestrian access. (4) Septic systems can be accommodated or other sewage disposal technologies that meet local and regional public health requirements can be provided. (5) Water and other public services are available. (6) Adequate parking can be made available. (7) On-site hazards are mitigable. (8) There is a market for neighborhood commercial services.
<u>General Commercial</u>	X			(1) Developed with existing, more intensive scale general commercial uses. (2) The proposed commercial use will complement and serve the surrounding neighborhood and can be adequately buffered from or blend with the surrounding neighborhood. (3) The proposed commercial use will not adversely impact surrounding resource lands. (4) Located, immediately adjacent to major transportation corridors where there is convenient automobile, transit, bicycle or pedestrian access. (5) Septic systems can be accommodated or other sewage disposal technologies that meet local and regional public health requirements can be provided. (6) Water and other public services can feasibly be provided. (7) Adequate parking can be made available. (8) On-site hazards are mitigable. (9) There is a market for general commercial services.



The Land Use (Rural Service Centers) Map is Located in the Map Component on page 9.3M.

TABLE 9.1P (continued)

APPROPRIATE LAND USE DESIGNATIONS, DENSITIES² AND LOCATIONAL CRITERIA IN RURAL AREAS

LAND USE DESIGNATION ¹	RURAL SERVICE CENTER	RURAL RESIDENTIAL SUBDIVISION	RURAL LANDS	LOCATIONAL CRITERIA ³
<u>Institutional</u>	X	X	X	(1) Developed with existing educational facilities, government facilities or other public facilities. (2) Owned by public agencies. (3) Suitable for development for institutional uses.
<u>General Open Space</u> (Density generated at a rate between 1 density credit per 5 acres and 1 density credit per 160 acres, as determined to be consistent with the protection of open space)	X	X	X	(1) Suitable for very low density development because of hazards or conflict with surrounding resources. (2) Where there is managed production of resources. (3) Where a complementary buffer for other resource extraction or production uses is needed. (4) Where outdoor recreation and open space is or could be suitably provided. (5) Used for watershed or other resource protection.
<u>Public Recreation</u> (Density generated at a rate between 1 density credit per 5 acres and 1 density credit per 160 acres, as determined to be consistent with the encouragement of public recreation)	X	X	X	(1) Owned and/or managed by public agencies for recreational and open space purposes. (2) Hazards are easily mitigable.
<u>Private Recreation</u> (Density generated at a rate between 1 density credit per 5 acres and 1 density credit per 160 acres, as determined to be consistent with the encouragement of private recreation)	X	X	X	(1) Privately owned and/or managed for recreational and open space purposes. (2) Hazards are easily mitigable.

TABLE 9.1P (continued)

APPROPRIATE LAND USE DESIGNATIONS, DENSITIES² AND LOCATIONAL CRITERIA IN RURAL AREAS

LAND USE DESIGNATION ¹	RURAL SERVICE CENTER	RURAL RESIDENTIAL SUBDIVISION	RURAL LANDS	LOCATIONAL CRITERIA ³
<u>Agriculture</u> Prime Agricultural Land ⁴ Land Suitable For Agriculture ⁵ Ancillary Lands ⁶ (Density generated at a rate between 1 density credit per 5 acres to 1 density credit per 160 acres, as determined to be consistent with the protection of agriculture) ⁷			X	(1) Contain soils with agricultural capability. (2) Under cultivation. (3) In use for the grazing and browsing of livestock. (4) Necessary for protection of agriculture from incompatible uses due to strategic location.
<u>Timber Production</u> (Density generated at a rate between 1 density credit per 5 acres to 1 density credit per 160 acres, as determined to be consistent with the protection of productive timberlands)			X	(1) Contain productive timber resources or soils with timber capability. (2) Within a timber production zoning district. (3) In use for timber harvesting under State Department of Forestry Permit. (4) In use for Christmas Tree farms.
<u>Solid Waste Disposal Facilities</u>			X	(1) Currently being used for solid waste disposal. (2) Adjacent to or near an existing solid waste disposal site that may be needed to expand the site. (3) Containing enough surrounding area to buffer the solid waste disposal area from surrounding uses.

- Notes: 1. Land use designations may be divided into more specific subcategories with the General Plan, as necessary to reflect local circumstances and achieve local land use objectives.
2. The question of allowable density in rural lands is determined through a density analysis which incorporates the opportunities and constraints to site development, including but not limited to the presence of resources, hazards and adequacy of access in determining the density allowed for each individual parcel. Although the densities for the rural lands could be as low as 5 acres, generally a minimum of 40 acres to 160 acres for each density credit is appropriate for the rural land uses.

3. The locational criteria are intended to be guidelines to be used when making appropriate land use designations for rural service centers, rural residential subdivisions, and rural lands. They link the policies of the General Plan to the designations on the proposed land use map. When using the table, any individual criterion or combination of criteria may justify a particular land use designation. However, the presence of one or more criteria does not necessarily make that designation mandatory, nor the most appropriate because other, more important land use objectives may call for another designation. The order of the locational criteria does not indicate a priority ranking.
4. Land which includes any of the following characteristics:
 - Class I and II soils, as well as Class III soils that are capable of growing artichokes or Brussels sprouts; or
 - Ability to produce crops that normally return, on an annual basis, not less than \$692 per acre (1985), or subsequent adjustments for inflation; or
 - Soils that have a good combination of natural, physical, and chemical characteristics for producing agricultural products, and for which a dependable source of water is available; or
 - Feasible production of irrigated row crops and soil dependent floriculture, including but not limited to cultivation of artichokes, Brussels sprouts, and field flowers; or
 - Conforms with the California Department of Food and Agriculture criteria for prime rangeland.
5. Land which includes any of the following characteristics:
 - Feasible production of agricultural products, including but not limited to: (1) cultivation of pumpkins, peas, Christmas trees, hay, oats, and other grains, (2) planting of non-soil dependent floriculture, and (3) grazing of livestock; or
 - A continued record of agricultural activities.
6. Land which is least suitable for agriculture or incapable of agricultural production but which is important for any of the following characteristics:
 - May be necessary to buffer nearby agricultural land from incompatible uses due to its strategic location; or
 - Adjacent to Prime Agricultural Land and Land Suitable for Agriculture where it is most appropriate to direct non-agricultural related development proposed on individual parcels.
7. At the time of adoption of this General Plan, the Board of Supervisors was in the process of choosing a consultant to prepare a Coastside Agricultural Economic Study. This Study may result in recommendations for changes as to how the County will define and protect agriculture in the Coastal Zone.

- b. Use the criteria in Table 9.1P as guidelines for choosing land use designations in Rural Service Centers, Rural Residential Subdivisions, and Rural Lands.

9.13 Master Land Division Plans

Require the preparation of master land division plans when parcels proposed for land division have a development potential of five or more dwelling units. Require the land division plan to specify the road pattern and required improvements, domestic water supply sources, on-site sewage disposal and the phasing of the eventual development of the parcel.

RURAL SERVICE CENTERS

REGULATION OF DEVELOPMENT

9.14 Development Standards for Rural Service Centers

In evaluating proposals for Rural Service Center development, determine: (1) the potential impacts of such development on the visual, timber, agricultural, recreational, and other resources contained in the Rural Lands immediately surrounding the Rural Service Center, (2) the compatibility of the proposed development with the existing development pattern within the individual Rural Service Center, and (3) the need for the proposed development in the community and the surrounding area.

9.15 Overcoming Constraints to Development

Support infrastructure improvements necessary to serve the level of development allowed within Rural Service Centers in order to: (1) provide adequate access, water and sewage disposal facilities necessary to serve that level of development, and (2) mitigate any existing flooding hazards.

9.16 Urban/Rural Boundaries Around Existing Rural Service Centers

- a. Continue the existing urban/rural boundary lines around Pescadero and San Gregorio.
- b. Consider amendments to these boundaries and/or adoption of an urban/rural boundary around La Honda.

- c. Consult with communities regarding proposed amendments to the urban/rural boundary surrounding Rural Service Centers prior to adoption of such amendments.

9.17 Criteria for Expansion of the Urban/Rural Boundary Around Existing Rural Service Centers

Consider expansion of the urban/rural boundary surrounding existing Rural Service Centers when the economic or social needs of the residents of the Rural Service Center and surrounding Rural Lands cannot be achieved by the limited supply of land within the Rural Service Center because: (1) the existing supply of land within the Rural Service Center has been substantially developed to the allowable density (i.e., buildout to maximum allowable density has (a) either occurred or (b) is prevented from occurring because property has not been developed to accommodate the economic or social needs of the residents) or (2) development within the Rural Service Center has become infeasible.

9.18 Criteria for Expansion of the Urban/Rural Boundary Around Rural Service Centers

Prior to approval of the expansion of the urban/rural boundary around Rural Service Centers require that the following criteria be met: (1) the economic or social need for the expansion has been clearly demonstrated; (2) adequate services can be provided to support the new level of development permitted by the expansion; (3) the hazards to any new potential development permitted by the expansion can be adequately mitigated by the developer; (4) the area proposed for expansion is the most environmentally suitable and available location for such expansion; (5) measures for protecting affected resources have been incorporated into the expansion proposal; (6) hearings have been conducted in the Rural Service Centers or surrounding Rural Lands to receive public comment on the proposed expansion.

RURAL RESIDENTIAL SUBDIVISIONS

REGULATION OF DEVELOPMENT

9.19 Establishment of New Rural Residential Subdivisions

Allow the development of new Rural Residential Subdivisions and their designation in the General Plan.

9.20 Criteria for Establishment of New Rural Residential Subdivisions

Allow for the development and designation of new Rural Residential Subdivisions when at least the following conditions are present: (1) land use compatibility and resource protection will be achieved by the design of the land division, (2) environmental impacts and hazard risks can be adequately mitigated, and (3) conformance with State and local land use regulations, as they exist or as they are amended, to provide for establishment of new rural residential subdivisions.

9.21 Development Standards for Rural Residential Subdivisions

In evaluating proposals for development within rural residential subdivisions, consider: (1) the potential impacts of such development on the visual, timber, agricultural and other resources contained in the rural lands immediately surrounding the rural residential subdivision, and (2) the compatibility of the proposed development with the existing development pattern within the individual rural residential subdivision.

9.22 Adjust Density to the Limitations of the Terrain in Subdivided Areas

Adjust minimum building site size allowed in subdivided areas in order to reflect limitations of terrain, environmental and service constraints.

RURAL LANDS POLICIES

GENERAL POLICIES

9.23 Land Use Compatibility in Rural Lands

- a. Encourage compatibility of land uses in order to promote the health, safety, and economy and to maintain the scenic and harmonious nature of the rural lands.
- b. Promote land use compatibility by encouraging the following methods: (1) locate new residential or commercial development immediately adjacent to existing developed areas; (2) where services and site conditions permit, cluster new residential or commercial development so that large parcels can be retained for the protection and use of vegetative, visual, agricultural, timber and other resources; (3) buffer existing agricultural activities from adjacent recreational use; and (4) buffer land uses such as mineral extraction, timber harvesting, solid waste disposal sites and other resource extraction uses from surrounding land uses by auditory

and visual screening, isolation in large parcels, and other appropriate methods.

9.24 Determining Appropriate Development Densities for the Rural Lands

Determine allowable densities for each individual parcel in the rural lands, through an analysis of resources, hazards, availability of services, and land use patterns, including but not limited to: (1) the presence of productive soil resources; (2) the presence of geotechnical, fire, and flooding hazards; (3) the degree of slope and slope stability; (4) the adequacy of access to all weather roads; (5) the presence of agricultural preserve or other contracts limiting the intensity of use on the parcel; (6) the presence of scenic corridors or other public recreational facilities; (7) the presence of sensitive habitats and/or threatened or endangered species; or (8) other factors which could affect the use of the rural lands.

9.25 Compatible Land Uses Adjacent to Rural Service Centers and Rural Residential Subdivisions

Encourage land uses in proximity to Rural Service Centers and Rural Residential Subdivisions that are compatible with the visual, economic, and/or social character of the community.

9.26 Coastal Zone Priorities

Address the priorities as mandated by the California Coastal Act in land use decisions in the Coastal Zone.

REGULATION OF DEVELOPMENT

AGRICULTURE

9.27 Definition of Agricultural Activities

Define agricultural activities as feasible activities, including but not limited to the cultivation of land to produce food, fiber, fuel, and flowers, the grazing, growing, or pasturing of livestock, and the handling, processing or marketing of agricultural products.

9.28 Encourage Existing and Potential Agricultural Activities

- a. Encourage the continuance of existing agricultural and agriculturally-related activities.
- b. Encourage agricultural activities on soils with agricultural capability which are currently not in production.

- c. Consider agricultural land use designations for parcels which have existing agricultural activities or which contain soils with agricultural capability that are presently designated General Open Space, during future review of area plans.
- d. Consider open space designations for agricultural parcels that are no longer capable of agricultural activities during future reviews of area plans.

9.29 Criteria for Division

- a. In order to establish and/or maintain agricultural activities, encourage the maintenance and/or creation of appropriately-sized agricultural parcels.
- b. If land division of parcels designated as Agriculture is proposed, prepare a master land division plan which will: (1) designate agricultural and non-agricultural parcels; (2) retain areas containing soils with agricultural capability in appropriately-sized parcels; (3) create or maintain the size of agricultural parcels to ensure that existing or potential agricultural productivity is not diminished; (4) create non-agricultural parcels that are of only the minimum size necessary to meet domestic well water and on-site sewage disposal requirements; (5) cluster non-agricultural parcels in locations which have the least impact upon existing and potential agricultural uses; and (6) clearly define buffer areas between agricultural and non-agricultural uses. Regulations should place priorities according to the relative productive characteristics of the resources.

9.30 Development Standards to Minimize Land Use Conflicts With Agriculture

- a. Avoid to the greatest extent possible locating non-agricultural activities on soils with agricultural capability or lands in agricultural production. Regulations should place priorities according to the relative productive characteristics of the resource.
- b. Locate non-agricultural activities in areas of agricultural parcels which cause the least disturbance to feasible agricultural activities.
- c. Buffer any non-agricultural activities from agricultural activities by means of distance, physical barriers or other non-disruptive methods.
- d. Ensure that any extension of public services and facilities to serve non-agricultural activities will not impair feasible agricultural activities.

9.31 Protection of Agricultural Lands

- a. Apply methods which assist in the retention and expansion of lands with agricultural activities such as density bonuses, enforceable restrictions

(e.g., easements, contracts or deed restrictions), lease back of agricultural lands owned by public agencies, transfer of development rights, or other appropriate methods.

- b. Make efforts to inform landowners, residents and visitors to adjacent properties of the priority of agricultural activities and the possible inconvenience and/or discomfort resulting from normal agricultural activities.

TIMBER PRODUCTION

9.32 Encourage Existing and Potential Timber Production Land Uses

- a. Encourage the continuance of existing timber production operations that are located on parcels currently designated for timber production.
- b. Encourage expansion of timber harvesting operations on parcels designated for timber production, provided that the impacts of those operations on surrounding resources and adjacent land uses can be adequately mitigated.
- c. Permit the continuance or initiation of timber production operations on parcels designated for other land uses when it can be demonstrated that the timber production use would not disturb sensitive habitats and/or threatened or endangered species and other resources, would not create conflicts with adjacent land uses, and would provide adequate methods of buffering from adjacent land uses and resources.
- d. Prohibit any clear-cutting operations within County jurisdiction.
- e. Evaluate timber production designations for lands containing valuable timber resources that are presently designated General Open Space during future review of area plans.
- f. Designate for timber production parcels that have been zoned for timber production under the Timberland Productivity Act of 1982 or previous zoning regulations.

9.33 Criteria for Division

- a. In order to establish or maintain the viability of timber operations, encourage the maintenance and/or creation of timber production lands in large parcels.
- b. If land division of timber production lands is proposed, prepare a master land division plan which will: (1) designate parcels proposed for timber

production and non-timber uses; (2) identify and retain areas with valuable timber resources in large parcels; (3) create or maintain the size of timber production parcels to ensure that existing or potential productivity is not diminished; (4) create non-timber parcels that are of only the minimum size necessary to meet domestic well water and on-site sewage disposal requirements; (5) cluster non-timber parcels in locations which have the least impact upon existing and potential timber uses; (6) clearly define buffer areas between the timber production areas and adjacent non-timber uses; and (7) clearly indicate the location and scheduling of future harvest operations.

9.34 Development Standards to Minimize Land Use Conflicts With Timber Production Lands

- a. Avoid locating non-timber uses in identified timber resource areas or other areas which are currently in timber production.
- b. Locate non-timber uses in areas of timber parcels which cause the least disturbance to existing feasible timber harvesting operations.
- c. Buffer any new non-timber uses from productive timber resources by means of restricted access, distance, physical barriers or other appropriate methods.
- d. Buffer any new timber operations from surrounding land uses by similar means.

PUBLIC RECREATION

9.35 Encourage Existing and Potential Public Recreation Land Uses

- a. Encourage the continuation and expansion of existing public recreation land uses on non-agricultural lands, including but not limited to, public beaches, parks, recreation areas, wild areas, and trails.
- b. Encourage the continuation and expansion of agricultural activities within the boundaries of public recreation lands that are not in recreational use.
- c. Encourage cooperation between public agencies and adjacent agricultural operations so as to reduce inconvenience to agricultural operators consistent with the protection of the public health.

9.36 Development Standards to Minimize Land Use Conflicts in Public Recreation Lands

- a. Protect public recreation uses from incompatible land uses such as commercial timber harvesting, mineral extraction or other resource recovery uses, whether these uses occur on-site or on adjacent parcels.
- b. Consider agriculture to be a compatible activity in public recreation lands, which must be protected and buffered from significant public intrusion.
- c. Consider selective timber harvesting to be an appropriate use only when forest management (i.e., manipulation of forest growth to assure a safe and healthy forest environment) is necessary. Under no circumstances, permit clear-cutting in public recreation lands.
- d. Provide structural, visual, auditory and other buffering mechanisms to protect portions of the public recreation lands that are used by the public from non-recreational land uses.
- e. Encourage public recreation providers to submit master park development plans for the design and management of recreational and non-recreational land uses.
- f. Require full phased reclamation/restoration of any portion of lands designated for public recreation that are used for resource extraction uses other than agriculture.
- g. Encourage the State to protect agricultural activities.

9.37 Ensure Land Use Compatibility Between Private and Public Recreation Lands

To ensure land use compatibility, incorporate buffering techniques into: (1) land division requests on parcels adjacent to public recreation lands; and (2) public recreation development requests adjacent to private property.

PRIVATE RECREATION

9.38 Encourage Private Recreation Land Uses

- a. Encourage the continuation and expansion of private recreational land uses, including but not limited to visitor serving facilities such as country inns, restaurants, stables, private beaches and other uses.
- b. Encourage the continuation and expansion of agricultural activities on private recreation lands that are not in recreational use.

- c. Encourage cooperation between public agencies and adjacent agricultural operations so as to reduce inconvenience to agricultural operators consistent with the protection of the public health.

9.39 Development Standards to Minimize Land Use Conflicts in Private Recreation Lands

- a. Encourage private recreation providers to prepare long-range plans for the development and land uses of their facilities.
- b. Protect private recreation uses from incompatible land uses such as timber harvesting, mineral extraction or other resource recovery uses, whether these uses occur on-site or on adjacent parcels.
- c. Consider agriculture to be a compatible activity in private recreation lands, which must be protected and buffered from significant public intrusion.
- d. Cluster recreationally oriented residential or group facilities development on private recreation lands to retain the open space character of the site and to protect resources.
- e. Provide structural, visual, auditory and other buffering mechanisms to protect portions of the private recreation lands that are used by the public from other incompatible land uses.
- f. Require full phased reclamation/restoration of any portion of lands designated for private recreation that are used for resource extraction uses other than agriculture.
- g. Develop measures to determine allowable density credits for private recreational development.

GENERAL OPEN SPACE

9.40 Maintenance of the Open Space Character of Lands Designated as General Open Space

Wherever possible, maintain the open space character of lands designated as General Open Space through acquisition and/or performance standards for locating new development.

9.41 Criteria for the Division of Lands Designated General Open Space

- a. Wherever possible in areas designated General Open Space, design land divisions to retain large areas without development in order to protect

resources and maintain the scenic quality and open space character of the rural area.

- b. If land division for residential or commercial purposes is proposed, arrange the resulting land division using the following guidelines: (1) cluster proposed development in smaller parcels in order to maintain large parcels; (2) retain in large parcels areas with valuable resources or scenic quality; and (3) in order to maintain rural character, encourage several small clusters rather than one larger, suburban-type development.

9.42 Development Standards for Land Use Compatibility in General Open Space Lands

- a. Consider agriculture to be a compatible activity in general open space lands which must be protected and buffered from public intrusion and the intrusion of other incompatible land uses.
- b. Locate development in areas of parcels which cause the least disturbance to scenic resources and best retain the open space character of the parcel.
- c. Where possible, locate development in areas that are free from hazardous conditions, including but not limited to, steep slopes, unstable soils, and areas of special flood hazard.
- d. Require full reclamation/restoration of any portion of lands designated as General Open Space that are used for resource extraction uses.

9.43 San Francisco Watershed Lands

Recognize the San Francisco watershed lands as unique areas of special open space significance that should be protected from conflicting land uses in order to retain their value as open space, wildlife, water supply, and recreational resources.

VERY LOW DENSITY RESIDENTIAL

9.44 Criteria for Division of Very Low Density Residential Lands

Discourage division of lands in very low density residential use unless such further division can be served by adequate access, water, and wastewater systems.

9.45 Development Standards for Very Low Density Residential Uses

Buffer residential uses from surrounding resource areas by means of physical barriers, large parcels, distance, visual screening or other appropriate mechanisms.

INSTITUTIONAL AND SOLID WASTE DISPOSAL SITES

9.46 Development Standards for Land Use Compatibility for Institutional Lands and Solid Waste Disposal Facilities

- a. When solid waste disposal facilities or institutional land uses are proposed, the operator shall provide adequate visual and auditory buffering from adjacent land uses by means of distance, large parcel sizes, physical barriers or other non-disruptive methods.
- b. Locate uses in portions of parcels that cause the least disturbance to resources and best retain the open space character of the parcel and surrounding area.

PROGRAM RESPONSIBILITIES

Role of the County:

9.47 Maintain and Update a Land Use Data Base

- a. In order to be adequately informed of existing conditions and changing trends in land use in the rural area, monitor the rate of development and potential impacts on services in the rural area and maintain data, including but not limited to, on the acreage in each land use, the number of dwelling units, rates of land conversion and the number of residential and commercial building permits issued by the County.
- b. Update this information during a periodic review of the General Plan as necessary.
- c. Reflect changes in land use on the Proposed Land Use map during a periodic review of the General Plan as necessary.

9.48 Develop Agricultural Subcategories

Develop subcategories for the designation of agriculture which consider distinctions in agricultural uses and/or the relative productive potential of agricultural lands.

9.49 Coordination With Other Public Agencies and Private Interests

Work closely with Federal and State agencies, cities, special districts and private interests to maintain accurate land use data and to inform them of County land use policies.

9.50 Continue the Cooperative Management of the San Francisco Watershed Lands

Continue the cooperative agreements between the County, the City and County of San Francisco, the State of California and the Golden Gate National Recreation Area for the management of the San Francisco Watershed Lands.

WATER SUPPLY POLICIES

The County will:

GOALS AND OBJECTIVES

10.1 Coordinate Planning

Coordinate water supply planning with land use and wastewater management planning to assure that the supply and quality of water is commensurate with the level of development planned for an area.

10.2 Safeguarding Water Supplies

Seek to safeguard the productive capacity of groundwater aquifers and storage reservoirs.

10.3 Water Conservation

Promote the conservation and efficient use of water supplies.

10.4 Development of Water Supplies

Promote the development of water supplies to serve: (1) agricultural uses, as the highest priority; (2) domestic uses; and (3) recreational uses.

DEFINITION

10.5 Water System

Define water system as a system of integrated piping, storage tanks, and a source of supply used for providing water for domestic purposes.

GENERAL POLICIES

10.6 Water Quality

- a. Encourage appropriate County and State agencies to monitor water supplies for pollutants.
- b. Encourage the removal of foul odors and tastes from domestic water supplies.

10.7 Park and Recreation Water Supplies

- a. Encourage the provision of water supplies in park and recreation areas commensurate with the desired level of development. (Please see the Park Chapter for related information.)
- b. Encourage coastal recreation and visitor serving facilities to provide drinking water.

10.8 Water Systems for Coastal Areas

Support efforts to provide adequate water systems for the Mid-Coast, rural service centers, and other unincorporated urban areas.

10.9 Potential Water Sources

- a. Support the creation of water supplies which are commensurate with the level of development permitted in adopted land use plans.
- b. Identify and encourage the protection and development of sites in rural areas suitable for reservoirs to store water supplies.
- c. Encourage and support different techniques to convert saltwater to potable water.
- d. Encourage the use of treated wastewater as a potential source of water.
- e. Encourage the development of off-stream reservoirs for the retention of water generated from winter runoff.

URBAN WATER SUPPLIES

10.10 Water Suppliers in Urban Areas

Consider water systems as the preferred method of water supply in urban areas. Discourage use of wells to serve urban uses. However, allow wells to serve urban uses when:

- a. No water is available from a water system to serve the area,
- b. There is no threat to public health, safety or welfare presented by the cumulative effects of well drilling in the area, and
- c. The following is demonstrated:
 - (1) Water quality meets County and State standards;

- (2) The water flow meets County and State standards and is sufficient to meet the needs of the requested use; and
- (3) The well is a safe distance from potential sources of pollution and other existing wells.

10.11 Coordination With Water Suppliers

Support and coordinate County water plans with future San Francisco Water Department and the Bay Area Water Users Association planning efforts.

10.12 Coordination of Water Suppliers

Encourage water providers to coordinate the planned capacity of their facilities commensurate with the level of development permitted by adopted land use plans and wastewater management plans.

10.13 Water Systems in Unincorporated Areas

Support efforts to improve water distribution and storage systems in unincorporated neighborhoods and communities.

10.14 Emergency Considerations

Support the development of a sufficient emergency supply of water including plans to interconnect with neighboring municipal water systems during emergencies that cause significant water service interruptions.

RURAL WATER SUPPLIES

WATER SYSTEMS

10.15 Water Suppliers in Rural Areas

Consider the following as appropriate methods of water supply in rural areas: water systems and wells.

10.16 New Water Systems

Allow the creation of new water systems in Rural Service Centers and Rural Subdivisions areas only when demonstration is made of at least the following: (1) connections to existing systems are not available; (2) the new water system will use, as a source of supply, wells or springs; and (3) adequate financing for the new water system is available.

In the case of the Pescadero Rural Service Center, allow the use of surface water as a source of supply due to an existing inadequate supply of groundwater serving a substantial existing population.

10.17 Improving Existing Water Systems

- a. Support, where local residents express an interest, the possible consolidation of water systems under one management and pursue methods of financing this consolidation, such as assessment districts, Federal and State grants, and creation of new districts.
- b. Support the development of funding sources to make appropriate improvements to the facilities of water systems.
- c. Allow water systems using surface water supplies to continue this practice when done in accordance with appropriate permits and approvals.

GROUNDWATER SUPPLIES

10.18 Aquifer Studies and Management

- a. Support and cooperate in studies leading to a more thorough understanding of the groundwater aquifers, their location, quality, safe yield and migration patterns. Formulate and carry out a management program that would ensure the long-term viability of aquifers for beneficial use.
- b. Regulate, to the extent not in conflict with State law, the extraction of groundwater from aquifers in order to protect the safe yield and prevent overdrafting and saltwater intrusion.
- c. Discourage activities and operations that would pollute groundwater supplies. Encourage the cleanup and restoration of polluted aquifers.

DOMESTIC WELLS

10.19 Domestic Water Supply

Encourage the use of wells or springs rather than surface water for domestic water supplies to serve new development.

10.20 Well Location and Construction

- a. Require domestic vertical wells to be located an adequate distance away from the normal watercourse of a stream in order to minimize impacts upon downstream surface water supplies.

- b. Regulate the construction and location of wells in areas subject to flooding or served by septic tanks in order to minimize adverse impacts.

AGRICULTURAL WATER SUPPLIES

10.21 Agricultural Surface Water Sources

Protect downstream agricultural surface water sources by discouraging: (1) the creation of new non-agricultural parcels which would use nearby streams as a source for water supplies; and (2) the transfer of riparian rights to the new parcels.

AGRICULTURAL IMPOUNDMENTS

10.22 Developing Off-Stream Storage for Agriculture

Encourage the construction of small off-stream impoundments that draw water from peak winter streamflow for agricultural irrigation.

10.23 Expediting the Permit Process

Work with the State Division of Water Rights and the State Department of Fish and Game to develop procedures to shorten the time period required to obtain permits to appropriate water for agricultural purposes.

10.24 Financing Agricultural Impoundments

- a. Encourage the formation of assessment districts as a method to finance the construction of agricultural impoundments.
- b. Direct the County Manager's Office to research the availability of grants to finance and locate the construction of new agricultural impoundments.
- c. Encourage developers of non-agricultural uses to contribute toward financing the construction of agricultural impoundments.

WATER CONSERVATION

10.25 Efficient Water Use

- a. Encourage the efficient use of water supplies through effective conservation methods.
- b. Require the use of water conservation devices in new structural development.

- c. Encourage exterior water conservation.
- d. Encourage water conservation for agricultural uses by using efficient irrigation practices.

WATER RECLAMATION

10.26 Wastewater Reuse

- a. Encourage the reuse and recycling of water whenever feasible.
- b. Encourage the use of treated wastewater that meets applicable County and State health agency criteria.
- c. Support small-scale and on-site water recycling technologies, which meet public health and safety standards, for landscaping and agricultural purposes.

10.27 Wastewater Reservoirs

Identify sites suitable for use as reservoirs for treated wastewater. Consider using this wastewater for irrigation and/or public landscaping purposes. (Please see Wastewater Chapter for related information.)

WASTEWATER POLICIES

The County will:

GOALS AND OBJECTIVES

11.1 Adequate Wastewater Management

Plan for the provision of adequate wastewater management facilities to serve development in order to protect public health, wildlife habitats, and water quality.

11.2 Coordinate Planning

Coordinate wastewater management planning with land use and water supply planning to assure that the capacity of sewerage facilities is commensurate with the level of development planned for an area.

11.3 Current Technology

Encourage the development of wastewater management systems that utilize current technology.

URBAN AREAS

11.4 Adequate Capacity for Unincorporated Areas

Plan for the availability of adequate sewerage collection and treatment capacity for unincorporated urban areas.

11.5 Wastewater Management in Urban Areas

- a. Consider sewerage systems as the appropriate method of wastewater management in urban areas.
- b. Encourage the extension of sewerage systems to serve unincorporated urban areas presently using individual sewage disposal systems where warranted by public health concerns, environmental pollution or the planned density of development.
- c. Continue the use of existing individual sewage disposal systems in urban areas where lot sizes, site conditions, and planned densities are appropriate for these systems and where individual sewage disposal systems have functioned satisfactorily in the past.

11.6 Financing Sewerage Facilities in Urban Areas

Develop equitable financing plans for sewerage improvements in urban areas that are consistent with local needs.

11.7 Phasing Sewerage Improvements

Phase the development of wastewater facility improvements in areas with substantial growth potential so that sufficient capacity becomes available when needed by new growth in accordance with adopted land use plans.

11.8 Infiltration of Storm Water Into Sewerage Systems

Encourage sewerage treatment and collection system operators to conduct studies on potential infiltration and inflow of storm waters into sewerage systems and to implement programs to correct such problems.

11.9 Sewerage Capacity for Priority Land Uses

- a. Provide for the reservation of sewerage capacity for priority land uses where required by State law or local policy.
- b. Encourage sewerage districts which are required to reserve capacity for priority land uses to establish an equitable method of payment for such capacity.

RURAL AREAS

11.10 Wastewater Management in Rural Areas

Consider the following as appropriate methods of wastewater management in rural areas: (1) Rural Service Centers--sewerage systems and individual sewage disposal systems; (2) Rural Subdivisions and Rural Areas--individual sewage disposal systems.

11.11 Financing Sewerage Facilities in Rural Areas

Develop equitable financing plans for sewerage facilities in rural areas that are consistent with local needs.

11.12 Adequate Lot Sizes for Septic Tanks

In areas where septic tanks are used for wastewater management, ensure parcel sizes are of sufficient size to accommodate septic tank systems and otherwise meet the requirements of the Office of Environmental Health.

11.13 Septic Tank Maintenance

Establish regulations requiring the inspection and, where appropriate, the repair of inadequate or failed individual sewage disposal systems.

11.14 Alternative Wastewater Systems

Allow the development of alternative wastewater systems acceptable to the Office of Environmental Health and monitor technological developments in this area. Permit the installation of systems that are acceptable to the Office of Environmental Health in rural service centers, rural subdivisions and rural areas.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

11.15 Educational Program

Request the Office of Environmental Health to develop a public education program for County residents using septic systems. Inform users of the operational requirements and limitations of these systems.

11.16 Sewer Facilities for Unincorporated Areas

In unincorporated areas where the County provides sewerage collection services, support the development of adequate sewerage facilities to serve the planned development of these areas. Work with sewerage authorities and cities to reserve capacity commensurate with the level of development planned for these areas.

11.17 Review of Public Works Capital Improvement Program

Request the Public Works Department to submit its annual Capital Improvement Program as it relates to wastewater improvements to the Planning Commission for review and comment in accordance with Section 65401 of the California Government Code.

TRANSPORTATION POLICIES

The County will:

DEFINITIONS

12.1 Definition of Streets

Define Streets to include streets, roads, bridges, interchanges used to get to and across highways, bridges, and other portions of the transportation system.

12.2 Definition of Complete Streets

Define Complete Streets as an approach to transportation that describes an integrated, multimodal transportation system which equally supports all types of transportation, including pedestrian, bicycle, and vehicular traffic.

12.3 Definition of Streets Projects

Define Streets Projects as: Planning, design, and implementation process for street construction, reconstruction, retrofit, alteration, or repair of streets; and projects, programs, and practices including but not limited to pavement re-surfacing, restriping, utility projects, signalization operations or modifications, and maintenance of landscaping/related features.

12.4 Definition of Complete Streets Projects

Define Complete Streets Projects as: Including but not limited to sidewalks, shared-use paths, bicycle lanes, bicycle routes, paved shoulders, street trees and landscaping, planting strips, accessible curb ramps, crosswalks, refuge islands, pedestrian signals, signs, street furniture, bicycle parking facilities, transit priority signalization, and other features assisting in the provision of safe travel for all users, such as traffic-calming devices, bulb-outs, curb extensions, chicanes, and road diets.

12.5 Definition of Transportation Users

Define Transportation Users as motorists, movers of commercial goods, users of public transportation, bicyclists, pedestrians of all ages and abilities, children, persons with disabilities, seniors, users and operators of public transportation, youth, and families.

GOALS AND OBJECTIVES

- 12.6 Plan for a transportation system that provides for the safe, efficient, and convenient movement of people and goods in and through San Mateo County.
- 12.7 Create and maintain Complete Streets that serve all categories of transportation users and goods, providing safe, efficient, comfortable, and convenient travel along all streets through an integrated, balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways for safe and convenient travel in a manner that is suitable to the rural, suburban, or urban context of the General Plan.
- 12.8 To the extent possible, plan for accommodating future transportation demand in the County by using existing transportation facilities more efficiently, or improving and expanding them before building new facilities.
- 12.9 Provide for a balanced and integrated transportation system in the County which allows for travel by various modes and easy transfer between modes.
- 12.10 Plan for increasing the proportion of trips using public transit or ridesharing.
- 12.11 Balance and attempt to minimize adverse environmental impacts resulting from transportation system improvements in the County.
- 12.12 Promote the development of energy-conserving transportation systems in the County.
- 12.13 Coordinate transportation planning with adjacent jurisdictions.

AUTOMOBILE TRAVEL

12.14 Additional Capacity

When providing additional capacity for automobile traffic where needed, give priority to upgrading and expanding existing roads before developing new road alignments.

12.15 Rural Road Improvements

In rural areas, where improvements are needed due to safety or congestion, support improved traffic control measures that balance the needs of all users and provide safe travel, implementing measures such as signing, lane markings, and speed controls, and the construction of operational and safety improvements, such as adequate passing lanes, elimination of sharp curves, lane widening, or paved shoulders.

12.16 Urban Road Improvements

In urban areas, where improvements are needed due to safety concerns or congestion, support the construction of interchange and intersection improvements, additional traffic lanes, turning lanes, redesign of parking, channelization, traffic control signals, or other improvements while enhancing the functionality of travel routes for all transportation users.

12.17 East-West Roads

Work with CalTrans and the cities to provide improved major east-west routes in the County as traffic conditions warrant.

12.18 Recreational Traffic to the Coastsides

Seek methods to mitigate the impact of peak recreational traffic to and along the Coastsides.

12.19 Circulation East of Highway 101

Encourage the cities and CalTrans to develop an adequate circulation system, including bikeways, and other context-sensitive design features to serve all transportation users and new development east of Highway 101 and which, to the maximum extent feasible, does not adversely affect baylands or wetlands.

12.20 Financing Local Road Improvements

Utilize all available techniques for funding local road improvements in unincorporated areas, including assessment districts, developer contributions, and County road funds. Ensure road improvements are consistent with adopted land use plans and area plans.

12.21 Local Circulation Policies

In unincorporated communities, plan for providing:

- a. Maximum freedom of movement for all transportation users and adequate access to various land uses;
- b. Improved streets, sidewalks, bicycle routes, landscaping, shared-use paths, and other site-appropriate design features that enhance the safety and usability of transportation networks in developed areas;
- c. Minimal through traffic in residential areas;

- d. Routes for truck traffic which avoid residential areas and are structurally designed to accommodate trucks;
- e. Access for emergency vehicles;
- f. Safe and efficient bicycle and pedestrian travel;
- g. Access by all transportation users, including persons with disabilities, seniors, children, and youth, to public buildings, shopping areas, hospitals, offices, and schools;
- h. Prioritization of accessibility to transit services and to routes and turnouts for public transit;
- i. Parking areas for ridesharing; and
- j. Coordination of transportation improvement with adjacent jurisdictions.

12.22 Local Road Standards

Allow for modification of road standards for sub-areas of the County, which respond to local needs and conditions as identified in area plans.

12.23 Vacation of County Streets and Easements

In reviewing requests for sale, vacation, or abandonment of County streets, rights-of-way, or easements, consider the following:

- a. whether access is available to existing parcels and developed areas adjacent to the subject area, or possible future development based on adopted area plans;
- b. whether the area to be vacated is not required for public transit use based on adopted plans; and
- c. whether the area to be vacated is not suitable for non-motorized use.

12.24 Official Plan Lines

Review official plan lines to assure they are current and conform to County road standards. Delete plan lines on streets which have already been improved to County standards or which have become incorporated within city boundaries.

12.25 Parking Standards

Review and update the County's off-street and on-street parking standards in order to reflect current conditions and requirements. Consider the needs of each individual land use, the potential for joint use of parking areas, fees in lieu of parking, spaces for smaller cars, and parking management strategies that support project needs while reducing an overabundance of surface parking to the detriment of other categories of transportation users or other land uses.

12.26 Funding for Road Maintenance

Utilize all funds available for roadway repair and maintenance, and seek additional funding, if necessary, to prevent further deterioration of the County's road system.

12.27 Off-Peak Operations

Encourage freight carriers (rail and truck) and roadway construction crews to operate during off-peak periods.

12.28 Seaport Boulevard

Encourage the Port of Redwood City to improve Seaport Boulevard in conjunction with the development of the port area.

COMPLETE STREETS

12.29 Context-Sensitive Street Design

Coordinate with stakeholders during street planning and design to maintain sensitivity to local conditions and ensure a strong sense of place that meets the needs of transit users, including consideration of a diversity of Complete Streets projects.

12.30 Integration with Regional Complete Streets Planning

Coordinate transportation and street projects with local and regional plans for bicycle, pedestrian, transit, and related multimodal plans designed to support Complete Streets.

12.31 Existing Street and Network Connectivity

Incorporate Complete Streets infrastructure into existing streets to improve the safety and convenience of users, accommodate all transportation users, and increase connectivity across jurisdictional boundaries and for existing and anticipated areas of development.

PUBLIC TRANSIT AND RIDESHARING

12.32 SamTrans Service

Encourage SamTrans to continue to work toward improving service levels on both local and mainline routes through reevaluation and expansion of routes, increased service to the Coastsides, provision of more satellite parking facilities, and evaluation of smaller buses for local routes.

12.33 Recreational Service

Encourage increased transit service between the Bayside and the Coastsides during summer months and special events in order to help meet recreational travel demand.

12.34 Caltrain Service

Support the continued upgrading of the Peninsula Train Service by CalTrans, including relocation of the station in San Francisco to a more central location, more frequent service, acquisition of new rolling stock, refurbishing of stations, and track rehabilitation.

12.35 Transit Marketing

Encourage transit providers in San Mateo County to expand their marketing and promotional programs in order to keep the public informed about the availability of transit service.

12.36 BART Extension

Cooperate with BART, SamTrans, and MTC in any planning involving an extension of BART service into San Mateo County.

12.37 Intermodal Transportation Terminal

If an extension of BART service to the San Francisco International Airport is agreed upon, encourage the sponsoring agency, CalTrans, and/or SamTrans to develop an intermodal ground transportation station at the Airport.

12.38 Transit Coordination

- a. Encourage transit providers to coordinate their service both within the County and with adjacent counties through common stations, coordination of scheduling, and honoring of transfers.

- b. Encourage SamTrans to coordinate its local service with cities and school districts.

12.39 Population Groups with Special Needs

Encourage and support SamTrans and the Paratransit Coordinating Council to work toward meeting the transportation needs of the mobility-impaired, the young, and the elderly.

12.40 Weekend Bus Service

Request that SamTrans maintain a minimal level of local service on weekends for the benefit of all transit dependents.

12.41 Park and Ride Lots

Encourage CalTrans and SamTrans to identify and acquire sites for additional park and ride lots at convenient locations along Highway 101 and Interstate 280 and provide for transit service and ridesharing at these facilities.

12.42 Preferential Treatment for High Occupancy Vehicles

Consider preferential treatment for high occupancy vehicles, including buses, vanpools, carpools through techniques such as exclusive lanes and preference at traffic signals in areas where warranted by recurrent traffic congestion.

BICYCLE AND PEDESTRIAN TRAVEL

12.43 Bicycle Routes

Encourage the cities to develop local bikeway plans, obtain funding, and construct and maintain a system of local bikeways that is consistent with the County Bikeways Plan.

12.44 Bicycle Trails in Rural Areas

Support the development of bicycle trails in rural and Coastal areas.

12.45 Bicycle Storage Facilities

Promote the provision of bicycle lockers and other storage facilities at transit stops, schools, shopping areas and other activity centers.

12.46 Bicycles on Transit

Encourage SamTrans and CalTrans to make provision for bicycles on transit vehicles at a minimum during off peak periods and in off-peak directions.

12.47 Facilities for Bicyclists

Encourage large employers to provide shower and locker facilities for their employees who bike to work as part of a commute alternative program.

12.48 Pedestrian Paths

Encourage the provision of safe and adequate pedestrian paths in new development connecting to activity centers, schools, transit stops, and shopping centers.

12.49 Pedestrian Bridges

Encourage CalTrans to provide pedestrian bridges and connections in areas where State highways have divided communities.

AIR TRANSPORTATION

12.50 Growth of San Francisco International Airport

Support the policy of MTC's Regional Airport Plan, regarding growth at San Francisco International Airport until such time as adequate ground transportation facilities are developed to accommodate larger passenger volumes.

12.51 Transit Trips to Airport

Recommend that San Francisco International Airport reevaluate its goal of accommodating 25% of daily trips to and from the airport by transit and work toward continually increasing the proportion of airport trips using transit and ridesharing.

12.52 Ground Transportation Information System

Encourage San Francisco International Airport to expand its ground transportation information system to provide assistance to those seeking to travel to the airport as well as from the airport.

12.53 Ground Transportation Facility at Airport

Request San Francisco International Airport to study the development of a ground transportation facility which would provide interconnections between the airport terminal, the CalTrans/SP Caltrain, SamTrans bus routes, and any future extension of the BART System.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

12.54 County Participation in Countywide and Regional Transportation Planning

- a. Provide a leadership role in coordinating countywide transportation issues with the cities of San Mateo County.
- b. Continue County participation in the regional transportation planning activities of MTC, SamTrans, RPC, and the City County Engineers Association.
- c. Strengthen County participation in the regional transportation planning structure by using the policy framework of this chapter and the area plans to provide input for decision-making.
- d. Provide staff support in transportation planning to assist County decision-makers; coordinate with MTC, SamTrans, and CalTrans; maintain a transportation planning database; review and comment on transportation plans and programs affecting the County; and periodically review and update the Transportation Chapter of the General Plan.
- e. Support consultation with local and regional bicycle, pedestrian, transit, and other multimodal relevant plans to achieve Complete Streets and support connectivity across jurisdictional boundaries.
- f. Departments and agencies of San Mateo County addressing transportation issues shall work toward making Complete Streets practices a routine aspect of everyday operations and integrate Complete Streets planning into all long-term street projects, as feasible.
- g. County staff will use a standardized process to document the integration of Complete Streets into street projects, which shall also allow for documentation of reasons the project could not accommodate all modes of transportation.

12.55 Cooperation with Cities

Work with the cities of San Mateo County and with adjacent cities and counties on transportation issues of countywide concern, including east-west arterial roads, implementation of the Bikeways Plan, development of truck routes through adjoining jurisdictions, pavement maintenance of bike routes.

12.56 Traffic Mitigation Programs

Cooperate with the cities, transit operators and employers in the development and implementation of traffic mitigation programs, which lessen the cumulative effects of new development on existing transportation systems, including (1) auto commute alternatives programs; (2) establishing a network of traffic coordinators; (3) parking management strategies; and (4) incorporation of transit improvements into new developments.

12.57 Primary Road System in Unincorporated Areas

Delineate a system of primary through roads in unincorporated areas to serve as a guide for future improvements. Allocate County funds for improvements to these primary roads according to the criteria of Policy 12.14.

12.58 Review of Capital Improvement Programs

Require County departments to submit their annual Capital Improvements Programs for transportation improvements to the Planning Commission for review and comment in accordance with Section 65401 of the California Government Code.

12.59 Modification of Road Standards

Continue existing policy as set forth in the Creative Road Design Guide and area plans allowing selective modification of County road standards in order to protect the natural environment, conserve natural resources and preserve neighborhood quality.

12.60 County Bikeways Plan

Review, adopt, and maintain the Bikeway Plan map as the County's policy regarding a future bikeways system in San Mateo County.

12.61 Staff Bikeways Coordinator

The County staff Bikeways Coordinator shall: (1) plan and develop bikeway facilities in the unincorporated areas; (2) develop requirements for bike facilities in new developments in unincorporated areas; (3) provide staff services to the

County Bikeways Advisory Committee; (4) work with the cities and monitor progress toward implementation of the County Bikeways Plan; (5) assist cities without active bikeways programs to develop and implement programs for their cities; and (6) coordinate with bicycle organizations.

ROLE OF OTHER AGENCIES

12.62 Coordinate Planning

Request CalTrans, SamTrans, RPC and the cities to coordinate planning for improvements to roads, highways, and transit service to accommodate growing transportation demand, particularly that resulting from newly developing areas east of Highway 101 and the growing southbound commute to Santa Clara County.

12.63 Role of MTC

Support the role of MTC as the regional transportation planning agency for the Bay Area.

12.64 Monitor Development

Request MTC to periodically monitor development trends in the County as they affect the demand for transportation and to work with transit agencies, CalTrans, and local jurisdictions to ensure that transportation improvements are coordinated with future land development.

12.65 Role of Regional Planning Committee

Continue the role of the Regional Planning Committee in evaluating and ranking the countywide significance of candidate projects for Federal and State transportation funding, and use the RPC as a mechanism to resolve interjurisdictional conflicts involving transportation and to achieve countywide consensus on other important transportation issues.

12.66 Role of City County Engineers Association

Continue and support the role of the City County Engineers Association as the technical advisory committee for reviewing and ranking (with the participation of the Regional Planning Committee) road improvement projects competing for State and Federal funding under the City County Transportation Improvement Program.

12.67 Task Force on Transportation Systems Management

Request the City County Engineers Association to act as a countywide task force on Transportation Systems Management (TSM) along with transit agencies and CalTrans, to identify and implement TSM measures that will improve the efficiency and capacity of the existing transportation system.

12.68 Role of RIDES for Bay Area Commuters, Inc.

Support the efforts of RIDES to expand ridesharing by San Mateo County commuters and encourage employers in the County to provide ridesharing among their employees.

SOLID WASTE POLICIES

The County will:

GOALS AND OBJECTIVES

13.1 Management of Solid Waste Disposal

Provide management of solid waste in the most efficient and economical manner which will provide adequate services, protect the public health, prevent the creation of nuisances, reduce waste generation and provide for maximum resource recovery.

13.2 Protection of Solid Waste Disposal Sites

Protect solid waste disposal sites from encroachment by incompatible land uses.

13.3 Minimize Environmental Impacts

Minimize adverse environmental impacts resulting from any existing, new or expanded solid waste facility in unincorporated areas of the County.

13.4 Maximize Energy Conservation

Manage solid waste in such a way as to maximize energy conservation.

13.5 Minimize Dependence on Landfills

Reduce to a minimum the dependence on landfills by promoting recycling, resource recovery and reduction of residential and commercial wastes.

13.6 Promote Materials Recovery and Energy Recovery

Promote the recovery of by-products from solid waste and provide for the timely utilization of technological advances in the fields of materials recovery and energy recovery.

DEFINITIONS

13.7 Definition of Solid Waste Facility

Define a Solid Waste Facility as a facility used to dispose of solid waste including, but not limited to, sanitary landfills, transfer stations and waste to energy facilities.

13.8 Definition of Buffer Lands

Define Buffer Lands as land uses which protect public safety and provide sufficient distance and screening between solid waste disposal activities and incompatible land uses.

DESIGNATIONS

13.9 Designation of Sites for Solid Waste Facilities

Designate the following sites for solid waste facilities:

- a. Lands on which existing and approved solid waste operations are located as shown on the Solid Waste Facilities Map.
- b. Lands shown as an area for a solid waste facility on the Solid Waste Facilities Map provided they meet the requirements of Policies 13.11, 13.20 or 13.24.

SANITARY LANDFILL

13.10 Long-Term Landfill Disposal Capability

Provide long-term landfill disposal capability for nonrenewable wastes and residues from resource recovery operations.

13.11 Locating Sanitary Landfills

Permit solid waste sanitary landfills to be developed in locations where: (1) the landfill will not be readily visible from major roads and development; (2) there will not be major conflicts with existing and planned development; (3) adequate lands are available to buffer adjacent lands from disposal activities; and (4) groundwater quality would not be adversely affected.

13.12 Localization of Environmental Impacts of Sanitary Landfills

Minimize environmental impacts associated with any existing, new or expanded solid waste landfill facility by requiring that impacts, such as removal of vegetation, reduction of wildlife habitat, creation of dust, erosion and odor, be localized and not extended beyond the landfill itself.

13.13 Mitigation of Environmental Impacts of Sanitary Landfills

Require the mitigation of environmental impacts associated with solid waste landfill facilities including, but not limited to, minimizing the adverse effects of grading, cut and filling, land clearing, water runoff and soil erosion.

13.14 Prohibit the Disposal of Hazardous Waste

Prohibit the disposal of hazardous waste at the Ox Mountain Landfill through techniques including, but not limited to, encouraging the increased monitoring of waste loads at all transfer stations and Ox Mountain Landfill, supporting the establishment of small volume hazardous waste transfer stations, developing public education programs and investigating fully citizen complaints.

13.15 Reclamation Requirements

Require standards for and the reclamation of solid waste landfill sites for the purpose of restoring landfills to a usable condition adaptable to alternative land uses and minimizing adverse impacts from landfill operations.

13.16 Expansion of the Area Served by Ox Mountain Landfills

Consider traffic, noise and other potential impacts when evaluating future requests to expand the Ox Mountain Service Area to serve areas outside of San Mateo County.

13.17 Disposal of Garbage Generated Outside the County

Permit solid waste generated outside the County to be disposed of at Ox Mountain landfill provided that one or more of the following criteria are met:

- a. Solid waste is processed at a resource recovery facility in order to reduce volumes dramatically for imported and San Mateo County solid waste. Such plant should be constructed with all appropriate environmental protections.
- b. The disposal fee for out of County solid waste is set at a rate which will defray the cost of disposal and in addition has the potential to minimize rate increases for disposal to County residents.
- c. The disposal of out of County solid waste will be accomplished in the most environmentally safe manner.

13.18 Buffer Lands

Protect solid waste landfill operations from encroachment by incompatible land uses by maintaining buffer lands adjacent to solid waste landfill operations.

13.19 Refuse Truck Traffic From Ox Mountain

To increase safety and to reduce conflicts between refuse truck traffic from Ox Mountain landfills and commuter traffic:

- a. Regulate the times when refuse truck traffic is permitted; and
- b. Encourage the provision of operational and safety improvements to Highway 92.

TRANSFER STATIONS

13.20 Locating Transfer Stations

Permit transfer stations to be developed in locations convenient for public dumping, provided: (1) there are not major conflicts with existing and planned development; (2) adequate access can be provided; and (3) impacts including, but not limited to, those on visual resources and vegetation, fish and wildlife resources can be mitigated to acceptable levels.

13.21 Use of Bayside Transfer Stations

Encourage the establishment of a fee structure for public dumping that encourages the use of Bayside transfer stations by Bayside residents in order to minimize traffic on Highway 92 generated by public dumping at Ox Mountain landfills.

RESOURCE RECOVERY

13.22 Efforts by the Private Sector

Encourage resource recovery efforts by the private sector including: (1) separation of materials at the source and at transfer facilities; (2) methane recovery at landfills; and (3) energy recovery through waste conversion.

13.23 Promoting Curbside Recycling

Promote the establishment of curbside recycling programs as a means to increase recycling.

13.24 Locating Waste-to-Energy Facilities

Consider permitting waste-to-energy facilities such as those that employ direct combustion, liquefaction, gasification and pyrolysis on suitably designated lands, provided environmental impacts can be mitigated to acceptable levels.

13.25 Locating Rubbish Collection Points

- a. Consider permitting the placement of receptacles for recyclables within appropriate residential and commercial areas; and

- b. Encourage the use of public facilities, such as parks and playgrounds, for locating receptacles for recyclables.

13.26 Advocacy for Source Reduction and the Reuse of Recycled Materials

Support the passage of Federal and State legislation which promotes a reduction in the generation of waste materials and the reuse of recycled materials.

13.27 Reduction of Solid Waste Requiring Disposal

Continue encouraging transfer station operators to use techniques, such as front-end materials separation, at Bayside transfer stations, in order to reduce the amount of solid waste requiring transportation and disposal at Ox Mountain.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

13.28 Regulation of Solid Waste Landfill Operations

Regulate solid waste landfill operations to minimize adverse environmental consequences including, but not limited to, measures which mitigate impacts on the geology, water quality and hydrology, biology (vegetation, fish and wildlife), visual quality, noise levels, and air quality.

13.29 Protection of Groundwater Quality

Encourage responsible State and County agencies to periodically update their regulations for the disposal of solid waste at landfills, based on current available information, to ensure that groundwater is provided adequate protection from contamination.

13.30 Litter Control Programs

Provide litter control through mechanisms including, but not limited to, adoption and enforcement of litter control ordinances, development of citizen support for control of littering through public information and education, utilization of volunteer and court assigned labor, and support for private sector litter cleanup activities.

13.31 County Public Works Department

Support the role of the Public Works Department as the primary County agency for Solid Waste Management including the following: administration of the Countywide Solid Waste Management Plan; keeping abreast of solid waste

technology; and technical liaison with Federal, State and local agencies, private enterprises and civic groups concerned with solid waste management.

13.32 County Health Department

Support the role of the County Health Department as having staff responsibility for providing inspection and for enforcing State and local statutes and regulations in the environmental health and sanitation aspects of storage, collection, handling, transportation and disposal of solid wastes on a Countywide basis, and for developing code changes, conducting studies and recommending improved methods in these subject areas to the County or cities in the County.

NATURAL HAZARDS POLICIES

The County will:

GOALS AND OBJECTIVES

15.1 Minimizing Risks from Natural Hazards

Minimize the potential risks resulting from natural hazards, including but not limited to, loss of life, injury, damage to property, litigation, high service and maintenance costs, and other social and economic dislocations.

15.2 Public Information

Inform and educate the public of the areas of highest risk from man-made and natural hazards, the methods available for their abatement and prevention, and appropriate procedures to follow during emergencies.

15.3 Incorporate Information on Natural Hazards into Land Use and Development Decisions

Integrate data on natural hazards into review of land use and development proposals in order to identify hazardous areas, potential constraints to development and/or appropriate mitigation measures.

DEFINITIONS

15.4 Definition of Natural Hazards

Define natural hazards as conditions of potential danger or risk to life and/or property resulting from acts of nature, man-made alterations to the natural environment that create hazardous conditions, and/or hazardous conditions intrinsic to the natural environment. Natural hazards may include risks or vulnerabilities likely to be caused or exacerbated by climate change.

15.5 Definition of Geotechnical Hazards

Define geotechnical hazards as: (1) seismic events, including but not limited to earthquakes, earthquake-induced landslides, liquefaction, subsidence, and tidal flooding damage from earthquake-induced tsunamis and seiches; (2) non-seismic unstable conditions, including but not limited to landsliding, cliff retrenchment, erosion, subsidence, soil creep and shrink/swell conditions; and (3) debris flows and debris avalanches.

15.6 Definition of Fire Hazards

Define fire hazards as wildland or structural fires that occur in areas that are remote, have difficult access for fire vehicles, and/or contain potentially flammable vegetative communities.

15.7 Definition of Flooding Hazards

Define flooding hazards as general and temporary conditions of partial or complete inundation of normally dry land areas due to: (1) the overflow of inland or tidal waters; or (2) the unusual and rapid accumulation of runoff of surface waters resulting from storms, blockage of drainage channels or failures of dams, impoundments, and/or other public works facilities.

15.8 Definition of Critical Facilities and Structures

Define critical facilities and structures as facilities or infrastructure serving or housing many people, including but not limited to hospitals, fire, police and emergency service facilities, water, electricity, natural gas supply, sewage disposal, communications and transportation facilities.

DESIGNATIONS

15.9 Designation of Geotechnical Hazard Areas

Designate as Geotechnical Hazard Areas those areas that meet the definition of geotechnical hazards, including but not limited to:

- a. The areas illustrated on the Natural Hazards map as Alquist-Priolo Special Studies Zones, Tsunami and Seiche Flooding Areas, Coastal Cliff Stability Areas and Areas of High Landslide Susceptibility.
- b. Any additional area delineated by other investigations, mapped in greater detail, and/or considered to be hazardous by the County Department of Public Works, including but not limited to areas delineated on the Geotechnical Hazards Synthesis maps, maps prepared by U.S.G.S. and other appropriate sources.

15.10 Designation of Fire Hazard Areas

Designate as Fire Hazard Areas those areas which are defined by the California Department of Forestry/County Fire Department or other fire protection districts as hazardous, including but not limited to the area within the Hazardous Fire Areas boundaries illustrated on the Natural Hazards map.

15.11 Designation of Flooding Hazard Areas

Designate as Flooding Hazard Areas:

- a. The areas of special flood hazard and dam failure inundation zones as illustrated on the Natural Hazards map.
- b. Any additional area delineated in greater detail as an area of special flood hazard including but not limited to areas illustrated on special flood hazard the Flood Insurance Rate Maps (FIRM) or dam failure inundation zone maps on file with the County Office of Emergency Services.

REGULATION OF DEVELOPMENT

15.12 Locating New Development in Areas Which Contain Natural Hazards

- a. As precisely as possible, determine the areas of the County where development should be avoided or where additional precautions should be undertaken during review of development proposals due to the presence of natural hazards.
- b. Give preference to land uses that minimize the number of people exposed to hazards in these areas.
- c. Determine appropriate densities and development.
- d. Require detailed analysis of hazard risk and design of appropriate mitigation when development is proposed in these areas, including assessment of hazardous conditions expected to be exacerbated by climate change, such as increased risks of fire, flooding, and sea level rise.

15.13 Abatement of Natural Hazards

- a. Inventory and, where feasible, abate, repair, or rehabilitate natural hazard conditions which most directly threaten public health, safety, and property, giving priority to those hazards which directly threaten critical facilities, life and property.
- b. Where feasible, provide for adaptive reuse rather than demolition of existing facilities.

15.14 Disclosure of Natural Hazards

Make efforts to inform the public, including potential buyers of property, that a parcel is located in an area of possible natural hazards. Methods to be used

include but are not limited to provision of access to County data, pre-application conferences, environmental review, deed restrictions, requirements for site-specific investigations, educational programs, or other appropriate mechanisms.

15.15 Critical Facilities

- a. Where practical, avoid the location of new critical facilities in areas which contain significant natural hazards or are likely to contain significant natural hazards due to the impacts of climate change.
- b. Continue to work with public utilities, school districts, and other agencies supplying critical public services to ensure that they have incorporated structural safety and other measures to be adequately protected from natural hazards for both existing and proposed facilities and are prepared for potential disasters affecting these facilities.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

15.16 Maintaining a Natural Hazards Information Base

- a. Maintain and periodically update clear and comprehensive maps and other information on natural hazards in San Mateo County.
- b. Incorporate new research being conducted by County departments, and State and Federal agencies, and other sources that is useful in the prediction and mitigation of natural hazards.

15.17 Support Research Programs, Efforts for Disaster Prediction and Emergency Preparedness

Support appropriate and useful research programs being conducted by Federal, State and local agencies, and private consultants to improve knowledge of and define mitigation measures for natural hazards and to predict, prepare for and respond to natural disasters.

GEOTECHNICAL HAZARD POLICIES

The County will:

GENERAL POLICIES

15.18 Determination of Existence of a Geotechnical Hazard

- a. When reviewing development proposals, use the Natural Hazards map to determine general areas where geotechnical hazards may be present.
- b. When the Natural Hazards map does not clearly illustrate the presence or extent of geotechnical hazards, use more detailed maps, including but not limited to the Geotechnical Hazards Synthesis Maps prepared by Leighton and Associates for San Mateo County, geotechnical information maps prepared by the United States Geological Survey, or any other geotechnical investigation or source of information considered to be valid by the County Department of Public Works.

15.19 Appropriate Land Uses and Densities in Geotechnical Hazard Areas

- a. In rural areas, consider lower density land uses that minimize the exposure of large numbers of people to significant geotechnical hazards.
- b. In urban areas, consider higher density land uses that are compatible with the surrounding pattern of development to be appropriate if adequate site specific review of geotechnical hazards has been undertaken and appropriate mitigation measures can feasibly be incorporated into development projects.

REGULATION OF DEVELOPMENT

15.20 Review Criteria for Locating Development in Geotechnical Hazard Areas

- a. Avoid the siting of structures in areas where they are jeopardized by geotechnical hazards, where their location could potentially increase the geotechnical hazard, or where they could increase the geotechnical hazard to neighboring properties.
- b. Wherever possible, avoid construction in steeply sloping areas (generally above 30%).
- c. Avoid unnecessary construction of roads, trails, and other means of public access into or through geotechnical hazard areas.

- d. In extraordinary circumstances when there are no alternative building sites available, allow development in geotechnically hazardous and/or steeply sloping areas when appropriate structural design measures to ensure safety and reduce hazardous conditions to an acceptable level are incorporated into the project.

15.21 Requirement for Detailed Geotechnical Investigations

- a. In order to more precisely define the scope of the geotechnical hazards, the appropriate locations for structures on a specific site and suitable mitigation measures, require an adequate geotechnical investigation for public or private development proposals located: (1) in an Alquist-Priolo Special Studies Zone, or (2) in any other area of the County where an investigation is deemed necessary by the County Department of Public Works.
- b. In order to minimize economic impacts on applicants for development and avoid duplication of information, use the existing information base when the Department of Public Works or appropriate County agency determines that it is adequate.

PROGRAM RESPONSIBILITIES

15.22 Reconstruction Planning

Work with the County Office of Emergency Services to prepare a contingency plan and policies to direct reconstruction efforts after a geotechnical disaster.

15.23 Disclosure of Hazards in Alquist-Priolo Special Studies Zones

Support the mandatory disclosure requirements for parcels located within Alquist-Priolo Special Studies Zones that is required by State law during property transactions.

15.24 Incorporate Geotechnical Concerns During Review of Proposals for New Development

Incorporate geotechnical concerns into the review of proposals for new development through measures including but not limited to: (1) regulation of land use and limitation of density; (2) siting and design of roads, grading, utilities, improvements and structures; (3) requiring site specific geotechnical investigations where appropriate and conformance to the recommendations of those investigations; (4) conformance to defined hazardous areas design criteria; and (5) conformance with established building code requirements.

15.25 Support Efforts to Identify and Abate Hazardous Structures

- a. Support efforts to inventory and abate structures that are particularly vulnerable to damage or failure during geotechnical disasters.
- b. Encourage repair, rehabilitation, or adaptive reuse of structures requiring abatement, rather than demolition.

FIRE HAZARD POLICIES

The County will:

GENERAL POLICIES

15.26 Determination of the Existence of a Fire Hazard

- a. When reviewing development proposals, use the Natural Hazards map to determine the general location of hazardous fire areas.
- b. When the Natural Hazards map does not clearly illustrate the presence or extent of fire hazards, use more detailed maps including but not limited to the Fire Hazard Severity Zones Map prepared by the California Department of Forestry (CDF), any other source of information considered to be valid by CDF or by fire protection districts.

15.27 Appropriate Land Uses and Densities in Fire Hazard Areas

- a. In rural areas, consider lower density land uses that minimize the exposure of significant numbers of people to fire hazards.
- b. Consider higher density land uses for fire hazard areas in the rural area if development is clustered near major roads, has adequate access for fire protection vehicles and can demonstrate adequate water supplies and fire flow.
- c. In urban areas, consider higher density land uses to be appropriate if development can be served by CDF/County Fire Department, a fire protection district or a city fire department, adequate access for fire protection vehicles is available and sufficient water supply and fire flow can be guaranteed.

REGULATION OF DEVELOPMENT

15.28 Review Criteria for Locating Development in Fire Hazard Areas

- a. Wherever possible, cluster new development near existing developed areas where there are adequate water supplies and good access for fire vehicles.
- b. When development is proposed in hazardous fire areas, require that it be reviewed by the County Fire Warden to ensure that building materials, access, vegetative clearance from structures, fire flows and water supplies are adequate for fire protection purposes and in conformance to the fire policies of the General Plan.

15.29 Review Criteria for Locating Development Outside of Fire Hazard Areas

Insure that fire safety is adequately addressed in the review of new development proposed in unincorporated areas located outside of fire hazard areas through measures including but not limited to referral of proposals for development to appropriate fire protection agencies for conditions of approval.

15.30 Standards for Water Supply and Fire Flow for New Development

- a. Require connection to a public water system or private water company or provision of an on-site water supply as a condition of approval for any new development proposal.
- b. Determine the quantity of on-site water supply, fire flow requirements and spacing and installation of hydrants in accordance with the standards of the agency responsible for fire protection for the site proposed for development.
- c. Consider the use of additional on-site fire protection devices including but not limited to the use of residential sprinkler systems and contracting the services of private alarm companies for development proposed in remote areas.

15.31 Standards for Road Access for Fire Protection Vehicles to Serve New Development

- a. Consider the adequacy of access for fire protection vehicles during review of any new development proposal.
- b. Determine the adequacy of access through evaluation of length of dead end roads, turning radius for fire vehicles, turnout requirements, road widths and shoulders and other road improvement considerations for

conformance with the standards of the agency responsible for fire protection for the site proposed for development.

- c. To the maximum extent possible, design access for fire protection vehicles in a manner which will not result in unacceptable impacts on visual, recreational and other valuable resources.

15.32 Street Signing

Support efforts to identify all roads, streets and major public buildings in a manner so that they are clearly visible to fire protection and other emergency vehicles.

15.33 Road Patterns

- a. Ensure road patterns that facilitate access for fire protection vehicles and provide secondary access and emergency evacuation routes when reviewing proposals for new subdivisions.
- b. Encourage the Department of Public Works to study existing road patterns that have access problems to determine the feasibility and costs of access improvements.
- c. Encourage fire protection agencies to identify emergency access and evacuation routes for existing developed areas and to provide this information to area residents.

15.34 Vegetative Clearance Around Structures

- a. Require clearance of flammable vegetation around structures as a condition of approval to new development in accordance with the requirements of the agency responsible for fire protection.
- b. Conduct periodic inspections to ensure maintenance of required clearances.

15.35 Fire Retardant Vegetation

Encourage the use of fire retardant vegetation when reviewing new development proposals.

PROGRAM RESPONSIBILITIES

ROLE OF FIRE PROTECTION AGENCIES

15.36 Encourage Pre-Fire Planning Efforts

Encourage fire protection agencies to map fire hazard severity zones and prepare pre-fire plans that identify hazardous subareas of the County, how fire response will be coordinated and how evacuation of residents will proceed.

15.37 Support Efforts to Reduce the Extent of the Fire Hazards

Support public and private efforts to reduce the potential of fire hazards through methods including but not limited to controlled burning programs reduction of fuel loading, construction and maintenance of fire breaks and other appropriate methods.

ROLE OF THE COUNTY

15.38 Encourage Coordination Between the County and Fire Protection Agencies

Encourage coordination and cooperation between the County, volunteer fire departments, fire protection districts, State and city fire departments in order to facilitate the most efficient delivery of fire protection services, reduce response times and assure a uniform data base and communication system.

15.39 Support Structural Requirements of the County Building Codes

Support the standards for fire resistant construction contained in the County Uniform Construction Administration Code, including but not limited to requirements for fire resistant roofing, ventilation, windows, chimneys, fire walls and other construction materials.

15.40 Support Efforts to Inventory and Abate Structures that are Fire Hazard Risks

- a. Support efforts to inventory and abate structures that do not meet existing fire codes and/or are vulnerable to damage from disastrous fire events.
- b. Encourage repair, rehabilitation, or adaptive reuse of structures requiring abatement, rather than demolition.

15.41 Incorporate Fire Hazard Concerns During Review of Proposals for New Development

Incorporate fire hazard concerns into the review of proposals for new development through measures, including but not limited to: (1) regulation of

land use and limitation of density, (2) review of access, water supply and hydrant location, (3) conformance to defined hazardous areas design criteria, and (4) conformance with established building code requirements.

15.42 Revision of County Fire Protection Ordinance

Work with the California Department of Forestry/County Fire Department to reorganize and revise the County Fire Protection Ordinance so that it can be more easily understood and implemented and incorporate the standards defined in this Ordinance into the general plan.

FLOODING HAZARD POLICIES

The County will:

GENERAL POLICIES

15.43 Determination of the Existence of a Flooding Hazard

- a. When reviewing development proposals, use the Natural Hazards map to determine the general location of flooding hazard areas.
- b. When the Natural Hazards map does not clearly illustrate the presence or extent of flooding hazards, use more detailed maps and information, including but not limited to, the Flood Insurance Rate Maps (FIRM) prepared by the Federal Emergency Management Agency (FEMA) for San Mateo County and the dam failure inundation maps prepared for the San Mateo County Office of Emergency Services.

15.44 Disclosure During Real Estate Transactions

Support measures for disclosure of the presence of flooding hazards during transactions of property located within areas of special flood hazard.

15.45 Abatement of Flooding Hazards

Support measures for the abatement of flooding hazards, including but not limited to: (1) removal or relocation of development from flood hazard areas; (2) construction of impoundments or channel diversions provided that adequate mitigation of environmental impacts can be demonstrated; and (3) debris clearance and silt removal programs conducted in a manner so as not to disrupt existing riparian communities.

REGULATION OF DEVELOPMENT

15.46 Appropriate Land Uses and Densities in Flooding Hazard Areas

- a. Consider rural land uses that do not expose significant numbers of people to flooding hazards, such as agriculture, timber production, public and private recreation, and general open space, to be the most appropriate for flooding hazard areas.
- b. Consider higher density land uses to be appropriate within flood hazard areas in developed urban areas and rural service centers when adequate mitigation of the flood hazard can be demonstrated.
- c. Discourage the location of new critical facilities in flood hazard areas.

15.47 Review Criteria for Locating Development in Areas of Special Flood Hazard

- a. Wherever possible, retain natural floodplains and guide development to areas outside of areas of special flood hazard.
- b. When development is proposed in areas of special flood hazards, require any structure to be safely elevated above the base flood elevation and not contribute to the flooding hazard to surrounding structures.
- c. Promote subdivision design to avoid areas of special flood hazard when possible, and identify these areas on the approved subdivision map.

15.48 Reconstruction Planning

Unless it is physically or economically impossible, direct reconstruction after a flooding disaster to areas outside of special flood hazard areas.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

15.49 Incorporate Flooding Concerns During Review of Proposals for New Development

In order to minimize damage to life and property, minimize disruption of commerce and governmental services and avoid the unnecessary expenditure of public funds, incorporate measures which regulate the location, design and intensity of new development in flood hazard areas.

15.50 Watershed Management

Continue efforts to secure funding for a comprehensive study for a watershed management system for South Coast watersheds most seriously threatened by flood hazards.

ROLE OF OTHER AGENCIES

15.51 Coordination

- a. Work with federal, State, and local agencies to achieve cooperative solutions to flooding hazards that are multijurisdictional in nature.
- b. Consult with community groups affected by flooding hazards during preparation of studies for projects to mitigate the flooding hazards.

MAN-MADE HAZARDS POLICIES

NOISE POLICIES

The County will:

GOALS AND OBJECTIVES

16.1 Strive Toward a Livable Noise Environment

Strive toward an environment for all residents of San Mateo County which is free from unnecessary, annoying, and injurious noise.

16.2 Reduce Noise Impacts Through Noise/Land Use Compatibility and Noise Mitigation

Reduce noise impacts within San Mateo County through measures which promote noise/land use compatibility and noise mitigation.

16.3 Promote Protection of Noise Sensitive Land Uses and Noise Reduction in Quiet Areas and Noise Impact Areas

Promote measures which: (1) protect noise sensitive land uses, (2) preserve and protect existing quiet areas, especially those which contain noise sensitive land uses, and (3) promote noise compatibility in Noise Impact Areas.

16.4 Noise Reduction Priority

Give priority to reducing noise at the source rather than at the receiver, recognizing that it is less expensive and more equitable to build noise mitigation into the source than providing for it along the path and at the receiver.

16.5 Noise Reduction Along the Path and at the Receiver

Promote noise reduction along the path and at the receiver through techniques which can be incorporated into the design and construction of new and existing development including, but not limited to, site planning, noise barriers, architectural design, and construction techniques.

DEFINITIONS

16.6 Definition of Noise

Define noise as annoying, harmful or unwanted sound.

16.7 Definition of Noise Sensitive Land Uses

Define noise sensitive land uses as uses most sensitive to noise intrusion including, but not limited to, residential and the following institutional uses: hospitals, schools and libraries.

16.8 Definition of Quiet Areas

Define quiet areas as areas with perceived low ambient noise levels.

16.9 Definition of Noise Impact Areas

Define Noise Impact Areas as those areas experiencing noise levels of 60 CNEL or greater.

DESIGNATIONS

16.10 Designation of Noise Impact Areas

Designate Noise Impact Areas as including, but not limited to, those areas shown as Noise Impact Areas on the Community Noise Map.

REGULATION OF DEVELOPMENT

16.11 Regulate Distribution of Land Uses

Regulate the distribution of land uses to attain noise compatibility. Measures may include preference toward locating: (1) noise sensitive land uses within quiet areas, removed from Noise Impact Areas, and (2) noise generating land uses separate from noise sensitive land uses.

16.12 Regulate Noise Levels

Regulate noise levels emanating from noise generating land uses through measures which establish maximum land use compatibility and nuisance thresholds.

16.13 Site Planning Noise Control

Incorporate acoustic site planning into the design of new development, particularly large scale, master planned development, through measures which may include: (1) separation of noise sensitive buildings from noise generating sources and (2) use of natural topography and intervening structures to shield noise sensitive land uses.

16.14 Noise Barriers Noise Control

Promote measures which incorporate use of noise barriers into the design of new development, particularly within Noise Impact Areas. Noise barriers may include earth berms, walls, fencing, or landscaping.

16.15 Architectural Design Noise Control

Promote measures which incorporate architectural techniques into the design of new buildings, particularly buildings within Noise Impact Areas. Architectural design techniques may include: (1) grouping noise sensitive rooms together separated from noise sources, (2) placing windows, vents and other openings away from noise sources, and (3) avoidance of structural features which direct noise toward interior spaces.

16.16 Construction Techniques Noise Control

Promote measures which incorporate noise control into the construction of existing and new buildings including, but not limited to, use of dense noise insulating building materials.

TRANSPORTATION NOISE REDUCTION

16.17 Promote Transportation Related Noise Reduction

Promote measures which reduce transportation related noise, particularly aircraft and vehicle noise, to enhance the quality of life within San Mateo County.

16.18 Encourage Public Transportation Noise Control

Encourage public transportation carriers to make every feasible effort to reduce noise emissions including, but not limited to, consideration of noise when purchasing equipment, and routing and scheduling operations.

16.19 Promote County Roadway Noise Control

Promote measures which incorporate noise control into the design of County roadway projects. Roadway noise abatement may include smooth road surface, and noise barriers.

16.20 Encourage Development of an Off-Road Vehicle Facility

Encourage and support: (1) development of an off-road vehicle facility to reduce noise and other environmental impacts from illegal off-road vehicle use, and (2) adequate enforcement against illegal off-road vehicle use.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

16.21 Adopt 1995 Noise Exposure Contours

Adopt 1995 Noise Exposure Contours as a guide to land use compatibility decisions within unincorporated San Mateo County.

16.22 Develop and Adopt Noise/Land Use Compatibility Regulations

Develop and adopt regulations which establish noise/land use compatibility standards for use as a basis for land use planning decisions. The regulations shall consider both exterior and interior exposures absorbed by or generated from a proposed land use. Efforts should be coordinated with the Office of Environmental Health.

16.23 Develop and Adopt Noise Insulation Requirements

Develop and adopt regulations which require acoustical analysis of noise sensitive land uses within Noise Impact Areas, including all new residential development. Acoustical analysis shall include recommended design and construction measures necessary to reduce noise exposure to acceptable levels.

16.24 Update Noise Section

Update this noise section when necessary to reflect new data, significant changes in the community noise environment, and newly accepted principles and standards.

16.25 Continue Existing Noise Control Review Procedures

Continue existing efforts which analyze noise impacts and integrate noise mitigation into the development review process.

16.26 Resolution of Noise Problem at San Francisco International Airport

Recognize that resolution of the noise problem from operations at San Francisco International Airport: (1) involves multiple jurisdictions, beyond the scope of this General Plan, and (2) is most appropriately achieved through the activities of regional forums, including the Airport-Community Roundtable and Airport Land Use Commission (ALUC).

16.27 Airport Land Use Commission (ALUC) Noise Planning Efforts

Encourage and support the Airport Land Use Commission to continue existing efforts toward promoting noise compatible development surrounding the County's airports.

16.28 Airport Noise Control Efforts

Encourage and support, to the maximum extent feasible, County participation in continuing efforts toward reducing aircraft noise impacts resulting from San Francisco International Airport.

16.29 County Health Department Noise Control Efforts

Encourage and support the County Health Department to continue existing efforts toward nuisance noise control through development and enforcement of regulatory measures, utilizing the most specialized and sophisticated equipment available to protect against unusually loud and uncommon neighborhood noise.

ROLE OF OTHER AGENCIES

16.30 Federal Aviation Administration Noise Reduction Efforts

Encourage the Federal Aviation Administration to reduce noise from aircraft operations, including continued active participation through the Airport Community Roundtable for operations at San Francisco International Airport, consistent with safety.

16.31 Department of Transportation (CalTrans) Railway Noise Abatement Measures

Encourage the Department of Transportation (CalTrans) to continue existing efforts which incorporate noise control into the Peninsula commuter rail operation.

16.32 San Francisco Airports Commission Noise Reduction Efforts

Encourage San Francisco Airports Commission to continue existing efforts toward reducing noise from operations at San Francisco International Airport. In addition, encourage expanded placement of noise monitoring equipment within San Mateo County to better represent community noise exposure.

16.33 Prevent Illegal Low Overflight

Encourage appropriate regulatory agencies to assure adequate enforcement against illegal low overflight of aircraft and resultant noise problems.

16.34 Support Noise Reduction Efforts of Other Agencies

Recognize, encourage, and cooperate with the noise reduction efforts of public agencies and private groups which are consistent with the goals, objectives, and policies of this chapter.

AIRPORT SAFETY POLICIES

The County will:

GOALS AND OBJECTIVES

16.35 Minimize Risks Surrounding Airports

Minimize health and safety risks from hazards related to aircraft operations for persons living and working in areas surrounding San Mateo County airports.

16.36 Promote Safe Flight Operations

Promote and encourage safe aircraft operations at all airports within San Mateo County.

16.37 Promote Orderly Development At and Surrounding Airports

Promote orderly development of airports and surrounding areas to ensure a safe environment for local citizens and aircraft operations.

DEFINITIONS

16.38 Definition of Clear Zone

Define clear zone as the area of high accident potential located at the ends of airport runway as defined by the Federal Aviation Administration (FAA).

16.39 Definition of Approach Zone

Define approach zone as the area of high accident potential located at the ends of County general aviation airport runway as defined by the Airport Land Use Commission (ALUC).

16.40 Definition of Approach Surface

Define approach surface as the flat plane, sloping upward and outward from airport runways, representative of flight paths, as defined by the Federal Aviation Administration (FAA) and Airport Land Use Commission (ALUC).

REGULATION OF DEVELOPMENT

16.41 Regulate Land Uses to Assure Airport Safety

Regulate land uses surrounding airports to assure airport safety. Measures may include restrictions on permitted land uses and development review height criteria.

16.42 Limit Land Uses at Ends of Runways

Limit land uses in approach zones, clear zones and other areas of high accident potential at ends of airport runways to low intensity, nonstructural uses including, but not limited to, agriculture, open space, and storage.

16.43 Regulate Location and Height of Development Surrounding Airports

Regulate development location and height in areas surrounding airport activities to protect air navigation requirements. Measures may include height criteria based upon an approach surface or other representative aircraft flight path.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

16.44 Airport Safety Land Use Protections

Encourage efforts which provide for safety at the end of airport runways, including measures which restrict land use and building height.

16.45 Airport Land Use Commission (ALUC) Airport Safety Efforts

Encourage and support the Airport Land Use Commission (ALUC) to continue existing efforts toward protecting the public from aviation hazards and promoting safe compatible development surrounding the County's airports through measures which regulate: (1) land uses at the end of runways, and (2) structural height within flight paths.

ROLE OF OTHER AGENCIES

16.46 Federal Aviation Administration (FAA) Airport Safety Efforts

Encourage and support the Federal Aviation Administration (FAA) to continue existing efforts to ensure safe aircraft operations and navigable airspace.

HAZARDOUS MATERIALS POLICIES

The County will:

GOALS AND OBJECTIVES

16.47 Strive to Protect Life, Property, and the Environment From Hazardous Material Exposure

Strive to protect public health and safety, environmental quality, and property from the adverse effects of hazardous materials through adequate and responsible management practices.

16.48 Strive to Ensure Responsible Hazardous Waste Management

Strive to ensure that hazardous waste generated within San Mateo County is stored, treated, transported and disposed of in a legal and environmentally safe manner so as to prevent human health hazard and/or ecological disruption.

16.49 Strive to Reduce Public Exposure to Hazardous Materials

Strive to reduce public exposure to hazardous materials through programs which: (1) promote safe transportation, (2) prevent accidental discharge, and (3) promote effective incident response, utilizing extensive inventory and monitoring techniques.

16.50 Reduce Public Exposure to Hazardous Waste

Strive to reduce public exposure to hazardous waste through programs which: (1) emphasize decreased generation of hazardous waste, (2) promote increased disposal capability for small generators of hazardous waste, including households and small businesses, (3) promote safe transportation of hazardous waste, (4) promote treatment and processing techniques as alternatives to landfill disposal of hazardous waste, and (5) prevent illegal disposal of hazardous waste.

DEFINITIONS

16.51 Definition of Hazardous Material

Define Hazardous Material as a substance which, because of quantity, concentration, physical or chemical characteristics, is capable of injuring life and/or the environment. Examples include toxic chemicals and metals, pesticides and explosives.

16.52 Hazardous Waste

Define Hazardous Waste as a hazardous material requiring disposal.

REGULATION OF DEVELOPMENT

16.53 Regulate Location of Hazardous Material Uses

Regulate the location of uses involving the manufacture, storage, transportation, use, treatment, and disposal of hazardous materials to ensure community compatibility. Provide adequate siting, design, and operating standards.

16.54 Encourage Public Disclosure of Hazardous Materials

Encourage businesses utilizing or storing hazardous materials within the unincorporated area to publicly disclose the types, quantities and health risks of hazardous materials present on-site so as to effect timely and effective emergency response and community risk assessment, improved land use planning and general public awareness.

16.55 Encourage Adoption and Enforcement of Fire Code Hazardous Material Storage Permit Provisions

Encourage fire protection agencies serving the unincorporated area to adopt and enforce existing Uniform Fire Code provisions which authorize fire agency issuance of hazardous material storage permits so as to: (1) assure proper hazardous material storage, (2) prevent accidental discharge or spill, and (3) provide necessary inventory information beneficial to timely and efficient incident response and containment. Assure that relevant hazardous material inventory information is referred to the County, and made available to the public.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

16.56 Pursue Development of Hazardous Material Inventory and Data Base

Pursue efforts to determine the nature, extent, cumulative impacts, and associated risks of hazardous material use and transportation within the County unincorporated area for use as a base to community protection planning. All efforts are to be coordinated by the Planning Division, Office of Environmental Health, and Office of Emergency Services, with cooperation from local emergency response agencies.

16.57 Recognize Local Hazardous Waste Management Responsibilities

Recognize: (1) that local government must share in the responsibility for safe and effective management and disposal of hazardous waste, and (2) that San Mateo County consider the feasibility and appropriateness of siting storage, treatment, and transfer facilities within the County for hazardous waste generated within the County.

16.58 Coordinate with County Health Department Toward Development of a Comprehensive Hazardous Waste Management Plan

Coordinate with County Health Department efforts to develop a comprehensive hazardous waste management plan for source reduction, treatment, disposal, and resource recovery of hazardous waste within the unincorporated area including, but not limited to, the following components: determination of local need for hazardous waste facilities (transfer, treatment and resource recovery), development of criteria and survey to identify acceptable sites, assessment of alternate strategies for land acquisition and facility development, and evaluation of methods to incorporate waste reduction into the production process.

16.59 Regulate Against Environmental Contamination Resulting From Rural Development, Agriculture and Oil and Gas Well Operations

Regulate against environmental contamination resulting from use of pesticides, herbicides and other chemicals including, but not limited to, measures which govern general application of toxic chemicals, storage, disposal, runoff of pesticides associated with agricultural operations, and disposal of oil field waste.

16.60 Update Hazardous Materials Section

Update this Hazardous Materials Section annually to reflect new data and significant changes in hazardous materials management.

16.61 Facilitate Public Awareness and Provide for Citizen Education

Support and facilitate public awareness of hazardous material presence in the community, and provide opportunities for citizen education.

16.62 County Health Department

Encourage and support the County Health Department to continue existing efforts toward: (1) comprehensive identification of hazardous waste generators within San Mateo County and enforcement of hazardous waste management regulations, (2) prevention of illegal dumping through vigorous enforcement and programs which educate the public and industry, (3) improved emergency spill response, and (4) preparation of a hazardous waste management plan through measures including, but not limited to, Countywide survey of hazardous waste generators, full investigation of reported illegal disposal incidents, establishment of a small volume hazardous waste transfer station and development of a multi-agency emergency response plan.

16.63 Area Emergency Services Council

Encourage and support the Area Emergency Services Council to continue existing efforts toward coordinated and effective emergency response in the event of an accidental discharge or spill of hazardous materials.

16.64 County Agricultural Commissioner

Encourage and support the County Agricultural Commissioner to continue existing efforts toward safe pesticide management and use through measures including, but not limited to, issuance of pesticide application permits, monitoring pesticide storage, application and disposal, and crop inspection.

16.65 Industrial - Emergency Council

Encourage and support the Industrial-Emergency Council to continue existing efforts toward risk reduction, and improved emergency preparedness and response to hazardous material incidents, through measures including, but not limited to, establishment of a hazardous material resource center, acquisition of hazardous material response equipment, and development of emergency response training program.

ROLE OF OTHER PUBLIC AGENCIES

16.66 State Department of Health Services

Encourage and support the State Department of Health Services to continue existing efforts toward: (1) vigorous enforcement of hazardous waste management regulations, (2) comprehensive identification and clean-up of contaminated hazardous waste sites, and (3) reducing the amount of hazardous waste requiring landfill disposal.

16.67 Support Hazardous Materials Management Efforts of Other Agencies

Recognize, encourage, and cooperate with the efforts of public agencies and private groups which are consistent with the goals, and objectives of hazardous materials management.

HAZARDOUS STRUCTURES POLICIES

The County will:

GOALS AND OBJECTIVES

16.68 Strive Toward Safe Building Construction

Strive toward safe building construction and full elimination of hazardous conditions.

DEFINITIONS

16.69 Definition of Hazardous Structure

Define hazardous structure as a building or structure which is structurally unsafe, without adequate egress, a fire hazard or otherwise dangerous to human life by reason of improper construction, inadequate maintenance, dilapidation, obsolescence or abandonment, as specified in the San Mateo County Uniform Construction Code.

REGULATION OF DEVELOPMENT

16.70 Regulate Building Construction

Regulate building construction practices to prevent hazardous structures and assure structural safety. Measures may include required conformance to an accepted set of construction standards, and authority to inspect suspected

dangerous buildings, halt improper construction activities, and eliminate hazardous conditions.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

16.71 Support Efforts to Inform Buyers of Building Inspection Services

Support efforts to inform purchasers of existing buildings and structures that the County's building inspection services are available, upon request, to inspect structures, describe their condition and existing violations and provide construction history to the extent that such information is available.

16.72 Resolving Outstanding Building Violations

Consider measures which would facilitate timely resolution of outstanding building inspection violations. Measures may include establishing authority to record citations against notified properties.

16.73 Facilitate Rehabilitation Efforts

Facilitate rehabilitation of hazardous structures through measures which offer financial as well as technical assistance.

ROLE OF OTHER AGENCIES

16.74 Contractors' State License Board

Encourage the Contractors' State License Board to undertake vigorous monitoring of and enforcement against unlicensed building activities.

MAN-MADE HAZARDS POLICIES

NOISE POLICIES

The County will:

GOALS AND OBJECTIVES

16.1 Strive Toward a Livable Noise Environment

Strive toward an environment for all residents of San Mateo County which is free from unnecessary, annoying, and injurious noise.

16.2 Reduce Noise Impacts Through Noise/Land Use Compatibility and Noise Mitigation

Reduce noise impacts within San Mateo County through measures which promote noise/land use compatibility and noise mitigation.

16.3 Promote Protection of Noise Sensitive Land Uses and Noise Reduction in Quiet Areas and Noise Impact Areas

Promote measures which: (1) protect noise sensitive land uses, (2) preserve and protect existing quiet areas, especially those which contain noise sensitive land uses, and (3) promote noise compatibility in Noise Impact Areas.

16.4 Noise Reduction Priority

Give priority to reducing noise at the source rather than at the receiver, recognizing that it is less expensive and more equitable to build noise mitigation into the source than providing for it along the path and at the receiver.

16.5 Noise Reduction Along the Path and at the Receiver

Promote noise reduction along the path and at the receiver through techniques which can be incorporated into the design and construction of new and existing development including, but not limited to, site planning, noise barriers, architectural design, and construction techniques.

DEFINITIONS

16.6 Definition of Noise

Define noise as annoying, harmful or unwanted sound.

16.7 Definition of Noise Sensitive Land Uses

Define noise sensitive land uses as uses most sensitive to noise intrusion including, but not limited to, residential and the following institutional uses: hospitals, schools and libraries.

16.8 Definition of Quiet Areas

Define quiet areas as areas with perceived low ambient noise levels.

16.9 Definition of Noise Impact Areas

Define Noise Impact Areas as those areas experiencing noise levels of 60 CNEL or greater.

DESIGNATIONS

16.10 Designation of Noise Impact Areas

Designate Noise Impact Areas as including, but not limited to, those areas shown as Noise Impact Areas on the Community Noise Map.

REGULATION OF DEVELOPMENT

16.11 Regulate Distribution of Land Uses

Regulate the distribution of land uses to attain noise compatibility. Measures may include preference toward locating: (1) noise sensitive land uses within quiet areas, removed from Noise Impact Areas, and (2) noise generating land uses separate from noise sensitive land uses.

16.12 Regulate Noise Levels

Regulate noise levels emanating from noise generating land uses through measures which establish maximum land use compatibility and nuisance thresholds.

16.13 Site Planning Noise Control

Incorporate acoustic site planning into the design of new development, particularly large scale, master planned development, through measures which may include: (1) separation of noise sensitive buildings from noise generating sources and (2) use of natural topography and intervening structures to shield noise sensitive land uses.

16.14 Noise Barriers Noise Control

Promote measures which incorporate use of noise barriers into the design of new development, particularly within Noise Impact Areas. Noise barriers may include earth berms, walls, fencing, or landscaping.

16.15 Architectural Design Noise Control

Promote measures which incorporate architectural techniques into the design of new buildings, particularly buildings within Noise Impact Areas. Architectural design techniques may include: (1) grouping noise sensitive rooms together separated from noise sources, (2) placing windows, vents and other openings away from noise sources, and (3) avoidance of structural features which direct noise toward interior spaces.

16.16 Construction Techniques Noise Control

Promote measures which incorporate noise control into the construction of existing and new buildings including, but not limited to, use of dense noise insulating building materials.

TRANSPORTATION NOISE REDUCTION

16.17 Promote Transportation Related Noise Reduction

Promote measures which reduce transportation related noise, particularly aircraft and vehicle noise, to enhance the quality of life within San Mateo County.

16.18 Encourage Public Transportation Noise Control

Encourage public transportation carriers to make every feasible effort to reduce noise emissions including, but not limited to, consideration of noise when purchasing equipment, and routing and scheduling operations.

16.19 Promote County Roadway Noise Control

Promote measures which incorporate noise control into the design of County roadway projects. Roadway noise abatement may include smooth road surface, and noise barriers.

16.20 Encourage Development of an Off-Road Vehicle Facility

Encourage and support: (1) development of an off-road vehicle facility to reduce noise and other environmental impacts from illegal off-road vehicle use, and (2) adequate enforcement against illegal off-road vehicle use.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

16.21 Adopt 1995 Noise Exposure Contours

Adopt 1995 Noise Exposure Contours as a guide to land use compatibility decisions within unincorporated San Mateo County.

16.22 Develop and Adopt Noise/Land Use Compatibility Regulations

Develop and adopt regulations which establish noise/land use compatibility standards for use as a basis for land use planning decisions. The regulations shall consider both exterior and interior exposures absorbed by or generated from a proposed land use. Efforts should be coordinated with the Office of Environmental Health.

16.23 Develop and Adopt Noise Insulation Requirements

Develop and adopt regulations which require acoustical analysis of noise sensitive land uses within Noise Impact Areas, including all new residential development. Acoustical analysis shall include recommended design and construction measures necessary to reduce noise exposure to acceptable levels.

16.24 Update Noise Section

Update this noise section when necessary to reflect new data, significant changes in the community noise environment, and newly accepted principles and standards.

16.25 Continue Existing Noise Control Review Procedures

Continue existing efforts which analyze noise impacts and integrate noise mitigation into the development review process.

16.26 Resolution of Noise Problem at San Francisco International Airport

Recognize that resolution of the noise problem from operations at San Francisco International Airport: (1) involves multiple jurisdictions, beyond the scope of this General Plan, and (2) is most appropriately achieved through the activities of regional forums, including the Airport-Community Roundtable and Airport Land Use Commission (ALUC).

16.27 Airport Land Use Commission (ALUC) Noise Planning Efforts

Encourage and support the Airport Land Use Commission to continue existing efforts toward promoting noise compatible development surrounding the County's airports.

16.28 Airport Noise Control Efforts

Encourage and support, to the maximum extent feasible, County participation in continuing efforts toward reducing aircraft noise impacts resulting from San Francisco International Airport.

16.29 County Health Department Noise Control Efforts

Encourage and support the County Health Department to continue existing efforts toward nuisance noise control through development and enforcement of regulatory measures, utilizing the most specialized and sophisticated equipment available to protect against unusually loud and uncommon neighborhood noise.

ROLE OF OTHER AGENCIES

16.30 Federal Aviation Administration Noise Reduction Efforts

Encourage the Federal Aviation Administration to reduce noise from aircraft operations, including continued active participation through the Airport Community Roundtable for operations at San Francisco International Airport, consistent with safety.

16.31 Department of Transportation (CalTrans) Railway Noise Abatement Measures

Encourage the Department of Transportation (CalTrans) to continue existing efforts which incorporate noise control into the Peninsula commuter rail operation.

16.32 San Francisco Airports Commission Noise Reduction Efforts

Encourage San Francisco Airports Commission to continue existing efforts toward reducing noise from operations at San Francisco International Airport. In addition, encourage expanded placement of noise monitoring equipment within San Mateo County to better represent community noise exposure.

16.33 Prevent Illegal Low Overflight

Encourage appropriate regulatory agencies to assure adequate enforcement against illegal low overflight of aircraft and resultant noise problems.

16.34 Support Noise Reduction Efforts of Other Agencies

Recognize, encourage, and cooperate with the noise reduction efforts of public agencies and private groups which are consistent with the goals, objectives, and policies of this chapter.

AIRPORT SAFETY POLICIES

The County will:

GOALS AND OBJECTIVES

16.35 Minimize Risks Surrounding Airports

Minimize health and safety risks from hazards related to aircraft operations for persons living and working in areas surrounding San Mateo County airports.

16.36 Promote Safe Flight Operations

Promote and encourage safe aircraft operations at all airports within San Mateo County.

16.37 Promote Orderly Development At and Surrounding Airports

Promote orderly development of airports and surrounding areas to ensure a safe environment for local citizens and aircraft operations.

DEFINITIONS

16.38 Definition of Clear Zone

Define clear zone as the area of high accident potential located at the ends of airport runway as defined by the Federal Aviation Administration (FAA).

16.39 Definition of Approach Zone

Define approach zone as the area of high accident potential located at the ends of County general aviation airport runway as defined by the Airport Land Use Commission (ALUC).

16.40 Definition of Approach Surface

Define approach surface as the flat plane, sloping upward and outward from airport runways, representative of flight paths, as defined by the Federal Aviation Administration (FAA) and Airport Land Use Commission (ALUC).

REGULATION OF DEVELOPMENT

16.41 Regulate Land Uses to Assure Airport Safety

Regulate land uses surrounding airports to assure airport safety. Measures may include restrictions on permitted land uses and development review height criteria.

16.42 Limit Land Uses at Ends of Runways

Limit land uses in approach zones, clear zones and other areas of high accident potential at ends of airport runways to low intensity, nonstructural uses including, but not limited to, agriculture, open space, and storage.

16.43 Regulate Location and Height of Development Surrounding Airports

Regulate development location and height in areas surrounding airport activities to protect air navigation requirements. Measures may include height criteria based upon an approach surface or other representative aircraft flight path.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

16.44 Airport Safety Land Use Protections

Encourage efforts which provide for safety at the end of airport runways, including measures which restrict land use and building height.

16.45 Airport Land Use Commission (ALUC) Airport Safety Efforts

Encourage and support the Airport Land Use Commission (ALUC) to continue existing efforts toward protecting the public from aviation hazards and promoting safe compatible development surrounding the County's airports through measures which regulate: (1) land uses at the end of runways, and (2) structural height within flight paths.

ROLE OF OTHER AGENCIES

16.46 Federal Aviation Administration (FAA) Airport Safety Efforts

Encourage and support the Federal Aviation Administration (FAA) to continue existing efforts to ensure safe aircraft operations and navigable airspace.

HAZARDOUS MATERIALS POLICIES

The County will:

GOALS AND OBJECTIVES

16.47 Strive to Protect Life, Property, and the Environment From Hazardous Material Exposure

Strive to protect public health and safety, environmental quality, and property from the adverse effects of hazardous materials through adequate and responsible management practices.

16.48 Strive to Ensure Responsible Hazardous Waste Management

Strive to ensure that hazardous waste generated within San Mateo County is stored, treated, transported and disposed of in a legal and environmentally safe manner so as to prevent human health hazard and/or ecological disruption.

16.49 Strive to Reduce Public Exposure to Hazardous Materials

Strive to reduce public exposure to hazardous materials through programs which: (1) promote safe transportation, (2) prevent accidental discharge, and (3) promote effective incident response, utilizing extensive inventory and monitoring techniques.

16.50 Reduce Public Exposure to Hazardous Waste

Strive to reduce public exposure to hazardous waste through programs which: (1) emphasize decreased generation of hazardous waste, (2) promote increased disposal capability for small generators of hazardous waste, including households and small businesses, (3) promote safe transportation of hazardous waste, (4) promote treatment and processing techniques as alternatives to landfill disposal of hazardous waste, and (5) prevent illegal disposal of hazardous waste.

DEFINITIONS

16.51 Definition of Hazardous Material

Define Hazardous Material as a substance which, because of quantity, concentration, physical or chemical characteristics, is capable of injuring life and/or the environment. Examples include toxic chemicals and metals, pesticides and explosives.

16.52 Hazardous Waste

Define Hazardous Waste as a hazardous material requiring disposal.

REGULATION OF DEVELOPMENT

16.53 Regulate Location of Hazardous Material Uses

Regulate the location of uses involving the manufacture, storage, transportation, use, treatment, and disposal of hazardous materials to ensure community compatibility. Provide adequate siting, design, and operating standards.

16.54 Encourage Public Disclosure of Hazardous Materials

Encourage businesses utilizing or storing hazardous materials within the unincorporated area to publicly disclose the types, quantities and health risks of hazardous materials present on-site so as to effect timely and effective emergency response and community risk assessment, improved land use planning and general public awareness.

16.55 Encourage Adoption and Enforcement of Fire Code Hazardous Material Storage Permit Provisions

Encourage fire protection agencies serving the unincorporated area to adopt and enforce existing Uniform Fire Code provisions which authorize fire agency issuance of hazardous material storage permits so as to: (1) assure proper hazardous material storage, (2) prevent accidental discharge or spill, and (3) provide necessary inventory information beneficial to timely and efficient incident response and containment. Assure that relevant hazardous material inventory information is referred to the County, and made available to the public.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

16.56 Pursue Development of Hazardous Material Inventory and Data Base

Pursue efforts to determine the nature, extent, cumulative impacts, and associated risks of hazardous material use and transportation within the County unincorporated area for use as a base to community protection planning. All efforts are to be coordinated by the Planning Division, Office of Environmental Health, and Office of Emergency Services, with cooperation from local emergency response agencies.

16.57 Recognize Local Hazardous Waste Management Responsibilities

Recognize: (1) that local government must share in the responsibility for safe and effective management and disposal of hazardous waste, and (2) that San Mateo County consider the feasibility and appropriateness of siting storage, treatment, and transfer facilities within the County for hazardous waste generated within the County.

16.58 Coordinate with County Health Department Toward Development of a Comprehensive Hazardous Waste Management Plan

Coordinate with County Health Department efforts to develop a comprehensive hazardous waste management plan for source reduction, treatment, disposal, and resource recovery of hazardous waste within the unincorporated area including, but not limited to, the following components: determination of local need for hazardous waste facilities (transfer, treatment and resource recovery), development of criteria and survey to identify acceptable sites, assessment of alternate strategies for land acquisition and facility development, and evaluation of methods to incorporate waste reduction into the production process.

16.59 Regulate Against Environmental Contamination Resulting From Rural Development, Agriculture and Oil and Gas Well Operations

Regulate against environmental contamination resulting from use of pesticides, herbicides and other chemicals including, but not limited to, measures which govern general application of toxic chemicals, storage, disposal, runoff of pesticides associated with agricultural operations, and disposal of oil field waste.

16.60 Update Hazardous Materials Section

Update this Hazardous Materials Section annually to reflect new data and significant changes in hazardous materials management.

16.61 Facilitate Public Awareness and Provide for Citizen Education

Support and facilitate public awareness of hazardous material presence in the community, and provide opportunities for citizen education.

16.62 County Health Department

Encourage and support the County Health Department to continue existing efforts toward: (1) comprehensive identification of hazardous waste generators within San Mateo County and enforcement of hazardous waste management regulations, (2) prevention of illegal dumping through vigorous enforcement and programs which educate the public and industry, (3) improved emergency spill response, and (4) preparation of a hazardous waste management plan through measures including, but not limited to, Countywide survey of hazardous waste generators, full investigation of reported illegal disposal incidents, establishment of a small volume hazardous waste transfer station and development of a multi-agency emergency response plan.

16.63 Area Emergency Services Council

Encourage and support the Area Emergency Services Council to continue existing efforts toward coordinated and effective emergency response in the event of an accidental discharge or spill of hazardous materials.

16.64 County Agricultural Commissioner

Encourage and support the County Agricultural Commissioner to continue existing efforts toward safe pesticide management and use through measures including, but not limited to, issuance of pesticide application permits, monitoring pesticide storage, application and disposal, and crop inspection.

16.65 Industrial - Emergency Council

Encourage and support the Industrial-Emergency Council to continue existing efforts toward risk reduction, and improved emergency preparedness and response to hazardous material incidents, through measures including, but not limited to, establishment of a hazardous material resource center, acquisition of hazardous material response equipment, and development of emergency response training program.

ROLE OF OTHER PUBLIC AGENCIES

16.66 State Department of Health Services

Encourage and support the State Department of Health Services to continue existing efforts toward: (1) vigorous enforcement of hazardous waste management regulations, (2) comprehensive identification and clean-up of contaminated hazardous waste sites, and (3) reducing the amount of hazardous waste requiring landfill disposal.

16.67 Support Hazardous Materials Management Efforts of Other Agencies

Recognize, encourage, and cooperate with the efforts of public agencies and private groups which are consistent with the goals, and objectives of hazardous materials management.

HAZARDOUS STRUCTURES POLICIES

The County will:

GOALS AND OBJECTIVES

16.68 Strive Toward Safe Building Construction

Strive toward safe building construction and full elimination of hazardous conditions.

DEFINITIONS

16.69 Definition of Hazardous Structure

Define hazardous structure as a building or structure which is structurally unsafe, without adequate egress, a fire hazard or otherwise dangerous to human life by reason of improper construction, inadequate maintenance, dilapidation, obsolescence or abandonment, as specified in the San Mateo County Uniform Construction Code.

REGULATION OF DEVELOPMENT

16.70 Regulate Building Construction

Regulate building construction practices to prevent hazardous structures and assure structural safety. Measures may include required conformance to an accepted set of construction standards, and authority to inspect suspected

dangerous buildings, halt improper construction activities, and eliminate hazardous conditions.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

16.71 Support Efforts to Inform Buyers of Building Inspection Services

Support efforts to inform purchasers of existing buildings and structures that the County's building inspection services are available, upon request, to inspect structures, describe their condition and existing violations and provide construction history to the extent that such information is available.

16.72 Resolving Outstanding Building Violations

Consider measures which would facilitate timely resolution of outstanding building inspection violations. Measures may include establishing authority to record citations against notified properties.

16.73 Facilitate Rehabilitation Efforts

Facilitate rehabilitation of hazardous structures through measures which offer financial as well as technical assistance.

ROLE OF OTHER AGENCIES

16.74 Contractors' State License Board

Encourage the Contractors' State License Board to undertake vigorous monitoring of and enforcement against unlicensed building activities.

VEGETATIVE, WATER, FISH AND WILDLIFE RESOURCES POLICIES

The County will:

GOALS AND OBJECTIVES

1.1 **Conserve, Enhance, Protect, Maintain and Manage Vegetative, Water, Fish and Wildlife Resources**

Promote the conservation, enhancement, protection, maintenance and managed use of the County's Vegetative, Water, Fish and Wildlife Resources.

1.2 **Protect Sensitive Habitats**

Protect sensitive habitats from reduction in size or degradation of the conditions necessary for their maintenance.

1.3 **Protection and Productive Use of Economically Valuable Vegetative, Water, Fish and Wildlife Resources**

Protect the availability and encourage the productive use of the County's economically valuable vegetative, water, fish and wildlife resources in a manner which minimizes adverse environmental impacts.

1.4 **Access to Vegetative, Water, Fish and Wildlife Resources**

Protect and promote existing rights of public access to vegetative, water, fish and wildlife resources for purposes of study and recreation consistent with the need to protect public rights, rights of private property owners and protection and preservation of such resources.

DEFINITIONS

1.5 **Definition of Vegetative Resources**

Define vegetative resources as plants and plant communities, including timber but excluding agricultural crops.*

* Agricultural crops and additional discussion of timber resources are presented in the Rural Land Use Chapter.

1.6 Definition of Water Resources

Define water resources as all surface water bodies, groundwater bodies and recharge areas, including perennial and intermittent streams.

1.7 Definition of Fish and Wildlife Resources

Define fish and wildlife resources as all non-domesticated animals.

1.8 Definition of Sensitive Habitats

Define a sensitive habitat as any area where the vegetative, water, fish and wildlife resources provide especially valuable and rare plant and animal habitats that can be easily disturbed or degraded. These areas include but are not limited to: (1) habitats containing or supporting rare or unique species; (2) riparian corridors; (3) marine and estuarine habitats; (4) wetlands; (5) sand dunes; (6) wildlife refuges, reserves, and scientific study areas; and (7) important nesting, feeding, breeding or spawning areas.

1.9 Definition of Rare or Unique Species

Define rare or unique species as any plant or animal that is determined to be rare, endangered, threatened, unique to the County and adjacent areas or protected by Federal or State law and State and County EIR guidelines.

1.10 Definition of Riparian Corridors

Define riparian corridors as the vegetative and wildlife areas adjacent to perennial and intermittent streams and other freshwater bodies, such as lakes, ponds, and reservoirs. Delineate these riparian corridors by the "limit of riparian vegetation," i.e., a line determined by the existence of plant species normally found near streams, lakes, and other freshwater bodies.

1.11 Definition of Marine and Estuarine Habitats

Define marine and estuarine habitats as habitats of any marine-dependent plant or animal located in or near the Pacific Ocean or San Francisco Bay, including beaches, offshore reefs, kelp beds, tide pools, sea caves, islets and offshore rocks, sea cliffs, bays and estuaries.

1.12 Definition of Wetlands

Define wetland as an area where the water table is at, near, or above the land surface long enough to bring about the formation of hydric soils or to support the growth of plants which normally grow in water or wet ground. Wetlands include

fresh or salt water marshes, mud flats, brackish, tidal or seasonal wet areas and can occur along the margins of streams, lakes and ponds.

1.13 Definition of Wildlife Refuges, Reserves, and Scientific Study Areas

Define wildlife refuges, reserves, and scientific study areas as those areas designated by public and/or owned by private agencies for the purposes of protecting, maintaining, and studying important vegetative, water, fish and wildlife resources.

1.14 Definition of Buffer Zones

Define Buffer Zones as those areas adjacent to sensitive habitats which are necessary to allow for periodic, seasonal, or ecological changes, including the impacts of climate change, which could affect the boundaries of sensitive habitats.

1.15 Definition of Climate Change

Define climate change as a term to imply a significant change from one climatic condition to another, including natural changes in climate.

1.16 Definition of Productive Uses of Vegetative, Water, Fish and Wildlife Resources

Define productive use as any activity involving the use, removal or alteration of vegetative, water, fish and wildlife resources from their natural environment for human use or economic purposes.

1.17 Definition of Economically Valuable Vegetative, Water, Fish and Wildlife Resources

Define economically valuable vegetative, water, fish and wildlife resources as those resources which are important to the economy because they:

1. Provide income, employment or tax benefits accruing to the landowner or operator;
2. Support experimental or research and development activities which hold future commercial potential;
3. Are essential to the continuance of other economic activity;
4. Are significant components of the scenic quality and uniqueness of San Mateo County which add to the value of property or attract visitors.

1.18 Definition of Incompatible Vegetation, Fish and Wildlife

Define incompatible vegetation, fish and wildlife as any plant, fish, or animal, or concentration of plants or animals which are found to be harmful to the surrounding environment or pose a threat to public health, safety and welfare.

1.19 Definition of Development

Define development as the construction, reconstruction, conversion, relocation or enlargement of any structure; the division of a parcel of land into two or more parcels; any mining, excavation, landfill or land disturbance including grading; and changes in land uses.

DESIGNATIONS

1.20 Designation of Sensitive Habitats

Designate as sensitive habitats those areas which meet the definition of sensitive habitats. Recognize the Sensitive Habitats Map (dated December 1984) or subsequent updates or refinements as indicative of the distribution of sensitive habitats within San Mateo County, based upon the best and most current information available.

GENERAL POLICIES

1.21 Importance of Sensitive Habitats

Consider areas designated as sensitive habitats as a priority resource requiring protection.

1.22 Importance of Economically Valuable Vegetative, Water, Fish and Wildlife Resources

Consider Vegetative, Water, Fish and Wildlife Resources which are economically valuable as a priority resource to be enhanced, utilized, managed and maintained for the needs of present and future generations.

REGULATION OF DEVELOPMENT

1.23 Regulate Development to Protect Vegetative, Water, Fish and Wildlife Resources

- a. Regulate land uses and development activities to prevent, and if infeasible mitigate to the extent possible, significant adverse impacts on vegetative, water, fish and wildlife resources.

- b. Place a priority on the managed use and protection of vegetative, water, fish and wildlife resources in rural areas of the County.

1.24 Regulate Location, Density and Design of Development to Protect Vegetative, Water, Fish and Wildlife Resources

Regulate the location, density and design of development to minimize significant adverse impacts and encourage enhancement of vegetative, water, fish and wildlife resources.

RESOURCE PROTECTION

1.25 Protect Vegetative Resources

Ensure that development will: (1) minimize the removal of vegetative resources and/or; (2) protect vegetation which enhances microclimate, stabilizes slopes or reduces surface water runoff, erosion or sedimentation; and/or (3) protect historic and scenic trees.

1.26 Protect Water Resources

Ensure that development will: (1) minimize the alteration of natural water bodies, (2) maintain adequate stream flows and water quality for vegetative, fish and wildlife habitats; (3) maintain and improve, if possible, the quality of groundwater basins and recharge areas; and (4) prevent to the greatest extent possible the depletion of groundwater resources.

1.27 Protect Fish and Wildlife Resources

Ensure that development will minimize the disruption of fish and wildlife and their habitats.

SENSITIVE HABITATS

1.28 Regulate Development to Protect Sensitive Habitats

Regulate land uses and development activities within and adjacent to sensitive habitats in order to protect critical vegetative, water, fish and wildlife resources; protect rare, endangered, and unique plants and animals from reduction in their range or degradation of their environment; and protect and maintain the biological productivity of important plant and animal habitats.

1.29 Establish Buffer Zones

- a. Establish necessary buffer zones adjacent to sensitive habitats which include areas that directly affect the natural conditions in the habitats and

areas expected to experience changing vulnerabilities due to impacts of climate change.

- b. As part of Countywide efforts to foster resilience and adapt to impacts of climate changes, establish wildlife corridors in appropriate locations to maintain a functional network of connected wildlands, to support native biodiversity, and to encourage movement of wildlife species.

1.30 Uses Permitted in Sensitive Habitats

Within sensitive habitats, permit only those land uses and development activities that are compatible with the protection of sensitive habitats, such as fish and wildlife management activities, nature education and research, trails and scenic overlooks and, at a minimum level, necessary public service and private infrastructure.

1.31 Uses Permitted in Buffer Zones

Within buffer zones adjacent to sensitive habitats, permit the following land uses and development activities: (1) land uses and activities which are compatible with the protection of sensitive habitats, such as fish and wildlife management activities, nature education and research, trails and scenic overlooks, and at a minimum level, necessary public and private infrastructure; (2) land uses which are compatible with the surrounding land uses and will mitigate their impact by enhancing or replacing sensitive habitats; and (3) if no feasible alternative exists, land uses which are compatible with the surrounding land uses.

1.32 Regulate the Location, Siting and Design of Development in Sensitive Habitats

Regulate the location, siting and design of development in sensitive habitats and buffer zones to minimize to the greatest extent possible adverse impacts, and enhance positive impacts.

1.33 Performance Criteria and Development Standards

Establish performance criteria and development standards for development permitted within sensitive habitats and buffer zones, to prevent and if infeasible mitigate to the extent possible significant negative impacts, and to enhance positive impacts.

PRODUCTIVE USES

1.34 Regulate Productive Uses of Vegetative, Water, Fish and Wildlife Resources

Regulate resource productive uses which are subject to local control in order to prevent and if infeasible mitigate to the extent possible significant adverse

impacts on vegetative, water, fish and wildlife resources and to maintain and enhance the (1) productivity of forests and other vegetative resources; (2) productive capacity and quality of groundwater basins and recharge areas, streams, reservoirs, and other water bodies; (3) productivity of fisheries and other fish and wildlife resources; and (4) the recreational value and aesthetic value of these areas.

1.35 Protect Productive Uses of Vegetative, Water, Fish and Wildlife Resources

Regulate development in order to protect and promote the managed use of vegetative, water, fish and wildlife resources.

1.36 Protect the Productive Use of Timber Resources

Ensure that land uses and development within timber harvesting areas will not significantly detract from or inhibit the use of the property for the growing and harvesting of timber.

1.37 Protect the Productive Use of Water Resources

Ensure that land uses and development on or near water resources will not impair the quality or productive capacity of these resources.

1.38 Encourage Aquaculture

Encourage the development of aquacultural uses in a manner which minimizes adverse environmental impacts on surrounding vegetative, water, fish and wildlife resources and sensitive habitats.

CONTROL OF INCOMPATIBLE VEGETATIVE, FISH AND WILDLIFE RESOURCES

1.39 Control Incompatible Vegetation, Fish and Wildlife

Encourage and support the control of vegetation, fish and wildlife resources which are harmful to the surrounding environment or pose a threat to public health, safety and welfare.

1.40 Minimize Adverse Impacts of Programs Controlling Incompatible Vegetation, and Fish and Wildlife

Minimize the negative impacts and risks of programs controlling incompatible vegetation, fish and wildlife.

RESOURCE MANAGEMENT COORDINATION

1.41 Encourage Coordinated, Countywide Management of Vegetative, Water, Fish and Wildlife Resources

Encourage all Federal, State, regional, County, and city agencies with jurisdiction in San Mateo County to cooperate and coordinate the management and protection of vegetative, water, fish and wildlife resources.

ACQUISITION AND MANAGEMENT OF SENSITIVE HABITATS

1.42 Encourage Public Agencies and Private Groups to Acquire Significant Sensitive Habitats

Encourage public agencies and private groups to acquire and manage significant sensitive habitats because of the (1) biological and scientific significance of the habitat, (2) degree of endangerment from development or other activities, and (3) accessibility for educational and scientific uses and vulnerability to overuse.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

1.43 Develop a Sensitive Habitat Information Base

Develop and maintain clear, detailed and comprehensive maps and other information identifying sensitive habitats in the unincorporated area of San Mateo County.

1.44 Develop Standard Mitigation Measures

Develop mitigation measures which could be the basis for measures recommended to protect sensitive habitats, vegetative, water, fish and wildlife resources and their productive uses from development activities in the County.

1.45 Improvement of Damaged Resources

Encourage programs which repair and/or enhance damaged vegetative, water, fish and wildlife resources and sensitive habitats, with the goal of returning them to their natural condition.

1.46 Consolidate Regulations Protecting Sensitive Habitats in Rural Areas

- a. Consolidate existing performance criteria and development standards to regulate all development in sensitive habitats in rural areas.

- b. Consider using the consolidated regulations as an overlay zoning district.

1.47 Develop Performance Criteria and Development Standards for Sensitive Habitats in Urban Areas

- a. Develop a set of performance criteria and development standards to protect sensitive habitats in urban areas.
- b. Consider using the regulations as an overlay zoning district.

1.48 Develop Guidelines for Vegetation and Debris Control in Riparian Corridors

Develop guidelines for vegetation and debris control in riparian corridors. Such guidelines should set forth clear direction on procedures to: (1) facilitate the abatement of avoidable flood hazards and (2) minimize adverse impacts on riparian communities.

1.49 Encourage the Management of Riparian Corridors

Encourage and, to the maximum extent feasible, reward the efforts of those responsible for managing riparian corridors in a manner that is consistent with County and State guidelines.

ROLE OF OTHER PUBLIC AGENCIES

1.50 Support Resource Management Efforts of Other Agencies

Recognize, encourage and cooperate with the efforts of public agencies and private groups which are consistent with the goals, objectives and policies of this chapter.

1.51 Develop Programs to Adapt to the Impacts of Climate Change

- a. Integrate advances in research of the impact of climate change into the assessment of vulnerabilities of sensitive species, sensitive habitats, and vegetative, fish, and wildlife resources.
- b. Protect sensitive habitats and resources from the impacts of climate change.
- c. Coordinate with other local, State, and national agencies to understand and respond to new, exacerbated, or changing vulnerabilities that result from the impacts of climate change.

SOIL RESOURCES POLICIES

The County will:

GOALS AND OBJECTIVES

2.1 Protect and Preserve Soil as a Resource

Protect and preserve the availability and quality of soil as a resource for its ability to sustain healthy plant, animal, and human life within San Mateo County.

2.2 Minimize Soil Erosion

Minimize soil erosion through application of appropriate conservation practices.

2.3 Prevention of Soil Contamination

Prevent soil contamination through the appropriate use, storage, and disposal of toxic substances.

2.4 Protection of Productive Soil Resources

Protect productive soil resources from abuse, misuse, and degradation.

2.5 Minimize Depletion of Productive Soil Resources in Agricultural Areas

Minimize depletion of productive soil resources in agricultural areas through application of appropriate management practices.

DEFINITIONS

2.6 Definition of Productive Soil Resources

Define productive soil resources as soils in rural areas capable of feasible or economic agricultural and timber production.

2.7 Definition of Soils with Agricultural Capability

As designated on the Productive Soils Resources Map, define productive soils with agricultural capability as including, but not limited to:

- a. Soils with the best combination of physical and chemical features for the production of agricultural crops, or

- b. Soils which have a good combination of natural, physical, and chemical characteristics for producing agricultural products,¹ and for which a dependable source of irrigation water is available, or
- c. Soils that are of statewide importance for the production of food, feed, fiber, forage and oilseed crops, or
- d. Soils other than identified in subsection c that are used for the production of specific high value food and fiber crops, or
- e. Soils that have been identified as having local importance for agriculture by the County with the assistance of the Agricultural Advisory Committee, or
- f. Soils which are or recently have been in agricultural production, or
- g. Soils which support vegetation, whether grown naturally or managed, feasible for grazing or browsing of livestock.

2.8 Definition of Productive Soils With Timber Capability

Define productive soils with timber capability as including, but not limited to:

- a. Soils which have a combination of physical and chemical characteristics necessary for productive timber growth.
- b. Soils which are supporting productive timber growth.

2.9 Definition of Soil Erosion

Define soil erosion as the process by which soil is detached and transported by running water, wind, and gravity. Include naturally occurring soil erosion, and that accelerated by human activity.

2.10 Definition of Soil Contamination

Define soil contamination as the addition of chemical or other degrading substances to soil such that the soil becomes toxic or injurious to plant or animal life.

¹ As determined by the State Department of Conservation--Advisory Guidelines for the Farmland Monitoring Program (Sections 201.1, 202.1) April, 1984.

2.11 Definition of Protective Use of Productive Soil

Define protective use of productive soil as any activity which preserves, renews, and sustains the ability of the soil to support plant and animal life.

2.12 Definition of Good Soil Conservation Techniques

Define good soil conservation techniques as any activity which preserves, renews and sustains the ability of the soil to support plant and animal life; including, but not limited to, public or private land in a natural condition, and properly managed agriculture and forestry.

2.13 Definition of Nonprotective Use of Productive Soil

Define nonprotective use of productive soil as any activity which eliminates, depletes, or significantly alters the availability and capacity of soil to support plant and animal life.

2.14 Definition of Improper Soil Conservation Techniques

Define improper soil conservation techniques as any activity which significantly alters the availability and capacity of soil to support plant and animal life.

2.15 Definition of Soil Conversion

Define soil conversion as the process of (a) transforming productive soil from a protective use to a nonprotective use, or (b) shifting from good soil conversion techniques to poor soil conversion techniques.

DESIGNATIONS

2.16 Designation of Productive Soil Resources

Recognize the Productive Soil Resources Map (dated December 1984), and subsequent updates, as representative of the distribution of productive soil resources within San Mateo County, based upon the best and most current information available.

REGULATION OF DEVELOPMENT

2.17 Regulate Development to Minimize Soil Erosion and Sedimentation

Regulate development to minimize soil erosion and sedimentation; including, but not limited to, measures which consider the effects of slope, minimize removal of vegetative cover, ensure stabilization of disturbed areas and protect

and enhance natural plant communities and nesting and feeding areas of fish and wildlife.

2.18 Encouragement of Soil Protective Uses

Encourage the continuance and expansion of soil protective uses in rural areas, specifically agriculture and forestry, for their ability to protect soil as an available resource, as well as produce beneficial food, fiber, and decorative crops.

2.19 Preferred Uses in Areas With Productive Soil Resources

Give preference to soil protective land uses in areas with productive soil resources. Allow other land uses which are compatible with soil protective uses and which minimally impact the continued availability and productivity of productive soil resources.

2.20 Regulate Location and Design of Development in Areas With Productive Soil Resources

Regulate location and design of development in a manner which is most protective of productive soil resources, including, but not limited to, measures which require clustering of structures.

2.21 Protect Productive Soil Resources Against Soil Conversion

Regulate land use and subdivision of productive soil resources and encourage appropriate management practices to protect against soil conversion. Regulations should place priorities according to the relative productive characteristics of the resource.

2.22 Regulate Forestry Operations Against Accelerated Soil Erosion

Regulate forestry operations to protect against accelerated soil erosion and sedimentation through measures which include construction of water breaks, slope stabilization, restricted seasonal operation, and streamside protection.

2.23 Regulate Excavation, Grading, Filling, and Land Clearing Activities Against Accelerated Soil Erosion

Regulate excavation, grading, filling, and land clearing activities to protect against accelerated soil erosion and sedimentation.

2.24 Regulate Surface Mining Operations Against Accelerated Soil Erosion

Regulate surface mining operations to protect against accelerated soil erosion and sedimentation through measures which ensure siltation control and site reclamation.

2.25 Regulate Topsoil Removal Operations Against Accelerated Soil Erosion

Regulate topsoil removal operations to protect against accelerated soil erosion and sedimentation through measures which ensure slope stabilization and surface drainage control.

2.26 Regulate Oil and Gas Well Operations Against Accelerated Soil Erosion

Regulate oil and gas well operations to protect against accelerated soil erosion and sedimentation through measures which include establishment of streamside buffer strips, construction of water breaks, roadside berms, and site revegetation.

2.27 Regulate Development and Agriculture Against Soil Contamination

Regulate development and agriculture to protect against soil contamination through measures which ensure proper use, storage, and disposal of toxic chemicals and pesticides.

2.28 Regulate Agricultural Activities Against Soil Depletion in Agricultural Areas

Regulate agricultural activities to minimize against soil depletion.

RESOURCE MAINTENANCE

2.29 Promote and Support Soil Erosion Stabilization and Repair Efforts

Promote and support efforts aimed at stabilization of ongoing soil erosion and repair of erosion caused land scars.

2.30 Emergency Creekside Erosion Control

Assure timely implementation of emergency creekside erosion control activities.

2.31 Support and Reward Soil Improvement Efforts

Support and, to the maximum extent feasible, reward the efforts of individuals who have voluntarily enhanced soil productivity and nutrient level.

PROGRAM RESPONSIBILITIES

ROLE OF OTHER AGENCIES

2.32 Support Soil Protection Efforts of Other Agencies

Recognize, encourage and cooperate with the efforts of public agencies and private groups which are consistent with the goals, objectives and policies of this chapter.

MINERAL RESOURCES POLICIES

The County will:

GOALS AND OBJECTIVES

3.1 Mineral Resource Identification, Protection and Extraction

Identify Significant Mineral Resource Areas, protect the availability of mineral resources located within these areas and encourage their extraction in a manner which minimizes adverse environmental impacts.

3.2 Protection of Significant Mineral Resource Areas

Protect Significant Mineral Resource Areas from encroachment by incompatible land uses.

3.3 Prevention of Environmental Impacts

Minimize the impact of mineral extraction activities on the surrounding natural and built environment through the application of appropriate management practices including, but not limited to, minimizing surface disturbance, air pollution, water pollution, noise pollution, vibration, and traffic impacts.

3.4 Reclamation of Mineral Extraction Areas

Plan for the rehabilitation and reuse of mineral extraction areas.

DEFINITIONS

3.5 Definition of Significant Mineral Resource Areas

Define Significant Mineral Resource Areas as lands in rural areas containing minerals capable of being extracted for commercial use, including, but not limited to:

- a. Lands on which minerals are being extracted for commercial use.
- b. Lands classified as Mineral Resource Zone 2 (MRZ-2) by the State Geologist, and designated by the State Mining and Geology Board as containing mineral deposits of regional or statewide significance.

3.6 Definition of Buffer Lands

Define buffer lands as lands which are used to protect public safety by providing sufficient distance and screening between mineral extraction activities and incompatible land uses.

DESIGNATIONS

3.7 Designation of Significant Mineral Resource Areas

Designate Significant Mineral Resource Areas as those meeting the definition in Policy 3.5, including, but not limited to, those areas shown as Significant Mineral Resource Areas on the Mineral Resources Map.

REGULATION OF DEVELOPMENT

3.8 Identify and Protect Significant Mineral Resource Areas from Incompatible Land Uses

Identify and protect Significant Mineral Resource Areas from preclusive and incompatible land uses both within and adjacent to the site to insure that mineral resources continue to be available as needed.

3.9 Permitted Uses Within Significant Mineral Resource Areas

Regulate development within Significant Mineral Resource Areas permitting only those land uses which are compatible with existing or potential mineral resource extraction operations.

3.10 Permitted Uses Adjacent to Significant Mineral Resource Areas

Regulate development adjacent to Significant Mineral Resource Areas (within the impact area) permitting only those land uses which are compatible with mineral extraction activities and other land uses which protect public safety.

3.11 Encourage the Extraction of Minerals Located Within Significant Mineral Resource Areas

Encourage the extraction of minerals located within Significant Mineral Resource Areas provided the mineral resource extraction would not be in serious conflict with existing land uses, land uses proposed in the General Plan and area plans, and sensitive habitats.

3.12 Extraction of Minerals Located Outside of Significant Mineral Resource Areas

Allow the extraction of minerals located outside of Significant Mineral Resource Areas provided the mineral resource extraction would not be in serious conflict with existing land uses, land uses proposed in the General Plan and area plans, and sensitive habitats.

3.13 Locating New Quarries

Allow new quarries to be located in areas where the resulting impacts, including, but not limited to, those on visual quality, noise levels (both absolute and relative to ambient noise levels), air quality and traffic can be mitigated to levels compatible with existing land uses, land uses proposed in the General Plan and area plans, and sensitive habitats.

3.14 Establishing Buffer Lands Adjacent to Quarry Operations

Establish buffer lands adjacent to existing and new quarry operations to protect them from incompatible land uses and to assure that existing land uses, particularly residential uses, are protected from the negative impacts resulting from the extraction operation.

3.15 Regulation of Quarrying and Dredging Operations

Regulate the quarrying for crushed and broken stone or limestone and the dredging for shells to encourage the development of these resources and to protect the environment, including, but not limited to, minimizing air pollution, impedance of groundwater movement and water quality degradation, damage to wildlife habitats, flooding, erosion, degradation of scenic quality, noise pollution, and traffic impacts.

3.16 Regulation of Onshore Oil and Gas Operations

Regulate onshore oil and gas operations, including, but not limited to, the regulation of the exploration, production, removal, storage and transportation of oil and gas and other incidental operations in a manner which encourages the development of onshore oil and gas resources and protects natural resources, freshwater sources and agriculture.

3.17 Amending Onshore Oil and Gas Well Regulations

Prior to amending County regulations governing onshore oil and gas development, consider both the costs to the applicant to meet the proposed new or revised requirements and the environmental and land use benefits.

3.18 Compatibility of Onshore Oil and Gas Development with the Productive Use of Surface Resources

Permit the extraction of onshore oil and gas on lands designated for the productive use of surface resources such as agriculture and timber harvesting provided that the overall productivity of the surface resource is not significantly diminished and feasible alternative extraction sites are not available.

3.19 Protection of Natural Resources

Regulate land uses and require environmental review of extraction operations in a manner which fosters protection of natural resources.

3.20 Onshore Facilities for Offshore Oil Development

Prohibit onshore facilities for offshore oil development.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

3.21 Update Significant Mineral Resources Map

Periodically update the map identifying Significant Mineral Resource Areas in San Mateo County as new information is made available by the State Geologist, State Board of Mining and Geology, or other sources.

3.22 Opposition to the Development of Offshore Oil Resources Which Could Affect San Mateo County

Advise State and Federal agencies on the County's objections to the development of offshore oil resources.

3.23 Implementation of Reclamation Plans

At the time quarrying operations are terminated, develop and implement land use designations which are consistent with quarry reclamation plans.

VISUAL QUALITY POLICIES

The County will:

GOALS AND OBJECTIVES

4.1 Protection of Visual Quality

- a. Protect and enhance the natural visual quality of San Mateo County.
- b. Encourage positive visual quality for all development and minimize adverse visual impacts.
- c. Encourage citizen awareness and interest in San Mateo County's scenic resources.

4.2 Protection of Shorelines

- a. Protect and enhance the visual quality of and from shorelines of bodies of water including lakes, reservoirs, streams, bays, ocean, sloughs.
- b. Maximize the preservation of significant public ocean views.

4.3 Protection of Vegetation

Minimize the removal of visually significant trees and vegetation to accommodate structural development.

4.4 Appearance of Rural and Urban Development

Promote aesthetically pleasing development in rural and urban areas.

DEFINITIONS

4.5 Definition of Development

Define development as the construction, reconstruction, conversion, relocation or enlargement of any structure; the division of a parcel of land into two or more parcels; any mining, excavation, landfill or land disturbance; and changes in land uses.

4.6 Definition of Structure

Define a structure as anything constructed for use or occupancy whether constructed or erected on, above, or below the surface of land or water. This

does not include roads, paved areas or temporary structures. Temporary structures are without a foundation or footings and can be removed when the designated time or use for which the structure was erected has ceased.

4.7 Definition of Ridgelines and Skylines

- a. Define ridgelines as the tops of hills or hillocks normally viewed against a background of other hills.
- b. Define skylines as the line where sky and land masses meet.

4.8 Definition of Visual Resources

Define visual resources as those attractive visible elements of the natural and developed landscape, such as landforms, vegetative forms, water bodies, structures and communities.

4.9 Definition of Visual Quality

Define visual quality as the visual attributes of natural landscapes, structures and communities.

4.10 Definition of Public View

Define public view as a range of vision from a public road or other public facility.

4.11 Definition of Scenic Road

Define a scenic road as a designated travel route providing outstanding views of natural landscapes and attractive man-made development.

4.12 Definition of Scenic Corridors

Define a scenic corridor as land adjacent to a scenic road right-of-way which, when seen from the road, provides outstanding views of natural landscapes and attractive man-made development.

4.13 Definition of Distributed Energy Resources

Define distributed energy resources as small, modular energy generation and storage technologies that provide electric capacity or energy located on-site or close to where it is needed, whether connected to the local electric power grid or isolated in stand-alone applications. These systems generally produce less than 10 megawatts (MW) of power and include wind turbines, photovoltaics (PV), fuel cells, microturbines, and energy storage systems.

GENERAL POLICIES

4.14 Public Education

Encourage private citizen awareness and interest in protecting the visual quality of the County through educational programs.

4.15 Appearance of New Development

- a. Regulate development to promote and enhance good design, site relationships and other aesthetic considerations.
- b. Regulate land divisions to promote visually attractive development.

4.16 Supplemental Design Guidelines for Communities

Encourage the preparation of supplemental site and architectural design guidelines for communities that include, but are not limited to, criteria that reflect local conditions, characteristics and design objectives and are flexible enough to allow individual creativity.

4.17 Protections for Coastal Features

Regulate coastal development to protect and enhance natural landscape features and visual quality through measures that ensure the basic integrity of sand dunes, cliffs, bluffs and wetlands.

4.18 Oil and Gas Well Operations

Regulate the appearance of oil and gas well operations to protect against damaging visual quality through measures which limit the size of the pad and require equipment to be screened, painted and limited in height. To the greatest extent practicable, require revegetation and restoration.

4.19 Surface Mining Operations

Regulate surface mining operations to protect visual quality through measures requiring revegetation and restoration, to the extent practicable.

4.20 Large Agricultural Structures

Use appropriate landscaping wherever necessary and feasible to mitigate the negative impacts of large agricultural structures (i.e., greenhouses, storage buildings, etc.) from public view.

4.21 Utility Structures

Minimize the adverse visual quality of utility structures, including roads, roadway and building signs, overhead wires, utility poles, T.V. antennae, distributed energy resources, solar water heaters, and satellite dishes.

4.22 Scenic Corridors

Protect and enhance the visual quality of scenic corridors by managing the location and appearance of structural development.

4.23 Forest Lands

Protect the basic scenic character of forest lands by promoting the regulation of thinning and commercial harvesting.

RURAL AREAS

4.24 Rural Development Design Concept

Regulate the location and siting of structures in rural areas to encourage positive visual quality in relation to the scenic character of the natural landscape.

RURAL SITE PLANNING

4.25 Location of Structures

- a. Locate, site and design all structures and paved areas to carefully conform with the natural vegetation, landforms and topography of the site so that their presence is compatible with the pre-existing character of the site.
- b. Locate and design future structures to minimize the impacts of noise, light, glare and odors on adjacent properties and roads.
- c. Locate structures adjacent to or in forested areas rather than in open grasslands, wherever possible and make compatible with timber harvesting activities and use of solar energy.

4.26 Earthwork Operations

- a. Keep grading or earth-moving operations to a minimum.
- b. Where grading is necessary, make graded areas blend with adjacent landforms through the use of contour grading rather than harsh cutting or terracing of the site.

4.27 Water Bodies

- a. Allow for the development of approved dams and impoundments and stream clearance operations.
- b. Discourage structures which would adversely impact the appearance of a stream and associated riparian habitat.
- c. Discourage the alteration of streams and other natural drainage systems which would affect their appearance, reduce underground water recharge, or cause drainage, erosion or flooding problems.

4.28 Ridgelines and Skyline

- a. Discourage structures on open ridgelines and skylines, when seen as part of a public view in order to preserve visual integrity.
- b. Allow structures on open ridgelines and skylines as part of a public view when no alternative building site exists.
- c. Require structures on ridgelines in forested areas, which are part of a public view to: (1) blend with the existing silhouette; (2) not break or cause gaps within the ridgeline silhouette by removing tree masses; and (3) relate to the ridgeline form.
- d. Define public view as a range of vision from a public road or other public facility.

4.29 Trees and Vegetation

- a. Preserve trees and natural vegetation except where removal is required for approved development or safety.
- b. Replace vegetation and trees removed during construction wherever possible. Use native plant materials or vegetation compatible with the surrounding vegetation, climate, soil, ecological characteristics of the region and acceptable to the California Department of Forestry.
- c. Provide special protection to large and native trees.

4.30 Landscaping and Screening

- a. Provide a smooth transition between development and adjacent forested or open space areas through the use of landscaping.

- b. Limit landscaping in open grasslands to areas immediately surrounding structures.
- c. Where it is appropriate to screen uses from view, use natural vegetation rather than solid fencing.

4.31 Public Utilities

Encourage the placement of new and existing public utility lines underground.

4.32 Roads

Locate and develop roads which are integrated well with the physical environment.

4.33 Rural Design Review District

Regulate the site planning of all development in rural areas by using a consolidated set of design standards.

RURAL SERVICE CENTERS AND SUBDIVISIONS

4.34 Rural Service Centers Design Concept

Ensure that future development in rural service centers occurs in an orderly and harmonious fashion which is compatible with established architectural character, design standards, and character of the surrounding natural environment.

4.35 Rural Subdivisions Design Concept

Encourage new development in rural subdivisions to be compatible with established architectural styles and patterns of development present in adjacent older structures and to respect the character of the surrounding natural landscape.

URBAN AREAS

4.36 Urban Area Design Concept

- a. Maintain and, where possible, improve upon the appearance and visual character of development in urban areas.
- b. Ensure that new development in urban areas is designed and constructed to contribute to the orderly and harmonious development of the locality.

4.37 Improving Visual Quality in Urban Areas

Conduct special studies in unincorporated urban areas to identify and mitigate design problems in commercial and mixed density residential areas.

URBAN DEVELOPMENT DESIGN REGULATIONS

4.38 Urban Design Review District

Develop design review regulations which incorporate guidelines on managing design problems found in predominantly urban areas.

4.39 Commercial Signs and Outdoor Advertisements

Regulate commercial signs and outdoor advertising by using a consolidated set of standards.

SCENIC ROADS AND CORRIDORS

4.40 Scenic Roads

Give special recognition and protection to travel routes in rural and unincorporated urban areas which provide outstanding views of scenic vistas, natural landscape features, historical sites and attractive urban development.

4.41 Coordination of Scenic Roadway Standards and Design

Coordinate standards of roadway and right-of-way design, improvements, and maintenance with cities in order to maintain a consistent approach in applying scenic conservation standards.

4.42 Role of the Cities in Urban Scenic Corridor Regulation

Encourage cities to give special recognition and regulation to development in designated scenic corridors within their jurisdiction in order to support and supplement the City, County and State network of scenic roads.

4.43 Criteria for Scenic Road Designation

- a. Select a variety of road types irrespective of their traffic functions, as long as the visual quality afforded justifies the selection.
- b. Select roads in rural areas representative of the variety and quality of scenery available in the County such as those which provide views of unusual natural landforms (i.e., exposed rock faces, sea cliffs, steep noticeable slopes, etc.), unique vegetative communities (i.e., large plants

or trees, unusually large groups of plants, heritage trees), the coastline, streams, natural and man-made bodies of water, waterfalls, vista points, structures of architectural interest and open space areas where agricultural operations may be viewed.

- c. Select roads in urban areas which display attractive urban development (i.e., State and County historical sites, singular and multiple structures of architectural interest, engineering constructs, and other archaeological, historical, or cultural sites), and provide views of natural scenery in an urban setting.
- d. Consider routes which provide access to and connect public recreation areas and places of historic and cultural interest.

4.44 Road Design and Construction

- a. Require the design and construction of new roads and road improvements to be sensitive to the visual qualities and character of the scenic corridor. This includes width, alignment, grade, slope, grading, and drainage facilities.
- b. Encourage the construction and maintenance of scenic turnouts, selective clearing of vegetation to open new vistas, development of picnic and rest areas at selected locations along the scenic road system.

4.45 Designation of Scenic Roads and Corridors

- a. Designate those State and County travel routes listed in Table 4.6 as Scenic Roads.
- b. Designate those portions of land shown on the Map of Scenic Corridors abutting either side of select rural travel routes as Scenic Corridors.

4.46 Scenic Corridor Definition Program

- a. Develop a program to define consistent temporary scenic corridors on either side of the road right-of-way, until a permanent corridor is defined for select travel routes outside the Coastal Zone.
- b. Develop a program for defining permanent scenic corridors using the designation procedure outlined in the Appendix as a guide.

TABLE 4.6

DESIGNATED STATE AND COUNTY SCENIC ROADS

State Designated Routes

- | | |
|------------------------|--|
| Cabrillo Highway | - State Route No. 1 (from southern limits of the City of Half Moon Bay to Santa Cruz County) |
| Junipero Serra Freeway | - Interstate Route No. 280 (from Millbrae to Santa Clara County) |
| Skyline Boulevard | - State Route No. 35 (from State Route No. 92 to Santa Clara County) |

County Designated Routes

- | | |
|--------------------------|---|
| Alameda de las Pulgas | - (from Woodside Road to Crystal Springs Road) |
| Alpine Road | - (from Alameda de las Pulgas to Portola Road and from Skyline Boulevard to Pescadero Road) |
| Cabrillo Highway | - (from Junipero Serra Freeway to northern limits of the City of Half Moon Bay) |
| Canada Road | |
| Canyon Road | - (from Skyline Boulevard to Easton Drive) |
| Cloverdale Road | |
| Crystal Springs Road | |
| John Daly Boulevard | |
| Junipero Serra Freeway | - (from San Francisco to San Bruno) |
| Easton Drive | - (from Canyon Road to El Camino Real) |
| Edgewood Road | - (from Alameda de las Pulgas to Canada Road) |
| El Camino Real | - (from Easton Drive to Crystal Springs Road) |
| Gazos Creek Road | - (from Cabrillo Highway to Cloverdale Road) |
| Guadalupe Canyon Parkway | |
| Half Moon Bay Road | - State Route No. 92 |
-

TABLE 4.6 (continued)

DESIGNATED STATE AND COUNTY SCENIC ROADS

Higgins-Purissima Road

Kings Mountain Road

La Honda Road - State Route No. 84

Pescadero Road

Polhemus Road

Portola Road

Portola State Park Road

Purissima Creek Road

Ralston Avenue - (from Alameda de las Pulgas to J. Arthur Younger Freeway)

Sand Hill Road

Sharp Park Road

Skyline Boulevard - (from San Francisco to Half Moon Bay Road)

Stage Road

Tunitas Creek Road

Westborough Boulevard - (from Skyline Boulevard to Junipero Serra Freeway)

Woodside Road - State Route No. 84 (from Alameda de las Pulgas to La Honda Road)

J. Arthur Younger Freeway - State Route No. 92

4.47 Regulation of Development in Scenic Corridors

Institute special controls to regulate both site and architectural design of structures located within rural scenic corridors in order to protect and enhance the visual quality of select rural landscapes.

ARCHITECTURAL DESIGN STANDARDS FOR RURAL SCENIC CORRIDORS

4.48 Topography and Vegetation

Design structures which conform to the natural topography and blend rather than conflict with the natural vegetation.

4.49 Scale

Design structures which are compatible in size and scale with their building site and surrounding environment, including adjacent man-made or natural features.

4.50 Lot Coverage

Limit lot coverage for parcels five acres or less in size in rural areas.

4.51 Stack, Vents and Antennae

Group stacks, vents, antennae, satellite dishes and other equipment together, to the extent feasible, and place them in the least viewable location. Where appropriate, screen antennae and satellite dishes from view.

4.52 Colors and Materials

Depending on the design problems of the site, use colors and materials which: (1) blend with or complement the surrounding natural environment, (2) do not dominate or overpower the site, (3) are compatible with the size, scale, and architectural style of the structure, and (4) with the exception of greenhouses, are not highly reflective.

4.53 Height

- a. Limit the height of structures or appurtenances in forested areas so as not to exceed the height of the forest canopy.
- b. Limit the height of structures in grassland areas in order to maintain a low horizontal profile.
- c. Allow distributed energy resources, and chimneys to extend beyond these height limits where required for safety or efficient operation.

4.54 Accessory Structures

Design accessory structures to be:

- a. Architecturally compatible with main structures; and
- b. Where feasible, located in the immediate vicinity of main structures.

4.55 Commercial Signs

- a. Limit on- and off-site outdoor commercial advertising, including billboards, in order to protect visual quality.
- b. Design signs to harmonize in color and materials with:
 - (1) the architectural character of the structure it identifies; and
 - (2) the visual qualities of the natural surroundings.
- c. Integrate signs with the architectural design of the building and do not extend them above the roofline of the structure.
- d. Prohibit bright or self-illuminated, rotating, moving, reflective, blinking or flashing signs.
- e. Discourage permanent use of pennants or streamers.

SITE PLANNING FOR RURAL SCENIC CORRIDORS

4.56 Building Setbacks

- a. Prevent the obstruction of important views by setting buildings in rural scenic corridors back from the road right-of-way, unless topographic features or the size of the site makes it infeasible or unnecessary.
- b. Consider a variety of setbacks; however, establish minimum distance.

4.57 Cluster Development

In scenic corridors, discourage high density clustering or grouping of residential uses which are highly visible from the road.

4.58 Tree and Vegetation Removal

- a. Allow the removal of trees and natural vegetation when done in accordance with existing regulations.

- b. Prohibit the removal of more than 50% of the tree coverage except as allowed by permit.

4.59 Views

To the extent practicable, locate development in scenic corridors so it does not obstruct views from scenic roads or disrupt the visual harmony of the natural landscape.

4.60 Outdoor Lighting

Minimize exterior lighting in scenic corridors and, where used, employ warm colors rather than cool tones and shield the scenic corridor from glare.

4.61 Roads and Driveways

- a. Design and construct new roads, road improvements and driveways to be sensitive to the visual qualities and character of the scenic corridor, including such factors as width, alignment, grade, slope, grading and drainage facilities.
- b. Limit number of access roads connecting to a scenic road to the greatest extent possible.
- c. Share driveways where possible to reduce the number of entries onto scenic roads.

4.62 Parking and Paved Areas

Integrate paved areas with their site, encourage the use of alternative paving technologies that minimize hardscape, and landscape and/or screen them to reduce visual impact from the scenic corridor.

4.63 Storage Areas

Screen areas used for the storage of equipment, supplies or debris by fencing, landscaping or other means so they are not visible from scenic roadways, trails, parks, and neighborhoods.

4.64 Utilities in State Scenic Corridors

- a. Install new distribution lines underground.

- b. Install existing overhead distribution lines underground where they are required to be relocated in conjunction with street improvements, new utility construction, etc.
- c. Consider exceptions where it is not physically practical due to topographic features; however, utilities should not be substantially visible from any public road or developed public trail.

4.65 Utilities in County Scenic Corridors

- a. Install new distribution lines underground.
- b. Consider exceptions for certain circumstances including, but not limited to, financial hardship, topographic conditions or land use conflicts.

4.66 Large Scale Power Transmission Lines

Encourage P.G.& E. to mitigate the adverse visual impact created by large scale power transmission lines.

4.67 Fences

Encourage fences which minimize visual impact.

4.68 Mobile Homes

Prohibit mobile homes on permanent foundations in scenic corridors.

4.69 Rural Scenic Corridor District

Regulate the architectural and site design of structures within scenic corridors by using a consolidated set of design standards.

HISTORICAL AND ARCHAEOLOGICAL RESOURCES POLICIES

The County will:

GOALS AND OBJECTIVES

5.1 Historic Resource Protection

Protect historic resources for their historic, cultural, social and educational values and the enjoyment of future generations.

5.2 Rehabilitation of Historic Structures

Encourage the rehabilitation, preservation and use of historically significant structures.

5.3 Protection of Archaeological/Paleontological Sites

Protect archaeological/paleontological sites from destruction in order to preserve and interpret them for future scientific research, and public educational programs.

5.4 Historical Resources Inventory

Encourage the development of inventories of historical resources which have national, State and Countywide significance.

5.5 Planning and Historic Preservation

Integrate historical preservation into the planning process of the County.

5.6 Increase Public Awareness

Develop increased public awareness of the County's heritage to foster widespread support and understanding for the need to preserve historical resources.

DEFINITIONS

5.7 Definition of Historic Resource

Define historic resources as buildings, structures, signs, features, sites, places, areas or other objects of scientific, educational, cultural, architectural, archaeological, historical or paleontological significance to the citizens of the County.

5.8 Definition of Historic District

Define historic district as a geographically defined area containing historic resources which have a special, historical interest or aesthetic value or which represent one or more architectural periods or styles typical to the history of the County, and which improvements constitute a distinct section of the County that has been designated an historic district.

5.9 Definition of Historic Landmark

Define historic landmark as any historic resource, district or paleontological site that has exceptional scientific, historic, cultural, archaeological, aesthetic character, interest, or value.

GENERAL POLICIES

5.10 Educational Programs

Encourage cooperative educational programs by educational and historic groups.

5.11 Recognition of Historic Resources

- a. Identify high priority resources in the comprehensive inventory and apply for their designation as State Point of Historic Interest, State Historical Landmark, or inclusion in the National Register of Historic Places.
- b. Establish historic districts for areas which include concentrations of historic resources found in the comprehensive inventory.

5.12 Rehabilitation of Historic Structures

Encourage the rehabilitation and recycling of historic structures.

5.13 Use of Innovative Techniques

Encourage the use of innovative techniques such as density transfer, facade easements, etc., to protect historic structures.

5.14 Registration of Significant Archaeological/Paleontological Sites

Recommend State and/or national register status for significant archaeological/paleontological sites.

REGULATION OF DEVELOPMENT

PROTECTION OF HISTORICAL RESOURCES

5.15 Character of New Development

- a. Encourage the preservation and protection of historic resources, districts and landmarks on sites which are proposed for new development.
- b. Ensure that new development in historic districts is compatible in bulk, height, material and design with that of the historic character and qualities of the district.
- c. Encourage the use of the Secretary of the Interior's guidelines and standards for rehabilitation of historic structures by: (1) those undertaking the rehabilitation of historic structures, and (2) those responsible for the architectural review and permit approval.

5.16 Demolition of Resources

Discourage the demolition of any designated historic district or landmark.

5.17 Designation of Historic Resources

Establish criteria and procedures for the designation of County landmarks and districts. Include a provision requiring approval to alter, demolish or relocate designated landmarks or districts.

5.18 Development of County Historic Sites

Develop County-owned historic sites in park and recreation areas in accordance with the performance criteria and development standards contained in Appendix D of this Chapter.

5.19 Economic Use

- a. Encourage compatible and adaptive residential, commercial or public uses of historic structures as a means for their protection.
- b. Permit commercial uses such as crafts, stores, bookshops and art shops if they preserve and enhance the resource.

PROTECTION OF ARCHAEOLOGICAL/PALEONTOLOGICAL RESOURCES

5.20 Site Survey

Determine if sites proposed for new development contain archaeological/paleontological resources. Prior to approval of development for these sites, require that a mitigation plan, adequate to protect the resource and prepared by a qualified professional, be reviewed and implemented as a part of the project.

5.21 Site Treatment

- a. Encourage the protection and preservation of archaeological sites.
- b. Temporarily suspend construction work when archaeological/paleontological sites are discovered. Establish procedures which allow for the timely investigation and/or excavation of such sites by qualified professionals as may be appropriate.
- c. Cooperate with institutions of higher learning and interested organizations to record, preserve, and excavate sites.

ROLE OF THE COUNTY

PRESERVATION TECHNIQUES

5.22 Comprehensive Inventory of Historical Resources

- a. Investigate all funding sources for developing a comprehensive inventory.
- b. Expand and maintain a comprehensive inventory of all historic resources located in both unincorporated and incorporated areas.
- c. Establish a hierarchy within the inventory by which the more significant resources and those requiring additional measures to ensure their preservation are identified.
- d. Coordinate with the State Historic Preservation Officer, cities and historical groups in the development of the inventory.
- e. Request the Historic Resources Advisory Board to review the inventory annually to ensure that all structures and sites are included and that the list is current.

5.23 Acquisition of Structures

Encourage and coordinate efforts with groups to acquire structures of historic merit in order to prevent their loss and/or promote their adaptation for other uses.

5.24 Historic Preservation Certification

Seek certification of the County Preservation Program by the Secretary of the Interior in order to take advantage of and participate directly in the Federal preservation programs.

ARCHAEOLOGICAL AND PALEONTOLOGICAL RESOURCES

5.25 Archaeological/Paleontological Resource Data Base

Maintain and update a comprehensive archaeological/paleontological data base.

5.26 Discovering Unrecorded Archaeological/Paleontological Sites

Support comprehensive studies to discover unrecorded archaeological and paleontological sites, particularly in areas under pressure for development.

PROGRAM RESPONSIBILITIES

5.27 Role of the Historic Resources Advisory Board

- a. Serve as an advisory body to the Planning Commission and Department on implementation of the Historic Resources Chapter.
- b. Advise the Board of Supervisors, Parks and Recreation Commission, Planning Commission, and other appropriate County Departments on all matters pertaining to the recognition, acquisition, preservation designation and alteration of historic resources in San Mateo County.
- c. Advise the Board of Supervisors on methods of funding from Federal, State and private sources for historic preservation.
- d. Review and recommend on the implementation of appropriate legislation at the Federal, State or local level that deals with historic preservation.
- e. Review and recommend to the Planning Commission and Board of Supervisors all applications for registration of historic resources as Points of Historical Interest, State Historic Landmarks and National Register of Historic Places.

- f. Act as a coordination body for various historic preservation activities of public agencies, civic groups, and citizens interested in historic preservation.
- g. Promote public information programs which explain the advantages of historic preservation by sponsoring exhibits, lectures and meetings on the subject.
- h. Develop increased public awareness of the County's heritage to foster widespread support and understanding for the need to preserve historical resources.
- i. Inform property owners of historic structures of the financial benefits of preservation.
- j. Review and update the inventory of historic resources.

PARK AND RECREATION RESOURCES POLICIES

GOALS AND OBJECTIVES

The County will encourage all providers of park and recreation facilities to:

6.1 Equitable and Balanced System of Facilities

Provide for a balanced and equitable system of park and recreation facilities. Consider identified and/or changing needs and the impact upon environmental, service, competing land use, fiscal and organizational constraints.

6.2 Meet Recreational Need

Meet identified relative park and recreation needs in a manner which best enhances the physical, mental and spiritual quality of life of San Mateo County residents.

GENERAL POLICIES

6.3 Build Upon Existing System

- a. Design all park and recreation systems on the strengths and potentials of existing facilities and develop programs for meeting current and future needs.
- b. Consider the feasibility of redesigning and/or expanding existing park and recreation facilities to meet future needs while developing new acquisition and development programs.

6.4 Environmental Compatibility

- a. Protect and enhance the environmental quality of San Mateo County when developing park and recreation facilities.
- b. Mitigate, to the extent feasible, the impacts of those recreation uses which may adversely affect the environment and adjoining private ownership.

6.5 Access to Park and Recreation Facilities

- a. Attempt to provide appropriate access and conveniences for all people in park and recreation facilities.
- b. Encourage access to the park and recreation system by transportation means other than private automobiles, where feasible.

- c. Attempt to provide adequate access for emergency services.

DEFINITIONS

6.6 Definition of Public Park and Recreation Facilities

Define public park and recreation facilities as lands and facilities serving a range of recreation and/or preservation functions and owned by public agencies or other nonprofit organizations. Such facilities include, but are not limited to, public beaches, parks, recreation areas (including golf courses), natural preserves, wild areas and trails.

6.7 Definition of Private or Commercial Park and Recreation Facilities

Define private or commercial park and recreation facilities as facilities serving a recreation function and owned by private businesses. Such facilities include, but are not limited to, private beaches, stables, specialty stores, golf courses and racket clubs.

6.8 Definition of Private Nonprofit Park and Recreation Facilities

Define private and nonprofit park and recreation facilities as those serving primarily a recreation function and owned by private nonprofit organizations. Such facilities include, but are not limited to, scout camps, YMCA camps, religious camps, music camps, sports-training camps and day camps.

REGULATION OF DEVELOPMENT

ALL PARK AND RECREATION FACILITY PROVIDERS

The County will:

6.9 Locate Suitable Park and Recreation Facilities in Urban Areas

Generally, encourage all providers to locate active park and recreation facilities in urban areas, taking advantage of existing service infrastructure systems and maximizing the recreational use of limited available land. Consider the following activities to be generally compatible with active park and recreation facilities such as group games, swimming, and tennis.

6.10 Locate Suitable Park and Recreation Facilities in Rural Areas

Generally, encourage all providers to locate passive park and recreation facilities in rural areas in order to protect and preserve environmentally sensitive and open space lands. Consider the following activities to be generally

compatible with passive park and recreation facilities such as camping, hiking, picnicking, horseback riding, and nature study.

6.11 Coastal Recreation and Access

- a. Regulate coastal development to delineate appropriate locations and development standards for recreation and visitor serving facilities.
- b. Regulate development to increase public access to the shoreline and along the coast through measures which include, but are not limited to, establishing criteria for when and where access will be provided and how the access will be developed and maintained.
- c. Develop programs to increase and enhance public access to and along the shoreline.

6.12 Minimize Agricultural Land Use Conflicts

Preserve the best agricultural land for agricultural uses. On other lands capable of supporting agriculture, permit the location of park and recreation facilities when efforts are made to lease land not needed for recreational purposes to farm operations, and clearly defined buffer areas such as strips of land are established between these two uses to minimize land use conflicts.

6.13 Development Plans

- a. Encourage all providers to prepare development plans for proposed facilities which contain provisions that easily adapt to changing conditions.
- b. Encourage all development plans to include restroom facilities and ensure that these correspond in size and detail to the type of park and recreation facility proposed.

6.14 Site Planning for Public and Private Facilities

- a. Encourage all providers to design sites to accommodate recreation uses that minimize adverse effects on the natural environment and adjoining private ownership.
- b. Encourage all providers to design, where feasible, park and recreation sites that accommodate a variety of recreational activities.

6.15 Building Materials and Service Technology for Public and Private Facilities

- a. Encourage the use of materials and technologies that achieve low development, maintenance and operation costs while maintaining environmental compatibility.
- b. Encourage innovative technologies for conserving energy, water and other utilities for park and recreation facilities.

6.16 Prioritizing Facility Development

- a. Encourage all providers to give priority to the development of those facilities that meet the greatest recreational need.
- b. Encourage the phased development of recreation facilities in order to assess whether full development is warranted.

6.17 Techniques for Providing Park and Recreation Facilities

- a. Regulate development to provide new or improved park and recreation facilities. Use one or a combination of the following techniques: (1) offer of dedication, (2) grant of fee interest, and (3) in lieu fees.
- b. Encourage the dedication of easements to implement trails programs.
- c. Base the requirements for the provision of park and recreation facilities on the: (1) size and type of development, (2) benefit to the developer, (3) burden to the public, and (4) within the Coastal Zone, priority given to the type of development under the Coastal Act.

COUNTY PARK AND RECREATION FACILITIES

For County-owned park and recreation facilities, the County will:

6.18 Regulation of Encroachment

Regulate the encroachment into park and recreation facilities by non-park uses. When encroachment is deemed necessary, minimize adverse impacts by considering the following measures:

- a. Use the Creative Road Design Guide (San Mateo County Planning Division, 1978) where appropriate to minimize environmental effects when improving roadways or building new ones in or through park and recreation resources.

- b. Discourage the use of park and recreation facilities as access routes for private users. Where such access is deemed necessary, develop these routes in accordance with standards established by the Parks and Recreation Division.
- c. Require restoration or other mitigation measures for damaged parkland.

6.19 Development of County Park and Recreation Facilities

Use the planning and management guidelines and development standards contained in Appendix D as additional standards for the development of County-owned facilities.

PARK ACQUISITION AND DISPOSAL

ALL PARK AND RECREATION FACILITY PROVIDERS

The County will encourage all providers of park and recreation facilities to:

6.20 Consider Land Banking

- a. Utilize land banking as a method of acquiring land for future park and recreation use when conditions are prudent.
- b. Seek to place land banked sites into environmentally compatible interim uses. Provide for the protection and maintenance of these sites.

6.21 Transfer of Unused School Land

Encourage school districts to transfer idle, unused land to appropriate agencies for park and recreation use.

COUNTY PARK AND RECREATION FACILITIES

For County-owned park and recreation facilities, the County will:

6.22 Determination of Recreation Needs

- a. Determine recreation needs through the adoption of a process which:
(1) is responsive to present and projected needs and priorities of the County and its residents, and (2) comprehensively measures relative recreation needs.
- b. Periodic updates should: (1) reflect changes in the park and recreation system; (2) assess new recreation needs as they arise; (3) take advantage of new needs assessment technology; (4) assess the needs of future

populations; and (5) weigh the fiscal, organizational, environmental, service and competing land use constraints.

6.23 Site Selection Process for County Facilities

Establish a process for evaluating and selecting sites for County park and recreation facilities which will include consideration of, but not be limited to, the following criteria: (1) meeting of identified recreation needs; (2) environmental conditions; (3) existing infrastructure and services; (4) proximity to urban areas; (5) fiscal feasibility; (6) threat of loss; (7) opportunity for joint action; (8) inholdings and boundary round outs; and (9) conditions which would lead to better management of property and resources. Meeting identified recreation needs will be given greater weight than all other considerations.

6.24 Timing Acquisition

Consider the following criteria in determining when to acquire sites: (1) that the site meets present or future identified recreation needs; (2) the existence of unusually favorable acquisition opportunities; (3) the likelihood that the site might be lost to development; (4) the fact the site is appreciating in value at rates greater than inflation (Consumer Price Index); and (5) the existence of advantageous opportunities to cooperate with other public agencies and/or the private sector.

6.25 Cost of Maintenance and Operation for New Acquisitions

- a. Consider potential maintenance and operation costs as important criteria in acquiring and developing park and recreation facilities.
- b. Submit to the Board of Supervisors an estimate of maintenance and operation costs at the time any acquisition and/or development project is recommended.

6.26 Acquisition and Development Program

Encourage the Park and Recreation Division to use the "Site Selection Process for County Facilities" (Policy 6.23) and the "Timing Acquisition" (Policy 6.24) policies to develop a comprehensive acquisition and development program.

6.27 Fiscal Compatibility Programs

Establish a park and recreation system based on acquisition and development programs which are compatible with the County's fiscal capability to provide protection, operation and maintenance.

6.28 Conveyance of Park and Recreation Facilities

- a. Retain all County park and recreation facilities to the greatest extent possible.
- b. Establish criteria for the conveyance of park and recreation facilities. Allow conveyance only when the proceeds from a sale of a park and recreation facility would be used for the acquisition and/or development of other County park and recreation facilities and: (1) another park and recreation provider would maintain the facility, or (2) conveyance is in the overriding public interest.
- c. Encourage the Park and Recreation Commission to develop specific criteria to determine when it is no longer necessary to retain park and recreation facilities.
- d. Modify the Planning Division General Plan Conformity procedures to include the Parks and Recreation Commission in the review of all projects concerning the conveyance of park and recreation facilities.
- e. Encourage the Park and Recreation Commission and the Planning Commission to use the following criteria when reviewing park and recreation facility conveyance projects: (1) the desirability of maintaining the facility as parkland; (2) the extent to which future development of the site, if disposed of, can be regulated to protect remaining park and recreation facilities; (3) how proceeds of a sale may be used to enhance County park and recreation facilities; and (4) the desirability of offering land to other park and recreation facility providers.

MAINTENANCE AND OPERATION

ALL PARK AND RECREATION FACILITY PROVIDERS

The County will encourage all providers of park and recreation facilities to:

6.29 Protection, Operation and Maintenance

Make provisions to protect, operate and maintain park and recreation systems and related easements.

6.30 Minimize Traffic and Litter Problems

- a. Coordinate with CalTrans and/or SamTrans to increase recreational transit through such programs as a Park and Ride service or increased weekend service for recreationists in order to lessen traffic and parking problems.

- b. Encourage recreationists to properly dispose of litter in park and recreation facilities.
- c. Encourage the adequate maintenance and improvement of roads and highways needed to serve recreation facilities.

COUNTY PARK AND RECREATION FACILITIES

For County-owned park and recreation facilities, the County will:

6.31 Charge User Fees

Charge reasonable user fees to offset maintenance and operation costs as needed.

6.32 Limited Closing of Park and Recreation Facilities

Consider closing park and recreation facilities temporarily during the day, week or year when utilization could be detrimental to resources or the public.

6.33 Transfer of Facilities

Consider transferring park and recreation facilities to other appropriate public agencies if it would result in more effective and efficient operation.

6.34 Use of Volunteer Programs

- a. Support, encourage and recognize volunteer and docent programs to help maintain and operate the County park and recreation system and to educate the public in the understanding and appreciation of its facilities.
- b. Provide interpretation programs which will encourage the support of volunteer assistance. Also provide coordinative senior citizen and handicapped recreation programs.

6.35 Encouragement of Forest Resilience Studies

Support the use of County-owned forests or public lands for studies of long-term forest resilience, carbon sequestration, or adaptation to changing climate, which would be compatible with park and recreation activities.

MULTI-JURISDICTIONAL COORDINATION AND COOPERATION

ALL PARK AND RECREATION FACILITY PROVIDERS

The County will encourage all providers of park and recreation facilities to:

6.36 Coordinate Services

Cooperate and coordinate their efforts to achieve efficient and effective park and recreation services which meet identified needs and avoid duplication.

COUNTY PARK AND RECREATION FACILITIES

For County-owned park and recreation facilities, the County will:

6.37 Coastal Beaches

Promote and be actively involved in State or Federal acquisition of lands for coastal beaches. Explore the possibility of establishing contractual agreements which would allow the County to develop, maintain and operate these facilities with reimbursed funds.

6.38 Bayfront Coordination

Support, encourage and participate in the development of a coordinated and linked system of recreation facilities and public access along San Francisco Bay.

6.39 Trail System Coordination

- a. Support, encourage and participate in the development of a system of trails that link existing and proposed park and recreation facilities within this County and adjacent counties.
- b. Particularly encourage the development of: trails that link park and recreation facilities on San Francisco Bay to those on the Pacific Coast; multi-use trails where appropriate and trails in County lands under management by other public agencies. Ensure that these trails do not adversely affect adjacent land uses.

FINANCE

ALL PARK AND RECREATION FACILITY PROVIDERS

The County will encourage all providers of park and recreation facilities to:

6.40 Consider Alternative Acquisition Methods

Consider alternative methods to the outright fee purchase of sites (e.g., gifts, leases, trail easements) in order to reduce the costs of providing park and recreation facilities.

6.41 Alternative Revenue Sources

Initiate, promote and support liaisons with other governmental agencies and the private sector to develop alternative revenue sources, including, but not limited to, new legislation so that the cost of protecting, maintaining and operating park and recreation facilities will be borne equitably by the County and other bodies.

COUNTY PARK AND RECREATION FACILITIES

For County-owned park and recreation facilities, the County will:

6.42 Development of Financial Management Program

Establish a financial management program which will efficiently allocate funds for acquisition and development in response to identified recreation needs of County residents.

6.43 Use of Private Sector Sponsors and Concessionaires

- a. Encourage, where feasible, sponsors (i.e., foundations, nonprofit organizations) to maintain and operate special use parks and facilities (i.e., historical sites, nature exhibits).
- b. Solicit, where appropriate, private concessionaires to operate park and recreation facilities. Further, examine the current system of contracting with concessionaires to determine how it can be improved.
- c. Retain, where they exist, structures on newly acquired parkland for use as caretaker residences.

6.44 Cooperative Agreement

Pursue to the maximum extent possible the establishment of cooperative agreements with other public agencies and encourage the private sector to provide park and recreation facilities and services.

PROGRAM RESPONSIBILITIES

ROLE OF ALL PARK AND RECREATION FACILITY PROVIDERS

The County will:

6.45 Role of the Federal Government

Encourage the Federal government to provide park and recreation facilities of national significance.

6.46 Role of the State Department of Parks and Recreation

- a. Encourage the State Department of Parks and Recreation to give priority to developing existing facilities.
- b. Encourage the State Department of Parks and Recreation to provide park and recreation facilities of statewide significance.
- c. Designate the State Department of Parks and Recreation as the principal agency to acquire, develop and maintain coastal beaches.

6.47 Role of the Cities

Encourage the cities to provide park and recreation facilities suitable to accommodate active recreation activities which address the needs of the affected community.

6.48 Role of the Midpeninsula Regional Open Space District

Encourage the Midpeninsula Regional Open Space District to acquire, protect, and make available for public use open space lands in rural areas and open space of regional significance in urban areas in cooperation with San Mateo County.

6.49 Role of Private Sector

Encourage the private sector to provide park and recreation facilities and services.

ROLE OF THE COUNTY FOR COUNTY-OWNED PARK AND RECREATION FACILITIES

6.50 Provision of Countywide Facilities

Provide and maintain, either independently or through joint agreements, park and recreation facilities which are of Countywide significance (i.e., serving more than one city and/or unincorporated community).

6.51 Outdoor Recreation and Programs

Provide County park and recreation facilities for primarily outdoor rather than indoor recreation. Facilities should emphasize the enjoyment and appreciation of natural outdoor settings.

6.52 Park and Recreation Facilities for Unincorporated Areas

Encourage the provision of park and recreation facilities for use by local residents in unincorporated areas consistent with community plans.

ROLE OF THE PARKS AND RECREATION COMMISSION

6.53 Plan Development

- a. Work with the public in the formulation of specific Concept Plans, Master Plans, including planning and management guidelines and development plan proposals.
- b. Encourage and solicit public comment through hearings on acquisition and development programs and on planning proposals.
- c. Continue to communicate and cooperate with other agencies, public and private, e.g., Midpeninsula Regional Open Space District, Historical Resources Advisory Board, San Mateo County Historical Association, Golden Gate Natural Recreation Area, etc., where appropriate.
- d. Classify all new and existing park and recreation facilities accordingly: Park, Recreation Area, Natural Preserve, Wild Area, Linear Park and Trail, Cultural Facility and Historic Site. Use for each facility the planning and management guidelines and development standards detailed in Appendix D of this Chapter. Solicit public input during the classification process.

PARK AND RECREATION RESOURCES POLICIES

GOALS AND OBJECTIVES

The County will encourage all providers of park and recreation facilities to:

6.1 Equitable and Balanced System of Facilities

Provide for a balanced and equitable system of park and recreation facilities. Consider identified and/or changing needs and the impact upon environmental, service, competing land use, fiscal and organizational constraints.

6.2 Meet Recreational Need

Meet identified relative park and recreation needs in a manner which best enhances the physical, mental and spiritual quality of life of San Mateo County residents.

GENERAL POLICIES

6.3 Build Upon Existing System

- a. Design all park and recreation systems on the strengths and potentials of existing facilities and develop programs for meeting current and future needs.
- b. Consider the feasibility of redesigning and/or expanding existing park and recreation facilities to meet future needs while developing new acquisition and development programs.

6.4 Environmental Compatibility

- a. Protect and enhance the environmental quality of San Mateo County when developing park and recreation facilities.
- b. Mitigate, to the extent feasible, the impacts of those recreation uses which may adversely affect the environment and adjoining private ownership.

6.5 Access to Park and Recreation Facilities

- a. Attempt to provide appropriate access and conveniences for all people in park and recreation facilities.
- b. Encourage access to the park and recreation system by transportation means other than private automobiles, where feasible.

- c. Attempt to provide adequate access for emergency services.

DEFINITIONS

6.6 Definition of Public Park and Recreation Facilities

Define public park and recreation facilities as lands and facilities serving a range of recreation and/or preservation functions and owned by public agencies or other nonprofit organizations. Such facilities include, but are not limited to, public beaches, parks, recreation areas (including golf courses), natural preserves, wild areas and trails.

6.7 Definition of Private or Commercial Park and Recreation Facilities

Define private or commercial park and recreation facilities as facilities serving a recreation function and owned by private businesses. Such facilities include, but are not limited to, private beaches, stables, specialty stores, golf courses and racket clubs.

6.8 Definition of Private Nonprofit Park and Recreation Facilities

Define private and nonprofit park and recreation facilities as those serving primarily a recreation function and owned by private nonprofit organizations. Such facilities include, but are not limited to, scout camps, YMCA camps, religious camps, music camps, sports-training camps and day camps.

REGULATION OF DEVELOPMENT

ALL PARK AND RECREATION FACILITY PROVIDERS

The County will:

6.9 Locate Suitable Park and Recreation Facilities in Urban Areas

Generally, encourage all providers to locate active park and recreation facilities in urban areas, taking advantage of existing service infrastructure systems and maximizing the recreational use of limited available land. Consider the following activities to be generally compatible with active park and recreation facilities such as group games, swimming, and tennis.

6.10 Locate Suitable Park and Recreation Facilities in Rural Areas

Generally, encourage all providers to locate passive park and recreation facilities in rural areas in order to protect and preserve environmentally sensitive and open space lands. Consider the following activities to be generally

compatible with passive park and recreation facilities such as camping, hiking, picnicking, horseback riding, and nature study.

6.11 Coastal Recreation and Access

- a. Regulate coastal development to delineate appropriate locations and development standards for recreation and visitor serving facilities.
- b. Regulate development to increase public access to the shoreline and along the coast through measures which include, but are not limited to, establishing criteria for when and where access will be provided and how the access will be developed and maintained.
- c. Develop programs to increase and enhance public access to and along the shoreline.

6.12 Minimize Agricultural Land Use Conflicts

Preserve the best agricultural land for agricultural uses. On other lands capable of supporting agriculture, permit the location of park and recreation facilities when efforts are made to lease land not needed for recreational purposes to farm operations, and clearly defined buffer areas such as strips of land are established between these two uses to minimize land use conflicts.

6.13 Development Plans

- a. Encourage all providers to prepare development plans for proposed facilities which contain provisions that easily adapt to changing conditions.
- b. Encourage all development plans to include restroom facilities and ensure that these correspond in size and detail to the type of park and recreation facility proposed.

6.14 Site Planning for Public and Private Facilities

- a. Encourage all providers to design sites to accommodate recreation uses that minimize adverse effects on the natural environment and adjoining private ownership.
- b. Encourage all providers to design, where feasible, park and recreation sites that accommodate a variety of recreational activities.

6.15 Building Materials and Service Technology for Public and Private Facilities

- a. Encourage the use of materials and technologies that achieve low development, maintenance and operation costs while maintaining environmental compatibility.
- b. Encourage innovative technologies for conserving energy, water and other utilities for park and recreation facilities.

6.16 Prioritizing Facility Development

- a. Encourage all providers to give priority to the development of those facilities that meet the greatest recreational need.
- b. Encourage the phased development of recreation facilities in order to assess whether full development is warranted.

6.17 Techniques for Providing Park and Recreation Facilities

- a. Regulate development to provide new or improved park and recreation facilities. Use one or a combination of the following techniques: (1) offer of dedication, (2) grant of fee interest, and (3) in lieu fees.
- b. Encourage the dedication of easements to implement trails programs.
- c. Base the requirements for the provision of park and recreation facilities on the: (1) size and type of development, (2) benefit to the developer, (3) burden to the public, and (4) within the Coastal Zone, priority given to the type of development under the Coastal Act.

COUNTY PARK AND RECREATION FACILITIES

For County-owned park and recreation facilities, the County will:

6.18 Regulation of Encroachment

Regulate the encroachment into park and recreation facilities by non-park uses. When encroachment is deemed necessary, minimize adverse impacts by considering the following measures:

- a. Use the Creative Road Design Guide (San Mateo County Planning Division, 1978) where appropriate to minimize environmental effects when improving roadways or building new ones in or through park and recreation resources.

- b. Discourage the use of park and recreation facilities as access routes for private users. Where such access is deemed necessary, develop these routes in accordance with standards established by the Parks and Recreation Division.
- c. Require restoration or other mitigation measures for damaged parkland.

6.19 Development of County Park and Recreation Facilities

Use the planning and management guidelines and development standards contained in Appendix D as additional standards for the development of County-owned facilities.

PARK ACQUISITION AND DISPOSAL

ALL PARK AND RECREATION FACILITY PROVIDERS

The County will encourage all providers of park and recreation facilities to:

6.20 Consider Land Banking

- a. Utilize land banking as a method of acquiring land for future park and recreation use when conditions are prudent.
- b. Seek to place land banked sites into environmentally compatible interim uses. Provide for the protection and maintenance of these sites.

6.21 Transfer of Unused School Land

Encourage school districts to transfer idle, unused land to appropriate agencies for park and recreation use.

COUNTY PARK AND RECREATION FACILITIES

For County-owned park and recreation facilities, the County will:

6.22 Determination of Recreation Needs

- a. Determine recreation needs through the adoption of a process which:
(1) is responsive to present and projected needs and priorities of the County and its residents, and (2) comprehensively measures relative recreation needs.
- b. Periodic updates should: (1) reflect changes in the park and recreation system; (2) assess new recreation needs as they arise; (3) take advantage of new needs assessment technology; (4) assess the needs of future

populations; and (5) weigh the fiscal, organizational, environmental, service and competing land use constraints.

6.23 Site Selection Process for County Facilities

Establish a process for evaluating and selecting sites for County park and recreation facilities which will include consideration of, but not be limited to, the following criteria: (1) meeting of identified recreation needs; (2) environmental conditions; (3) existing infrastructure and services; (4) proximity to urban areas; (5) fiscal feasibility; (6) threat of loss; (7) opportunity for joint action; (8) inholdings and boundary round outs; and (9) conditions which would lead to better management of property and resources. Meeting identified recreation needs will be given greater weight than all other considerations.

6.24 Timing Acquisition

Consider the following criteria in determining when to acquire sites: (1) that the site meets present or future identified recreation needs; (2) the existence of unusually favorable acquisition opportunities; (3) the likelihood that the site might be lost to development; (4) the fact the site is appreciating in value at rates greater than inflation (Consumer Price Index); and (5) the existence of advantageous opportunities to cooperate with other public agencies and/or the private sector.

6.25 Cost of Maintenance and Operation for New Acquisitions

- a. Consider potential maintenance and operation costs as important criteria in acquiring and developing park and recreation facilities.
- b. Submit to the Board of Supervisors an estimate of maintenance and operation costs at the time any acquisition and/or development project is recommended.

6.26 Acquisition and Development Program

Encourage the Park and Recreation Division to use the "Site Selection Process for County Facilities" (Policy 6.23) and the "Timing Acquisition" (Policy 6.24) policies to develop a comprehensive acquisition and development program.

6.27 Fiscal Compatibility Programs

Establish a park and recreation system based on acquisition and development programs which are compatible with the County's fiscal capability to provide protection, operation and maintenance.

6.28 Conveyance of Park and Recreation Facilities

- a. Retain all County park and recreation facilities to the greatest extent possible.
- b. Establish criteria for the conveyance of park and recreation facilities. Allow conveyance only when the proceeds from a sale of a park and recreation facility would be used for the acquisition and/or development of other County park and recreation facilities and: (1) another park and recreation provider would maintain the facility, or (2) conveyance is in the overriding public interest.
- c. Encourage the Park and Recreation Commission to develop specific criteria to determine when it is no longer necessary to retain park and recreation facilities.
- d. Modify the Planning Division General Plan Conformity procedures to include the Parks and Recreation Commission in the review of all projects concerning the conveyance of park and recreation facilities.
- e. Encourage the Park and Recreation Commission and the Planning Commission to use the following criteria when reviewing park and recreation facility conveyance projects: (1) the desirability of maintaining the facility as parkland; (2) the extent to which future development of the site, if disposed of, can be regulated to protect remaining park and recreation facilities; (3) how proceeds of a sale may be used to enhance County park and recreation facilities; and (4) the desirability of offering land to other park and recreation facility providers.

MAINTENANCE AND OPERATION

ALL PARK AND RECREATION FACILITY PROVIDERS

The County will encourage all providers of park and recreation facilities to:

6.29 Protection, Operation and Maintenance

Make provisions to protect, operate and maintain park and recreation systems and related easements.

6.30 Minimize Traffic and Litter Problems

- a. Coordinate with CalTrans and/or SamTrans to increase recreational transit through such programs as a Park and Ride service or increased weekend service for recreationists in order to lessen traffic and parking problems.

- b. Encourage recreationists to properly dispose of litter in park and recreation facilities.
- c. Encourage the adequate maintenance and improvement of roads and highways needed to serve recreation facilities.

COUNTY PARK AND RECREATION FACILITIES

For County-owned park and recreation facilities, the County will:

6.31 Charge User Fees

Charge reasonable user fees to offset maintenance and operation costs as needed.

6.32 Limited Closing of Park and Recreation Facilities

Consider closing park and recreation facilities temporarily during the day, week or year when utilization could be detrimental to resources or the public.

6.33 Transfer of Facilities

Consider transferring park and recreation facilities to other appropriate public agencies if it would result in more effective and efficient operation.

6.34 Use of Volunteer Programs

- a. Support, encourage and recognize volunteer and docent programs to help maintain and operate the County park and recreation system and to educate the public in the understanding and appreciation of its facilities.
- b. Provide interpretation programs which will encourage the support of volunteer assistance. Also provide coordinative senior citizen and handicapped recreation programs.

6.35 Encouragement of Forest Resilience Studies

Support the use of County-owned forests or public lands for studies of long-term forest resilience, carbon sequestration, or adaptation to changing climate, which would be compatible with park and recreation activities.

MULTI-JURISDICTIONAL COORDINATION AND COOPERATION

ALL PARK AND RECREATION FACILITY PROVIDERS

The County will encourage all providers of park and recreation facilities to:

6.36 Coordinate Services

Cooperate and coordinate their efforts to achieve efficient and effective park and recreation services which meet identified needs and avoid duplication.

COUNTY PARK AND RECREATION FACILITIES

For County-owned park and recreation facilities, the County will:

6.37 Coastal Beaches

Promote and be actively involved in State or Federal acquisition of lands for coastal beaches. Explore the possibility of establishing contractual agreements which would allow the County to develop, maintain and operate these facilities with reimbursed funds.

6.38 Bayfront Coordination

Support, encourage and participate in the development of a coordinated and linked system of recreation facilities and public access along San Francisco Bay.

6.39 Trail System Coordination

- a. Support, encourage and participate in the development of a system of trails that link existing and proposed park and recreation facilities within this County and adjacent counties.
- b. Particularly encourage the development of: trails that link park and recreation facilities on San Francisco Bay to those on the Pacific Coast; multi-use trails where appropriate and trails in County lands under management by other public agencies. Ensure that these trails do not adversely affect adjacent land uses.

FINANCE

ALL PARK AND RECREATION FACILITY PROVIDERS

The County will encourage all providers of park and recreation facilities to:

6.40 Consider Alternative Acquisition Methods

Consider alternative methods to the outright fee purchase of sites (e.g., gifts, leases, trail easements) in order to reduce the costs of providing park and recreation facilities.

6.41 Alternative Revenue Sources

Initiate, promote and support liaisons with other governmental agencies and the private sector to develop alternative revenue sources, including, but not limited to, new legislation so that the cost of protecting, maintaining and operating park and recreation facilities will be borne equitably by the County and other bodies.

COUNTY PARK AND RECREATION FACILITIES

For County-owned park and recreation facilities, the County will:

6.42 Development of Financial Management Program

Establish a financial management program which will efficiently allocate funds for acquisition and development in response to identified recreation needs of County residents.

6.43 Use of Private Sector Sponsors and Concessionaires

- a. Encourage, where feasible, sponsors (i.e., foundations, nonprofit organizations) to maintain and operate special use parks and facilities (i.e., historical sites, nature exhibits).
- b. Solicit, where appropriate, private concessionaires to operate park and recreation facilities. Further, examine the current system of contracting with concessionaires to determine how it can be improved.
- c. Retain, where they exist, structures on newly acquired parkland for use as caretaker residences.

6.44 Cooperative Agreement

Pursue to the maximum extent possible the establishment of cooperative agreements with other public agencies and encourage the private sector to provide park and recreation facilities and services.

PROGRAM RESPONSIBILITIES

ROLE OF ALL PARK AND RECREATION FACILITY PROVIDERS

The County will:

6.45 Role of the Federal Government

Encourage the Federal government to provide park and recreation facilities of national significance.

6.46 Role of the State Department of Parks and Recreation

- a. Encourage the State Department of Parks and Recreation to give priority to developing existing facilities.
- b. Encourage the State Department of Parks and Recreation to provide park and recreation facilities of statewide significance.
- c. Designate the State Department of Parks and Recreation as the principal agency to acquire, develop and maintain coastal beaches.

6.47 Role of the Cities

Encourage the cities to provide park and recreation facilities suitable to accommodate active recreation activities which address the needs of the affected community.

6.48 Role of the Midpeninsula Regional Open Space District

Encourage the Midpeninsula Regional Open Space District to acquire, protect, and make available for public use open space lands in rural areas and open space of regional significance in urban areas in cooperation with San Mateo County.

6.49 Role of Private Sector

Encourage the private sector to provide park and recreation facilities and services.

ROLE OF THE COUNTY FOR COUNTY-OWNED PARK AND RECREATION FACILITIES

6.50 Provision of Countywide Facilities

Provide and maintain, either independently or through joint agreements, park and recreation facilities which are of Countywide significance (i.e., serving more than one city and/or unincorporated community).

6.51 Outdoor Recreation and Programs

Provide County park and recreation facilities for primarily outdoor rather than indoor recreation. Facilities should emphasize the enjoyment and appreciation of natural outdoor settings.

6.52 Park and Recreation Facilities for Unincorporated Areas

Encourage the provision of park and recreation facilities for use by local residents in unincorporated areas consistent with community plans.

ROLE OF THE PARKS AND RECREATION COMMISSION

6.53 Plan Development

- a. Work with the public in the formulation of specific Concept Plans, Master Plans, including planning and management guidelines and development plan proposals.
- b. Encourage and solicit public comment through hearings on acquisition and development programs and on planning proposals.
- c. Continue to communicate and cooperate with other agencies, public and private, e.g., Midpeninsula Regional Open Space District, Historical Resources Advisory Board, San Mateo County Historical Association, Golden Gate Natural Recreation Area, etc., where appropriate.
- d. Classify all new and existing park and recreation facilities accordingly: Park, Recreation Area, Natural Preserve, Wild Area, Linear Park and Trail, Cultural Facility and Historic Site. Use for each facility the planning and management guidelines and development standards detailed in Appendix D of this Chapter. Solicit public input during the classification process.

URBAN LAND USE POLICIES

The County will:

GOALS AND OBJECTIVES

8.1 Urban Land Use Planning

Plan for a compatible and harmonious arrangement of land uses in urban areas by providing a type and mix of functionally well-integrated land uses which meets general social and economic needs.

8.2 Land Use Objectives for Urban Communities

- a. Plan Urban Communities to be balanced, self-contained areas which have a sufficient mix of urban land uses to support the internal housing, employment, shopping, and recreation needs of the community;
- b. Provide a mix of residential, commercial, and industrial land uses which will generate sufficient tax revenues to pay for the costs of providing desired levels of services and facilities;
- c. Provide a mix of commercial and industrial uses in order to maintain, support, and strengthen local economies;
- d. Provide a mix and an amount of residential land uses which will provide a substantial amount of housing opportunities in unincorporated areas;
- e. Establish land use patterns which give Urban Communities strong, individual and identifiable characters.

8.3 Land Use Objectives for Urban Neighborhoods

- a. Plan Urban Neighborhoods to be primarily, though not exclusively, single-family residential areas which appear and function as residential neighborhoods of contiguous cities.
- b. Provide a mix of residential and commercial land uses to balance generated tax revenues with the costs of providing desired levels of public services and facilities.
- c. Encourage the integration of land uses to provide neighborhood-serving uses and facilitate clean transportation options, such as pedestrian and bicycle activity.

- d. Establish land use patterns which make Urban Neighborhoods compatible, functional and identifiable with adjoining cities.

8.4 Land Use Objectives for Special Urban Areas

- a. For Olympic Country Club, California Golf Club, Peninsula Golf and Country Club, Edgewood County Park, San Bruno Mountain County Park, Sweeney Ridge Skyline Preserve and Hassler Lands, maintain current private or public park and recreational uses. For private park and recreation uses, allow some land to be converted to residential, commercial, or commercial recreational uses if it would be physically compatible with the facility and contribute to its economic viability.
- b. For San Francisco Jail and San Francisco International Airport, maintain current uses and allow redevelopment and expansion if compatible with adjacent land uses and other General Plan policies.
- c. For Guadalupe Valley Quarry and Ideal Cement, encourage: (1) the redevelopment of these industrial areas to improve the quality of industrial development, or (2) the conversion of these areas to new and appropriate uses which would be compatible with existing land use plans and adjacent land uses.
- d. For Harbor Industrial area, encourage the enhancement of the quality of industrial development.
- e. For McLellan Nursery and Horgan Ranch, allow the redevelopment of these floricultural areas to relatively higher residential densities which would be compatible with adjacent land uses.
- f. For Bayshore Mobile Home Parks, preserve these sites as valuable sources of affordable housing.
- g. For the Benedetti Lands, accommodate land uses which reflect the geologic and infrastructural constraints of the land and are compatible with adjoining communities, as determined in future land use studies.
- h. For Stanford Lands, plan for an arrangement of land uses which provides for the academic needs of the University, preserves important natural resources, and is compatible with the general plans of adjoining communities as determined in future land use studies.

DEFINITIONS

8.5 Definition of Urban Community

Define Urban Communities as those large, populated unincorporated areas which contain a wide range of residential land use densities and a mix of land uses which provide services to surrounding areas and meet, in part, the internal shopping, employment and recreational needs of the community residents.

8.6 Definition of Urban Neighborhood

Define Urban Neighborhoods as those unincorporated areas which are primarily devoted to residential land uses and are generally functionally integrated with adjacent incorporated areas.

8.7 Definition of Transit-Oriented Land Uses

Define Transit-Oriented Land Uses as land uses that are integrated with multimodal transportation systems, facilitating creation of Complete Streets by equally supporting all types of transportation, including pedestrian, bicycle, and vehicular traffic.

8.8 Definition of Special Urban Areas

Define Special Urban Unincorporated Areas as urban areas which are devoted primarily, but not necessarily or exclusively, to non-residential or special uses.

DESIGNATIONS

8.9 Designation of Existing Urban Communities

Designate North Fair Oaks and Montara-Moss Beach-El Granada as existing Urban Communities.

8.10 Designation of Existing Urban Neighborhoods

Designate as existing Urban Neighborhoods: (1) Broadmoor, (2) Unincorporated Colma, (3) Country Club Park, (4) Burlingame Hills, (5) the Highlands/Baywood Park, (6) Devonshire, (7) Palomar Park, (8) Emerald Lake Hills and Oak Knoll, (9) Kensington Square, (10) Sequoia Tract, (11) West Menlo Park, (12) Menlo Oaks, (13) Park Forest/Watkins, (14) Weekend Acres, (15) Ladera, (16) Los Trancos Woods, and (17) Vista Verde.



**The Urban Land Use Map is
Located in the Map Component
on page 8.1M.**

8.11 Designation of Existing Special Urban Areas

Designate as existing Special Urban Unincorporated Areas: (1) Olympic Country Club, (2) California Golf Club, (3) San Bruno Mountain, (4) Peninsula Golf and Country Club, (5) Edgewood County Park, (6) Sweeney Ridge Skyline Preserve, (7) the Hassler property, (8) San Francisco Jail, (9) San Francisco International Airport, (10) Stanford University Lands, (11) Guadalupe Valley Quarry, (12) Ideal Cement, (13) Harbor Industrial Area, (14) McLellan Nursery, (15) Horgan Ranch, (16) Bayshore Mobile Home Parks, and (17) lands of Benedetti.

8.12 General Plan Land Use Designations for Urban Areas

- a. Adopt the land use designations, and amendments thereto, of the: (1) Local Coastal Program, (2) Emerald Lake Hills Community Plan, and (3) North Fair Oaks Community Plan and other future area plans as the proposed General Plan land use designations in these urban areas.
- b. Reflect these adopted area plan land use designations on the General Plan Proposed Land Use Maps.
- c. Use the policies of the General Plan Urban Land Use Chapter to provide guidance when: (1) designating the remaining portions of urban areas on the General Plan Proposed Land Use Maps, (2) conducting land use studies and/or preparing future area plans, and (3) amending the land use designations of existing area plans.
- d. Adopt the proposed land use maps for Urban Areas as part of the County's land use plan.

8.13 Future Area Plans and Land Use Studies

Consider conducting land use studies and/or preparing future area plans for: (1) Colma, (2) lands of Benedetti, (3) Sequoia Tract, (4) West Menlo Park, and (5) Stanford lands. Combine land use designations in these areas with a Future Study designation.

GENERAL POLICIES

8.14 Appropriate Land Use Designations and Locational Criteria for Urban Unincorporated Areas

- a. Utilize, as guidelines only, the designations and densities shown in Table 8.1P to achieve stated land use objectives within unincorporated Urban Communities, Urban Neighborhoods and Special Urban Areas.



The Land Use (North County Area) Map is Located in the Map Component on page 8.2M.

- b. Use the criteria in Table 8.1P, as guidelines only, to locate land use designations in urban unincorporated areas.

RESIDENTIAL LAND USE

8.15 Land Use Compatibility

- a. Protect and enhance the character of existing single-family areas.
- b. Protect existing single-family areas from adjacent incompatible land use designations which would degrade the environmental quality and economic stability of the area.
- c. Encourage transit-oriented development in appropriate locations and a mixture of appropriate land uses that would enhance neighborhood quality and support pedestrian and bicycle activity.

COMMERCIAL LAND USE

8.16 Land Use Compatibility

Ensure that commercial development is compatible with adjacent land uses and supports a mixture of commercial activity with appropriate service-oriented and transit-oriented land uses.

8.17 Commercial Recreation

Where appropriate, separate neighborhood commercial land uses from commercial recreation land uses.

8.18 Commercial Buffers

Buffer commercial land uses when needed to protect contiguous residential uses, while maintaining connectivity and walkability.

8.19 Standards

Regulate commercial development by enforcing development standards (e.g., site planning, design, and construction standards) and performance standards to ensure high quality commercial development.

8.20 Redevelopment

Encourage the redevelopment of existing commercial land uses in a manner which is compatible with surrounding land uses.



The Land Use (Mid-Bayside Area) Map is Located in the Map Component on page 8.3M.

TABLE 8.1P**APPROPRIATE LAND USE DESIGNATIONS, DENSITIES AND LOCATIONAL CRITERIA IN URBAN AREAS**

LAND USE DESIGNATION	URBAN COMMUNITY	URBAN NEIGHBORHOOD	SPECIAL URBAN AREA	LOCATIONAL CRITERIA¹
Low Density Residential (0.3-2.3 du/net ac)		X		(1) Existing low density areas. (2) Hillside areas with steep slopes. (3) Adjacent to sensitive habitats. (4) Hazardous areas. (5) Not within areas of high perceived noise levels.
Medium Low Density Residential (2.4-6.0 du/net ac)		X		(1) Existing medium low density areas. (2) Hillside areas with steep slopes. (3) Adjacent to sensitive habitats. (4) Hazardous areas. (5) Not within areas of high perceived noise levels.
Medium Density Residential (6.1-8.7 du/net ac)	X	X		(1) Existing medium density areas. (2) Where there are adequate public services and facilities. (3) Along or near major transportation corridors. (4) Not within areas of high perceived noise levels.
Medium High Density Residential (8.8-17.4 du/net ac)	X	X	X	(1) Existing medium high density areas. (2) Along transportation corridors. (3) Adjacent to or in conjunction with commercial land uses. (4) Near employment centers. (5) Next to public services and facilities. (6) On large vacant parcels on the edge or outside of single-family neighborhoods. (7) Not within areas of high perceived noise levels.



The Land Use (South Bayside Area) Map is Located in the Map Component on page 8.4M.

TABLE 8.1P (continued)

APPROPRIATE LAND USE DESIGNATIONS, DENSITIES AND LOCATIONAL CRITERIA IN URBAN AREAS

LAND USE DESIGNATION	URBAN COMMUNITY	URBAN NEIGHBORHOOD	SPECIAL URBAN AREA	LOCATIONAL CRITERIA¹
High Density Residential (17.5-87.0 du/net ac)	X	X	X	(1) Existing medium high density areas. (2) Along transportation corridors. (3) Adjacent to or in conjunction with commercial land uses. (4) Near employment centers. (5) Next to public services and facilities. (6) On large vacant parcels on the edge or outside of single-family neighborhoods. (7) Not within areas of high perceived noise levels.
General Commercial	X	X		(1) Where there is a demand for general commercial services. (2) Where a variety of compatible commercial uses can be concentrated. (3) Next or close to major transportation routes, but not in long, continuous strips or isolated spots. (4) Where there is convenient automobile access. (5) Where parking facilities and other improvements can be provided.
Neighborhood Commercial	X	X		(1) Where there is a demand for neighborhood commercial services. (2) Where a variety of compatible commercial uses can be concentrated. (3) Next or close to major transportation routes, but not in long, continuous strips or isolated spots. (4) Proximate to residential areas. (5) Where there is convenient automobile, transit, pedestrian, and/or bicycle access. (6) Where parking facilities and other improvements can be provided.



**The Land Use (Mid-Coast Area)
Map is Located in the Map
Component on page 8.5M.**

TABLE 8.1P (continued)

APPROPRIATE LAND USE DESIGNATIONS, DENSITIES AND LOCATIONAL CRITERIA IN URBAN AREAS

LAND USE DESIGNATION	URBAN COMMUNITY	URBAN NEIGHBORHOOD	SPECIAL URBAN AREA	LOCATIONAL CRITERIA¹
Commercial Recreation	X			(1) Where there is a demand for commercial recreation services. (2) Where a variety of compatible commercial uses can be concentrated. (3) Next or close to major transportation routes, but not in long, continuous strips or isolated spots. (4) Where there is convenient automobile, transit, pedestrian, and/or bicycle access. (5) Where parking facilities and other improvements can be provided. (6) Where a natural and/or man-made setting (e.g., access to a marina) make the area attractive to visitors.
Office Commercial	X	X	X	(1) Existing office areas. (2) Along transportation corridors. (3) Near employment centers. (4) Where commercial and residential uses need to be buffered. (5) Where there is convenient automobile, transit, pedestrian and/or bicycle access.
Office/Residential	X	X	X	(1) Where residential uses need to be buffered from major transportation routes. (2) Where existing residential and commercial uses need to be buffered by a transition zone.

TABLE 8.1P (continued)

APPROPRIATE LAND USE DESIGNATIONS, DENSITIES AND LOCATIONAL CRITERIA IN URBAN AREAS

LAND USE DESIGNATION	URBAN COMMUNITY	URBAN NEIGHBORHOOD	SPECIAL URBAN AREA	LOCATIONAL CRITERIA¹
General Industrial	X		X	(1) Existing industrial areas. (2) Accessible to housing opportunities. (3) Where sufficient existing or potential urban services are available. (4) Proximate and convenient to major transportation facilities (roads, transit, rail).
Heavy Industrial	X		X	(1) Existing industrial areas. (2) Close to housing opportunities. (3) Where sufficient existing or potential urban services are available. (4) Proximate and convenient to major transportation facilities (roads, transit, rail).
Industrial Buffer	X		X	(1) Between industrial areas and areas sensitive to industrial, traffic noise, glare, odor, etc., particularly residential areas.
Institutional	X	X	X	(1) Existing educational facilities, government facilities, other public facilities. (2) On parcels owned by public agencies and suitable for development of institutional uses.
Airport Airport/Transportation Related ²	X		X	(1) Existing airports and adjoining airport land.
Public Recreation	X	X	X	(1) On parcels owned and managed by a public park and recreation agency.

TABLE 8.1P (continued)

APPROPRIATE LAND USE DESIGNATIONS, DENSITIES AND LOCATIONAL CRITERIA IN URBAN AREAS

LAND USE DESIGNATION	URBAN COMMUNITY	URBAN NEIGHBORHOOD	SPECIAL URBAN AREA	LOCATIONAL CRITERIA¹
Private Recreation	X	X	X	(1) On parcels owned and managed by a private recreational organization.
General Open Space	X	X	X	(1) Where natural resources are in need of protection. (2) Where there is managed production of resources. (3) Where it is necessary to protect the public and health and safety. (4) Where outdoor recreation is or could be suitably provided.

NOTES:

1. The locational criteria are intended to be guidelines to be used when making appropriate land use designations for urban communities, urban neighborhoods, and special urban areas. They link the policies of the General Plan to the designations on the proposed land use map. When using the table, any individual criterion or combination of criteria may justify a particular land use designation. However, the presence of one or more criteria does not necessarily make that designation mandatory, nor the most appropriate because other, more important land use objectives may call for another designation.
2. San Francisco International Airport Land west of Highway 101 designated for Airport use is intended to be used for transportation-related facilities.

INDUSTRIAL LAND USE

8.21 Industrial Planning

Plan for industrial land uses to provide an adequate tax base and source of employment.

8.22 Industrial Expansion

Designate land to allow for future industrial expansion.

8.23 Concentration of Uses

Concentrate the location of industrial land uses in order to achieve an efficient use of transportation facilities and energy supplies.

8.24 Land Use Compatibility

Ensure that industrial development is compatible with adjacent land uses.

8.25 Buffers

Buffer industrial development when needed to protect adjacent land uses.

8.26 Large Parcels

In order to achieve greater site planning flexibility and compatibility with adjacent land uses, consider industrial designations as more appropriate for large parcels.*

RECREATIONAL LAND USE

8.27 Recreational Land Use Planning

Plan for recreational land uses to provide recreational opportunities.

REGULATION OF DEVELOPMENT IN URBAN AREAS

8.28 Parcel Consolidation

Where necessary to achieve quality site planning and greater design flexibility, encourage the consolidation of smaller parcels which are designated for intense land uses, including, but not limited to, Industrial, Medium High and High Density Residential.

*Large parcels are generally 20,000 square feet or greater.

8.29 Density Bonuses

Consider allowing density bonuses for developments which consolidate smaller parcels that are designated Medium High to High Density Residential.

8.30 Infilling

Encourage the infilling of urban areas where infrastructure and services are available.

8.31 Mixed Use

Encourage development which contains a combination of land uses (mixed-use development), particularly commercial and residential developments along major transportation corridors.

8.32 Overcoming Constraints to Development

- a. Encourage efficient and effective infrastructure (e.g., water supply, wastewater, roads) necessary to serve the level of development allowable within urban areas.
- b. Encourage improvements which minimize the dangers of natural and man-made hazards to human safety and property.

ANNEXATION

8.33 Cooperation Toward Annexation

Work with the residents of unincorporated urban areas and the government and residents of adjacent cities to increase an understanding of the implications of annexation.

8.34 Annexation of County-Owned Facilities

Where practicable, initiate annexation of County-owned facilities located in urban areas and adjacent to a city.

GENERAL DEVELOPMENT STANDARDS

8.35 Zoning Regulations

To ensure that development is consistent with land use designations, continue to use zoning districts which regulate development by applying specific standards.

8.36 Uses

Allow uses in zoning districts that are consistent with the overall land use designation.

8.37 Density

Regulate maximum allowable densities in zoning districts in order to: (1) ensure a level of development that is consistent with land use designations, (2) plan for the efficient provision of public facilities, services, and infrastructure, and (3) minimize exposure to natural and man-made hazards.

8.38 Parcel Sizes

Regulate minimum parcel sizes in zoning districts in an attempt to: (1) ensure that parcels are usable and developable, (2) establish orderly and compatible development patterns, (3) protect public health and safety, and (4) minimize significant losses of property values.

8.39 Height, Bulk, and Setbacks

Regulate height, bulk, and setback requirements in zoning districts in order to: (1) ensure that the size and scale of development is compatible with parcel size, (2) provide sufficient light and air in and around structures, (3) ensure that development of permitted densities is feasible, and (4) ensure public health and safety.

8.40 Parking Requirements

Regulate minimum on-site parking requirements and parking development standards in order to: (1) accommodate the parking needs of the development, (2) provide convenient and safe access, (3) prevent congestion of public streets, (4) establish orderly development patterns, and (5) discourage an over-reliance on auto travel to the exclusion of other travel modes.

ENERGY

8.41 Land Divisions

When creating new land divisions, align streets and parcels to maximize solar access.

8.42 Solar Access

Minimize the obstruction of solar access by: (1) protecting structures from encroachment, (2) landscaping with appropriate plant materials, and (3) clustering structures where beneficial.

8.43 Buildings

Encourage the construction of energy-efficient buildings which use renewable resources and resource-efficient design to the maximum extent possible.

RURAL LAND USE POLICIES

The County will:

GOALS AND OBJECTIVES

9.1 Goal for Land Use Planning in the Rural Area

Provide a compatible and harmonious arrangement of land uses in the rural area by concentrating development in specific areas in order to encourage the conservation and the managed production of natural resources which meet general social and economic needs.

9.2 Land Use Objectives for Rural Service Centers

Encourage the continuation and development of Rural Service Centers in order to: (1) provide commercial facilities which support local residents and the surrounding agricultural, timber harvesting, resource extraction and recreational economy; (2) meet the housing needs which are generated by local employment; (3) concentrate development and services to minimize impact upon surrounding resources and maximize compatibility of land uses; (4) facilitate the provision of services and infrastructure; and (5) promote local employment opportunities and enhance creative enterprise through development of appropriately zoned parcels and/or adaptive reuse of non-residential structures that are consistent with the protection of neighborhood quality.

9.3 Land Use Objectives for Rural Residential Subdivisions

Encourage the continuation and development of designated Rural Residential Subdivisions in order to: (1) provide housing opportunities in the rural areas; (2) concentrate new residential development in existing residential areas where services are likely to be available; and (3) protect surrounding resources from the potential adverse impacts of development.

9.4 Land Use Objectives for the Rural Lands

Protect and enhance the resources of the Rural Lands in order to: (1) protect and conserve vegetation, water, fish and wildlife resources, productive soil resources for agriculture and forestry, and other resources vital to the sustenance of the local economy; (2) carefully manage and enhance the use, production, conservation or extraction of soils, timber, minerals and other natural resources; (3) protect and enhance the unique scenic quality and pastoral character of the rural lands; (4) provide a diversity of outdoor recreational opportunities for existing and future County residents; (5) protect the public health and safety by minimizing the location of new development in

potentially hazardous areas and directing infrastructure improvements to areas that will benefit the greatest number of rural residents and visitors; (6) minimize the amount of environmental damage caused by construction of major and minor roads or other infrastructure improvements; and (7) promote local employment opportunities and enhance creative enterprise by encouraging visitor-serving facilities, ancillary and accessory uses vital to resource production operations, and adaptive reuse of existing non-residential structures consistent with protection of surrounding resources.

DEFINITIONS

9.5 Rural Service Centers

Define Rural Service Centers as small rural communities having a combination of land uses which provide services to surrounding rural areas.

9.6 Rural Residential Subdivisions

Define Rural Residential Subdivisions as clusters of residential development subdivided into parcels that are generally less than or slightly larger than five acres. Rural Residential Subdivisions can include vacant parcels or neighborhood commercial uses, but are predominately developed with single-family homes.

9.7 Rural Lands

Define Rural Lands as those rural areas outside of Rural Service Centers and Rural Residential Subdivisions. Rural lands include, but are not limited to, those generally developed to lower residential densities, agricultural activities, resource extraction, timber harvesting, resource conservation, public or private recreation or open space. Rural lands can also include institutional uses and public service uses, such as solid waste disposal sites.

DESIGNATIONS

9.8 General Plan Land Use Designations for Rural Areas

- a. Adopt the land use designations of the Local Coastal Program, the Skyline Area General Plan Amendment, other future area plans, and amendments to these plans as the General Plan land use designations in the rural areas.
- b. Reflect these adopted area plan land use designations on the General Plan Proposed Land Use map.

- c. Use the policies of the General Plan Rural Land Use Chapter to provide guidance when: (1) designating the remaining portions of rural areas on the General Plan Proposed Land Use map; (2) preparing future area plans; and/or (3) amending the land use designations of existing area plans.

9.9 Designation of Existing Rural Service Centers

Designate San Gregorio, Pescadero and La Honda as existing Rural Service Centers.

9.10 Designation of Existing Rural Residential Subdivisions

a. Skyline Area Rural Residential Subdivisions

Designate as Rural Residential Subdivisions: (1) Quail Lane, (2) Sierra Morena Woods, (3) Redwood Park, (4) Kings Mountain Park, (5) Sky Ranch Estates, (6) Skylonda, (7) La Honda Vista, (8) Heacox Road, (9) Middleton Tract, and (10) Bear Gulch Road-East.

b. La Honda/Loma Mar Area Rural Residential Subdivisions

Designate as Rural Residential Subdivisions: (1) Alpine Creek Tract, (2) La Honda/Redwood Properties, (3) Redwood Terrace, (4) Loma Mar, (5) Pescadero Creek Park Subdivision, and (6) Guthrie Subdivision.

c. Coastal Zone Rural Residential Subdivisions

Designate as Rural Residential Subdivisions: (1) Dearborn Park, (2) Butano Falls, and (3) Portola Heights.

9.11 Designation of Rural Lands

Designate as Rural Lands the remaining rural areas outside of the Rural Service Centers and Rural Residential Subdivisions.

GENERAL POLICIES

9.12 Land Use Designations and Locational Criteria for the Rural Areas

- a. In order to meet the land use objectives for the Rural Service Centers, Rural Residential Subdivisions, and Rural Lands, utilize as guidelines the land use designations and the range of allowable densities shown in Table 9.1P.



**The Rural Land Use Map is
Located in the Map Component
on page 9.2M.**

TABLE 9.1P

APPROPRIATE LAND USE DESIGNATIONS, DENSITIES² AND LOCATIONAL CRITERIA IN RURAL AREAS

LAND USE DESIGNATION ¹	RURAL SERVICE CENTER	RURAL RESIDENTIAL SUBDIVISION	RURAL LANDS	LOCATIONAL CRITERIA ³
<u>Very Low Density Residential</u> (approximately or slightly less than 0.2 d.u./net acre)		X	X	(1) Substantially divided to densities of approximately 1 d.u./5 acres, or slightly above 5 acres. (2) Developed with existing very low density residential uses. (3) Located in proximity to existing developed areas. (4) Hazardous areas.
<u>Low Density Residential</u> (0.3-2.3 d.u./net acre)	X	X		(1) Substantially divided to low density residential densities. (2) Developed with existing low density residential uses. (3) Septic systems can be accommodated on lots divided to a maximum of 2.3 d.u./net acre. (4) Water supply is limited. (5) Hazardous areas.
<u>Medium-Low Density Residential</u> (2.4-6.0 d.u./net acre)	X	X		(1) Substantially divided to medium-low density residential densities. (2) Developed with existing medium-low density residential uses. (3) Septic systems can be accommodated on lots divided to a maximum of 6.0 d.u./net acre. (4) Located near major transportation corridors. (5) Water supply is available. (6) Hazards are easily mitigable.
<u>Medium Density Residential</u> (6.1-8.7 d.u./net acre)	X			(1) Substantially divided to medium density residential densities. (2) Developed with existing medium density residential uses. (3) Septic systems can be accommodated on lots divided to a maximum of 8.7 d.u./net acre or other sewage disposal technologies that meet local and regional public health requirements can be provided. (4) Located near major transportation corridors or major junctions. (5) Water and other public services are available. (6) Hazards are mitigable.

TABLE 9.1P (continued)

APPROPRIATE LAND USE DESIGNATIONS, DENSITIES² AND LOCATIONAL CRITERIA IN RURAL AREAS

LAND USE DESIGNATION ¹	RURAL SERVICE CENTER	RURAL RESIDENTIAL SUBDIVISION	RURAL LANDS	LOCATIONAL CRITERIA ³
<u>Neighborhood Commercial</u>	X	X		(1) Developed with existing neighborhood scale commercial uses. (2) The proposed commercial use will complement and serve the surrounding neighborhood. (3) Located near major transportation corridors where there is convenient automobile, transit, bicycle or pedestrian access. (4) Septic systems can be accommodated or other sewage disposal technologies that meet local and regional public health requirements can be provided. (5) Water and other public services are available. (6) Adequate parking can be made available. (7) On-site hazards are mitigable. (8) There is a market for neighborhood commercial services.
<u>General Commercial</u>	X			(1) Developed with existing, more intensive scale general commercial uses. (2) The proposed commercial use will complement and serve the surrounding neighborhood and can be adequately buffered from or blend with the surrounding neighborhood. (3) The proposed commercial use will not adversely impact surrounding resource lands. (4) Located, immediately adjacent to major transportation corridors where there is convenient automobile, transit, bicycle or pedestrian access. (5) Septic systems can be accommodated or other sewage disposal technologies that meet local and regional public health requirements can be provided. (6) Water and other public services can feasibly be provided. (7) Adequate parking can be made available. (8) On-site hazards are mitigable. (9) There is a market for general commercial services.



The Land Use (Rural Service Centers) Map is Located in the Map Component on page 9.3M.

TABLE 9.1P (continued)

APPROPRIATE LAND USE DESIGNATIONS, DENSITIES² AND LOCATIONAL CRITERIA IN RURAL AREAS

LAND USE DESIGNATION ¹	RURAL SERVICE CENTER	RURAL RESIDENTIAL SUBDIVISION	RURAL LANDS	LOCATIONAL CRITERIA ³
<u>Institutional</u>	X	X	X	(1) Developed with existing educational facilities, government facilities or other public facilities. (2) Owned by public agencies. (3) Suitable for development for institutional uses.
<u>General Open Space</u> (Density generated at a rate between 1 density credit per 5 acres and 1 density credit per 160 acres, as determined to be consistent with the protection of open space)	X	X	X	(1) Suitable for very low density development because of hazards or conflict with surrounding resources. (2) Where there is managed production of resources. (3) Where a complementary buffer for other resource extraction or production uses is needed. (4) Where outdoor recreation and open space is or could be suitably provided. (5) Used for watershed or other resource protection.
<u>Public Recreation</u> (Density generated at a rate between 1 density credit per 5 acres and 1 density credit per 160 acres, as determined to be consistent with the encouragement of public recreation)	X	X	X	(1) Owned and/or managed by public agencies for recreational and open space purposes. (2) Hazards are easily mitigable.
<u>Private Recreation</u> (Density generated at a rate between 1 density credit per 5 acres and 1 density credit per 160 acres, as determined to be consistent with the encouragement of private recreation)	X	X	X	(1) Privately owned and/or managed for recreational and open space purposes. (2) Hazards are easily mitigable.

TABLE 9.1P (continued)

APPROPRIATE LAND USE DESIGNATIONS, DENSITIES² AND LOCATIONAL CRITERIA IN RURAL AREAS

LAND USE DESIGNATION ¹	RURAL SERVICE CENTER	RURAL RESIDENTIAL SUBDIVISION	RURAL LANDS	LOCATIONAL CRITERIA ³
<u>Agriculture</u> Prime Agricultural Land ⁴ Land Suitable For Agriculture ⁵ Ancillary Lands ⁶ (Density generated at a rate between 1 density credit per 5 acres to 1 density credit per 160 acres, as determined to be consistent with the protection of agriculture) ⁷			X	(1) Contain soils with agricultural capability. (2) Under cultivation. (3) In use for the grazing and browsing of livestock. (4) Necessary for protection of agriculture from incompatible uses due to strategic location.
<u>Timber Production</u> (Density generated at a rate between 1 density credit per 5 acres to 1 density credit per 160 acres, as determined to be consistent with the protection of productive timberlands)			X	(1) Contain productive timber resources or soils with timber capability. (2) Within a timber production zoning district. (3) In use for timber harvesting under State Department of Forestry Permit. (4) In use for Christmas Tree farms.
<u>Solid Waste Disposal Facilities</u>			X	(1) Currently being used for solid waste disposal. (2) Adjacent to or near an existing solid waste disposal site that may be needed to expand the site. (3) Containing enough surrounding area to buffer the solid waste disposal area from surrounding uses.

- Notes: 1. Land use designations may be divided into more specific subcategories with the General Plan, as necessary to reflect local circumstances and achieve local land use objectives.
2. The question of allowable density in rural lands is determined through a density analysis which incorporates the opportunities and constraints to site development, including but not limited to the presence of resources, hazards and adequacy of access in determining the density allowed for each individual parcel. Although the densities for the rural lands could be as low as 5 acres, generally a minimum of 40 acres to 160 acres for each density credit is appropriate for the rural land uses.

3. The locational criteria are intended to be guidelines to be used when making appropriate land use designations for rural service centers, rural residential subdivisions, and rural lands. They link the policies of the General Plan to the designations on the proposed land use map. When using the table, any individual criterion or combination of criteria may justify a particular land use designation. However, the presence of one or more criteria does not necessarily make that designation mandatory, nor the most appropriate because other, more important land use objectives may call for another designation. The order of the locational criteria does not indicate a priority ranking.
4. Land which includes any of the following characteristics:
 - Class I and II soils, as well as Class III soils that are capable of growing artichokes or Brussels sprouts; or
 - Ability to produce crops that normally return, on an annual basis, not less than \$692 per acre (1985), or subsequent adjustments for inflation; or
 - Soils that have a good combination of natural, physical, and chemical characteristics for producing agricultural products, and for which a dependable source of water is available; or
 - Feasible production of irrigated row crops and soil dependent floriculture, including but not limited to cultivation of artichokes, Brussels sprouts, and field flowers; or
 - Conforms with the California Department of Food and Agriculture criteria for prime rangeland.
5. Land which includes any of the following characteristics:
 - Feasible production of agricultural products, including but not limited to: (1) cultivation of pumpkins, peas, Christmas trees, hay, oats, and other grains, (2) planting of non-soil dependent floriculture, and (3) grazing of livestock; or
 - A continued record of agricultural activities.
6. Land which is least suitable for agriculture or incapable of agricultural production but which is important for any of the following characteristics:
 - May be necessary to buffer nearby agricultural land from incompatible uses due to its strategic location; or
 - Adjacent to Prime Agricultural Land and Land Suitable for Agriculture where it is most appropriate to direct non-agricultural related development proposed on individual parcels.
7. At the time of adoption of this General Plan, the Board of Supervisors was in the process of choosing a consultant to prepare a Coastside Agricultural Economic Study. This Study may result in recommendations for changes as to how the County will define and protect agriculture in the Coastal Zone.

- b. Use the criteria in Table 9.1P as guidelines for choosing land use designations in Rural Service Centers, Rural Residential Subdivisions, and Rural Lands.

9.13 Master Land Division Plans

Require the preparation of master land division plans when parcels proposed for land division have a development potential of five or more dwelling units. Require the land division plan to specify the road pattern and required improvements, domestic water supply sources, on-site sewage disposal and the phasing of the eventual development of the parcel.

RURAL SERVICE CENTERS

REGULATION OF DEVELOPMENT

9.14 Development Standards for Rural Service Centers

In evaluating proposals for Rural Service Center development, determine: (1) the potential impacts of such development on the visual, timber, agricultural, recreational, and other resources contained in the Rural Lands immediately surrounding the Rural Service Center, (2) the compatibility of the proposed development with the existing development pattern within the individual Rural Service Center, and (3) the need for the proposed development in the community and the surrounding area.

9.15 Overcoming Constraints to Development

Support infrastructure improvements necessary to serve the level of development allowed within Rural Service Centers in order to: (1) provide adequate access, water and sewage disposal facilities necessary to serve that level of development, and (2) mitigate any existing flooding hazards.

9.16 Urban/Rural Boundaries Around Existing Rural Service Centers

- a. Continue the existing urban/rural boundary lines around Pescadero and San Gregorio.
- b. Consider amendments to these boundaries and/or adoption of an urban/rural boundary around La Honda.

- c. Consult with communities regarding proposed amendments to the urban/rural boundary surrounding Rural Service Centers prior to adoption of such amendments.

9.17 Criteria for Expansion of the Urban/Rural Boundary Around Existing Rural Service Centers

Consider expansion of the urban/rural boundary surrounding existing Rural Service Centers when the economic or social needs of the residents of the Rural Service Center and surrounding Rural Lands cannot be achieved by the limited supply of land within the Rural Service Center because: (1) the existing supply of land within the Rural Service Center has been substantially developed to the allowable density (i.e., buildout to maximum allowable density has (a) either occurred or (b) is prevented from occurring because property has not been developed to accommodate the economic or social needs of the residents) or (2) development within the Rural Service Center has become infeasible.

9.18 Criteria for Expansion of the Urban/Rural Boundary Around Rural Service Centers

Prior to approval of the expansion of the urban/rural boundary around Rural Service Centers require that the following criteria be met: (1) the economic or social need for the expansion has been clearly demonstrated; (2) adequate services can be provided to support the new level of development permitted by the expansion; (3) the hazards to any new potential development permitted by the expansion can be adequately mitigated by the developer; (4) the area proposed for expansion is the most environmentally suitable and available location for such expansion; (5) measures for protecting affected resources have been incorporated into the expansion proposal; (6) hearings have been conducted in the Rural Service Centers or surrounding Rural Lands to receive public comment on the proposed expansion.

RURAL RESIDENTIAL SUBDIVISIONS

REGULATION OF DEVELOPMENT

9.19 Establishment of New Rural Residential Subdivisions

Allow the development of new Rural Residential Subdivisions and their designation in the General Plan.

9.20 Criteria for Establishment of New Rural Residential Subdivisions

Allow for the development and designation of new Rural Residential Subdivisions when at least the following conditions are present: (1) land use compatibility and resource protection will be achieved by the design of the land division, (2) environmental impacts and hazard risks can be adequately mitigated, and (3) conformance with State and local land use regulations, as they exist or as they are amended, to provide for establishment of new rural residential subdivisions.

9.21 Development Standards for Rural Residential Subdivisions

In evaluating proposals for development within rural residential subdivisions, consider: (1) the potential impacts of such development on the visual, timber, agricultural and other resources contained in the rural lands immediately surrounding the rural residential subdivision, and (2) the compatibility of the proposed development with the existing development pattern within the individual rural residential subdivision.

9.22 Adjust Density to the Limitations of the Terrain in Subdivided Areas

Adjust minimum building site size allowed in subdivided areas in order to reflect limitations of terrain, environmental and service constraints.

RURAL LANDS POLICIES

GENERAL POLICIES

9.23 Land Use Compatibility in Rural Lands

- a. Encourage compatibility of land uses in order to promote the health, safety, and economy and to maintain the scenic and harmonious nature of the rural lands.
- b. Promote land use compatibility by encouraging the following methods: (1) locate new residential or commercial development immediately adjacent to existing developed areas; (2) where services and site conditions permit, cluster new residential or commercial development so that large parcels can be retained for the protection and use of vegetative, visual, agricultural, timber and other resources; (3) buffer existing agricultural activities from adjacent recreational use; and (4) buffer land uses such as mineral extraction, timber harvesting, solid waste disposal sites and other resource extraction uses from surrounding land uses by auditory

and visual screening, isolation in large parcels, and other appropriate methods.

9.24 Determining Appropriate Development Densities for the Rural Lands

Determine allowable densities for each individual parcel in the rural lands, through an analysis of resources, hazards, availability of services, and land use patterns, including but not limited to: (1) the presence of productive soil resources; (2) the presence of geotechnical, fire, and flooding hazards; (3) the degree of slope and slope stability; (4) the adequacy of access to all weather roads; (5) the presence of agricultural preserve or other contracts limiting the intensity of use on the parcel; (6) the presence of scenic corridors or other public recreational facilities; (7) the presence of sensitive habitats and/or threatened or endangered species; or (8) other factors which could affect the use of the rural lands.

9.25 Compatible Land Uses Adjacent to Rural Service Centers and Rural Residential Subdivisions

Encourage land uses in proximity to Rural Service Centers and Rural Residential Subdivisions that are compatible with the visual, economic, and/or social character of the community.

9.26 Coastal Zone Priorities

Address the priorities as mandated by the California Coastal Act in land use decisions in the Coastal Zone.

REGULATION OF DEVELOPMENT

AGRICULTURE

9.27 Definition of Agricultural Activities

Define agricultural activities as feasible activities, including but not limited to the cultivation of land to produce food, fiber, fuel, and flowers, the grazing, growing, or pasturing of livestock, and the handling, processing or marketing of agricultural products.

9.28 Encourage Existing and Potential Agricultural Activities

- a. Encourage the continuance of existing agricultural and agriculturally-related activities.
- b. Encourage agricultural activities on soils with agricultural capability which are currently not in production.

- c. Consider agricultural land use designations for parcels which have existing agricultural activities or which contain soils with agricultural capability that are presently designated General Open Space, during future review of area plans.
- d. Consider open space designations for agricultural parcels that are no longer capable of agricultural activities during future reviews of area plans.

9.29 Criteria for Division

- a. In order to establish and/or maintain agricultural activities, encourage the maintenance and/or creation of appropriately-sized agricultural parcels.
- b. If land division of parcels designated as Agriculture is proposed, prepare a master land division plan which will: (1) designate agricultural and non-agricultural parcels; (2) retain areas containing soils with agricultural capability in appropriately-sized parcels; (3) create or maintain the size of agricultural parcels to ensure that existing or potential agricultural productivity is not diminished; (4) create non-agricultural parcels that are of only the minimum size necessary to meet domestic well water and on-site sewage disposal requirements; (5) cluster non-agricultural parcels in locations which have the least impact upon existing and potential agricultural uses; and (6) clearly define buffer areas between agricultural and non-agricultural uses. Regulations should place priorities according to the relative productive characteristics of the resources.

9.30 Development Standards to Minimize Land Use Conflicts With Agriculture

- a. Avoid to the greatest extent possible locating non-agricultural activities on soils with agricultural capability or lands in agricultural production. Regulations should place priorities according to the relative productive characteristics of the resource.
- b. Locate non-agricultural activities in areas of agricultural parcels which cause the least disturbance to feasible agricultural activities.
- c. Buffer any non-agricultural activities from agricultural activities by means of distance, physical barriers or other non-disruptive methods.
- d. Ensure that any extension of public services and facilities to serve non-agricultural activities will not impair feasible agricultural activities.

9.31 Protection of Agricultural Lands

- a. Apply methods which assist in the retention and expansion of lands with agricultural activities such as density bonuses, enforceable restrictions

(e.g., easements, contracts or deed restrictions), lease back of agricultural lands owned by public agencies, transfer of development rights, or other appropriate methods.

- b. Make efforts to inform landowners, residents and visitors to adjacent properties of the priority of agricultural activities and the possible inconvenience and/or discomfort resulting from normal agricultural activities.

TIMBER PRODUCTION

9.32 Encourage Existing and Potential Timber Production Land Uses

- a. Encourage the continuance of existing timber production operations that are located on parcels currently designated for timber production.
- b. Encourage expansion of timber harvesting operations on parcels designated for timber production, provided that the impacts of those operations on surrounding resources and adjacent land uses can be adequately mitigated.
- c. Permit the continuance or initiation of timber production operations on parcels designated for other land uses when it can be demonstrated that the timber production use would not disturb sensitive habitats and/or threatened or endangered species and other resources, would not create conflicts with adjacent land uses, and would provide adequate methods of buffering from adjacent land uses and resources.
- d. Prohibit any clear-cutting operations within County jurisdiction.
- e. Evaluate timber production designations for lands containing valuable timber resources that are presently designated General Open Space during future review of area plans.
- f. Designate for timber production parcels that have been zoned for timber production under the Timberland Productivity Act of 1982 or previous zoning regulations.

9.33 Criteria for Division

- a. In order to establish or maintain the viability of timber operations, encourage the maintenance and/or creation of timber production lands in large parcels.
- b. If land division of timber production lands is proposed, prepare a master land division plan which will: (1) designate parcels proposed for timber

production and non-timber uses; (2) identify and retain areas with valuable timber resources in large parcels; (3) create or maintain the size of timber production parcels to ensure that existing or potential productivity is not diminished; (4) create non-timber parcels that are of only the minimum size necessary to meet domestic well water and on-site sewage disposal requirements; (5) cluster non-timber parcels in locations which have the least impact upon existing and potential timber uses; (6) clearly define buffer areas between the timber production areas and adjacent non-timber uses; and (7) clearly indicate the location and scheduling of future harvest operations.

9.34 Development Standards to Minimize Land Use Conflicts With Timber Production Lands

- a. Avoid locating non-timber uses in identified timber resource areas or other areas which are currently in timber production.
- b. Locate non-timber uses in areas of timber parcels which cause the least disturbance to existing feasible timber harvesting operations.
- c. Buffer any new non-timber uses from productive timber resources by means of restricted access, distance, physical barriers or other appropriate methods.
- d. Buffer any new timber operations from surrounding land uses by similar means.

PUBLIC RECREATION

9.35 Encourage Existing and Potential Public Recreation Land Uses

- a. Encourage the continuation and expansion of existing public recreation land uses on non-agricultural lands, including but not limited to, public beaches, parks, recreation areas, wild areas, and trails.
- b. Encourage the continuation and expansion of agricultural activities within the boundaries of public recreation lands that are not in recreational use.
- c. Encourage cooperation between public agencies and adjacent agricultural operations so as to reduce inconvenience to agricultural operators consistent with the protection of the public health.

9.36 Development Standards to Minimize Land Use Conflicts in Public Recreation Lands

- a. Protect public recreation uses from incompatible land uses such as commercial timber harvesting, mineral extraction or other resource recovery uses, whether these uses occur on-site or on adjacent parcels.
- b. Consider agriculture to be a compatible activity in public recreation lands, which must be protected and buffered from significant public intrusion.
- c. Consider selective timber harvesting to be an appropriate use only when forest management (i.e., manipulation of forest growth to assure a safe and healthy forest environment) is necessary. Under no circumstances, permit clear-cutting in public recreation lands.
- d. Provide structural, visual, auditory and other buffering mechanisms to protect portions of the public recreation lands that are used by the public from non-recreational land uses.
- e. Encourage public recreation providers to submit master park development plans for the design and management of recreational and non-recreational land uses.
- f. Require full phased reclamation/restoration of any portion of lands designated for public recreation that are used for resource extraction uses other than agriculture.
- g. Encourage the State to protect agricultural activities.

9.37 Ensure Land Use Compatibility Between Private and Public Recreation Lands

To ensure land use compatibility, incorporate buffering techniques into: (1) land division requests on parcels adjacent to public recreation lands; and (2) public recreation development requests adjacent to private property.

PRIVATE RECREATION

9.38 Encourage Private Recreation Land Uses

- a. Encourage the continuation and expansion of private recreational land uses, including but not limited to visitor serving facilities such as country inns, restaurants, stables, private beaches and other uses.
- b. Encourage the continuation and expansion of agricultural activities on private recreation lands that are not in recreational use.

- c. Encourage cooperation between public agencies and adjacent agricultural operations so as to reduce inconvenience to agricultural operators consistent with the protection of the public health.

9.39 Development Standards to Minimize Land Use Conflicts in Private Recreation Lands

- a. Encourage private recreation providers to prepare long-range plans for the development and land uses of their facilities.
- b. Protect private recreation uses from incompatible land uses such as timber harvesting, mineral extraction or other resource recovery uses, whether these uses occur on-site or on adjacent parcels.
- c. Consider agriculture to be a compatible activity in private recreation lands, which must be protected and buffered from significant public intrusion.
- d. Cluster recreationally oriented residential or group facilities development on private recreation lands to retain the open space character of the site and to protect resources.
- e. Provide structural, visual, auditory and other buffering mechanisms to protect portions of the private recreation lands that are used by the public from other incompatible land uses.
- f. Require full phased reclamation/restoration of any portion of lands designated for private recreation that are used for resource extraction uses other than agriculture.
- g. Develop measures to determine allowable density credits for private recreational development.

GENERAL OPEN SPACE

9.40 Maintenance of the Open Space Character of Lands Designated as General Open Space

Wherever possible, maintain the open space character of lands designated as General Open Space through acquisition and/or performance standards for locating new development.

9.41 Criteria for the Division of Lands Designated General Open Space

- a. Wherever possible in areas designated General Open Space, design land divisions to retain large areas without development in order to protect

resources and maintain the scenic quality and open space character of the rural area.

- b. If land division for residential or commercial purposes is proposed, arrange the resulting land division using the following guidelines: (1) cluster proposed development in smaller parcels in order to maintain large parcels; (2) retain in large parcels areas with valuable resources or scenic quality; and (3) in order to maintain rural character, encourage several small clusters rather than one larger, suburban-type development.

9.42 Development Standards for Land Use Compatibility in General Open Space Lands

- a. Consider agriculture to be a compatible activity in general open space lands which must be protected and buffered from public intrusion and the intrusion of other incompatible land uses.
- b. Locate development in areas of parcels which cause the least disturbance to scenic resources and best retain the open space character of the parcel.
- c. Where possible, locate development in areas that are free from hazardous conditions, including but not limited to, steep slopes, unstable soils, and areas of special flood hazard.
- d. Require full reclamation/restoration of any portion of lands designated as General Open Space that are used for resource extraction uses.

9.43 San Francisco Watershed Lands

Recognize the San Francisco watershed lands as unique areas of special open space significance that should be protected from conflicting land uses in order to retain their value as open space, wildlife, water supply, and recreational resources.

VERY LOW DENSITY RESIDENTIAL

9.44 Criteria for Division of Very Low Density Residential Lands

Discourage division of lands in very low density residential use unless such further division can be served by adequate access, water, and wastewater systems.

9.45 Development Standards for Very Low Density Residential Uses

Buffer residential uses from surrounding resource areas by means of physical barriers, large parcels, distance, visual screening or other appropriate mechanisms.

INSTITUTIONAL AND SOLID WASTE DISPOSAL SITES

9.46 Development Standards for Land Use Compatibility for Institutional Lands and Solid Waste Disposal Facilities

- a. When solid waste disposal facilities or institutional land uses are proposed, the operator shall provide adequate visual and auditory buffering from adjacent land uses by means of distance, large parcel sizes, physical barriers or other non-disruptive methods.
- b. Locate uses in portions of parcels that cause the least disturbance to resources and best retain the open space character of the parcel and surrounding area.

PROGRAM RESPONSIBILITIES

Role of the County:

9.47 Maintain and Update a Land Use Data Base

- a. In order to be adequately informed of existing conditions and changing trends in land use in the rural area, monitor the rate of development and potential impacts on services in the rural area and maintain data, including but not limited to, on the acreage in each land use, the number of dwelling units, rates of land conversion and the number of residential and commercial building permits issued by the County.
- b. Update this information during a periodic review of the General Plan as necessary.
- c. Reflect changes in land use on the Proposed Land Use map during a periodic review of the General Plan as necessary.

9.48 Develop Agricultural Subcategories

Develop subcategories for the designation of agriculture which consider distinctions in agricultural uses and/or the relative productive potential of agricultural lands.

9.49 Coordination With Other Public Agencies and Private Interests

Work closely with Federal and State agencies, cities, special districts and private interests to maintain accurate land use data and to inform them of County land use policies.

9.50 Continue the Cooperative Management of the San Francisco Watershed Lands

Continue the cooperative agreements between the County, the City and County of San Francisco, the State of California and the Golden Gate National Recreation Area for the management of the San Francisco Watershed Lands.

WATER SUPPLY POLICIES

The County will:

GOALS AND OBJECTIVES

10.1 Coordinate Planning

Coordinate water supply planning with land use and wastewater management planning to assure that the supply and quality of water is commensurate with the level of development planned for an area.

10.2 Safeguarding Water Supplies

Seek to safeguard the productive capacity of groundwater aquifers and storage reservoirs.

10.3 Water Conservation

Promote the conservation and efficient use of water supplies.

10.4 Development of Water Supplies

Promote the development of water supplies to serve: (1) agricultural uses, as the highest priority; (2) domestic uses; and (3) recreational uses.

DEFINITION

10.5 Water System

Define water system as a system of integrated piping, storage tanks, and a source of supply used for providing water for domestic purposes.

GENERAL POLICIES

10.6 Water Quality

- a. Encourage appropriate County and State agencies to monitor water supplies for pollutants.
- b. Encourage the removal of foul odors and tastes from domestic water supplies.

10.7 Park and Recreation Water Supplies

- a. Encourage the provision of water supplies in park and recreation areas commensurate with the desired level of development. (Please see the Park Chapter for related information.)
- b. Encourage coastal recreation and visitor serving facilities to provide drinking water.

10.8 Water Systems for Coastal Areas

Support efforts to provide adequate water systems for the Mid-Coast, rural service centers, and other unincorporated urban areas.

10.9 Potential Water Sources

- a. Support the creation of water supplies which are commensurate with the level of development permitted in adopted land use plans.
- b. Identify and encourage the protection and development of sites in rural areas suitable for reservoirs to store water supplies.
- c. Encourage and support different techniques to convert saltwater to potable water.
- d. Encourage the use of treated wastewater as a potential source of water.
- e. Encourage the development of off-stream reservoirs for the retention of water generated from winter runoff.

URBAN WATER SUPPLIES

10.10 Water Suppliers in Urban Areas

Consider water systems as the preferred method of water supply in urban areas. Discourage use of wells to serve urban uses. However, allow wells to serve urban uses when:

- a. No water is available from a water system to serve the area,
- b. There is no threat to public health, safety or welfare presented by the cumulative effects of well drilling in the area, and
- c. The following is demonstrated:
 - (1) Water quality meets County and State standards;

- (2) The water flow meets County and State standards and is sufficient to meet the needs of the requested use; and
- (3) The well is a safe distance from potential sources of pollution and other existing wells.

10.11 Coordination With Water Suppliers

Support and coordinate County water plans with future San Francisco Water Department and the Bay Area Water Users Association planning efforts.

10.12 Coordination of Water Suppliers

Encourage water providers to coordinate the planned capacity of their facilities commensurate with the level of development permitted by adopted land use plans and wastewater management plans.

10.13 Water Systems in Unincorporated Areas

Support efforts to improve water distribution and storage systems in unincorporated neighborhoods and communities.

10.14 Emergency Considerations

Support the development of a sufficient emergency supply of water including plans to interconnect with neighboring municipal water systems during emergencies that cause significant water service interruptions.

RURAL WATER SUPPLIES

WATER SYSTEMS

10.15 Water Suppliers in Rural Areas

Consider the following as appropriate methods of water supply in rural areas: water systems and wells.

10.16 New Water Systems

Allow the creation of new water systems in Rural Service Centers and Rural Subdivisions areas only when demonstration is made of at least the following: (1) connections to existing systems are not available; (2) the new water system will use, as a source of supply, wells or springs; and (3) adequate financing for the new water system is available.

In the case of the Pescadero Rural Service Center, allow the use of surface water as a source of supply due to an existing inadequate supply of groundwater serving a substantial existing population.

10.17 Improving Existing Water Systems

- a. Support, where local residents express an interest, the possible consolidation of water systems under one management and pursue methods of financing this consolidation, such as assessment districts, Federal and State grants, and creation of new districts.
- b. Support the development of funding sources to make appropriate improvements to the facilities of water systems.
- c. Allow water systems using surface water supplies to continue this practice when done in accordance with appropriate permits and approvals.

GROUNDWATER SUPPLIES

10.18 Aquifer Studies and Management

- a. Support and cooperate in studies leading to a more thorough understanding of the groundwater aquifers, their location, quality, safe yield and migration patterns. Formulate and carry out a management program that would ensure the long-term viability of aquifers for beneficial use.
- b. Regulate, to the extent not in conflict with State law, the extraction of groundwater from aquifers in order to protect the safe yield and prevent overdrafting and saltwater intrusion.
- c. Discourage activities and operations that would pollute groundwater supplies. Encourage the cleanup and restoration of polluted aquifers.

DOMESTIC WELLS

10.19 Domestic Water Supply

Encourage the use of wells or springs rather than surface water for domestic water supplies to serve new development.

10.20 Well Location and Construction

- a. Require domestic vertical wells to be located an adequate distance away from the normal watercourse of a stream in order to minimize impacts upon downstream surface water supplies.

- b. Regulate the construction and location of wells in areas subject to flooding or served by septic tanks in order to minimize adverse impacts.

AGRICULTURAL WATER SUPPLIES

10.21 Agricultural Surface Water Sources

Protect downstream agricultural surface water sources by discouraging: (1) the creation of new non-agricultural parcels which would use nearby streams as a source for water supplies; and (2) the transfer of riparian rights to the new parcels.

AGRICULTURAL IMPOUNDMENTS

10.22 Developing Off-Stream Storage for Agriculture

Encourage the construction of small off-stream impoundments that draw water from peak winter streamflow for agricultural irrigation.

10.23 Expediting the Permit Process

Work with the State Division of Water Rights and the State Department of Fish and Game to develop procedures to shorten the time period required to obtain permits to appropriate water for agricultural purposes.

10.24 Financing Agricultural Impoundments

- a. Encourage the formation of assessment districts as a method to finance the construction of agricultural impoundments.
- b. Direct the County Manager's Office to research the availability of grants to finance and locate the construction of new agricultural impoundments.
- c. Encourage developers of non-agricultural uses to contribute toward financing the construction of agricultural impoundments.

WATER CONSERVATION

10.25 Efficient Water Use

- a. Encourage the efficient use of water supplies through effective conservation methods.
- b. Require the use of water conservation devices in new structural development.

- c. Encourage exterior water conservation.
- d. Encourage water conservation for agricultural uses by using efficient irrigation practices.

WATER RECLAMATION

10.26 Wastewater Reuse

- a. Encourage the reuse and recycling of water whenever feasible.
- b. Encourage the use of treated wastewater that meets applicable County and State health agency criteria.
- c. Support small-scale and on-site water recycling technologies, which meet public health and safety standards, for landscaping and agricultural purposes.

10.27 Wastewater Reservoirs

Identify sites suitable for use as reservoirs for treated wastewater. Consider using this wastewater for irrigation and/or public landscaping purposes. (Please see Wastewater Chapter for related information.)

WASTEWATER POLICIES

The County will:

GOALS AND OBJECTIVES

11.1 Adequate Wastewater Management

Plan for the provision of adequate wastewater management facilities to serve development in order to protect public health, wildlife habitats, and water quality.

11.2 Coordinate Planning

Coordinate wastewater management planning with land use and water supply planning to assure that the capacity of sewerage facilities is commensurate with the level of development planned for an area.

11.3 Current Technology

Encourage the development of wastewater management systems that utilize current technology.

URBAN AREAS

11.4 Adequate Capacity for Unincorporated Areas

Plan for the availability of adequate sewerage collection and treatment capacity for unincorporated urban areas.

11.5 Wastewater Management in Urban Areas

- a. Consider sewerage systems as the appropriate method of wastewater management in urban areas.
- b. Encourage the extension of sewerage systems to serve unincorporated urban areas presently using individual sewage disposal systems where warranted by public health concerns, environmental pollution or the planned density of development.
- c. Continue the use of existing individual sewage disposal systems in urban areas where lot sizes, site conditions, and planned densities are appropriate for these systems and where individual sewage disposal systems have functioned satisfactorily in the past.

11.6 Financing Sewerage Facilities in Urban Areas

Develop equitable financing plans for sewerage improvements in urban areas that are consistent with local needs.

11.7 Phasing Sewerage Improvements

Phase the development of wastewater facility improvements in areas with substantial growth potential so that sufficient capacity becomes available when needed by new growth in accordance with adopted land use plans.

11.8 Infiltration of Storm Water Into Sewerage Systems

Encourage sewerage treatment and collection system operators to conduct studies on potential infiltration and inflow of storm waters into sewerage systems and to implement programs to correct such problems.

11.9 Sewerage Capacity for Priority Land Uses

- a. Provide for the reservation of sewerage capacity for priority land uses where required by State law or local policy.
- b. Encourage sewerage districts which are required to reserve capacity for priority land uses to establish an equitable method of payment for such capacity.

RURAL AREAS

11.10 Wastewater Management in Rural Areas

Consider the following as appropriate methods of wastewater management in rural areas: (1) Rural Service Centers--sewerage systems and individual sewage disposal systems; (2) Rural Subdivisions and Rural Areas--individual sewage disposal systems.

11.11 Financing Sewerage Facilities in Rural Areas

Develop equitable financing plans for sewerage facilities in rural areas that are consistent with local needs.

11.12 Adequate Lot Sizes for Septic Tanks

In areas where septic tanks are used for wastewater management, ensure parcel sizes are of sufficient size to accommodate septic tank systems and otherwise meet the requirements of the Office of Environmental Health.

11.13 Septic Tank Maintenance

Establish regulations requiring the inspection and, where appropriate, the repair of inadequate or failed individual sewage disposal systems.

11.14 Alternative Wastewater Systems

Allow the development of alternative wastewater systems acceptable to the Office of Environmental Health and monitor technological developments in this area. Permit the installation of systems that are acceptable to the Office of Environmental Health in rural service centers, rural subdivisions and rural areas.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

11.15 Educational Program

Request the Office of Environmental Health to develop a public education program for County residents using septic systems. Inform users of the operational requirements and limitations of these systems.

11.16 Sewer Facilities for Unincorporated Areas

In unincorporated areas where the County provides sewerage collection services, support the development of adequate sewerage facilities to serve the planned development of these areas. Work with sewerage authorities and cities to reserve capacity commensurate with the level of development planned for these areas.

11.17 Review of Public Works Capital Improvement Program

Request the Public Works Department to submit its annual Capital Improvement Program as it relates to wastewater improvements to the Planning Commission for review and comment in accordance with Section 65401 of the California Government Code.

TRANSPORTATION POLICIES

The County will:

DEFINITIONS

12.1 Definition of Streets

Define Streets to include streets, roads, bridges, interchanges used to get to and across highways, bridges, and other portions of the transportation system.

12.2 Definition of Complete Streets

Define Complete Streets as an approach to transportation that describes an integrated, multimodal transportation system which equally supports all types of transportation, including pedestrian, bicycle, and vehicular traffic.

12.3 Definition of Streets Projects

Define Streets Projects as: Planning, design, and implementation process for street construction, reconstruction, retrofit, alteration, or repair of streets; and projects, programs, and practices including but not limited to pavement re-surfacing, restriping, utility projects, signalization operations or modifications, and maintenance of landscaping/related features.

12.4 Definition of Complete Streets Projects

Define Complete Streets Projects as: Including but not limited to sidewalks, shared-use paths, bicycle lanes, bicycle routes, paved shoulders, street trees and landscaping, planting strips, accessible curb ramps, crosswalks, refuge islands, pedestrian signals, signs, street furniture, bicycle parking facilities, transit priority signalization, and other features assisting in the provision of safe travel for all users, such as traffic-calming devices, bulb-outs, curb extensions, chicanes, and road diets.

12.5 Definition of Transportation Users

Define Transportation Users as motorists, movers of commercial goods, users of public transportation, bicyclists, pedestrians of all ages and abilities, children, persons with disabilities, seniors, users and operators of public transportation, youth, and families.

GOALS AND OBJECTIVES

- 12.6 Plan for a transportation system that provides for the safe, efficient, and convenient movement of people and goods in and through San Mateo County.
- 12.7 Create and maintain Complete Streets that serve all categories of transportation users and goods, providing safe, efficient, comfortable, and convenient travel along all streets through an integrated, balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways for safe and convenient travel in a manner that is suitable to the rural, suburban, or urban context of the General Plan.
- 12.8 To the extent possible, plan for accommodating future transportation demand in the County by using existing transportation facilities more efficiently, or improving and expanding them before building new facilities.
- 12.9 Provide for a balanced and integrated transportation system in the County which allows for travel by various modes and easy transfer between modes.
- 12.10 Plan for increasing the proportion of trips using public transit or ridesharing.
- 12.11 Balance and attempt to minimize adverse environmental impacts resulting from transportation system improvements in the County.
- 12.12 Promote the development of energy-conserving transportation systems in the County.
- 12.13 Coordinate transportation planning with adjacent jurisdictions.

AUTOMOBILE TRAVEL

12.14 Additional Capacity

When providing additional capacity for automobile traffic where needed, give priority to upgrading and expanding existing roads before developing new road alignments.

12.15 Rural Road Improvements

In rural areas, where improvements are needed due to safety or congestion, support improved traffic control measures that balance the needs of all users and provide safe travel, implementing measures such as signing, lane markings, and speed controls, and the construction of operational and safety improvements, such as adequate passing lanes, elimination of sharp curves, lane widening, or paved shoulders.

12.16 Urban Road Improvements

In urban areas, where improvements are needed due to safety concerns or congestion, support the construction of interchange and intersection improvements, additional traffic lanes, turning lanes, redesign of parking, channelization, traffic control signals, or other improvements while enhancing the functionality of travel routes for all transportation users.

12.17 East-West Roads

Work with CalTrans and the cities to provide improved major east-west routes in the County as traffic conditions warrant.

12.18 Recreational Traffic to the Coastsides

Seek methods to mitigate the impact of peak recreational traffic to and along the Coastsides.

12.19 Circulation East of Highway 101

Encourage the cities and CalTrans to develop an adequate circulation system, including bikeways, and other context-sensitive design features to serve all transportation users and new development east of Highway 101 and which, to the maximum extent feasible, does not adversely affect baylands or wetlands.

12.20 Financing Local Road Improvements

Utilize all available techniques for funding local road improvements in unincorporated areas, including assessment districts, developer contributions, and County road funds. Ensure road improvements are consistent with adopted land use plans and area plans.

12.21 Local Circulation Policies

In unincorporated communities, plan for providing:

- a. Maximum freedom of movement for all transportation users and adequate access to various land uses;
- b. Improved streets, sidewalks, bicycle routes, landscaping, shared-use paths, and other site-appropriate design features that enhance the safety and usability of transportation networks in developed areas;
- c. Minimal through traffic in residential areas;

- d. Routes for truck traffic which avoid residential areas and are structurally designed to accommodate trucks;
- e. Access for emergency vehicles;
- f. Safe and efficient bicycle and pedestrian travel;
- g. Access by all transportation users, including persons with disabilities, seniors, children, and youth, to public buildings, shopping areas, hospitals, offices, and schools;
- h. Prioritization of accessibility to transit services and to routes and turnouts for public transit;
- i. Parking areas for ridesharing; and
- j. Coordination of transportation improvement with adjacent jurisdictions.

12.22 Local Road Standards

Allow for modification of road standards for sub-areas of the County, which respond to local needs and conditions as identified in area plans.

12.23 Vacation of County Streets and Easements

In reviewing requests for sale, vacation, or abandonment of County streets, rights-of-way, or easements, consider the following:

- a. whether access is available to existing parcels and developed areas adjacent to the subject area, or possible future development based on adopted area plans;
- b. whether the area to be vacated is not required for public transit use based on adopted plans; and
- c. whether the area to be vacated is not suitable for non-motorized use.

12.24 Official Plan Lines

Review official plan lines to assure they are current and conform to County road standards. Delete plan lines on streets which have already been improved to County standards or which have become incorporated within city boundaries.

12.25 Parking Standards

Review and update the County's off-street and on-street parking standards in order to reflect current conditions and requirements. Consider the needs of each individual land use, the potential for joint use of parking areas, fees in lieu of parking, spaces for smaller cars, and parking management strategies that support project needs while reducing an overabundance of surface parking to the detriment of other categories of transportation users or other land uses.

12.26 Funding for Road Maintenance

Utilize all funds available for roadway repair and maintenance, and seek additional funding, if necessary, to prevent further deterioration of the County's road system.

12.27 Off-Peak Operations

Encourage freight carriers (rail and truck) and roadway construction crews to operate during off-peak periods.

12.28 Seaport Boulevard

Encourage the Port of Redwood City to improve Seaport Boulevard in conjunction with the development of the port area.

COMPLETE STREETS

12.29 Context-Sensitive Street Design

Coordinate with stakeholders during street planning and design to maintain sensitivity to local conditions and ensure a strong sense of place that meets the needs of transit users, including consideration of a diversity of Complete Streets projects.

12.30 Integration with Regional Complete Streets Planning

Coordinate transportation and street projects with local and regional plans for bicycle, pedestrian, transit, and related multimodal plans designed to support Complete Streets.

12.31 Existing Street and Network Connectivity

Incorporate Complete Streets infrastructure into existing streets to improve the safety and convenience of users, accommodate all transportation users, and increase connectivity across jurisdictional boundaries and for existing and anticipated areas of development.

PUBLIC TRANSIT AND RIDESHARING

12.32 SamTrans Service

Encourage SamTrans to continue to work toward improving service levels on both local and mainline routes through reevaluation and expansion of routes, increased service to the Coastsides, provision of more satellite parking facilities, and evaluation of smaller buses for local routes.

12.33 Recreational Service

Encourage increased transit service between the Bayside and the Coastsides during summer months and special events in order to help meet recreational travel demand.

12.34 Caltrain Service

Support the continued upgrading of the Peninsula Train Service by CalTrans, including relocation of the station in San Francisco to a more central location, more frequent service, acquisition of new rolling stock, refurbishing of stations, and track rehabilitation.

12.35 Transit Marketing

Encourage transit providers in San Mateo County to expand their marketing and promotional programs in order to keep the public informed about the availability of transit service.

12.36 BART Extension

Cooperate with BART, SamTrans, and MTC in any planning involving an extension of BART service into San Mateo County.

12.37 Intermodal Transportation Terminal

If an extension of BART service to the San Francisco International Airport is agreed upon, encourage the sponsoring agency, CalTrans, and/or SamTrans to develop an intermodal ground transportation station at the Airport.

12.38 Transit Coordination

- a. Encourage transit providers to coordinate their service both within the County and with adjacent counties through common stations, coordination of scheduling, and honoring of transfers.

- b. Encourage SamTrans to coordinate its local service with cities and school districts.

12.39 Population Groups with Special Needs

Encourage and support SamTrans and the Paratransit Coordinating Council to work toward meeting the transportation needs of the mobility-impaired, the young, and the elderly.

12.40 Weekend Bus Service

Request that SamTrans maintain a minimal level of local service on weekends for the benefit of all transit dependents.

12.41 Park and Ride Lots

Encourage CalTrans and SamTrans to identify and acquire sites for additional park and ride lots at convenient locations along Highway 101 and Interstate 280 and provide for transit service and ridesharing at these facilities.

12.42 Preferential Treatment for High Occupancy Vehicles

Consider preferential treatment for high occupancy vehicles, including buses, vanpools, carpools through techniques such as exclusive lanes and preference at traffic signals in areas where warranted by recurrent traffic congestion.

BICYCLE AND PEDESTRIAN TRAVEL

12.43 Bicycle Routes

Encourage the cities to develop local bikeway plans, obtain funding, and construct and maintain a system of local bikeways that is consistent with the County Bikeways Plan.

12.44 Bicycle Trails in Rural Areas

Support the development of bicycle trails in rural and Coastal areas.

12.45 Bicycle Storage Facilities

Promote the provision of bicycle lockers and other storage facilities at transit stops, schools, shopping areas and other activity centers.

12.46 Bicycles on Transit

Encourage SamTrans and CalTrans to make provision for bicycles on transit vehicles at a minimum during off peak periods and in off-peak directions.

12.47 Facilities for Bicyclists

Encourage large employers to provide shower and locker facilities for their employees who bike to work as part of a commute alternative program.

12.48 Pedestrian Paths

Encourage the provision of safe and adequate pedestrian paths in new development connecting to activity centers, schools, transit stops, and shopping centers.

12.49 Pedestrian Bridges

Encourage CalTrans to provide pedestrian bridges and connections in areas where State highways have divided communities.

AIR TRANSPORTATION

12.50 Growth of San Francisco International Airport

Support the policy of MTC's Regional Airport Plan, regarding growth at San Francisco International Airport until such time as adequate ground transportation facilities are developed to accommodate larger passenger volumes.

12.51 Transit Trips to Airport

Recommend that San Francisco International Airport reevaluate its goal of accommodating 25% of daily trips to and from the airport by transit and work toward continually increasing the proportion of airport trips using transit and ridesharing.

12.52 Ground Transportation Information System

Encourage San Francisco International Airport to expand its ground transportation information system to provide assistance to those seeking to travel to the airport as well as from the airport.

12.53 Ground Transportation Facility at Airport

Request San Francisco International Airport to study the development of a ground transportation facility which would provide interconnections between the airport terminal, the CalTrans/SP Caltrain, SamTrans bus routes, and any future extension of the BART System.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

12.54 County Participation in Countywide and Regional Transportation Planning

- a. Provide a leadership role in coordinating countywide transportation issues with the cities of San Mateo County.
- b. Continue County participation in the regional transportation planning activities of MTC, SamTrans, RPC, and the City County Engineers Association.
- c. Strengthen County participation in the regional transportation planning structure by using the policy framework of this chapter and the area plans to provide input for decision-making.
- d. Provide staff support in transportation planning to assist County decision-makers; coordinate with MTC, SamTrans, and CalTrans; maintain a transportation planning database; review and comment on transportation plans and programs affecting the County; and periodically review and update the Transportation Chapter of the General Plan.
- e. Support consultation with local and regional bicycle, pedestrian, transit, and other multimodal relevant plans to achieve Complete Streets and support connectivity across jurisdictional boundaries.
- f. Departments and agencies of San Mateo County addressing transportation issues shall work toward making Complete Streets practices a routine aspect of everyday operations and integrate Complete Streets planning into all long-term street projects, as feasible.
- g. County staff will use a standardized process to document the integration of Complete Streets into street projects, which shall also allow for documentation of reasons the project could not accommodate all modes of transportation.

12.55 Cooperation with Cities

Work with the cities of San Mateo County and with adjacent cities and counties on transportation issues of countywide concern, including east-west arterial roads, implementation of the Bikeways Plan, development of truck routes through adjoining jurisdictions, pavement maintenance of bike routes.

12.56 Traffic Mitigation Programs

Cooperate with the cities, transit operators and employers in the development and implementation of traffic mitigation programs, which lessen the cumulative effects of new development on existing transportation systems, including (1) auto commute alternatives programs; (2) establishing a network of traffic coordinators; (3) parking management strategies; and (4) incorporation of transit improvements into new developments.

12.57 Primary Road System in Unincorporated Areas

Delineate a system of primary through roads in unincorporated areas to serve as a guide for future improvements. Allocate County funds for improvements to these primary roads according to the criteria of Policy 12.14.

12.58 Review of Capital Improvement Programs

Require County departments to submit their annual Capital Improvements Programs for transportation improvements to the Planning Commission for review and comment in accordance with Section 65401 of the California Government Code.

12.59 Modification of Road Standards

Continue existing policy as set forth in the Creative Road Design Guide and area plans allowing selective modification of County road standards in order to protect the natural environment, conserve natural resources and preserve neighborhood quality.

12.60 County Bikeways Plan

Review, adopt, and maintain the Bikeway Plan map as the County's policy regarding a future bikeways system in San Mateo County.

12.61 Staff Bikeways Coordinator

The County staff Bikeways Coordinator shall: (1) plan and develop bikeway facilities in the unincorporated areas; (2) develop requirements for bike facilities in new developments in unincorporated areas; (3) provide staff services to the

County Bikeways Advisory Committee; (4) work with the cities and monitor progress toward implementation of the County Bikeways Plan; (5) assist cities without active bikeways programs to develop and implement programs for their cities; and (6) coordinate with bicycle organizations.

ROLE OF OTHER AGENCIES

12.62 Coordinate Planning

Request CalTrans, SamTrans, RPC and the cities to coordinate planning for improvements to roads, highways, and transit service to accommodate growing transportation demand, particularly that resulting from newly developing areas east of Highway 101 and the growing southbound commute to Santa Clara County.

12.63 Role of MTC

Support the role of MTC as the regional transportation planning agency for the Bay Area.

12.64 Monitor Development

Request MTC to periodically monitor development trends in the County as they affect the demand for transportation and to work with transit agencies, CalTrans, and local jurisdictions to ensure that transportation improvements are coordinated with future land development.

12.65 Role of Regional Planning Committee

Continue the role of the Regional Planning Committee in evaluating and ranking the countywide significance of candidate projects for Federal and State transportation funding, and use the RPC as a mechanism to resolve interjurisdictional conflicts involving transportation and to achieve countywide consensus on other important transportation issues.

12.66 Role of City County Engineers Association

Continue and support the role of the City County Engineers Association as the technical advisory committee for reviewing and ranking (with the participation of the Regional Planning Committee) road improvement projects competing for State and Federal funding under the City County Transportation Improvement Program.

12.67 Task Force on Transportation Systems Management

Request the City County Engineers Association to act as a countywide task force on Transportation Systems Management (TSM) along with transit agencies and CalTrans, to identify and implement TSM measures that will improve the efficiency and capacity of the existing transportation system.

12.68 Role of RIDES for Bay Area Commuters, Inc.

Support the efforts of RIDES to expand ridesharing by San Mateo County commuters and encourage employers in the County to provide ridesharing among their employees.

SOLID WASTE POLICIES

The County will:

GOALS AND OBJECTIVES

13.1 Management of Solid Waste Disposal

Provide management of solid waste in the most efficient and economical manner which will provide adequate services, protect the public health, prevent the creation of nuisances, reduce waste generation and provide for maximum resource recovery.

13.2 Protection of Solid Waste Disposal Sites

Protect solid waste disposal sites from encroachment by incompatible land uses.

13.3 Minimize Environmental Impacts

Minimize adverse environmental impacts resulting from any existing, new or expanded solid waste facility in unincorporated areas of the County.

13.4 Maximize Energy Conservation

Manage solid waste in such a way as to maximize energy conservation.

13.5 Minimize Dependence on Landfills

Reduce to a minimum the dependence on landfills by promoting recycling, resource recovery and reduction of residential and commercial wastes.

13.6 Promote Materials Recovery and Energy Recovery

Promote the recovery of by-products from solid waste and provide for the timely utilization of technological advances in the fields of materials recovery and energy recovery.

DEFINITIONS

13.7 Definition of Solid Waste Facility

Define a Solid Waste Facility as a facility used to dispose of solid waste including, but not limited to, sanitary landfills, transfer stations and waste to energy facilities.

13.8 Definition of Buffer Lands

Define Buffer Lands as land uses which protect public safety and provide sufficient distance and screening between solid waste disposal activities and incompatible land uses.

DESIGNATIONS

13.9 Designation of Sites for Solid Waste Facilities

Designate the following sites for solid waste facilities:

- a. Lands on which existing and approved solid waste operations are located as shown on the Solid Waste Facilities Map.
- b. Lands shown as an area for a solid waste facility on the Solid Waste Facilities Map provided they meet the requirements of Policies 13.11, 13.20 or 13.24.

SANITARY LANDFILL

13.10 Long-Term Landfill Disposal Capability

Provide long-term landfill disposal capability for nonrenewable wastes and residues from resource recovery operations.

13.11 Locating Sanitary Landfills

Permit solid waste sanitary landfills to be developed in locations where: (1) the landfill will not be readily visible from major roads and development; (2) there will not be major conflicts with existing and planned development; (3) adequate lands are available to buffer adjacent lands from disposal activities; and (4) groundwater quality would not be adversely affected.

13.12 Localization of Environmental Impacts of Sanitary Landfills

Minimize environmental impacts associated with any existing, new or expanded solid waste landfill facility by requiring that impacts, such as removal of vegetation, reduction of wildlife habitat, creation of dust, erosion and odor, be localized and not extended beyond the landfill itself.

13.13 Mitigation of Environmental Impacts of Sanitary Landfills

Require the mitigation of environmental impacts associated with solid waste landfill facilities including, but not limited to, minimizing the adverse effects of grading, cut and filling, land clearing, water runoff and soil erosion.

13.14 Prohibit the Disposal of Hazardous Waste

Prohibit the disposal of hazardous waste at the Ox Mountain Landfill through techniques including, but not limited to, encouraging the increased monitoring of waste loads at all transfer stations and Ox Mountain Landfill, supporting the establishment of small volume hazardous waste transfer stations, developing public education programs and investigating fully citizen complaints.

13.15 Reclamation Requirements

Require standards for and the reclamation of solid waste landfill sites for the purpose of restoring landfills to a usable condition adaptable to alternative land uses and minimizing adverse impacts from landfill operations.

13.16 Expansion of the Area Served by Ox Mountain Landfills

Consider traffic, noise and other potential impacts when evaluating future requests to expand the Ox Mountain Service Area to serve areas outside of San Mateo County.

13.17 Disposal of Garbage Generated Outside the County

Permit solid waste generated outside the County to be disposed of at Ox Mountain landfill provided that one or more of the following criteria are met:

- a. Solid waste is processed at a resource recovery facility in order to reduce volumes dramatically for imported and San Mateo County solid waste. Such plant should be constructed with all appropriate environmental protections.
- b. The disposal fee for out of County solid waste is set at a rate which will defray the cost of disposal and in addition has the potential to minimize rate increases for disposal to County residents.
- c. The disposal of out of County solid waste will be accomplished in the most environmentally safe manner.

13.18 Buffer Lands

Protect solid waste landfill operations from encroachment by incompatible land uses by maintaining buffer lands adjacent to solid waste landfill operations.

13.19 Refuse Truck Traffic From Ox Mountain

To increase safety and to reduce conflicts between refuse truck traffic from Ox Mountain landfills and commuter traffic:

- a. Regulate the times when refuse truck traffic is permitted; and
- b. Encourage the provision of operational and safety improvements to Highway 92.

TRANSFER STATIONS

13.20 Locating Transfer Stations

Permit transfer stations to be developed in locations convenient for public dumping, provided: (1) there are not major conflicts with existing and planned development; (2) adequate access can be provided; and (3) impacts including, but not limited to, those on visual resources and vegetation, fish and wildlife resources can be mitigated to acceptable levels.

13.21 Use of Bayside Transfer Stations

Encourage the establishment of a fee structure for public dumping that encourages the use of Bayside transfer stations by Bayside residents in order to minimize traffic on Highway 92 generated by public dumping at Ox Mountain landfills.

RESOURCE RECOVERY

13.22 Efforts by the Private Sector

Encourage resource recovery efforts by the private sector including: (1) separation of materials at the source and at transfer facilities; (2) methane recovery at landfills; and (3) energy recovery through waste conversion.

13.23 Promoting Curbside Recycling

Promote the establishment of curbside recycling programs as a means to increase recycling.

13.24 Locating Waste-to-Energy Facilities

Consider permitting waste-to-energy facilities such as those that employ direct combustion, liquefaction, gasification and pyrolysis on suitably designated lands, provided environmental impacts can be mitigated to acceptable levels.

13.25 Locating Rubbish Collection Points

- a. Consider permitting the placement of receptacles for recyclables within appropriate residential and commercial areas; and

- b. Encourage the use of public facilities, such as parks and playgrounds, for locating receptacles for recyclables.

13.26 Advocacy for Source Reduction and the Reuse of Recycled Materials

Support the passage of Federal and State legislation which promotes a reduction in the generation of waste materials and the reuse of recycled materials.

13.27 Reduction of Solid Waste Requiring Disposal

Continue encouraging transfer station operators to use techniques, such as front-end materials separation, at Bayside transfer stations, in order to reduce the amount of solid waste requiring transportation and disposal at Ox Mountain.

PROGRAM RESPONSIBILITIES

ROLE OF THE COUNTY

13.28 Regulation of Solid Waste Landfill Operations

Regulate solid waste landfill operations to minimize adverse environmental consequences including, but not limited to, measures which mitigate impacts on the geology, water quality and hydrology, biology (vegetation, fish and wildlife), visual quality, noise levels, and air quality.

13.29 Protection of Groundwater Quality

Encourage responsible State and County agencies to periodically update their regulations for the disposal of solid waste at landfills, based on current available information, to ensure that groundwater is provided adequate protection from contamination.

13.30 Litter Control Programs

Provide litter control through mechanisms including, but not limited to, adoption and enforcement of litter control ordinances, development of citizen support for control of littering through public information and education, utilization of volunteer and court assigned labor, and support for private sector litter cleanup activities.

13.31 County Public Works Department

Support the role of the Public Works Department as the primary County agency for Solid Waste Management including the following: administration of the Countywide Solid Waste Management Plan; keeping abreast of solid waste

technology; and technical liaison with Federal, State and local agencies, private enterprises and civic groups concerned with solid waste management.

13.32 County Health Department

Support the role of the County Health Department as having staff responsibility for providing inspection and for enforcing State and local statutes and regulations in the environmental health and sanitation aspects of storage, collection, handling, transportation and disposal of solid wastes on a Countywide basis, and for developing code changes, conducting studies and recommending improved methods in these subject areas to the County or cities in the County.