FINAL ENVIRONMENTAL IMPACT REPORT

SAN MATEO COUNTY
ASCENSION HEIGHTS SUBDIVISION PROJECT

VOLUME II - REVISED DRAFT EIR

AUGUST 2015

LEAD AGENCY:

San Mateo County
Planning & Building Department
455 County Center, Mail Drop PLN122
Redwood City, CA 94063

FINAL ENVIRONMENTAL IMPACT REPORT

SAN MATEO COUNTY
ASCENSION HEIGHTS SUBDIVISION PROJECT

VOLUME II - REVISED DRAFT EIR

AUGUST 2015

LEAD AGENCY:

San Mateo County
Planning & Building Department
455 County Center, Mail Drop PLN122
Redwood City, CA 94063

PREPARED BY:

Analytical Environmental Services
1801 7th Street, Suite 100
Sacramento, CA 95811
(916) 447-3479
www.analyticalcorp.com

TABLE OF CONTENTS

ASCENSION HEIGHTS SUBDIVISION PROJECT

Volume II -- Revised Draft EIR

LIST OF TABLES

LIST OF FIGURES

APPENDICES

SECTION 1.0

INTRODUCTION

1.0 INTRODUCTION

1.1 PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT

This Draft Environmental Impact Report (EIR) has been prepared to provide the general public and interested public agencies with information about the potential environmental impacts of the Ascension Heights Subdivision Project (Proposed Project). This Draft EIR was prepared in compliance with the California Environmental Quality Act (CEQA, California Public Resources Code §§21000-21178), the CEQA *Guidelines* (California Code of Regulations [CCR], Title 14).

As described in CEQA *Guidelines* Section 15121(a), an EIR is an informational document that assesses potential environmental impacts of a proposed project, as well as identifies mitigation measures and alternatives to the proposed project that could reduce or avoid adverse environmental impacts. As the CEQA Lead Agency for this project, San Mateo County (County) is required to consider the information in the EIR (the Draft EIR and Final EIR; refer to **Section 1.2** below for discussion of EIR process) along with any other available information in deciding whether to approve the Proposed Project. The basic requirements for an EIR include discussions of the environmental setting, environmental impacts, mitigation measures, alternatives, growth-inducing impacts, and cumulative impacts. The EIR is an informational document used in the planning and decision-making process. It is not the intent of an EIR to recommend either approval or denial of a project. This EIR is a "Project EIR," pursuant to CEQA *Guidelines* Section 15161. A Project EIR examines the environmental impacts of a specific project. This type of EIR focuses on the changes in the environment that would result from implementation of the project, including construction and operation.

1.2 EIR PROCESS

1.2.1 LEAD AGENCY

In accordance with CEQA *Guidelines* Sections 15050 and 15367, the County serves as the "Lead Agency," which is defined as the "public agency which has the principal responsibility for carrying out or disapproving a project." The Lead Agency is also responsible for determining the scope of the environmental analysis, preparing the Draft EIR, responding to comments received on the Draft EIR, and preparing the Final EIR. Prior to making a decision whether to approve a project, the Lead Agency is required to certify that the EIR has been completed in compliance with CEQA, that the decision-making body reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of the Lead Agency.

1.2.2 NOTICE OF PREPARATION AND SCOPING

In accordance with CEQA *Guidelines* Section 15082, a Notice of Preparation (NOP) was circulated to the public, local, State, and federal agencies, and other known interested parties for a 30-day public and agency review period which began on October 4, 2013 (included as **Appendix A**). The purpose of the NOP was to provide notification that an EIR for the Proposed Project was being prepared and to solicit public input on the scope and content of the document.

Pursuant to CEQA *Guidelines* Section 15082, the Lead Agency held a scoping meeting for the EIR on October 9, 2013 in the Theatre at the College of San Mateo. Agencies and members of the public were invited to attend and provide input on the scope of the EIR. Comments from agencies and the public provided at the scoping meeting and in written comments submitted in response to the NOP are included within **Appendix A**. Significant issues raised during the scoping process are summarized in **Section 1.3**.

1.2.3 Draft EIR and Public Review

This Draft EIR is being circulated for public review and comment for a period of 45 days. During this period, the general public, organizations, and agencies can submit comments to the Lead Agency on the Draft EIR's accuracy and completeness. Release of the Draft EIR marks the beginning of a 45-day public review period pursuant to CEQA *Guidelines* Section 15105. The public can review the Draft EIR at the County's website at:

http://planning.smcgov.org/ascension-heights-subdivision-project

or at following addresses during normal business hours:

County of San Mateo Planning and Building Department
455 County Center, 2nd Floor
Redwood City, California 94063

San Mateo County Library-Belmont Branch
1110 Alameda de Las Pulgas
Belmont, CA 94002

San Mateo Public Library
55 West 3rd Avenue
San Mateo, CA 94402

Comments may be submitted both in written form and/or orally at the public hearing on the Draft EIR. Notice of the time and location of the hearing will be published in local newspapers, mailed to property owners and residents surrounding the project, and posted on the County's website. All comments or questions regarding the Draft EIR should be addressed to:

The County of San Mateo
Planning and Building Department, Attention: James Castañeda, AICP
455 County Center, 2nd Floor
Redwood City, California 94063
(650) 363-1853
jcastaneda@smcgov.org

1.2.4 Final EIR and EIR Certification

Upon completion of the public review period, a Final EIR will be prepared that will include written comments on the Draft EIR received during the public review period and the County's responses to those

comments. The Final EIR will also include the Mitigation Monitoring and Reporting Plan (MMRP) prepared in accordance with Section 21081.6 of the Public Resource Code. The Final EIR will address any revisions to the Draft EIR made in response to public comments. The Draft EIR and Final EIR together will comprise the EIR for the Proposed Project. Before the County can approve the Proposed Project, it must first certify that the EIR has been completed in compliance with CEQA, that the County Board of Supervisors has reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of the County. The County and Board of Supervisors will also be required to adopt Findings of Fact and, for any impacts determined to be significant and unavoidable, adopt a Statement of Overriding Considerations.

1.3 ISSUES AND CONCERNS RAISED DURING SCOPING

Issues and concerns raised during the scoping process are summarized below.

Aesthetics

Several private citizens and the Baywood Park Homeowners Association commented on the potential impacts of the Proposed Project on aesthetics, in particular on the potential to reduce the privacy at adjacent residences along Parrot Drive. Aesthetic concerns also included replacement of open space with housing, design of landscaping, design of potential erosion and landslide structural mitigation measures (i.e. retaining walls), and light and glare effects from traffic on the proposed private drive.

> *The aesthetic impacts associated with the Proposed Project are addressed in **Section 4.1**, Aesthetics of the Draft EIR. A visual assessment of impacts to neighboring viewsheds is included in **Section 4.1.4** of the Draft EIR.*

Air Quality

Several private citizens and the Baywood Park Homeowners Association expressed concerns over the potential impacts of the Proposed Project on air quality. Concerns were related to air quality impacts during construction, such as the impact of exhaust from construction equipment used on site and traveling to and from the project site; dust emissions; and the impact of diesel particulate matter (DPM), including odor effects. Commenters requested that consideration be given to the existing wind patterns in the vicinity of the project site, in particular how the proposed tree removal would impact these wind patterns. Commenters also requested the Draft EIR include mitigation to protect sensitive receptors, in particular during ‘spare the air’ days. In addition, commenters requested the Draft EIR consider the effect on air quality the Proposed Project would have if construction spans five or more years.

> *The air quality impacts associated with the construction and implementation of the Proposed Project are addressed in **Section 4.2**, Air Quality of the Draft EIR. The analysis of impacts includes a preliminary health risk assessment (HRA) of particulate matter from construction and operation of the Proposed Project.*

Biological Resources

Several private citizens expressed concern regarding potential impacts the Proposed Project would have on wildlife that inhabits and/or utilizes the undeveloped project site as well as the impact of removing

trees. One private citizen indicated she has witnessed Mission Blue Butterflies on the project site; the Baywood Park Homeowners Association requested a thorough investigation of the probability of Mission Blue Butterflies utilizing the project site be conducted. One private citizen requested all development adhere to tree setback/buffer zone standards per the International Arborist Standards.

> *Impacts associated with biological resources, including impacts associated with the Mission Blue Butterfly and impacts to protected trees, are addressed in **Section 4.4**, Biological Resources of the Draft EIR.*

Geology and Soils

Numerous private citizens and the Baywood Park Homeowners Association requested the Draft EIR consider the potential impacts of the Proposed Project related to geology and soils. The primary concerns are landslides and soil erosion given the steep slope of the project site, the existing soil erosion issues on the project site, the proposed grading, and the proposed removal of trees. Two private citizens commented the Draft EIR should specify the responsible entity for maintaining potential erosion and landslide structural mitigation measures (i.e. retaining walls). Additionally, the proposed timeline for development should be considered when evaluating erosion. Commenters also expressed concern over soil stability, soil compaction, and the presence of serpentine soils on the project site, which can contain naturally occurring asbestos. Seismic concerns and preserving soil health were also mentioned. A representative from the Town of Hillsborough requested that erosion and slope stability issues be carefully examined.

> *The geology and soil impacts associated with the Proposed Project are addressed in **Section 4.6**, Geology and Soils of the Draft EIR. This section includes a discussion of erosion and slope stability and presents mitigation measures to reduce identified impacts.*

Hydrology and Water Quality

Several private citizens and the Baywood Park Homeowners Association stated concerns related to hydrology and water quality, in particular related to erosion due to stormwater runoff. Commenters requested the Draft EIR include mitigation measures designed for the potential impacts related to, at a minimum, a 50-year storm and that mitigation measures be described in detail. Concerns related to groundwater seepage and off-site flooding were also expressed. In addition, commenters requested the Draft EIR consider the effect the Proposed Project would have on hydrology and water quality if construction spans five or more years.

> *The hydrology and water quality impacts associated with the Proposed Project are addressed in **Section 4.8**, Hydrology and Water Quality of the Draft EIR. The impact analysis includes a discussion of grading and drainage, erosion potentials, flooding, and associated impacts to water quality. Where potentially significant impacts are identified, mitigation measures are presented to reduce impacts to less-than-significant levels.*

Land Use

Four private citizens expressed concern over the number of proposed residential lots on the project site and the conversion of open space to residential use.

*The land use impacts associated with the Proposed Project, including a discussion of consistency with zoning regulations and applicable land use policies, are addressed in **Section 4.9**, Land Use of the Draft EIR.*

Noise

Several private citizens and the Baywood Park Homeowners Association commented that the noise generated during the construction of the Proposed Project would impact the surrounding area. Commenters requested the Draft EIR evaluate construction noise based on the frequency and volume of large trucks entering and existing the project site, the type of construction equipment and machines used on the project site, the number of equipment and machines in operation at the same time, the location of equipment and machines on the project site relative to sensitive receptors, and the length of time of construction activities. Requests were also made to include mitigation in the Draft EIR that limits the hours during which construction activities could occur.

*Impacts to the existing ambient noise environment are assessed in **Section 4.10**, Noise of the Draft EIR. A 24-hour noise assessment was conducted to determine the ambient noise conditions at the project site. The results of the assessment are presented in **Section 4.10.2** and are utilized in **Section 4.10.4** to assess construction and operational impacts of the proposed project to the ambient noise environment of the project area.*

Public Services, Utility Systems, and Recreation

One private citizen expressed concern over emergency access to the residences on the project site once the Proposed Project is implemented. The Baywood Park Homeowners Association expressed concern over the dry brush in the open space areas creating a potential fire hazard. A few commenters expressed concerns regarding the impact to local infrastructure, including water supply, sewer systems, and storm drainage systems. A few commenters requested the Draft EIR evaluate the impact of converting an open space that currently serves as an informal recreation facility to private residences as well as evaluate the impact of population growth on existing recreation facilities. A representative from the Town of Hillsborough requested that the project contribute towards regional sewer improvements, including contributions towards reduction in the ongoing inflow and infiltration (I&I) issues with the regional collection system.

*Environmental impacts and associated mitigation to public services, utility systems, and recreation are assessed in **Section 4.12**; Public Services, Utility Systems, and Recreation of the Draft EIR. The analysis of impacts includes an assessment and associated mitigation of I&I issues with the regional sewer collection system.*

Transportation/Circulation

The California Department of Transportation (Caltrans) requested the Draft EIR identify traffic impact fees and base its analysis from a Traffic Impact Study that includes an assessment of the capacity of the existing transportation system with respect to Level of Service (LOS) and Volume/Capacity (V/C) ratio, the anticipated trips generated by the Proposed Project, and the potential impacts to state route interchanges.

Numerous private citizens and the Baywood Park Homeowners Association expressed concern over transportation and circulation issues. Concerns were primarily related to the impact on safety due to such factors as an increase in the volume and frequency of trips of large trucks through a suburban neighborhood, the design features of the existing roadways (i.e. limited sight distance), the design features of the proposed new roadway and intersection with Bel Aire Road, and the increase in traffic volumes due to the new residents, in particular given the existing traffic associated with the College of San Mateo. A few commenters stated concerns related to the capacity of existing roadways to support large trucks. A representative from the Town of Hillsborough requested that construction traffic impacts to local Hillsborough and other streets be addressed. The representative further suggested project and construction traffic be analyzed in the Parrot Drive, Sugarhill, and Belaire area.

*Impacts to transportation and circulation are presented in **Section 4.13**, Transportation of the Draft EIR. Section 4.13 identifies the study roadway network, which includes the Parrot Drive, Sugarhill, and Belaire area. The setting discussion with **Section 4.13** addresses the Countywide Transportation Impact Fee.*

Cumulatively Considerable Impacts

A few commenters requested the Draft EIR evaluate the long term impacts of the Proposed Project related to soil stability, erosion, landslides, and public infrastructure.

*Cumulatively considerable impacts, including those related to geology, soils, hydrology, water quality, and public utilities are presented in **Section 5.2**, Cumulative Impact Analysis of the Draft EIR. The cumulatively considerable environment was identified through a review of local and regional planning documents as well as through communication with local planning departments.*

Alternatives

A few private citizens and the Baywood Park Homeowners Association requested the Draft EIR evaluate reduced-intensity alternatives, in addition to the Proposed Project and No Project Alternative. Three specific requests were as follows:

- Reduced Intensity Alternative: 10 residential lots are developed instead of 19, the remaining area, including the 9 undeveloped lots, is retained as open space
- Alternate Design Alternative: 6 larger residential lots are developed; the remaining area is retained as open space
- Minimal Grading Alternative: 13 residential lots are developed but the 6 lots requiring the most substantial grading are not developed; the remaining area is retained as open space

A detailed description of the project alternatives in accordance with CEQA Guidelines Section 15126.6(d), including the No-Action Alternative, Reduced Intensity Alternative, and Alternate Design Alternative and associated environmental impacts are presented in Section 6.0 of the Draft EIR. One alternative requested, yet not considered, was the minimal grading option requesting that the EIR assess the development of 13 residential lots strategically placed to minimize grading. The EIR assesses the reduced intensity alternative, which reduces the number

*of residential lots from 19 to 10. The anticipated environmental impacts of developing 13 lots instead of the 10 would be nearly indistinguishable (refer to **Section 6.3** for further discussion).*

Project Description/Project Objectives

A few private citizens and the Baywood Park Homeowners Association requested the Draft EIR include a detailed description of the Proposed Project. Commenters requested such details include the proposed timeline of development; details regarding the type, design, and layout of proposed residences; a description of the proposed buffer zone between residences along Parrot Drive and the proposed residences; parking; and management of the open space areas.

*A detailed description of the Proposed Project, including development timeline and lot layout is provided in **Section 3.4.1** of the Draft EIR. The level of detail presented in the project description provides the required detail to assess the impacts of the Proposed Project against the baseline environmental conditions presented in Section 4.0 of the Draft EIR.*

One private citizen requested the Draft EIR clearly define what purposes and/or needs are fulfilled by implementation of the Proposed Project.

*The project objectives are described in **Sections 3.4.2** and **3.4.3** of the Draft EIR.*

Fiscal Responsibilities

Several private citizens and the Baywood Park Homeowners Association requested the Draft EIR identify the parties responsible for financing various aspects related to the Proposed Project, such as maintenance of the proposed open space, deterioration of residential roadways due to heavy truck traffic, and deterioration of public infrastructure including sewer lines and storm drainage systems. Additionally, several commenters requested the Draft EIR identify the parties that would be financially responsible for a future landslide or similar event resulting in private and/or public property damage. As described in **Section 1.1**, the purpose of an EIR is to provide information related to environmental impacts. Fiscal responsibilities as they relate to impacts on the environment (i.e. fair-share payments to off-set potential environmental impacts associated with expanding police services) are discussed under each potentially impacted resource in the Draft EIR. However, fiscal responsibilities that do not relate to environmental impacts (i.e. maintenance of open space) are beyond the scope of this Draft EIR.

1.4 SCOPE OF THE EIR

In accordance with CEQA *Guidelines* Section 15063, the Initial Study (**Appendix B**)**,** in conjunction with comments received during scoping (**Appendix A**), was used to focus the EIR on effects determined to be potentially significant. The following environmental resources were determined to have the potential to be significantly affected by the Proposed Project and have therefore been addressed in detail in this Draft EIR:

- Aesthetics
- Air Quality and Greenhouse Gas Emissions
- Biological Resources

- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use
- Noise and Vibration
- Population and Housing
- Public Services, Utilities, and Recreation, and
- Transportation and Circulation

1.5 TERMINOLOGY USED IN THE EIR

This EIR uses the following terminology to describe environmental effects of the Proposed Project and Alternatives:

- **Significance Criteria**: A set of criteria used by the Lead Agency to determine at what level or "threshold" an impact would be considered significant. Significance criteria used in this Draft EIR include factual or scientific information; regulatory standards of local, state, and federal agencies; and/or guiding and implementing goals and policies identified in local plans.
- **Less-Than-Significant Impact**: A less-than-significant impact would cause no substantial change in the environment (no mitigation required).
- **Less-Than-Significant Level**: The level below which an impact would cause no substantial change in the environment (no mitigation required).
- **Potentially-Significant Impact**: A potentially-significant impact may cause a substantial change in the environment; however, it is not certain that effects would exceed specified significance criteria. For CEQA purposes, a potentially-significant impact is treated as if it were a significant impact. Mitigation measures and/or project alternatives are identified to reduce project effects to the environment.
- **Significant Impact**: A significant impact would cause a substantial adverse change in the physical conditions of the environment. Significant impacts are identified by the evaluation of effects using specified significance criteria. Mitigation measures and/or project alternatives are identified to reduce or avoid project effects to the environment.
- **Significant and Unavoidable Impact**: A significant and unavoidable impact would result in a substantial change in the environment that cannot be avoided or mitigated to a less-than-significant level if the project is implemented.
- **Cumulatively-Significant Impact**: A cumulatively-significant impact would result in a substantial change in the environment from effects of the project as well as surrounding projects and reasonably foreseeable development in the surrounding area. To be considered significant a project's impact must be a cumulatively-considerable contribution to a substantial change in the environment.
- **Mitigation**: Mitigation includes measures recommended in the Draft EIR and imposed as condition of approval by the Lead Agency that:
    - avoid the impact altogether by not taking a certain action or parts of an action;
    - minimize impacts by limiting the degree or magnitude of the action and its implementation;
    - rectify the impact by repairing, rehabilitating, or restoring the affected environment;

- reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action; and
- compensate for the impact by replacing or providing substitute resources or environments.

1.6 REPORT ORGANIZATION

- **Chapter 1, Introduction** - Provides an introduction and overview of the EIR, describes the intended use of the EIR, and describes the review and certification process.
- **Chapter 2, Executive Summary** - Summarizes the elements of the project and the environmental impacts that could result from implementation of the Proposed Project, and provides a table which lists impacts, describes proposed mitigation measures, and indicates the level of significance of impacts after mitigation.
- **Chapter 3, Project Description** - Provides a detailed description of the Proposed Project, including its location, background information, major objectives, and components.
- **Chapter 4, Environmental Setting, Impacts, and Mitigation Measures** – Describes the baseline environmental setting and provides an assessment of impacts for each issue area presented in **Section 1.4**. Each section is divided into four sub-sections: Introduction, Existing Environmental Setting, Regulatory Background, and Impacts and Mitigation Measures.
- **Chapter 5, CEQA Considerations** - Provides discussions required by CEQA regarding impacts that would result from the Proposed Project, including a summary of cumulative impacts, secondary impacts, including potential impacts resulting from growth inducement, and significant irreversible changes to the environment.
- **Chapter 6, Project Alternatives** – Describes and compares alternatives to the Proposed Project and associated environmental consequences.
- **Chapter 7, EIR Authors and Persons Consulted** - Lists report authors and agencies consulted for technical assistance in the preparation and review of the EIR.
- **Chapter 8, References** - Provides bibliographic information for all references and resources cited.
- **Chapter 9, Acronyms** – Provides a list of definitions for all acronyms used in the EIR.
- **Appendices** – Includes various documents and data directly related to the analysis presented in the Draft EIR.

1.7 LOCAL REGULATORY FRAMEWORK

The Draft EIR relies, in part, on information provided by the County and City of San Mateo for areas within the project vicinity. Applicable documents are listed below as source documents for this Draft EIR. County documents are available for public review and inspection at the County of San Mateo, Planning and Building Department, 455 County Center, 2nd Floor, Redwood City, California 94063. City of San Mateo documents are available for public review and inspection at the City of San Mateo, Community Development/Planning Division, City Hall, 330 West 20th Avenue, San Mateo, California 94403.

1. County of San Mateo General Plan (Adopted in 1986)
2. County of San Mateo 2007-2014 Draft Housing Element (Revised May 2012)
3. Draft Environmental Impact Report Ascension Heights Subdivision Project (June 2009)

4. City of San Mateo 2030 General Plan (Adopted 2010)

These documents were used primarily to identify the environmental setting, applicable local government plans or policies, background material, or descriptive technical material.

SECTION 2.0

EXECUTIVE SUMMARY

2.0 EXECUTIVE SUMMARY

2.1 INTRODUCTION

This chapter provides a summary of the Ascension Heights Subdivision Project (Proposed Project), environmental impacts that would result from project implementation, a summary of project alternatives, and the potential areas of controversy. This chapter also includes a table summarizing the impacts of the Proposed Project and mitigation measures that have been identified to reduce potentially significant environmental impacts to less than significant levels.

2.2 PROJECT LOCATION

The project site consists of approximately 13.32 acres located within the unincorporated community of San Mateo Highlands within San Mateo County (County), at the northeast corner of Bel Aire Road and Ascension Drive, east of Interstate 280 and northwest of State Route 92. The project site is located approximately 2.5 miles southwest of the City of San Mateo and approximately 17.5 miles south of the City of San Francisco. The project site is largely undeveloped, with the single exception of a paved access roadway that bisects the project site from the north corner to the southeastern edge, connecting Bel Aire Drive to a potable water tank owned by the California Water Service Company (Cal Water) and a cellular transmitter that are surrounded by but are not part of the project site. Single-family residential neighborhoods are the primary land use in the vicinity of the project site. Land uses adjacent to the project site consist of single-family residential housing to the northeast and southeast, Ascension Drive to the southwest with single family residences across the street, and Bel Aire Road to the northwest with single family residences across the street.

2.3 PROJECT UNDER REVIEW

The Proposed Project entails the subdivision of six parcels into 21 lots for development of 19 single-family residences and a new access roadway, with a development footprint of approximately 5.5 acres. The remaining 2 lots (approximately 7.8-acres) would be maintained as open space and would include an undisturbed and protected area as well as common areas with foot trails. All development and structures would be designed to be consistent with surrounding neighborhoods and to utilize similar architectural themes as those of surrounding houses. Landscaping would be designed to be consistent with surrounding neighborhoods and to minimize erosion, maximize soil stability, and screen existing viewsheds from the new development while still minimizing obstruction of solar access per each residence. Potable water would be provided by connection to the Bayshore District of Cal Water, and wastewater collection would be provided by the Crystal Springs County Sanitation District with treatment at the City of San Mateo Wastewater Treatment Plant.

The Proposed Project is a re-design of a previous project which proposed a subdivision of the project site into 27 parcels, of which 25 would have been developed. The San Mateo County Planning Commission

denied the applications for a Major Subdivision and Grading Permit and declined to certify the Final EIR in 2009. The applicant and County have since engaged the community in a discussion of the project and the revised reduced intensity Proposed Project.

2.4 ISSUES TO BE RESOLVED AND AREAS OF CONTROVERSY

Notice of Preparation and Scoping

In accordance with CEQA *Guidelines* Section 15082, the County (Lead Agency) circulated a Notice of Preparation (NOP) for this EIR on October 4, 2013. Presented in **Appendix A**, the NOP established a 30-day review period that ended on November 4, 2013. The NOP was circulated through the State Clearinghouse, to the public, local, State and federal agencies, and other known interested parties in an effort to disclose that the Proposed Project could have significant effects on the environment and to solicit written comments concerning the Proposed Project. A noticed public scoping meeting was held on September 25, 2013 to allow a public presentation of the project and provide an opportunity for oral comments to be submitted. The scoping meeting was held in the College of San Mateo Theatre to offer a convenient location for the surrounding neighbors. Over 50 members of the public attended the meeting. The County received three comment letters from State and local agencies as well as letters from the general public. These letters are included in **Appendix A**.

Areas of Controversy

The environmental issues below were identified during the scoping process and are discussed in more detail in **Section 1.0**:

- Aesthetics
- Air Quality
- Biological Resources
- Geology and Soils
- Hydrology and Water Quality
- Land Use
- Noise
- Public Services, Utility Systems, and Recreation
- Transportation/ Circulation
- Cumulatively Considerable Impacts
- Alternatives
- Project Description/Project Objectives
- Fiscal Responsibilities

Scope of the EIR

In accordance with CEQA *Guidelines* Section 15063, an Initial Study (**Appendix B**) was prepared and used in conjunction with comments received during scoping to focus the EIR on effects determined to be potentially significant. The following environmental resources were determined to have the potential to be significantly affected by the Proposed Project, and have therefore been addressed in detail in this Draft EIR:

- Aesthetics
- Air Quality and Greenhouse Gas Emissions
- Biological Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use

- Noise and Vibration
- Population and Housing
- Public Services, Utilities, and Recreation; and
- Transportation and Circulation

2.5 SUMMARY TABLE

Table 2-1 presents a summary of project impacts and proposed mitigation measures that would further avoid or minimize potential impacts. In the table, the level of significance of each environmental impact is indicated both before and after the application of the recommended mitigation measure(s).

Acronyms used within **Table 2-1** to describe levels of significance are explained below:

- NA – Not applicable
- NI – No impact
- LTS – Less than significant
- PS – Potentially significant

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
4.1 Aesthetics			
4.1-1: The Proposed Project could have a substantial adverse effect on a scenic vista; could substantially damage scenic resources, including trees; and could substantially degrade the existing visual character or quality of the site and its surroundings.	PS	**4.1-1a**: Prior to recordation of the Final Map, the project applicant shall submit a landscape plan for review and approval by the San Mateo County Planning Department (County Planning Department). The landscape plan shall include the location, size, and species of any proposed landscaping and shall include, but not be limited to, hedges or other appropriate vegetation that will provide opaque screening between the northeastern edge of the project site and the residences along the southern side of Parrott Drive. In addition, all proposed landscaping shall be of native, non-invasive species. Areas used for the storage of landscape maintenance or other equipment, supplies, or debris shall be shielded from view by fencing, landscaping or other means. Prior to final approval of the Final Map, a site inspection shall be required by the County Planning Department to verify that all approved landscaping has been implemented or bonds posted for performance and maintenance. All perimeter landscaping shall serve to screen and/or enhance views of the project site from surrounding roadways and neighborhoods. **4.1-1b**: The project applicant shall submit an application for a permit to remove trees consistent with Section 12,000 of the County Ordinance Code. The application shall include a tree replacement plan that shall not exceed the following specifications: ▪ For each loss of a significant indigenous tree, there shall be a replacement with three or more trees, as determined by the Planning Director, of the same species using at least five gallon size stock. ▪ For each loss of a significant exotic tree there shall be a replacement with three or more trees, as determined by the Planning Director that the substitute tree can survive and flourish in the regional climatic conditions. ▪ Replacement trees for trees shall require a surety deposit for both performance (installation of tree, staking, and providing an irrigation system) and maintenance. Maintenance shall be required for no less than two and no more than five years as determined by the Planning Director.	LTS

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
4.1-2: The Proposed Project would not create a significant new source of substantial light or glare which could adversely affect day or nighttime views.	LTS	No mitigation is required.	NA
4.1-3: The Proposed Project in combination with cumulative development surrounding the project site would not significantly impact visual resources nor create new sources of light and glare.	LTS	No mitigation is required.	NA
4.2 Air Quality and Greenhouse Gas Emissions			
4.2-1: Construction of the Proposed Project has the potential to generate emissions of ROG, NOx, PM_{10}, and $PM_{2.5}$.	PS	**4.2-1a**: The Applicant shall ensure through the enforcement of contractual obligations that construction contractors implement a fugitive dust abatement program during construction, which shall include the following elements consistent with the Basic Construction Mitigation Measures recommended by the BAAQMD: ▪ Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard. ▪ Cover all exposed stockpiles. ▪ Water all exposed roadway and construction areas two times a day. ▪ Sweep paved streets three times daily (with water sweepers) if visible soil material is carried onto adjacent streets. ▪ Limit traffic speeds on unpaved roads to 15 miles per hour (mph). ▪ After grading is complete, construction of paved surfaces (e.g. roadways, driveways, sidewalks, building pads) should be completed as soon as possible unless protected by seeding, soil binders, or other similar measures. ▪ Limit idling time to a maximum of five minutes and turn off equipment when not in use; clear signage indicating this shall be displayed at the project site access point. ▪ All construction equipment shall be maintained and properly tuned in accordance with manufacturer‘s specifications and shall be checked by a certified visible emissions evaluator. ▪ Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph. ▪ Any burning of cleared vegetation shall be conducted	LTS

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		according to the rules and regulations of the BAAQMD's Regulation 5 (BAAQMD, 2008). Prior notification to BAAQMD shall be made by submitting an Open Burning Prior Notification Form to BAAQMD's office in San Francisco. ▪ A publicly visible sign shall be posted with the telephone number and person to contact at the County regarding dust complaints. A response and corrective action shall occur within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations. **4.2-1b**: The applicant shall ensure through contractual obligations with construction contractors that the following Best Management Practices (BMPs) shall be implemented during all stages of construction: ▪ All heavy duty construction equipment be equipped with a diesel particulate matter filters. ▪ Only low ROG coatings shall be utilized. ▪ The applicant shall use only Tier 2 or better heavy duty construction equipment.	
4.2-2: Construction of the Proposed Project has the potential to generate TACs from construction equipment exhaust; however, under conservative conditions, emissions would be below BAAQMD thresdholds.	~~PS~~LTS	No mitigation is required.~~**4.2-2:** Implement **Mitigation Measure 4.2-1b.**~~	LTS
4.2-3: Construction of the Proposed Project would not generate objectionable odors perceptible to nearby receptors.	LTS	No mitigation is required.	NA
4.2-4: Operation of the Proposed Project would not generate emissions of ROG, NOx, PM_{10}, and $PM_{2.5}$ in exceedance of applicable standards.	LTS	No mitigation is required.	NA
4.2-5: Operation of the Proposed Project would not generate major emissions of TACs and would not be located near major TAC sources.	LTS	No mitigation is required.	NA
4.2-6: Operation of the Proposed Project would not generate significant odors as defined by the BAAQMD or place sensitive receptors in an area subject to objectionable odors.	LTS	No mitigation is required.	NA

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
4.2-7: Operation of the Proposed Project has the potential to generate emissions of ROG, NOx, PM_{10}, and $PM_{2.5}$, which, in combination with past, present, and future criteria emissions, has the potential to cause an exceedance of the NAAQS and/or the CAAQS.	LTS	No mitigation is required.	NA
4.2-8: Construction and operation of the Proposed Project has the potential to result in cumulatively considerable emissions of GHGs.	PS	**4.2-8**: The applicant shall purchase CO_{2e} emissions reduction credits in the amount of 249 MT prior to the start of construction. GHG CO_{2e} emissions reduction credits are generated by projects that reduce their GHG emissions by the use of technology or a reduction in business over business as usual. The CO_{2e} emission reduction credits must be permanently retired by the project applicant, thereby reducing annual emissions for the lifetime of the Proposed Project.	LTS
4.3 Biology			
4.3-1: The Proposed Project ~~has the potential to have a substantial~~ would not adversely impact, either directly or through habitat modifications, ~~on~~ special-status plants.	~~PS~~LTS	No mitigation is required. ~~**4.3-1**: To address potential impacts associated with special status plant species, the following measures will be implemented prior to construction of the Proposed Project:~~ ~~▪ A qualified biologist/botanist shall conduct a focused botanical survey during the month of May, which corresponds to the overlapping evident and identifiable bloom periods for the remaining seven species, and prior to commencement of construction. Should no special status plant species be observed, then no additional mitigation is required.~~ ~~▪ Should one or more of these special status plants be found during the focused botanical survey on the project site, the qualified biologist/botanist shall contact CDFW within one day following the focused botanical survey to report the findings. If feasible, a 10-foot buffer shall be established around the species using construction flagging prior to commencement of construction activities.~~ ~~▪ Should avoidance of special status plant species be infeasible, the qualified botanist would salvage and relocate the individuals in an area comprised of suitable habitat in the vicinity of the project site that would not be impacted by the Proposed Project. Prior to the attempted relocation, seeds shall be gathered from the identified plants for use in the area identified for relocation.~~	No mitigation is required.~~LTS~~

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
4.3-2: The Proposed Project ~~has the potential to have a substantial~~ would not adversely impact, either directly or through habitat modifications, ~~on one special-status invertebrate~~the Mission Blue Butterfly.	LTS~~PS~~	No mitigation is required.~~**4.3-2**: To address potential impacts associated with the Mission blue butterfly, the following measures will be implemented prior to construction of the Proposed Project:~~ ~~▪ A qualified biologist shall conduct a focused survey within the nonnative grassland on the project site for the Mission blue butterfly during the appropriate identification periods for adults (March-July) or juveniles (wet season) prior to commencement of construction activities. Should no species be observed, then no additional mitigation is required.~~ ~~▪ Should the Mission blue butterfly be observed during the focused survey on the project site, the qualified biologist shall contact CDFW within one day following the focused botanical survey to report the findings. If feasible, a 10-foot buffer shall be established around the species' host plants using construction flagging prior to commencement of construction activities.~~ ~~▪ Should avoidance of the Mission blue butterfly be infeasible, the qualified biologist would allow the butterfly to exit the property on its own, or will establish an alternately approved appropriate action following contact with CDFW.~~	NA~~LTS~~
4.3-3: Construction activities have the potential to result in the disturbance of nesting or foraging habitat for northern harrier, burrowing owl, and white-tailed kite.	PS	**4.3-3a**: Prior to the commencement of construction activities on the project site during the nesting season, a qualified biologist shall conduct a minimum of two protocol level preconstruction surveys for listed bird species during the recommended survey periods for the nesting season that coincides with the commencement of construction activities: ▪ Northern harrier: Present year-round, breeds March through August; ▪ Burrowing owl: Present year-round breeds primarily March through August, but can be February-December; and ▪ White-tailed kite: Present year-round, breeding occurs in autumn. Nesting season begins in February and ends in August. These surveys will occur in accordance with the USFWS Division of Migratory Bird Management *Guidelines for Raptor Conservation in the United States* (2008). The qualified biologist shall conduct surveys within 14 days of commencement for Northern harrier, burrowing owl, and white-tailed kite in the project site and within	LTS

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		0.25 miles of construction activities where legally permitted. The biologist will use binoculars to visually determine whether nests occur beyond the 0.25-mile survey area if access is denied on adjacent properties. If no active nests are identified on or within 0.25 miles of construction activities within the recommended survey periods, a letter report summarizing the survey results shall be submitted to the County and the CDFW within 30 days following the survey, and no further mitigation for nesting habitat is required. Evidence, in the form of a letter report documenting the results of the survey, shall be submitted to the County prior to the issuance of any grading or building permits within the project site. **4.3-3b**: If active listed bird nests are found within 0.25 mile of construction activities, the biologist shall contact the County and CDFW within one day following the pre-construction survey to report the findings. For purposes of this mitigation requirement, construction activities are defined to include heavy equipment operation associated with construction (use of cranes or draglines, new rock crushing activities) or other project-related activities that could cause nest abandonment or forced fledging within 0.25 mile of a nest site during the identified nesting period. Should an active nest be present within 0.25 mile of construction areas, then CDFW shall be consulted to establish an appropriate noise buffer, develop take avoidance measures, and implement a monitoring and reporting program prior to any construction activities occurring within 0.25 mile of the nest/burrow. The monitoring program would require that a qualified biologist shall monitor all activities that occur within the established buffer zone to ensure that disruption of the nest/burrow or forced fledging does not occur. Should the biologist determine that the construction activities are disturbing the nest/burrow, the biologist shall halt construction activities until CDFW is consulted. The construction activities shall not commence until the CDFW determines that construction activities would not result in abandonment of the nest/burrow site. If the CDFW determines that take may occur, the applicant would be required to obtain a CESA take permit. Should the biologist determine that the nest/burrow has not been disturbed during construction activities within the buffer zone, then a letter report summarizing the survey results will be submitted to the County and CDFW and no further mitigation for nesting habitat is required.	

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
4.3-4: Grading and construction activities have the potential to result in the disturbance of nesting habitat for migratory birds and other birds of prey.	PS	**4.3-4a**: A qualified biologist shall conduct a pre-construction bird survey for nesting within 14 days prior to commencement of construction activities if anticipated to commence during the appropriate nesting season (between February 1 and August 31). The qualified biologist shall document and submit the results of the pre-construction survey in a letter to CDFW and the County within 30 days following the survey. The letter shall include: a description of the methodology including dates of field visits, the names of survey personnel, a list of references cited and persons contacted, and a map showing the location(s) of any bird nests observed on the project site. If no active nests are identified during the pre-construction survey, then no further mitigation is required. Evidence, in the form of a letter report documenting the results of the survey, shall be submitted to the County Planning Department prior to the issuance of any grading or building permits within the project site. **4.3-4b**: If any active nests are identified during the pre-construction survey within the project site, a buffer zone will be established around the nests. A qualified biologist will monitor nests weekly during construction to evaluate potential nesting disturbance by construction activities. The biologist will delimit the buffer zone with construction tape or pin flags within 250 feet of the active nest and maintain the buffer zone until the end of the breeding season or until the young have fledged. Guidance from CDFW will be requested if establishing a 250-foot buffer zone is impractical. Guidance from CDFW will be requested if the nestlings within the active nest appear disturbed. **4.3-4c**: Trees anticipated for removal should be removed outside of the nesting season (February 1 and August 31). If trees are anticipated to be removed during the nesting season, a pre-construction survey shall be conducted by a qualified biologist. If the survey shows that there is no evidence of active nests, then the tree shall be removed within ten days following the survey. If active nests are located within trees identified for removal, a 250-foot buffer shall be installed around the tree. Guidance from CDFW will be requested if the 250-foot buffer is infeasible.	LTS
4.3-5: The Proposed Project would not interfere with the movement of native resident or migratory fish or wildlife species or with established native resident or migratory	LTS	No mitigation is required.	NA

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
wildlife corridors, or impede the use of native wildlife nursery sites			
4.3-6: Construction of the Proposed Project has the potential to remove trees protected within the tree preservation ordinance specified in the San Mateo County Significant Tree Ordinance.	PS	**4.3-6**: Prior to the issuance of grading permits and removal of any trees, a certified arborist or registered professional forester shall conduct an arborist survey documenting all trees with trunk circumferences of 38 inches or greater and their location, as well as any Tree Communities or Indigenous Trees regardless of size. The report shall be submitted to the County Planning Department. The applicant shall not remove any trees without prior approval from the County Planning Department. All recommendations of the arborist report shall be implemented prior to the issuance of building permits for development on the project site. The arborist report shall specify measures including, but not limited to the following: ▪ To the extent feasible, trees anticipated for removal shall be removed outside of the nesting season for birds. Taking into account the nesting season for the white tailed kite, the nesting season shall be defined as February 1 to August 31. ▪ The project proponent shall plant replacement tree species recommended by the County at a 1:1 ratio within the project site.	LTS
4.3-7: Development of the Proposed Project has the potential to contribute to the cumulative loss of special-status wildlife species or their habitat in the region.	PS	**4.3-7:** Implement **Mitigation Measures 4.3-1** through **4.3-6**.	LTS
4.4 Geology and Soils			
4.4-1: Earth-moving activities associated with construction of the Proposed Project have the potential to result in soil erosion or the loss of topsoil.	PS	**4.4-1a**: Implement **Mitigation Measure 4.6-1** (Section 4.6; Hydrology and Water Quality) to identify and implement erosion control BMPs within the SWPPP prepared for construction activities in accordance with the State's Clean Water Act Nation Pollutant Discharge Elimination System (NPDES) general permit for construction activities. Implementation of these BMPs would ensure that temporary and short-term construction-related erosion impacts under the Proposed Project would be reduced to a less-than-significant level. **4.4-1b**: The applicant shall obtain a San Mateo County Grading Permit which includes the requirement of an Erosion and Sediment Control Plan. This Erosion and Sediment Control Plan shall be prepared by a licensed civil engineer or certified	LTS

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		professional soil erosion and sediment control specialist. The plan shall show the location of proposed vegetative erosion control measures, including landscaping and hydroseeding, and the location and details of all proposed drainage systems. The plan shall include sufficient engineering analysis to show that the proposed erosion and sediment control measures during preconstruction, construction, and post-construction are capable of controlling surface runoff and erosion, retaining sediment on the project site, and preventing pollution of site runoff in compliance with the Clean Water Act.	
4.4-2: The Proposed Project has the potential to result in structural damage and injury from seismic activity and related geologic hazards.	PS	**4.4-2a**: Grading and building designs, including foundation requirements, shall be consistent with the findings of the geotechnical investigation, the California Code of Regulations, and the California Building Code. **4.4-2b**: The project applicant shall comply with all recommendations contained within the site-specific Geotechnical Investigation conducted by Michelucci & Associates (2013) and attached here as Appendix E. **4.4-2c**: The applicant shall retain a qualified engineering geologist. All grading and installation of fill shall be performed under the observation of the qualified engineering geologist.	LTS
4.4-3: The Proposed Project could potentially result in shallow landslides due to the depth of unconsolidated colluvium on the project site.	PS	**4.4-3a**: Implement **Mitigation Measure 4.6-2** (**Section 4.6**; Hydrology and Water Quality) to ensure that the site storm water drainage system (including individual systems for each residence) shall not allow discharge of uncontrolled runoff onto the site slopes. Concentrated runoff shall not be allowed to flow over graded slopes or areas of thick soil, colluviums, or fill. **4.4-3b**: Implement **Mitigation Measure 4.4-2c** to ensure the recommendations of the Geotechnical Investigation regarding subdrains and surface drainage are included in the project design.	LTS
4.4-4: Development of the Proposed Project in combination with future projects in the region could result in cumulative effects associated with geology and soils.	PS	**4.4-4**: Implement **Mitigation Measures 4.4-1** through **4.4-3**.	LTS
4.5 Land Use			
4.5-1: The Proposed Project would not result in a substantial inconsistency with any applicable land use	LTS	No mitigation is required.	NA

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect.			
4.5-2: The Proposed Project would not contribute to adverse cumulative impacts associated with land use.	LTS	No mitigation is required.	NA
4.6 Hydrology and Water Quality			
4.6-1: Construction activities could substantially degrade surface water and/or groundwater quality, which could violate water quality standards.	PS	**4.6-1:** The applicant shall comply with the SWRCB NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Permit). The SWRCB requires that all construction sites have adequate control measures to reduce the discharge of sediment and other pollutants to streams to ensure compliance with Section 303 of the Clean Water Act. To comply with the NPDES permit, the applicant will file a Notice of Intent with the SWRCB and prepare a SWPPP prior to construction, which includes a detailed, site-specific listing of the potential sources of stormwater pollution; pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills) to include a description of the type and location of erosion and sediment control BMPs to be implemented at the project site, and a BMP monitoring and maintenance schedule to determine the amount of pollutants leaving the Proposed Project site. A copy of the SWPPP must be current and remain on the project site. Control measures are required prior to and throughout the rainy season. Water quality BMPs identified in the SWPPP shall include, but are not limited to, the following: ▪ Temporary erosion control measures (such as silt fences, staked straw bales, and temporary revegetation) shall be employed for disturbed areas. No disturbed surfaces will be left without erosion control measures in place during the winter and spring months. ▪ Sediment shall be retained onsite by detention basins, onsite sediment traps, or other appropriate measures. ▪ A spill prevention and countermeasure plan shall be developed which would identify proper storage, collection, and disposal measures for potential pollutants (such as fuel, fertilizers, pesticides, etc.) used onsite. The plan would also require the proper storage, handling, use, and disposal of petroleum products.	LTS

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		▪ Construction activities shall be scheduled to minimize land disturbance during peak runoff periods and to the immediate area required for construction. Soil conservation practices shall be completed during the fall or late winter to reduce erosion during spring runoff. Existing vegetation will be retained where possible. To the extent feasible, grading activities shall be limited to the immediate area required for construction. ▪ Surface water runoff shall be controlled by directing flowing water away from critical areas and by reducing runoff velocity. Diversion structures such as terraces, dikes, and ditches shall collect and direct runoff water around vulnerable areas to prepared drainage outlets. Surface roughening, berms, check dams, hay bales, or similar devices shall be used to reduce runoff velocity and erosion. ▪ Sediment shall be contained when conditions are too extreme for treatment by surface protection. Temporary sediment traps, filter fabric fences, inlet protectors, vegetative filters and buffers, or settling basins shall be used to detain runoff water long enough for sediment particles to settle out. ▪ Construction materials, including topsoil and chemicals, shall be stored, covered, and isolated to prevent runoff losses and contamination of groundwater. ▪ Topsoil removed during construction shall be carefully stored and treated as an important resource. Berms shall be placed around topsoil stockpiles to prevent runoff during storm events. ▪ Establish fuel and vehicle maintenance areas away from all drainage courses and design these areas to control runoff. ▪ Disturbed areas shall be revegetated after completion of construction activities. ▪ All necessary permits and approvals shall be obtained. ▪ Provide sanitary facilities for construction workers.	
4.6-2: Urban runoff resulting from the development of impervious surfaces and urban land uses on the project site has the potential to degrade water quality and violate water quality standards or waste discharge requirements.	PS	**4.6-2a**: Upon acceptance of the design concept, a maintenance agreement shall be developed between the County and the Homeowners Association (HOA) or equivalent entity requiring the HOA or equivalent entity to complete the following tasks and provide the following information on a routine basis. These requirements apply only to the bioretention treatment system area	LTS

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation

		of the project site and are as follows:
		▪ Maintenance of soils and plantings, including routine pruning, mowing, irrigation, replenishment of mulch, weeding, and fertilizing with a slow-release fertilizer with trace elements;
		▪ Removal of obstructions and trash from bioretention areas;
		▪ Use of only pesticides and fertilizers that are accepted within the integrated pest management approach for use in the bioretention areas;
		▪ Repair of erosion at inflow points;
		▪ Monthly review and inspection of bioretention areas for the following:
		  ▪ Obstruction of trash,
		  ▪ If ponded water is observed, the surface soils shall be removed and replaced and subdrain systems inspected, and
		▪ Condition of grasses;
		▪ Distribution of the following:
		  ▪ A copy of the storm water management plans shall be made available to personnel in charge of facility maintenance and shall be distributed to the subcontractor representative engaged in the maintenance or installation of the bioretention system, and
		▪ Material presented in the integrated pest management program will be made available to personnel in charge of facility maintenance and shall be distributed to the subcontractor representative engaged in the maintenance or installation of the bioretention system.
		
		4.6-2b: Upon acceptance of the design concept, a maintenance agreement shall be developed between the County and the HOA or equivalent entity requiring the HOA or equivalent entity to complete the following tasks and provide the following information on a routine basis. These requirements apply to all common areas of the project site and are as follows:
		▪ Drainage inlets shall be inspected monthly and kept clean of any trash that may have accumulated. It is the responsibility of the property manager/owner to have those inspections performed, documented, and any repairs made.
		▪ Landscape areas shall be covered with plants or some type	

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		of ground cover to minimize erosion. No areas are to be left as bare dirt that could erode. Mounding slopes shall not exceed two horizontal to one vertical. ▪ Pesticides and fertilizers shall be stored as hazardous materials and in appropriate packaging, over spraying onto paved areas shall be avoided when applying fertilizers and pesticides. Pesticides and fertilizers shall be prohibited from storage outside. ▪ Landscape areas shall be inspected and all trash picked up and obstruction to the drainage flow removed on a monthly basis minimum. The project site shall be designed with efficient irrigation and drainage to reduce pesticide use. Plants shall be selected based on size and situation to reduce maintenance and routine pruning. ▪ Integrated pest management information shall be provided to the building management. **4.6-2c**. Infiltration systems shall be designed in accordance with the following procedures outlined in the California Storm Water Best Management Practice Handbooks to reduce runoff and restore natural flows to groundwater: ▪ Biofilters and/or vegetative swale drainage systems will be installed at roof downspouts for all buildings on the project site, allowing sediments and particulates to filter and degrade biologically. ▪ Structural source controls, such as covers, impermeable surfaces, secondary containment facilities, runoff diversion berms, sediment, and grease traps in parking areas will be installed. ▪ Designated trash storage areas will be covered to protect bins from rainfall.	
4.6-3: Development of the Proposed Project would substantially alter the existing drainage patterns and may cause flows to exceed the capacity of existing stormwater drainage systems, result in substantial pollution on or off site, or result in flooding on or off site.	PS	**4.6-3a**: Upon acceptance of the design concept, a maintenance agreement shall be developed between the County and the HOA or equivalent entity requiring the HOA or equivalent entity to complete and provide the documentation of annual inspection and cleaning of each of the 19 individual lot storm drainage systems. The inspection shall be performed during the dry season and shall include removal of all trash and obstructions from area drains, cleanouts, and catch basins. **4.6-3b**: The 15-inch diameter stormwater drain pipe flowing at 2	LTS

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		percent that crosses Ascension Drive at Enchanted Way shall be replaced with a 21-inch diameter pipe. The 30-inch diameter stormwater drain pipe flowing at 1.3 percent shall be replaced with a 36-inch diameter pipe sloped at 2 percent. Stormwater drain pipe infrastructure improvements shall adhere to all applicable regulations and ordinances.	
4.6-4: Development of the Proposed Project would not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map; place within a 100-year flood hazard area structures that would impede or redirect flood flows; or expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam or inundation by seiche, tsunami, or mudflow.	NI	No mitigation is required.	NA
4.6-5: Implementation of the Proposed Project would neither degrade groundwater quality nor substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table.	PS	**4.6-5**: Implement **Mitigation Measures 4.6-1**, **4.6-2a**, and **4.6-2b**.	LTS
4.6-6: The Proposed Project in combination with future growth and development within the County and project vicinity could result in cumulative impacts to hydrology and water quality.	LTS	No mitigation is required.	NA
4.7 Hazards and Hazardous Materials			
4.7-1: Construction of the Proposed Project would include the routine transport, storage, and handling of hazardous materials, which has the potential to result in a public health or safety hazard from the accidental release of hazardous materials into the environment.	PS	**4.7-1**: The project applicant shall ensure through the enforcement of contractual obligations that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended and enforced by the San Mateo County Planning and Building Department, Office of Environmental Health Services Division, and Office of Emergency Services. Recommendations may include, but are not limited to, transporting and storing materials in appropriate and approved containers, maintaining required clearances, and handling materials using approved protocols.	LTS

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
4.7-2: Construction of the Proposed Project has the potential to release hazardous materials into the environment through reasonably foreseeable upset or accident conditions, which may create a significant hazard.	PS	**4.7-2**: The project applicant shall require through contractual obligations that the construction contractor(s) marks the areas planned to be disturbed in white paint and notify Underground Service Alert (USA) one week prior to the beginning of excavation activities. This will be completed so the entire construction area is properly surveyed in order to minimize the risk of exposing or damaging underground utilities. USA provides a free "Dig Alert" service to all excavators (contractors, homeowners and others), in northern California, and will automatically notify all USA Members (utility service providers) who may have underground facilities at their work site. In response, the USA Members will mark or stake the horizontal path of their underground facilities, provide information about, or give clearance to dig. This service protects excavators from personal injury and underground facilities from being damaged. The utility companies will be responsible for the timely removal or protection of any existing utility facilities located within construction areas.	LTS
4.7-3: The Proposed Project has the potential to expose people or structures to a significant risk of loss, injury, or death involving wildland fires.	PS	**4.7-3a**: The applicant shall ensure through the enforcement of contractual obligations that the following measures are implemented by contractors during project construction: ▪ Staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. To the extent feasible, the contractor shall keep these areas clear of combustible materials in order to maintain a fire break. ▪ Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws. **4.7-3b**: The building plans of the Proposed Project shall be reviewed by a representative from County Fire/CAL FIRE to ensure that regulations in the County's Fire Ordinance are met and the project complies with County Fire/CAL FIRE requirements. The development of the Proposed Project shall be in compliance with Chapter 15 of the County General Plan with respect to residential uses adjacent to open space areas where wildfire is a threat.	LTS
4.7-4: The Proposed Project is located outside the	LTS	No mitigation is required.	NA

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
Airport Influence Area for the San Carlos Airport and would not result in potential safety hazards for people residing or working in the project area.			
4.7-5: The Proposed Project in combination with future growth and development in the project vicinity would result in cumulative effects associated with hazards and hazardous materials.	PS	**4.7-5:** Implement **Mitigation Measures 4.7-1** through **4.7-3.**	LTS
4.8 Noise and Vibration			
4.8-1: Construction of the Proposed Project has the potential to generate a substantial temporary or periodic noise level greater than existing ambient levels in the project vicinity.	PS	**4.8-1**: The project applicant shall ensure through contractual agreements that the following measures are implemented during construction: ▪ Construction activities shall be limited to occur between the hours of 7:00 A.M. to 6:00 P.M. Monday through Friday, and 9:00 A.M. to 5:00 P.M. on Saturdays. Construction activities shall not occur on Sundays, Thanksgiving, or Christmas. The intent of this measure is to prevent construction activities during the more sensitive time period and minimize the potential for effects. ▪ Stationary equipment and staging areas shall be located as far as practical from noise-sensitive receptors. ▪ All construction vehicles or equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers and acoustical shields or shrouds, in accordance with manufacturers' recommendations. ▪ Construction activities shall conform to the following standards: (a) there shall be no start-up of machines or equipment, no delivery of materials or equipment, no cleaning of machines or equipment and no servicing of equipment except during the permitted hours of construction; (b) radios played at high volume, loud talking and other forms of communication constituting a nuisance shall not be permitted. ▪ The general contractors for all construction activities shall provide a contact number for citizen complaints and a methodology for dealing with such complaints such as designating a noise disturbance coordinator. This noise disturbance coordinator shall receive all public complaints about construction-related noise and vibration, shall be responsible for determining the cause of the complaint, and	LTS

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		shall implement any feasible measures to be taken to alleviate the problem. All complaints and resolution of complaints shall be reported to the County weekly.	
4.8-2: Construction of the Proposed Project has the potential to expose existing sensitive noise receptors to construction traffic noise in excess of the County's noise standards.	PS	**4.8-2**: Implement **Mitigation Measure 4.8-1**.	LTS
4.8-3: Construction of the Proposed Project would not expose existing sensitive receptors to groundborne vibration or groundborne noise levels in excess of the State's vibration standard.	LTS	No mitigation is required.	NA
4.8-4: Operation of the Proposed Project would not expose newly placed sensitive receptors to traffic noise in excess of the County's noise thresholds.	LTS	No mitigation is required.	NA
4.8-5: Operation of the Proposed Project would not result in a substantial permanent increase in ambient noise levels in the project vicinity above existing levels.	LTS	No mitigation is required.	NA
4.8-6: Traffic resulting from the Proposed Project in combination with cumulative development would not increase cumulative ambient and traffic noise levels at new and existing residences in excess of the County's noise thresholds.	LTS	No mitigation is required.	NA
4.9 Population and Housing			
4.9-1: Construction of the Proposed Project would induce population growth in the area; however, this growth would not be substantial and would not result in adverse environmental consequences.	LTS	No mitigation is required.	NA
4.9-2: Development of the Proposed Project would induce population growth in the area; however, this growth would not be substantial and would not result in adverse environmental consequences.	LTS	No mitigation is required.	NA
4.9-3: Development of the Proposed Project would not displace substantial numbers of existing housing or people and therefore would not necessitate the construction of replacement housing elsewhere.	LTS	No mitigation is required.	NA
4.9-4: The Proposed Project could contribute to adverse	LTS	No mitigation is required.	NA

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
cumulative impacts associated with population and housing.			
4.10 Public Services, Utilities, and Recreation			
4.10-1: The Proposed Project would not result in an exceedance of wastewater discharge limits of the San Francisco Bay Regional Water Quality Control Board.	LTS	No mitigation is required.	NA
4.10-2: The Proposed Project would require the construction of new and relocation of existing water supply facilities, the construction of which could cause significant environmental effects.	PS	**4.10-2a**: Residents of the Proposed Project shall comply with all requirements of Cal Water's Water Shortage Contingency Plan as mandated by Cal Water and BSD. These requirements may include, but are not limited to the following: ▪ Voluntarily reduce water consumption at single-family residences; ▪ Adhere to the minimum allocation given to single-family residential customers or pay penalty rate applied to service bill for use that is in excess of costumer's allocation; and/or ▪ Comply with orders prohibiting the use of water for specific activities, such as a prohibition of potable water use for landscape irrigation. **4.10-2b**: Pumping facilities shall be installed at the existing water tank owned by Cal Water to provide adequate water pressure for residential and fire protection uses. Cal Water shall be contacted to review pumping facilities design and ensure compliance with applicable standards. The project applicant shall fund the development of these facilities. **4.10-2c**: Two existing water mains shall be relocated such that they are within the right-of-way of the proposed private street or at the property boundary so as to allow ease of maintenance of the water mains. New Cal Water easements shall be established on the project site to replace the existing Cal Water easements. The two water mains include an 8-inch diameter water main connecting the water tank to the water main located on Parrot Drive and a 10-inch diameter water main connecting the water tank to the water main located on Bel Aire Drive.	LTS
4.10-3: The Proposed Project would exceed the wet weather capacity of the wastewater conveyance system and would require upgrades to existing wastewater treatment facilities, the construction of which could cause significant environmental effects.	PS	**4.10-3**: The applicant shall offset the increase in sewer flow generated by the Proposed Project by reducing the amount of existing Inflow and Infiltration (I&I) into the CSCSD sewer system. The offset amount shall achieve a zero net increase in flow during wet weather events with implementation of the Proposed Project.	LTS

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		This shall be achieved through the construction of improvements to impacted areas of the sewer system, with construction plans subject to CSCSD approval and required to be in compliance with applicable regulatory requirements. Construction of improvements, as approved by the CSCSD, shall be completed prior to the start of the construction of the residences.	
4.10-4: The Proposed Project would require the expansion of existing stormwater drainage facilities, the construction of which would cause significant environmental effects.	PS	**4.10-4**: Implement **Mitigation Measures 4.6-3a** and**4.6-3b**.	LTS
4.10-5: The Proposed Project would generate a demand for fire protection services, which could require the construction of new or expanded facilities that may cause significant environmental impacts.	PS	**4.10-5**: The applicant shall ensure that fire sprinklers with appropriate flow rates are installed for all structures that would be developed as a part of the Proposed Project, per County Fire/CAL FIRE's alternate materials and methods request.	LTS
4.10-6: The Proposed Project would not generate a demand for law enforcement services that would require the construction of new or expanded facilities to maintain service level standards.	LTS	No mitigation is required.	NA
4.10-7: The Proposed Project would neither require additional capacity nor substantially increase demand for electrical, natural gas, and/or telecommunication services that would require the development of new infrastructure, the construction of which would result in adverse environmental effects.	LTS	No mitigation is required.	NA
4.10-8: The Proposed Project would comply with federal, State, and local statutes and regulations related to solid waste and would not generate solid waste beyond the capacity of the solid waste collectors, transfer station, and/or landfill serving the project area requiring development of new or expanded solid waste management facilities, the construction of which would result in adverse environmental effects.	LTS	No mitigation is required.	NA
4.10-9: The Proposed Project would not generate a demand for educational services that would require the construction of new or expanded school facilities to maintain service level standards.	LTS	No mitigation is required.	NA
4.10-10: The Proposed Project would not generate a	LTS	No mitigation is required.	NA

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
demand for library services that would require the construction of new or expanded library facilities to maintain service level standards.			
4.10-11: The Proposed Project may increase the use of local and regional parks and recreational facilities; however, physical deterioration of such facilities would be minimal.	LTS	No mitigation is required.	NA
4.10-12: The Proposed Project includes passive recreational facilities, the development of which would not have an adverse physical effect on the environment.	LTS	No mitigation is required.	NA
4.11 Transportation and Circulation			
4.11-1: Construction of the Proposed Project would not increase traffic on roadways in the vicinity of the project site beyond acceptable capacities and therefore would not conflict with any applicable plan, ordinance, or policy establishing measures of effectiveness and would not conflict with an applicable congestion management program.	LTS	No mitigation is required.	NA
4.11-2: Operation of the Proposed Project would not increase traffic on roadway segments in the vicinity of the project site beyond acceptable capacities and therefore would not conflict with any applicable plan, ordinance, or policy establishing measures of effectiveness and would not conflict with an applicable congestion management program.	LTS	No mitigation is required.	
4.11-3: Implementation of the Proposed Project would not conflict with adopted policies, plans, or programs, including those related to safety and performance, regarding public transit, bicycle, and pedestrian facilities but does have the potential develop unsafe pedestrian and bicycle facilities.	PS	**4.11-3**: Either provide street lighting on the private streets to a level of 0.4 minimum maintained average foot-candles with a uniformity ratio of 6:1, average to minimum or ensure street lighting is consistent with safety standards of the County-governed Bel Aire Lighting District.	LTS
4.11-4: Implementation of the Proposed Project has the potential to substantially increase hazards due to the design of the new private street and proposed intersection with Bel Aire Drive.	PS	**4.11-4**: Within the corner sight triangles at the new street intersection there should be no walls, fencing, or signs that would obstruct visibility. Trees should be planted so as to not create a "wall" effect when viewed at a shallow angle. The type of shrubbery planted within the triangles should be such that it will grow no higher than three feet above the adjacent roadway	LTS

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
		surface. Trees planted within the sight triangle areas should be large enough that the lowest limbs are at least seven feet above the surface of the adjacent roadway. Street parking should be prohibited within the bounds of the sight triangle.	
4.11-5: Implementation of the Proposed Project would not result in inadequate emergency access.	LTS	No mitigation is required.	NA
4.11-6: Implementation of the Proposed Project would not increase traffic on local roadways beyond acceptable capacities in the cumulative year 2030.	LTS	No mitigation is required.	NA

SECTION 3.0

PROJECT DESCRIPTION

3.0 PROJECT DESCRIPTION

3.1 INTRODUCTION

The Ascension Heights Subdivision Project (Proposed Project) consists of the subdivision of 6 parcels on approximately 13.3 acres into 21 lots for the development of 19 single-family residences with the remaining 2 lots (approximately 7.8 acres) maintained as a conservation area. The project location, objectives, and components are described in more detail below.

3.2 PROJECT LOCATION

The project site consists of approximately 13.32 acres located within the unincorporated community of San Mateo Highlands within San Mateo County (County), at the northeast corner of Bel Aire Road and Ascension Drive, east of Interstate 280 (I-280) and northwest of State Route 92 (SR-92). The project site is composed of the following Assessor's Parcel Numbers (APNs):

- 041-111-130
- 041-111-280
- 041-111-160
- 041-111-320
- 041-111-270
- 041-111-360

The project site is located approximately 2.5 miles southwest of the City of San Mateo and approximately 17.5 miles south of the City of San Francisco. The regional location of the project site is shown in **Figures 3-1** and **3-2**. **Figure 3-3** provides an aerial photo of the project site.

Regional access to the project site is provided by I-280 and SR-92. Vehicular and pedestrian access points to the project site are provided via two local streets, one collector, and one arterial. Local streets include: Ascension Drive, which borders the western edge of the property; and Bel Aire Road, which borders the northern edge of the property. Parrot Drive is a collector street which borders the eastern edge of the property, and Polhemus Road is an arterial street that runs parallel to Parrot Drive and connects to Ascension Drive, west of the property.

3.2.1 EXISTING SETTING

The project site is largely undeveloped, with the single exception of a paved access roadway that bisects the project site from the north corner to the southeastern edge. The roadway connects Bel Aire Drive with APN 041-111-020, upon which a potable water tank owned by the California Water Service Company (Cal Water) and a cellular transmitter tower are located. The water tank/cell transmitter parcel is surrounded by but is not part of the project site (refer to **Figure 3-3**). Fencing encloses the tank/cell transmitter parcel and Monterey pine trees visually shield the structures. The access roadway currently serves as the only vehicular and primary pedestrian access point to the project site.

SOURCE: StreetMap North America, 2009; AES, 2013

Figure 3-1
Regional Location

SOURCE: Microsoft aerial photograph, 10/26/2010; AES, 2013

Figure 3-2
Site and Vicinity

SOURCE: Microsoft aerial photograph, 10/26/2010; AES, 2013

Figure 3-3
Aerial Photograph

The project site is situated on a hillside with slopes averaging 40 percent. Surface elevation ranges from approximately 410 to 610 feet above mean sea level (amsl). Existing natural slopes range from nearly flat at the top of the project site's ridge to 1.5 to 1 percent (horizontal to vertical) on the flanks. The site was graded over 40 years ago, which consisted of excavating the sides of the hill for construction of Ascension Drive and Bel Aire Road. The cut slopes were made at 1.5 to 1 percent with 8-foot wide benches spaced at 30-foot vertical intervals. The site consists of Franciscan Complex bedrock, including hard sandstone with occasional claystone interbeds. Colluvium and artificial fill overlay the bedrock, with the colluvium consisting of a brown sand, silt, and clay mixture containing scattered angular gravel fragments of sandstone. A small abandoned quarry pit is located on the northeast side of the project site and is characterized by a crescent shaped, near vertical cut slope up to approximately five to six feet in height, with a mound of debris (tailings) located just down-slope. The quarry cuts expose sandstone bedrock beneath a thin veneer of soil. A few yards of rock were removed from this location at some time in the past.

Surface runoff water from the benches has eroded deeply (locally 10 feet plus) into the unconsolidated colluvial materials exposed on the cut slopes and benches. Drainage flows down the slopes in a southwesterly direction towards Polhemus Creek. On-site vegetation includes grassland, small brush and trees such as oak, pine, and eucalyptus trees. A small eucalyptus grove is located on the southeast edge of the project site, and pine trees have been planted around the existing water tank/cell site parcel.

The County General Plan land use designation for the project site is Medium Low Density Residential (2.4 to 6.0 dwelling units [du]/acre). The project site is zoned R-1/S-8 (single-family residential/7,500 square foot [sf] minimum lot size). This zoning establishes a limit of lot coverage of 40 percent and requires setbacks of 20 feet (front and back yards) and 5 feet (side yards). The maximum height limit for buildings on the project site is 3 stories or 36 feet.

3.2.2 Adjacent Land Uses

Land uses adjacent to the project site consist of single-family residential housing to the northeast and southeast, Ascension Drive to the southwest, and Bel Aire Road to the northwest. Single-family residential houses are located across the street from the project site on the opposite sides of Ascension Drive and Bel Aire Road. Single-family residential neighborhoods are the primary land use in the vicinity of the project site, including the Baywood Park neighborhood located to the northeast, the Enchanted Hills neighborhood to the southeast and southwest, and the Starlite Heights neighborhood to the northwest. The College of San Mateo is located approximately 0.25 mile northeast of the project site. The Crystal Springs Reservoir is located approximately one mile east of the project site on the opposite side of I-280.

3.2.3 Environmental Setting

The project site is located in the central/eastern "Bayside" area of the County. The rural area of the County, which extends along the Pacific coast from the City of Pacifica in the north to the County border in the south and east (inland) to approximately I-280, is characterized by natural and diverse landscapes including beaches, bluffs, and the Santa Cruz Mountains. In contrast, the area within the County east of I-280, which includes the project site, is primarily urbanized and natural landscapes have been significantly altered or entirely removed to accommodate intense development. Bayside foothills have been reshaped, native ground cover and extensive wooded areas have been eliminated, and portions of the San Francisco

Bay have been filled (San Mateo County (SMC), 1986a). The urbanized area of the County east of I-280 consists of 18 suburban cities and towns along with several other unincorporated areas running continuously from the City of Brisbane in the north to the City of Menlo Park in the south (SMC, 1986a). This area contains more than 95 percent of the urbanized land in the County and is developed with a mix of principal urban land uses, including industrial, commercial, and residential (SMC, 1986a).

A network of major transportation networks connects the urbanized areas. Principal highways include I-380, I-280, U.S. Route 101, SR-92, SR-84, SR-82, and SR-35. Other major transit systems include the Bay Area Rapid Transit (BART) and Caltrain commuter rail lines. Two airports are located within the urbanized area: the San Francisco International Airport, located approximately 6 miles north of the project site, and the San Carlos Airport, located approximately 5 miles southeast of the project site. The port of Redwood City is one of the six major sea ports in the San Francisco Bay and is located approximately 5 miles southeast of the project site.

The County is characterized by a Mediterranean climate with warm, dry summers and mild, damp winters. The project site is shielded from the Pacific Ocean by the Santa Cruz Mountains; although, a gap in the mountains near the intersection of SR-92 and SR-35 allows fog to encroach on the area in the late afternoon through early morning and can result in gusty afternoon winds. The County is located at the southwestern end of the San Francisco Bay Air Basin, which is bounded by the Pacific Coast on the west and the Central Valley on the east.

3.3 PROJECT BACKGROUND

The Proposed Project is a re-design of a previous project, which proposed a subdivision of the project site into 27 parcels, of which 25 would have been developed. A Draft Environmental Impact Report (Draft EIR) and Final Environmental Impact Report (Final EIR) were prepared for the previously proposed project. In 2009, the San Mateo County Planning Commission (Planning Commission) denied the applications for a Major Subdivision and Grading Permit and declined to certify the Final EIR. Based on an appeal and subsequent submission by the applicant of an alternative concept design plan to address the Planning Commission's concerns raised about the project, the County Board of Supervisors remanded the project back to the Planning Commission.

The applicant and County engaged the community in a discussion of the project and the revised project for reconsideration. County planning staff hosted a series of dialogs between the applicant and members of the community to discuss the topics of concern raised during the environmental review process of the previous project. The project as currently proposed was redesigned as a reduced intensity project limiting residential development to the northwestern portion of the project site, thereby reducing the subdivision request and associated number of proposed residential units.

3.4 DESCRIPTION OF PROPOSED PROJECT

3.4.1 PROJECT OBJECTIVES

The objectives of the Proposed Project are as follows:

- Provide sufficient housing supply jointly with the cities located in the County that meets San Mateo County's projected housing needs;
- Provide residential development consistent with economic and social needs and environmental constraints;
- Enhance and preserve the environmental quality of residential areas in the County through appropriate mitigation programs;
- Work with all affected local jurisdictions and agencies to develop appropriate impact mitigation and fee structure programs to greatly reduce or eliminate the project's impacts on the community's existing residents;
- Provide development of open space and trails in the County's residential areas;
- Provide a well-designed development that is compatible and complementary with surrounding land uses; and
- Blend the building types and densities with surrounding residential developments to provide orderly visual and land use transitions.

The alternatives analysis in **Section 6.0** of this EIR utilizes the Project Objectives as criteria for selecting potential alternatives. Only alternative projects or alternative sites that fulfill the majority of the Project Objectives were considered for analysis.

3.4.2 Project Components

Development

The Proposed Project entails the subdivision of 6 parcels into 21 lots, 19 of which would be developed as single-family residences **(Figure 3-4)**. The subdivision would also require development of a new roadway that provides access to every residence and the existing water tank/cell transmitter parcel. All development and structures would be designed to be consistent with surrounding neighborhoods and to utilize similar architectural themes as those of surrounding houses. Construction of the Proposed Project would require the removal of approximately 43 of the 78 trees (approximately 55 percent) on site and the demolition of the existing access road for the water tank site. The development footprint of the residences and roadway is approximately 5.5 acres. Landscaping would be designed to be consistent with surrounding neighborhoods and to minimize erosion, maximize soil stability, and screen existing viewsheds from the new development while still minimizing obstruction of solar access per each residence. A Preliminary Plant Palate is included as **Figure 3-5** and **Appendix K**. As shown in the Preliminary Plant Palate, groupings of Italian Stone Pines, olive trees, Hollywood junipers, white oleanders, and toyons would be planted along the entire northern border to provide privacy screening. Outside of the development footprint, existing trees would be retained to the extent possible.

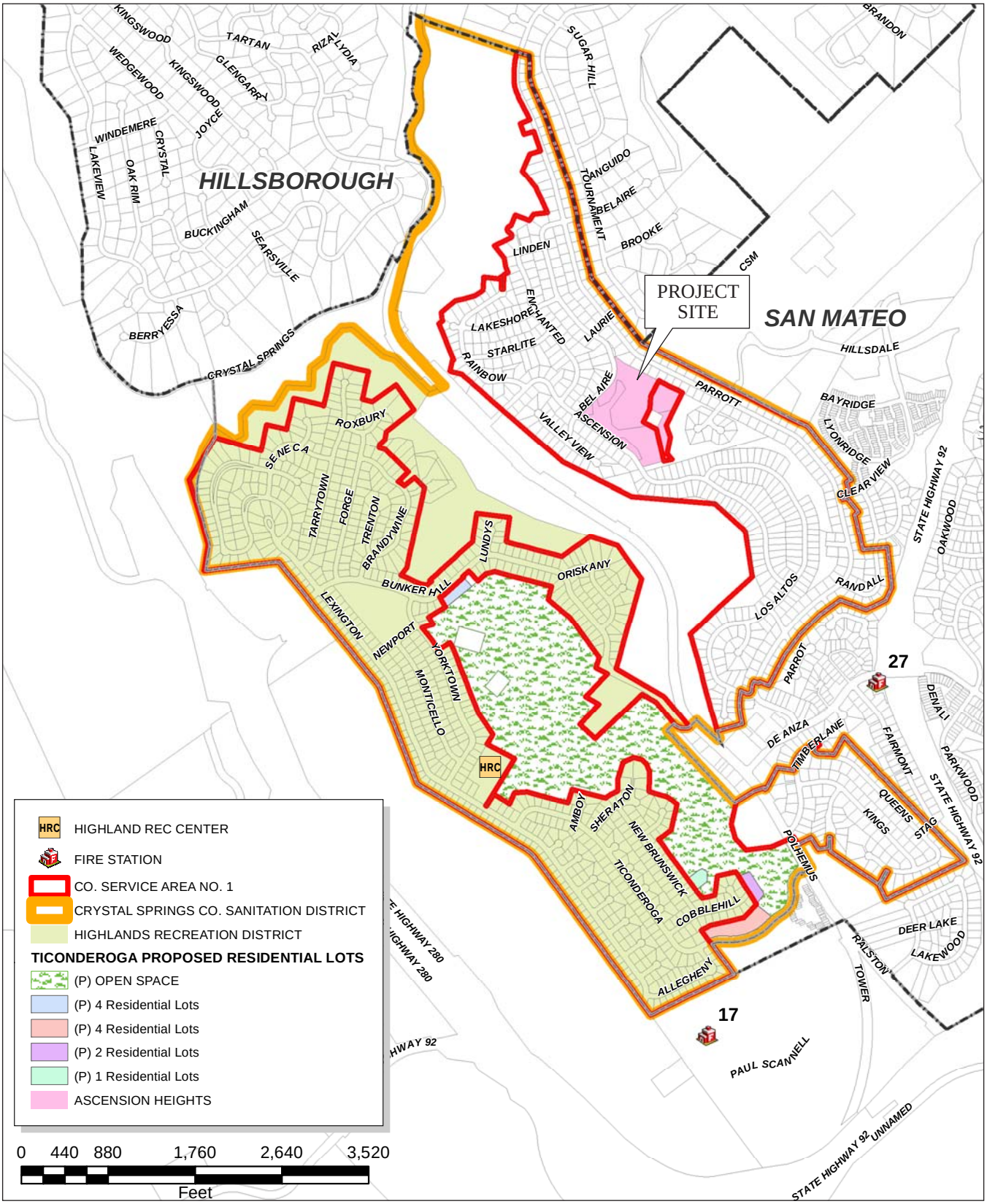
Utilities and services for the Proposed Project are discussed in detail in the following sections. APNs 041-111-280 and 041-111-320 of the project site are not within the boundaries of the San Mateo County Service Areas (CSA), specifically CSA #1 (**Figure 3-~~5~~6**) (SMC LAFCO, 2013). These parcels would need to be annexed into this CSA in order to receive the same level of public services as the remaining project site. ~~Additionally, the project site is not currently within the boundaries of the County-governed Bel Aire Lighting District that provides street lighting in the vicinity of the project site and would require annexation.~~ The applicant will follow the Application Process as stipulated according to the San Mateo County Local Agency Formation Commission (LAFCO) for annexation procedures. The applicant will work with LAFCO

SOURCE: Lea & Braze Engineering, 2015; AES, 2013

Figure 3-4
Site Plan

SOURCE: Lea & Braze Engineering, 2015; AES, 8/28/2015

Figure 3-5
Landscaping Plan



SOURCE: Unknown Source, 9/28/2012; AES 2013

Figure 3-6

San Mateo County Service Area #1

to complete the annexation process. The Proposed Project would include a private roadway and privately owned streetlights.

Residential

Approximately 4.0 acres of the development footprint would be developed as 19 single-family residences. The lots would be arranged in three blocks with the front and back of the houses generally along a northeast and southwest axis.

The residences would be constructed in accordance with all County zoning guidelines and regulations. Lot sizes range from a minimum of 7,500 sf to a maximum of approximately 16,000 sf. One single-family house would be developed per each lot in accordance with the *Ascension Heights Design Handbook* (Design Handbook) developed by the project applicant and included as **Appendix J**. The Design Handbook provides massing, height, square footage, and setback requirements and restrictions while providing design requirements for garages, roofs, skylights, solar and wind powered systems, mechanical equipment and antennae, chimneys, structural materials, and building colors. In addition, the Design Handbook provide recommendation for homeowners to incorporate sustainable architecture into each home and proposes five groups of architectural styles for homeowner consideration: Arts and Crafts, Cottage, Adobe Ranch, American Farmhouse, and Prairie School. In accordance with the Design Handbook, h~~H~~ouse development footprints are no more than 40 percent of the square footage of each lot, leaving at least 60 percent for yard coverage. Setbacks for houses ~~are~~ would be 20 feet for front and back yards and 5 feet for side yards. Houses ~~do~~ would not exceed 36 feet in height or 3 stories. As discussed above, all residential structures would be designed to be consistent with surrounding neighborhoods, to minimize erosion, to maximize soil stability, and to screen existing viewsheds from the new development while still minimizing obstruction of solar access per each residence.

Access Roadway and Parking

Approximately 1.5 acres of the development footprint would be utilized to construct a new, private access street. The private street would connect with Bel Aire Road at the northern corner of the project site and would fork into two roadways that provide access to all proposed residences. The connection to Bel Aire Road has shifted approximately 10 feet south compared to previous versions of the Proposed Project. A six-foot high retaining wall would be developed along the initial 140 feet of the private street. With the new private street alignment at the initial connection with Bel Aire Road, the retaining wall would be located a minimum of five feet from the northern property boundary allowing for privacy landscaping between the property boundary and retaining wall. Each roadway would have a hammerhead cul-de-sac with enough space to accommodate turnaround of emergency vehicles and single unit delivery trucks (20 feet wide by 85 feet long); no parking would be allowed in the hammerhead cul-de-sac (no street parking adjacent to proposed residential lots 7 and 12 [refer to **Figure 3-4**]).

The right-of-way for the roadway would be approximately 50 feet wide at all points. This would allow for an approximate 1-foot offset from the residential property line and an approximate 5.5-foot wide sidewalk with curbs and gutters where appropriate along either side of the roadway. The paved area of the street would be approximately 36 feet wide, providing 22 feet for two travel lanes (11 feet per lane) and 14 feet for parallel parking spaces (7 feet per side). All roadways would be designed to include a cross section surface slope of approximately two percent to facilitate stormwater drainage; a storm drainage gutter would

be installed along the downward sloped edge of each roadway. Street grades would range from 11 to 19 percent; any street with a slope greater than 15 percent would be constructed of concrete whereas all other streets would be asphalt. **Figure 3-~~6~~ 7** (Private Street Cross Sections) provides a diagram. The private street systems would be owned by the private homeowners and maintained by the proposed Home Owners Association (HOA).

In addition to street parking, parking on residential lots would be provided and would follow County guidelines for on-site parking requirements. No parking specifics are provided at this time; however, they will be part of the final layout for each lot.

Water Tank/Cell Transmitter Parcel

The proposed roadway would replace the existing access road as the access point to the water tank/cell transmitter parcel. The roadway is designed to accommodate maintenance vehicles that would require access to this parcel. The proposed new roadway would terminate at the northwestern boundary of the water tank/cell transmitter parcel. Additionally, as a part of the Proposed Project, an 18-foot wide, approximately 120-foot long connecting road would be constructed on the water tank/cell transmitter parcel to connect the proposed new access road with the structures on the parcel. The connecting road would be flanked by approximately 3-foot tall keystone block retaining walls on either side. Cal Water would maintain the access road within its dedicated parcel. The street would have an average 19 percent grade and cross sectional slope of the surface street of approximately 2 percent, with 1.5:1 graded earth above and below the roadway (**Figure 3-~~6~~ 7** [Water Access Road Section]).

In addition, 2,821 square feet of land east of the water tank/cell transmitter site would be dedicated to Cal Water, the owner of the water tank. A new fence surrounding the water tank would be provided as a project-sponsored improvement, as well as a new water main which would run through the property (refer to **Section 4.10** for further discussion).

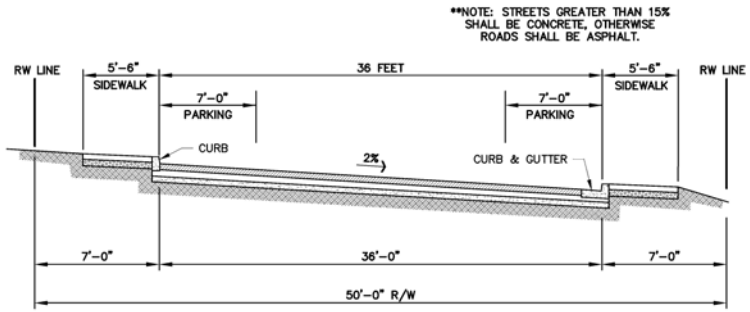
Open Space

As discussed, approximately 7.8 acres of the project site would be preserved as open space, which would include an undisturbed and protected area as well as common areas with foot trails (Figure 3-7). The conservation area, common areas, and trails would be owned and maintained by the proposed HOA and made available for public use.

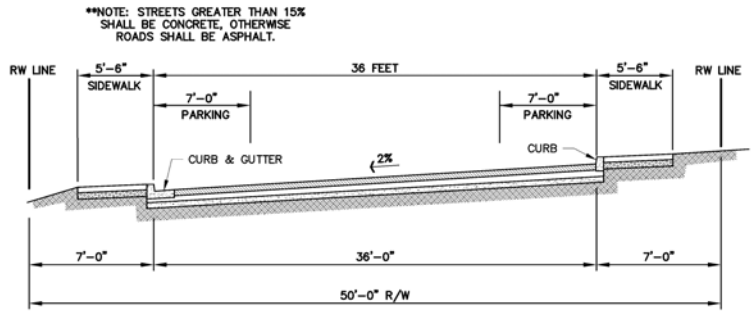
Full build-out of proposed residential development is estimated to generate approximately 55 new residents (SMC, 2012a; refer to **Section 4.11** for further discussion), which equates to 0.14 acres of open space per each resident.

Common Areas (Proposed Conservation Area)

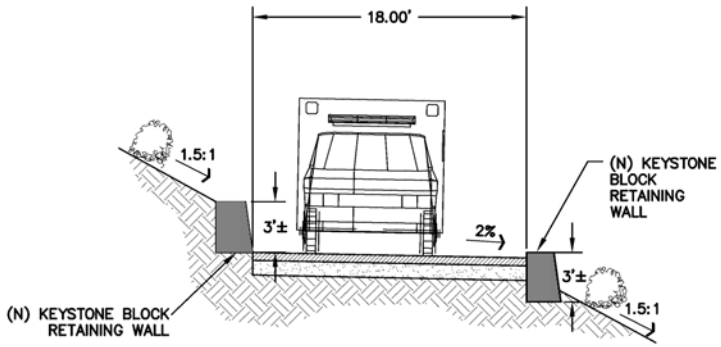
Of the dedicated open space, 7.35 acres would be on-site common areas or conservation areas and would represent approximately 55 percent of the project site. The common areas would be located primarily in the southern and western portions of the project site (referred to as “Lot A” in **Figure 3-4**). As shown in the Preliminary Plant Palate (**Figure 3-5**), a base foundation of toyon, Matilja poppy, and deer grass would be planted within the common areas to reduce erosion and provide base vegetation for tree planting to increase the tree canopy within the open space areas to screen the proposed development from the



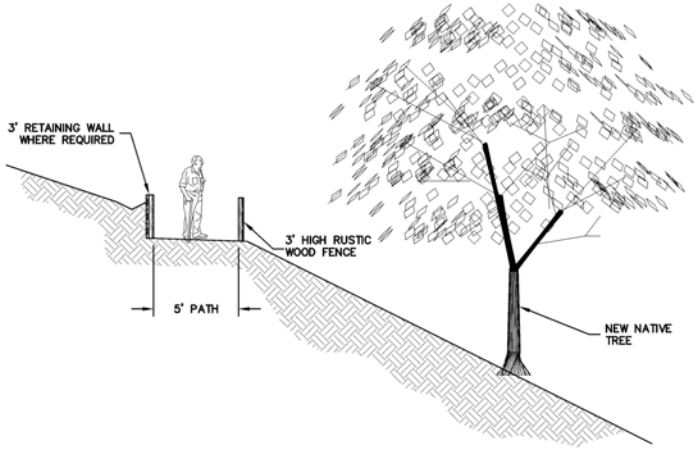
PRIVATE STREET CROSS SECTION (1 / C-5)
N.T.S.



PRIVATE STREET CROSS SECTION (2 / C-5)
N.T.S.



WATER ACCESS ROAD SECTION (5 / C-5)
N.T.S.



CONCEPTUAL TRAIL CROSS SECTION (3 / C-5)
N.T.S.

SOURCE: Lea & Braze Engineering, Inc., 7/1/2013; AES, 2013

Figure 3-7
Project Component Cross Sections

neighboring areas. Open space trees would include Italian Stone pines, olive trees, golden wattles, and coast live oaks. ~~The landscaping of the conservation areas is not determined at this time; however, the intent is to utilize drought-tolerant native vegetation in order to restore the area to a natural habitat, including a provision for a nature trail.~~ The trail would be a five-foot wide path with a three-foot high retaining wall on the upslope and three-foot high fence on the down slope (**Figure 3-~~6~~ 7** [Conceptual Trail Cross Section]). The fence would be designed to accent the natural habitat. The common area and trails would be open to the subdivision residents and the general public.

Undisturbed and Protected Area

A 0.45-acre undisturbed and protected area would be included within the southwest corner of the dedicated open space of the project site. This area would be maintained through the implementation of a conservation easement. As part of the Proposed Project, the existing on-site drainage improvements within this area will be removed. A responsibility agreement shall be developed between the County and the HOA or equivalent entity requiring the HOA or equivalent entity to manage maintenance of the area.

Water Supply

Potable water for residential and fire emergency services of the Proposed Project would be supplied by the Bayshore District (BSD) of Cal Water, the local municipal water supplier. The existing, on-site Cal Water water tank located within the project site (APN 041-111-020) would provide water to the Proposed Project. Existing, on-site water lines would be relocated to accommodate the proposed residential development. This includes an existing water line and easement that currently transverses Lots 6 and 11 (**Figure 3-4**) that serves the subdivision located north of the project site and an existing water line and easement that currently transverses Lots 1, 8, 13, 14, and 15 (**Figure 3-4**) that serves the subdivision located west of the project site. Access to the water tank would be established at the discretion of Cal Water and could be obtained via a connection to the water main in the private street with a saddle “T” connection. Booster facilities at the tank site would be required to be installed in order to provide adequate water pressure to serve the domestic and fire protection water needs of the project site, and the developer of the Proposed Project would be responsible for financing these upgrades. The proposed on-site water supply system would include additional underground water pipelines, which would loop around the proposed private roadway, and water mains, which would be located within each individual lot. The on-site water pipeline segments would be connected to existing off-site water pipelines in two locations: 1) near the intersection of Bel Aire Road and the proposed private roadway, and 2) an extension from the north at the northeastern edge of the project site where other off-site single-family homes currently receive water service.

No future water usage estimates are currently available as no house plans have been completed. Normal water usage is anticipated for single-family houses of the size typical for this neighborhood. There are also no specific landscaping plans proposed at this time, other than to be consistent with landscaping of surrounding properties and provide screening for adjacent residences. The intent is to utilize drought-tolerant, native vegetation in the landscaping in order to restore areas within the project site to a natural habitat and minimize water needs. Fire hydrants will also be installed on the project site per the State and County fire codes.

Sewer Service and Wastewater Treatment

The Crystal Springs County Sanitation District (CSCSD) owns and maintains the sewer system in the vicinity of the project site. Wastewater flows from the CSCSD system to sewer infrastructure owned and maintained by the Town of Hillsborough and finally to sewer infrastructure owned and maintained by the City of San Mateo. Treatment of wastewater occurs at the treatment plant owned and operated by the City of San Mateo.

The proposed on-site sewer system would consist of underground sanitary sewer pipelines, risers, clean-outs, and manholes. New sewer pipelines would connect the project site with the existing CSCSD sewer line in Bel Aire Road. The new sewer pipelines would be installed within the right-of-way of the proposed private roadway and would follow the path of the private roadway, thus splitting to two sewer pipelines at the roadway fork to provide a connection to all residential lots. All sewer lines leaving the site would be gravity fed, while the on-site lines would consist of a pressure system. The sewer ejector pumps would be pre-manufactured, all-inclusive pumps with battery back-up, high water alarm and would have industry-standard holding capacities.

Utilities

Pacific Gas & Electric (PG&E) would provide electrical and natural gas services to the Proposed Project via an underground distribution system. ~~As previously discussed, street lighting in the project area is provided by the County-governed Bel Aire Lighting District. The project site is not currently within the boundaries of this District and would require annexation.~~ The County-governed the Bel Aire Lighting District provides street lighting in the vicinity of the project site but does not service private roadways. The project applicant, during annexation procedures with LAFCO, will include provisions to ensure all street lighting is consistent with County regulations and properly maintained in a manner similar to Bel Air Lighting District requirements.

AT&T would provide telephone and cable services to the project via an underground distribution system.

Emergency Services

Fire protection and emergency medical services are provided in the vicinity of the project site via a public and private partnership among the County Health Services Department's Emergency Medical System (EMS) office; the private emergency response company American Medical Response (AMR); and the fire service agencies in the County. The County EMS office provides operational and medical oversight of the system. The San Mateo County Fire Department (County Fire), which contracts with the California Department of Forestry and Fire Protection (CAL FIRE) through CAL FIRE's Cooperative Fire Protection program, provides fire protection and emergency medical services to the County. The County Fire/CAL FIRE is an all-risk department and responds to wildland fires, structure fires, medical emergencies, motor vehicle accidents, hazardous material spills, swift water rescues, cliff rescues, floods, civil disturbances, and earthquakes. In addition, the San Mateo City Fire Department participates in a Joint Powers Agreement providing automatic aid response in the County (City of San Mateo Fire Department, 2013). The project site would primarily be served by San Mateo City Fire Department's Station 27, with County Fire/CAL FIRE Station 17 as the secondary responder. As previously discussed, a portion of the project site is located outside of the CSA #1 (**Figure 3-~~5~~6**) (SMC LAFCO, 2013) and would need to be annexed

into this CSA in order to receive the same level of public services as the remaining project site. The developer would then work with LAFCO to complete the annexation process.

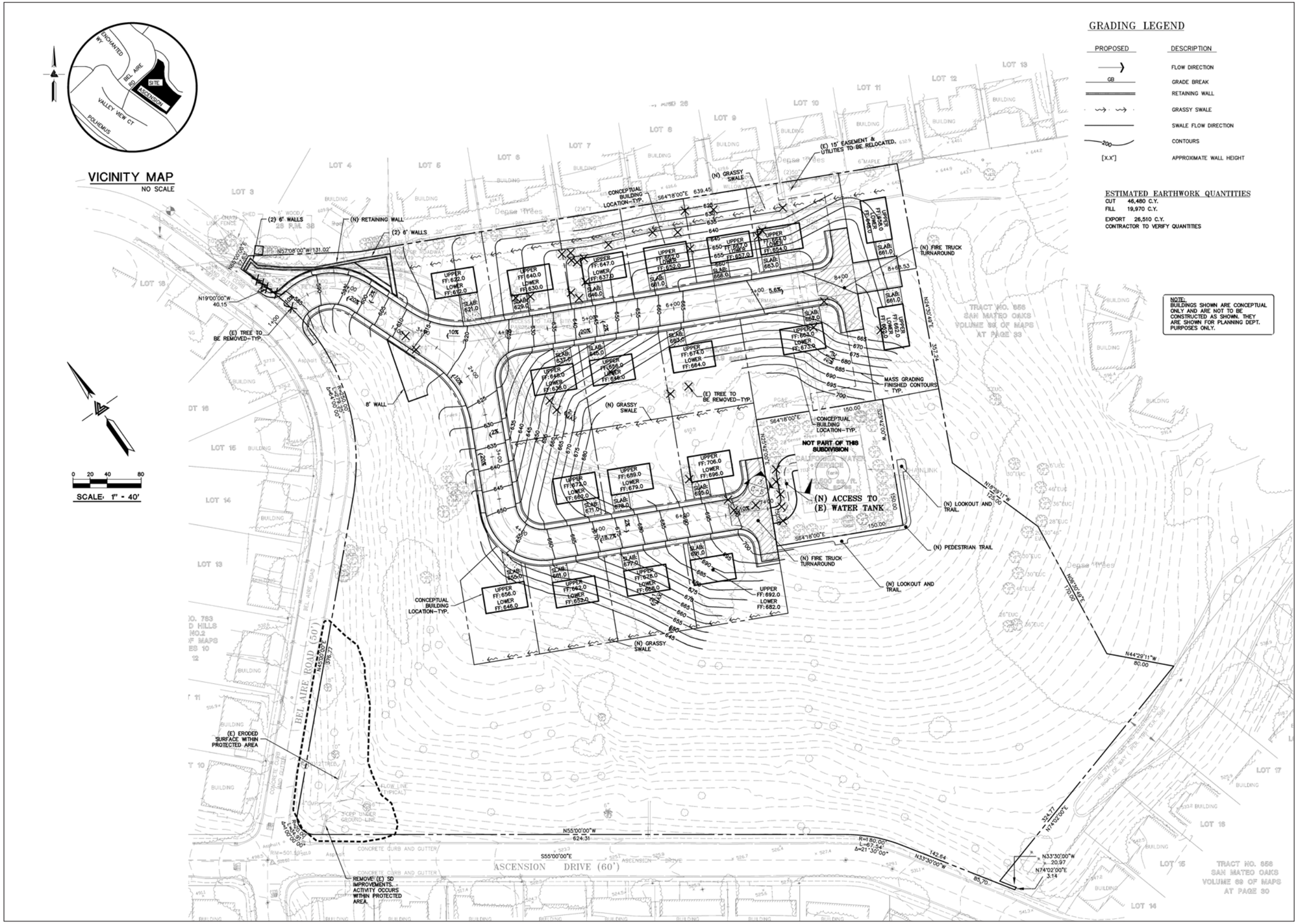
Grading and Drainage

Development of the 19 single-family residential lots would require approximately 46,480 cubic yards of grading, of which 19,970 cubic yards would be used for engineered fill and 26,510 cubic yards would require exportation from the project site; associated transport is discussed in **Section 3.4.3**. Grading activities include cut (earth removal) and fill of earthwork, creation of engineered slopes and stepped foundations, and installation of retaining walls. Accordingly, the project applicant also requires a grading permit from the County. Details of grading activities to be carried out on the project site are provided in **Figure 3-~~7~~8**.

The Proposed Project would include an on-site stormwater drainage system designed and sized such that runoff from the Proposed Project will be released at pre-development rates. Each individual lot will have its own separate stormwater retention system that will meter discharge from each individual lot. The retention system will be comprised of large underground pipes and will be oversized to compensate for the runoff from the on-site private roadway and to accommodate potential, intermittent blockage. This system will retain stormwater runoff underneath each lot and will release runoff through a metered pipe to restrict runoff prior to entering the collective on-site storm drainage system proposed for the project site.

The on-site storm drainage system of the Proposed Project consists of underground pipes, inlets, drainage structures and retention systems, and concrete valley gutters. Stormwater would drain to underground pipelines, consisting mainly of smooth-walled high density polyethylene (HDPE) plastic, and would exit the project site at two points. Two storm drain pipelines would run in the right-of-ways of the new private roadway and would connect at the fork in the road. A third storm drain pipeline would run along the northeastern boundary of the project site and would connect to the storm drain pipeline in the right-of-way of the private roadway at the northern edge of the project site. Stormwater in this pipeline would be conveyed to the northern treatment system (described in the following paragraph) before exiting the site via a new underground storm drain pipeline along Bel Aire Road. Additionally, a forth on-site storm drain pipeline would run along the northwestern edge of Lots 16, 17, 18, and 19 (refer to **Figure 3-4**), would turn west at the northwest edge of Lot 17, and would exit the project site to connect with a new pipeline that would underground along Ascension Drive. The new off-site storm drain lines will connect into a common manhole at the intersection of Bel Aire Road and Ascension Drive. The system would then connect into the existing County storm drain system, following Ascension Drive down to Polhemus Road, with the treated runoff ultimately released into Polhemus Creek.

The Proposed Project will include an on-site stormwater bioretention treatment system as part of the drainage system located along the new private roadway near its intersection with Bel Aire Road in the northern corner of the project site. The bioretention treatment system is a continuous deflective separation (CDS) hydrodynamic separator runoff treatment device and contains chambers designed to remove as many pollutants as possible. The CDS is specifically designed to remove large trash, oil, and small sedimentation particles. However, the CDS requires a regular maintenance schedule to perform properly; it is anticipated that any Covenants, Conditions, and Restrictions for the development will require a CDS maintenance agreement.



SOURCE: Lea & Braze Engineering, Inc., 2015; AES, 2015

Figure 3-8
Grading and Drainage Plan

Additionally, the Proposed Project includes several permanent Best Management Practices (BMPs) to address drainage from the property during construction and long-term operation. BMPs related to stormwater drainage during construction are guided by the California C.3 storm water quality program. A Storm Water Pollution Prevention Program (SWPPP) will be developed and would mitigate the amount of erosion that could occur during and after construction. In addition, other BMPs, such as grassy-lined swales and smart landscaping, will address stormwater drainage in the long term. BMPs related to construction and operation stormwater drainage are included as mitigation measures in **Section 4.6**.

Green Building

The Proposed Project is designed and would be constructed utilizing green building and performance measures per the applicable County ordinances and guidelines. Sustainable building strategies would be integrated into the project to the greatest extent feasible. Finishing materials (adhesives, sealants, paints, coatings, composite wood, and carpet systems) would comply with the California Green Building Standards Code (CALGreen) provisions for low emitting materials, and heating, ventilation, and air conditioning (HVAC) systems; refrigeration; and fire suppression systems would be free of chlorofluorocarbons (CFCs).

3.4.3 CONSTRUCTION

Construction Schedule

Due to the scope and complexity of the grading and utility installation, all work is proposed to be complete in one phase. Grading and lot subdivision would occur first on the project site, with the appropriate utility infrastructure added after this phase. The construction of the new private roadway would also occur during this phase. All utility stub-outs would be completed as part of the one phase tract improvements. The first phase is anticipated to occur over a nine month period.

The second phase would include construction of all residential structures. This is anticipated to occur over an 18 month period. Home construction may be intermittent and may not occur immediately following the completion of the grading/utility installation phase. The total construction time for the Proposed Project is therefore 27 months but may not be continuous.

Construction Activities and Equipment

Construction activities would be limited to daytime hours between 7:00 a.m. and ~~7~~6:00 p.m. Monday through Friday and from 9:00 a.m. to 5:00 p.m. on Saturdays. Construction activities shall not occur on Sundays, Thanksgiving, or Christmas. The following types of construction activities would occur at different intervals throughout construction:

- Roadway and utility demolition;
- Earthwork – grading, excavation, backfill;
- Concrete – forming, rebar placement, concrete delivery and placement;
- Structural steel work – assembly, welding;
- Masonry construction;
- Electrical/instrumentation work; and
- Installation of mechanical equipment and piping.

Equipment used during construction may include, but is not limited to, the following:

- Track mounted excavators
- Backhoes
- Cranes
- Compactors
- Paving equipment
- Flat-bed delivery trucks
- Scrapers
- Graders
- End and bottom dump trucks
- Front-end loaders
- Ten-wheel dump trucks
- Water trucks
- Forklifts
- Concrete trucks
- Compressors/jack hammers
- Dozers

Construction of the Proposed Project would require an average of 20 workers per day; however, this number would vary depending on time of year and construction phase. Staging areas for the proposed development would be located within the project site. Construction vehicles could also park along the east side of Bel Aire Road without interfering with adjacent residential parking. Construction traffic would access the project site via Polhemus Road, Ascension Drive, and Bel Aire Road.

As discussed in **Section 3.4.2**, on-site grading for the Proposed Project would require exportation of 26,510 cubic yards from the project site. The off haul equates to about 40,000 bulk cubic yards. An 18 wheel end-dump truck can carry 15 bulk cubic yards, a single or double bottom dump semi-truck can carry 20-23 bulk cubic yards, and a 10 wheel dump truck can carry 10-13 bulk cubic yards. Assuming 30 working days for off haul and an average of 17 bulk cubic yards per truck, the number of truck trips per day into and out of the site will be on the order of 156.

3.5 REGULATORY REQUIREMENTS

Permits and approvals that may be necessary for implementation of the Proposed Project are identified below. This Draft EIR may be used for evaluation of each action described below.

County of San Mateo

- Approval of phased final maps upon a single approved Vesting Tentative Map to subdivide the project site into 19 single-family lots and open space parcels; and
- Other discretionary approvals and requirements, including compliance with applicable ordinances and policies (e.g., Subdivision Ordinance, Green Building Ordinance, zoning regulations, and General Plan) and various permits (e.g., building permits, grading permit, tree removal permit, etc.).

County of San Mateo LAFCO

As stated previously, a portion of the project site is not located within the boundaries of the following County-governed Districts:

- CSA #1, which provides enhanced police and fire protection services (funded by both a share of the 1 percent property tax and a special parcel tax); and
- ~~Bel Aire Lighting District, which receives a share of the 1 percent property tax for street lighting.~~

A condition of approval of the project would include annexation to ~~these~~ this District. Annexation would require:

- Application by property owner to the San Mateo LAFCO, including a map and legal description and LAFCO and State Board of Equalization Fees;
- Adoption of a property tax exchange resolution by the Board regarding amount of property tax to be transferred between the County General Property Tax and County governed districts;
- Special parcel tax for CSA #1 for enhanced police and fire; and
- Approval by LAFCO and recordation of certificate of completion.

California Water Service Company

- Upon approval of the project, permits would be secured from Cal Water to extend the on-site water lines.

San Francisco Bay Area Regional Water Quality Control Board (SFBRWQCB)

- Approval of the project's coverage under the General Construction Storm Water NPDES Permit for Discharges of Storm Water Runoff Associated with Construction Activity because project construction results in one (1) acre or more of ground disturbance.
- Approval of a SWPPP for construction activities.

California Department of Fish and Wildlife (CDFW)

- Consultation with CDFW as well as permitting and/or monitoring and reporting programs may be required by project impacts. If necessary, the project applicant shall obtain all necessary permits from CDFW and develop all necessary monitoring and reporting programs in order to mitigate for potential on-site impacts to special-status or endangered species.

United States Fish and Wildlife Services (USFWS)

- Consultation or incidental take permitting may be required by project impacts, as well as Mitigation Programs. The applicant shall obtain all legally-required permits from the USFWS for the "take" of protected species under the Endangered Species Act (ESA).

SECTION 4.0

ENVIRONMENTAL ANALYSIS

ENVIRONMENTAL ANALYSIS

Section 4.0 of this Draft EIR contains individual sections that describe the potential environmental impacts of the Proposed Project described in **Section 3.0**. Each topical section describes the existing setting and background information necessary to help the reader understand the conditions that would cause an impact to occur. In addition, each section includes a description of how an impact is determined to be significant or not significant. Finally, the individual sections recommend mitigation measures to reduce significant impacts. The following issue area sections are addressed in **Section 4.0**:

Section 4.1 – Aesthetics
Section 4.2 – Air Quality and Greenhouse Gas Emissions
Section 4.3 – Biological Resources
Section 4.4 – Geology and Soils
Section 4.5 – Land Use
Section 4.6 – Hydrology and Water Quality
Section 4.7 – Hazards and Hazardous Materials
Section 4.8 – Noise and Vibration
Section 4.9 – Population and Housing
Section 4.10 – Public Services, Utilities, and Recreation
Section 4.11 – Transportation and Circulation

CUMULATIVE IMPACTS

According to the California Environmental Quality Act (CEQA) *Guidelines* Section 15355, "cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." CEQA requires that cumulative impacts be discussed when the project's incremental effect is cumulatively considerable (*Guidelines* Section 15130(a)). These impacts are discussed when appropriate in the relevant issue area sub-section within **Section 4.0**.

The context for the cumulative impact analysis within this EIR is based on the long term development levels projected in the County General Plan, as well as reasonably foreseeable potential development projects in the vicinity of the Proposed Project, including those from the City of San Mateo and the Town of Hillsborough. Refer to **Section 5.2.1** for further discussion of the cumulative context.

4.1 AESTHETICS

4.1.1 INTRODUCTION

This section addresses the potential for the Proposed Project to result in impacts associated with aesthetics and visual resources. Following an overview of the visual resource setting in **Subsection 4.1.2** and the relevant regulatory setting in **Subsection 4.1.3**, project-related impacts and recommended mitigation measures are presented in **Subsection 4.1.4**.

4.1.2 ENVIRONMENTAL SETTING

Regional Setting

San Mateo County (County) is characterized by densely populated cities located along the bay in the northeastern half of the County with more sparsely populated areas and open space in the central and southwestern portions. The unincorporated area of the County includes approximately half of the land area of the entire County, but only nine percent of the County population resides within the unincorporated areas (SMC, 2012a). That said, the Local Agency Formation Commission (LAFCO) has assigned each of the County's urbanized unincorporated areas to the sphere of influence of an adjacent city, and, as of 2000, these unincorporated, urbanized communities contained about 71 percent of the unincorporated County's housing supply and 75 percent of the unincorporated population (SMC, 2012a). The project site is located within the City of San Mateo's sphere of influence within the unincorporated community of San Mateo Highlands within the County (SMC LAFCO, 2013).

The general topography of the County is dominated by sub-parallel, northwest trending mountain ranges and intervening valleys. The relatively flat-lying, alluviated San Francisco Bay plain is situated to the east, and the uplifted Santa Cruz Mountains are located to the west. The area in which the project site is located slopes down toward the northwest to Polhemus Creek and San Mateo Creek.

Project Site Setting

The 13.3-acre project site is located on the northeastern corner of Bel Aire Road and Ascension Drive, east of Interstate 280 (I-280) and west of State Route 92 (SR-92); the project site is just north of the I-280 and SR-92 interchange. The site is characterized as a hillside property that slopes steeply (25 percent to 95 percent grade) to a gentler slope toward the top of the hill (or knoll). A potable water tank (owned by California Water Service Company [Cal Water]) and cell transmitter enclosed by fencing and surrounded by Monterey pine trees are located at the top of the knoll (these structures and the immediate surrounding area are not part of the project site, refer to **Figure 3-4**). The project site is relatively undeveloped with the exception of a paved service road that extends from Bel Aire Road at the site's northwestern boundary, providing access to the water tank and cell transmitter site. Additional land disturbances to the site include cut slopes and shelves along the lower slopes and drainage structures above Ascension Drive and Bel Aire Road. These man-made alterations encompass approximately 0.25 percent of the overall site area. The site is vegetated with non-native grasses, shrubs, and trees.

The project site is immediately bounded by single-family residential homes to the north and east, Ascension Drive to the south, and Bel Aire Road to the west. Single-family residences are located on the opposite sides of Ascension Drive and Bel Aire Road. The predominate land uses surrounding the site include single-family subdivisions, such as Baywood Park subdivision to the northeast, the Enchanted Hills subdivision to the southeast and southwest, and the Starlite Heights subdivision to the northwest.

Views of the Project Site from Off-Site Locations

The San Mateo County General Plan (County General Plan) defines public views as "a range of vision from a public road or other public facility" (SMC, 1986a). In the vicinity of the project site examples of these would include, but are not limited to, Parrott Drive, the College of San Mateo, Bel Aire Road, Ascension Drive, Los Altos Drive, Polhemus Road, I-280, and Bunker Hill Drive. **Figures 4.1-1a** and **4.1-1b** consist of an aerial view of the project site with representative views of the project site from the roadways and neighborhoods directly adjacent to the site and from the College of San Mateo.

Figure 4.1-1a depicts the following views (counterclockwise from the upper-most left corner):

- Bel Aire Rd Looking Southeast. This view shows the existing access road that intersects with Bel Aire Road and vegetation along the northwest edge of the project site, which shield the view of the existing home to the north of the project site along with the southeastern area of the project site. From this vantage point, the top of the hill on the project site is not visible.
- Ascension Dr and Bel Aire Rd Looking East. This view is of the west corner of the project site and shows the cut slopes and shelves along the lower slopes and drainage structures above Ascension Drive and Bel Aire Road. The top of the hill on the project site is partially visible but its entirety is shielded by the steep slope of the project site; the existing Monterey pine trees that surround the water tank/cell transmitter are not visible from this location. The vegetation shown in this view is typical of vegetation along the northwestern and southwestern slopes of the project site.
- Ascension Dr Looking Northeast. This view shows the existing vegetation along the southwestern slope of the project site as well as more of the existing drainage structures. The slope of the project site partially shields views of the top of the hill on the project site from this location.
- Ascension Dr Looking Northwest. This view is of the southern edge of the project site and shows the existing vegetation along the southwestern slope that is also characteristic of the northwestern slope of the project site. Again, the slope along the southwestern edge of the project site partially shields views of the top of the hill on the project. From this location, a portion of the existing water tank and the existing Monterey pine trees that surround the water tank/cell transmitter are visible. Large electrical power lines along the southwestern and southeastern edges of the project site are also visible from this location.

Figure 4.1-1b depicts the following views (counterclockwise from the upper-most left corner):

- Northern Parrott Dr Looking South. This view shows the existing single-family residences along the southern side of Parrott Drive at the northern boundary of the project site. The residences dominate the foreground while landscaping in the rear of the residences almost entirely shields

SOURCE: Microsoft aerial photograph, 10/26/2010; AES, 2013

Figure 4.1-1a
Existing Surrounding Views of Project Site

SOURCE: Microsoft aerial photograph, 10/26/2010; AES, 2013

Figure 4.1-1b
Existing Surrounding Views of Project Site

views of the project site. The landscaping consists of tall and wide bushes and trees that are relatively full and provide decent screening from the project site.

- Parrot Dr Looking Southwest. This view shows the existing single-family residences along the southern side of Parrott Drive along the northeastern boundary of the project site. Again, the residences dominate the foreground while existing landscaping at the rear of the residences completely shields views of the project site.
- College of San Mateo Looking Southwest. This is a medium-range view of the project site, which is visible near the center of this photo. A parking lot on the campus is visible in the foreground. Mature trees and vegetation bordering the parking lot, single-family residences, and landscaping are visible in the middle-ground. Just beyond these residences and landscaping, the top of the hill on the project site is visible, with the Monterey pine trees that surround the water tank/cell transmitter prominent in this view. Additionally, Cahill Ridge is visible in the background of this view.
- Southern Parrott Drive Looking Southwest. This view shows the existing single-family residences along the southern side of Parrott Drive along the eastern boundary of the project site. Again, the residences dominate the foreground. However, the landscaping in the rear of the residences along this section of Parrot Drive is more sparse compared to the northern end of the street. The eastern corner of the project site is visible in the background of this view.

Sensitive Receptors

A sensitive receptor is defined as an individual that is especially sensitive to changes in aesthetic qualities such as changes in lighting, shadows, or surrounding visual character. The reasons for greater than average sensitivity include proximity to or duration of exposure to changes in aesthetics or pre-existing health conditions that would be affected by changes in aesthetics. Sensitive receptors include schools, hospitals, convalescent homes, residential areas, and recreational areas. The surrounding single-family homes and the College of San Mateo are sensitive receptors to aesthetic changes on the project site.

Views from the Project Site of Surrounding Areas

A variety of views are available from the project site given topography and elevation. From the lower to mid-level elevations, on nearly every side of the project site, views of the surrounding single-family neighborhoods are prominent. Although, from the southeastern side of the site, the eucalyptus grove that straddles the project site boundary is prominent and partially obstructs views towards the southeast. The upper elevations of the project site afford several medium- to long-range views. To the west of the project site is the Crystal Springs Reservoir and to the northeast is the College of San Mateo. When weather conditions permit, the southern part of the City of San Francisco is also visible to the north of the project site.

Scenic Resources

The County General Plan defines “visual resources” as “those attractive visible elements of the natural and developed landscape, such as landforms, vegetative forms, water bodies, structures and communities” (SMC, 1986a). There is no comprehensive list of specific features that automatically qualify a view as a scenic resource; however, certain characteristics can be identified which contribute to the determination of a scenic resource. Examples of County-designated important natural landscapes and attractive man-made development features provided in the County General Plan include the following:

- Unusual 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;
- Structures of architectural interest;
- Attractive urban development;
- Natural scenery in an urban setting; and
- Open space areas where agricultural operations may be viewed (SMC, 1986).

Of the resources listed above, two are located on portions of the project site and include unique vegetative communities (i.e., large trees) and natural scenery in an urban setting. The existing plant communities on the project site consist of Coast Live Oak Woodland Non-Native Annual Grassland, Coyote Brush Scrub, and Non-Native Ornamental Trees, including planted Monterey pine [*Pinus radiata*] and blue gum [*Eucalyptus* sp.]) (refer to **Section 4.4** for further discussion). The largest and most concentrated groupings of ornamental trees straddle the southeastern site boundary where there is a grove of blue gum (*Eucalyptus* sp.) trees. Additionally, a grove of Monterey pine trees surround the water tank/cell site. Depending on the vantage point of the viewer, portions of the project site could appear as natural. However, other portions of the project site have more utilitarian characteristics and evidence of erosion that subtract from the portions of the project site that contain natural scenery. There are no rock outcroppings or historical structures within the project site.

The nearest State Scenic Highway is I-280 from Santa Clara County in the south to the city limits of the City of San Bruno in the north (Caltrans, 2012); the project site is located approximately 0.8 mile to the west of the highway. The County General Plan defines scenic corridors 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” (SMC, 1986a). As further defined by the County General Plan, scenic roadways are “a designated travel route providing outstanding views of natural landscapes and attractive man-made development” (SMC, 1986a). The County General Plan has designated several “scenic” roadways within the County. The project site is visible from portions of the County- and State-designated scenic roads listed below:

- County-designated scenic roads
    - Polhemus Road
    - I-280 (from San Francisco to San Bruno)
    - SR-92 (Half Moon Bay Road and J. Arthur Young Freeway)
- State-designated scenic roads
    - I-280 (from Santa Clara County to the northern City of San Bruno city limits)

Scenic Vistas

The County General Plan does not define scenic vistas nor does it include a description or list of vantage points within the County from which vistas are considered “scenic” or specifically identify the scenic vistas

that are available from the County (SMC, 1986a). Given the many steep-trending hillsides, hilltops, knolls, and ridgelines in the County, a multitude of general "scenic vistas" are available throughout the region. However, at several potential vantage points, various surrounding topographic characteristics partially obstruct these scenic vistas. Therefore, scenic vistas in the County are viewed towards the direction of down-sloping terrain.

The project site is elevated above the surrounding areas, and therefore any scenic views available from these surrounding areas are likely in a direction (downslope) away from the project site. Additionally, long distance views of the project site are largely obstructed by intervening topography. Short and mid-distance views of the project site are visually limited from vantage points in the adjacent neighborhoods surrounding the project site due to the surrounding single-family homes, vegetation, and topography. These short-distance views are dominated with views of adjacent homes and associated landscaping, roadways, telephone poles, and signage. As such, these views do not fall under the definition of scenic vistas.

Open Space

Open space, as defined by Government Code Section 65560, is any parcel or area of land or water that is essentially unimproved and devoted to an open-space usage and that is designated in a local, regional or state open-space plan for preservation of natural resources, managed production of resources, outdoor recreation, or public health and safety.

The County-designated open space areas are overseen by the San Mateo County Parks and Recreation Department, as well as in cooperation with the Mid-Peninsula Regional Open Space District. An open space land use designation is widely used by local agencies to preserve natural resources and protect important features, such as ridgelines. The County General Plan establishes the uses that may be allowed on land with a General Open Space designation. Uses would be limited to resource management and production, recreation and limited residential or service. Although currently designed and zoned by the County as Medium-Low Density Residential (2.4 to 6.0 dwelling units (du)/acre) and R-1/S-8 (single-family residential/7,500 square foot minimum lot size), respectively, the project site currently consists of a largely undeveloped steep hillside, with on-site vegetation including grassland, small brush and trees. The only existing development on site includes the potable water tank/cell parcel with associated fencing and a small access road that connects to Bel Aire Road. However, this existing development is not part of the Proposed Project. The project site is located north and northeast of various noncontiguous County-designated Open Space and Resource Management (RM) areas, with areas situated south of residential uses along Ascension Drive, as well as patches radiating further south, including south of I-280 and Crystal Springs Reservoir. The majority of open space areas north of I-280 are segmented by existing developed uses (i.e., roadways, freeways, residential, and public institutional).

Ridgelines and Skylines

The County General Plan defines ridgelines as "the tops of hills or hillocks normally viewed against a background of other hills" and skylines as "the line where sky and land masses meet" (SMC, 1986a). The views to the east and west from the project site include both ridgelines and skylines. Views to the north and south predominately include residential uses with ridgelines and skylines in the background. The

project site contains numerous scenic hills and valleys, which offer outstanding views of the surrounding properties and the margins of the San Francisco Bay.

Visual Character

The County General Plan defines visual quality as: "the visual attributes of natural landscapes, structures and communities" (SMC, 1986a). The visual character of the project site is discussed above and in summary includes a largely undeveloped 13.3-acre area situated on a hillside with slopes averaging 40 percent. Surface elevation of the site ranges from approximately 410 to 610 feet above mean sea level (amsl). Surface runoff water from the benches has eroded deeply into the unconsolidated colluvial materials exposed on the cut slopes and benches. The existing plant communities on the project site consist of Coast Live Oak Woodland, Non-Native Annual Grassland, Coyote Brush Scrub, and Non-Native Ornamental Trees (i.e., Monterey pine and blue gum eucalyptus). The largest groupings of eucalyptus trees straddle the southeastern site boundary, while the additional grove of Monterey pine trees surround the water tank/cell site, screening much of this location from on- and off-site views. A small abandoned quarry is also located in the outcrop of the hard sandstone northeast of the water tank. The quarry area is characterized by a crescent shaped, near vertical cut slope up to approximately 5 to 6 feet in height, with a mound of debris (tailings) located just downslope. The quarry cuts exposed sandstone bedrock beneath a thin veneer of soil. A few yards of rock was removed from this location at some time in the past. The potable water tank/cell site, enclosed by fencing and surrounded by the Monterey pine trees, are located within but are not a part of the project site (APN: 041-111-020) and are served by a small access road that connects to Bel Aire Road.

The visual character of the area surrounding the project site is largely dominated by single-family residential uses, including the Baywood Park neighborhood located to the northeast, the Enchanted Hills neighborhood to the southeast and southwest, and the Starlite Heights neighborhood to the northwest. These subdivisions generally include one single-family home per landscaped lot, with homes varying from one to two stories. The College of San Mateo is located less than 0.25 miles northeast of the project site off of Parrott Drive. Further, the project site is located north/northeast of various noncontiguous patches of County-designated Open Space and Resource Management (RM) areas.

Light and Glare

There are currently no sources of light and glare on the project site as the project site is almost entirely undeveloped. Daytime sources of glare in the vicinity of the site include reflections off light-colored surfaces and windows associated with the surrounding residential and College of San Mateo uses as well as reflections off metal details on cars traveling along nearby roadways and within the parking lot at the College. Nighttime light sources in the vicinity of the site include streetlights along Bel Aire Road and Ascension Drive, headlights of cars traveling nearby, outdoor and indoor lighting from the adjacent residential uses, and outdoor lighting from the College of San Mateo.

4.1.3 Regulatory Context

San Mateo County General Plan

The County General Plan was adopted in 1986 and serves as a guide for land development and conservation; it sets forth goals and policies for the future development of the County in part by

directing preservation and enhancement of aesthetic resources. Polices applicable to the Proposed Project are listed in **Table 4.1-1** at the end of this section.

4.1.4 Impacts and Mitigation Measures

Method of Analysis

Views within the viewshed are described by expressing the strength of the viewing experience, framed within the analytical criteria listed below. While the viewing experience is personal and subjective in nature, the application of these criteria allows for an objective baseline assessment of the visual environment and subsequent visual impacts of the Proposed Project. The visual experience within each view is comprised of the following constituent elements:

1) Clarity in Line of Sight—the overall visibility of the object within the viewshed, influenced by such factors as trees, buildings, topography or any other potential visual obstruction.
2) Duration of Visibility—the amount of time the object is exposed to viewers within the viewshed. For example, a passing commuter will experience a shorter period of viewing time than a resident within the viewshed.
3) Proximity of the Viewer—the effects of foreshortening due to the distance of the viewer from the object will influence the dominance of the object in the perspective of the viewer.
4) Number of Viewers—the number of viewers anticipated to experience the visual character of the object.

The primary views of the project site are experienced by residents along Parrott Drive, Bel Aire Road, Ascension Drive, Los Altos Drive, Polhemus Road, and Bunker Hill Drive. In addition the site is visible from the College of San Mateo, and I-280. The site is topographically prominent with minimal obstructing vegetation or structures. All of these viewers have an open view of the site.

Figures 4.1-2a and **4.1-2b** consist of an aerial view of the project site with representative views of the project site from the roadways and neighborhoods directly adjacent to the site and from the College of San Mateo; these representative views are exactly the same as those shown in **Figures 4.1-1a** and **4.1-1b**. In addition, visual representations of the likely residential structures that would be developed for the Proposed Project were added to **Figures 4.1-2a** and **4.1-2b** and are shown in pink. The representative residential structures were assumed to occupy the maximum building footprint shown in **Figure 3-4**, which assumes 40 percent of the square footage of each lot would be developed with 20-foot setbacks for the front and rear and 5-foot setbacks for the sides of structures. The height of the representative residential structures is conservatively shown as approximately 36 feet tall, does not include any adjustments for grading or fill, and assumes that all of the development footprint would be at the maximum height. Further, landscaping has not been added. This conservative approach was used to display the worst case scenario of potential impacts of the Proposed Project on aesthetic resources. A rendering of a view of the proposed residences with landscaping is presented as **Figure 4.1-3**.

SOURCE: Microsoft aerial photograph, 10/26/2010; AES, 2013

Figure 4.1-2a
Post-Development Surrounding Views of Project Site

SOURCE: Microsoft aerial photograph, 10/26/2010; AES, 2013

Figure 4.1-2b
Post-Development Surrounding Views of Project Site

SOURCE: Lea & Braze Engineering, 2015; AES, 2015

Figure 4.1-3
Visual Rendering

Significance Criteria

Criteria for determining the significance of impacts to visual resources have been developed based on Appendix G of the California Environmental Quality Act's (CEQA) *Guidelines* and relevant agency thresholds. Impacts associated with aesthetics would be considered significant if the Proposed Project would:

- Result in the substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare which would adversely affect day or nighttime views.

Project Specific Impacts and Mitigation Measures

Impact

4.1-1 The Proposed Project could have a substantial adverse effect on a scenic vista; could substantially damage scenic resources, including trees; and could substantially degrade the existing visual character or quality of the site and its surroundings.

As discussed in **Section 4.1.2,** the area surrounding the project site consists primarily of single-family residential neighborhoods, with a junior college campus located 0.25 mile northeast. Although not specifically designated as a scenic resource in the County General Plan or other local plans, the project site can be glimpsed from I-280, which is designated a scenic roadway. Additionally, the elevation of the project site is such that the top of the hill is visible from surrounding areas, such as the College of San Mateo (**Figure 4.1-1b**). The undeveloped setting and vegetation of the project site is considered visually appealing by local residents and travelers along local roadways. The water tank/cell transmitter, which are located on the top of the hill of the project site but are not a part of the project site, are almost entirely shielded by Monterey pine trees (**Figure 4.1-1a**), and the existing access road on the project site is only visible at its intersection with Bel Aire Road and along the northwestern edge of the project site.

The Proposed Project would result in a visual change to the project site by converting approximately 5.5 acres of a 13.3-acre area to a residential development. This includes 19 single-family residential units, a new street, and associated infrastructure. Approximately 7.8 acres would remain as dedicated open space and would include foot trails and approximately 0.45 acres of protected area in the west corner of the project site. The anticipated changes to each of the representative views described in **Section 4.1.2** are provided below (refer to **Figures 4.1-2a** and **4.1-2b**):

- Bel Aire Rd Looking Southeast (**Figure 4.1-2a**). The representative residential structures are not visible from this location. The existing access road that intersects with Bel Aire Road would be modified and widened to a new private street. The existing vegetation along the northwest edge of the project site would be removed to accommodate a safe

site distance from the new street. As a result of the street development and tree removal, portions of the proposed residences would be visible from Bel Aire Road.

- Ascension Dr and Bel Aire Rd Looking East (**Figure 4.1-2a**). Some of the representative residential structures located in the western portion and northern-most corner of the proposed development are visible from this location. The cut slopes and shelves, drainage structures, and existing vegetation located along the northwestern and southwestern slopes of the project site would remain.
- Ascension Dr Looking Northeast (**Figure 4.1-2a**). Some of the representative residential structures located in the southwestern portion of the proposed development are visible from this location. The existing vegetation along the southwestern slope of the project site as well as more of the existing drainage structures would remain.
- Ascension Dr Looking Northwest (**Figure 4.1-2a**). Some of the representative residential structures located in the southwestern portion of the proposed development are visible from this location. The existing water tank, Monterey pine trees that surround the water tank/cell transmitter, and power lines would remain visible from this location.
- Northern Parrott Dr Looking South (**Figure 4.1-2b**). Portions of some of the representative residential structures located in the northeastern portion of the proposed development are visible from this location. The landscaping in the rear of the residences almost completely shields views of and from the representative residential structures.
- Parrot Dr Looking Southwest (**Figure 4.1-2b**). Some of the representative residential structures located in the northeastern portion of the proposed development are visible from this location. The landscaping in the rear of the residences shields some views of and from the representative residential structures.
- College of San Mateo Looking Southwest (**Figure 4.1-2b**). Some of the representative residential structures located in the northeastern portion of the proposed development are visible from this location.
- Southern Parrott Drive Looking Southwest (**Figure 4.1-2b**). Some of the representative residential structures located in the eastern portion of the proposed development are visible from this location. The landscaping in the rear of the residences does not shield views of and from the representative residential structures.

While the Proposed Project would convert approximately 40 percent of an area that is currently valued as natural scenery in an urban setting to an urban development and thereby change the amount of open space and associated visual resources, the Proposed Project does not constitute a change in the visual character or quality of the area given that the surrounding area is primarily single-family residential neighborhoods. As discussed in **Section 3.4**, all aspects of the Proposed Project would be designed to be consistent with surrounding neighborhoods and to utilize similar architectural themes as those of surrounding houses consistent with the Ascension Heights Design Handbook (**Appendix J**). Landscaping would be designed to be consistent with surrounding neighborhoods and to screen existing viewsheds from the new development as shown in **Figure 3-5** and **Appendix K**. Approximately 60 percent of the project site would be designated as open space, primarily in the areas most visible from surrounding roadways and neighborhoods, which would therefore preserve natural scenery. A rendering of the views from the proposed open space is presented in **Figure 4.1-4**. With additional landscaping around the new residences, it is likely that portions of the structures would be screened from views. Local

SOURCE: Lea & Braze Engineering, 2015; AES, 2015

Figure 4.1-4
Visual Rendering

planning policies and regulations policies are intended to ensure aesthetic compatibility of the project with its surroundings, and the Proposed Project is subject to approval by the Planning Commission, which will include a review of aesthetic details.

That being said, construction of the Proposed Project would result in the removal of approximately 43 of the 78 trees on the project site (approximately 55 percent). Tree removal could damage scenic resources and degrade a scenic vista. Further, tree removal constitutes degradation of a community of trees under Section 12,016 of the County Ordinance Code and could result in a thinning of the dense vegetation located along the northeastern edge of the project site between the project site and the existing residences along the southern side of Parrot Drive. Presently, some of the proposed residences are visible from portions of Parrot Drive, and reducing the vegetation located along the rear of existing residences may increase views of the proposed residences and therefore change the visual character and quality of the project site as viewed from Parrot Drive. This would constitute a significant impact. A Preliminary Plant Palate is included as **Figure 3-5** which identifies the types of vegetation and trees that would be planted to assist in screening of the views of the Proposed Project. In addition, ~~In addition,~~ **Mitigation Measures 4.1-1a** and **4.1-1b** are included below to address these potential impacts and ensure a finalized landscaping plan is submitted for review and approval. With implementation of mitigation measures, impacts of the Proposed Project to scenic vistas; scenic resources, including trees; and the existing visual character or quality of the site and its surroundings would be considered less than significant. **Less than Significant with Mitigation.**

Mitigation Measure 4.1-1a: Prior to recordation of the Final Map, the project applicant shall submit a final landscape plan for review and approval by the San Mateo County Planning Department (County Planning Department). The landscape plan shall include the location, size, and species of any proposed landscaping and shall include, but not be limited to, hedges or other appropriate vegetation that will provide opaque screening between the northeastern edge of the project site and the residences along the southern side of Parrott Drive. In addition, all proposed landscaping shall be of native, non-invasive species. Areas used for the storage of landscape maintenance or other equipment, supplies, or debris shall be shielded from view by fencing, landscaping or other means. Prior to final approval of the Final Map, a site inspection shall be required by the County Planning Department to verify that all approved landscaping has been implemented or bonds posted for performance and maintenance. All perimeter landscaping shall serve to screen and/or enhance views of the project site from surrounding roadways and neighborhoods.

Mitigation Measure 4.1-1b: The project applicant shall submit an application for a permit to remove trees consistent with Section 12,000 of the County Ordinance Code. The application shall include a tree replacement plan that shall not exceed the following specifications:

- For each loss of a significant indigenous tree, there shall be a replacement with three or more trees, as determined by the Planning Director, of the same species using at least five gallon size stock.

- For each loss of a significant exotic tree there shall be a replacement with three or more trees, as determined by the Planning Director that the substitute tree can survive and flourish in the regional climatic conditions.
- Replacement trees for trees shall require a surety deposit for both performance (installation of tree, staking, and providing an irrigation system) and maintenance. Maintenance shall be required for no less than two and no more than five years as determined by the Planning Director.

A discussion of the Proposed Project's consistency with applicable County General Plan policies related to scenic and visual resources is provided in **Table 4.1-1**; the Proposed Project as designed and with implementation of the mitigation measures is consistent with the relevant policies of the County General Plan.

TABLE 4.1-1

CONSISTENCY WITH COUNTY GENERAL PLAN AESTHETIC POLICIES

Land Use Plan Policy	Consistent	Discussion
4.14 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.	**Yes**	The Proposed Project is subject to approval by the Planning Commission, which will allow for regulation of aesthetic considerations and visual quality.
4.15 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.	**Yes**	The Proposed Project is subject to approval by the Planning Commission. Policy 4.15 encourages the applicant to prepare supplemental site and architectural design guidelines.
4.20 Utility Structures: Minimize the adverse visual quality of utility structures, including roads, roadway and building signs, overhead wires, utility poles, T.V. antennae, windmills and satellite dishes.	**Yes**	While there are above ground utility structures such as utility poles and overhead wires in the area around the Proposed Project, these utilities will be placed underground. There is the existing water tank/cell transmitter parcel that is not part of the project. Project sponsored wall will surround the water tank/cell parcel.
4.21 Scenic Corridors: Protect and enhance the visual quality of scenic corridors by managing the location and appearance of structural development.	**Yes**	I-280 is listed as a scenic highway. While there would be an increased developed feel and, during construction, the site would have short term visual impacts, once construction and landscaping are in place there would be no significant change in the visual quality of the corridor. In addition, the largest portion of open space remaining on site would be visible from I-280.
4. 25 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.	**Yes**	The Proposed Project will require a County grading permit, which will ensure the Proposed Project is designed such that graded areas blend with adjacent landforms.

Land Use Plan Policy	Consistent	Discussion
4.27 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.	**Yes**	The Proposed Project will be partially visible along an existing open ridgeline that is part of a public view. However, given the topography of the project site, no alternative building sites exist on the project site aside from the areas along the ridgeline.
4.28 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.	**Yes**	The Preliminary Plant Palate identifies preservation of several trees and the use of native plants and vegetation to enhance the open space aesthetics on the project site. The final landscape plan required under **Mitigation Measure 4.1-1a** will ensure the Proposed Project is designed such that trees and vegetation beyond the development footprint are preserved, special protection to large and native trees will be provided, and trees and vegetation removed during construction will be replaced with native plants wherever possible.
4.29 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.	**Yes**	The Preliminary Plant Palate identifies the use of native vegetation and trees to provide the transition from the residences to the open space. In addition, natural vegetation would be utilized to screen the views from along the property boundaries, with emphasis on utilizing a mixture~~s~~ of trees and plants to screen the northern boundary of the project site from the residences along Parrot Drive. The landscape plan required under **Mitigation Measure 4.1-1a** will ensure the Proposed Project is designed such that the transition between development and open space is smooth through the use of landscaping and natural vegetation is used for screening purposes.
4.30 Public Utilities: Encourage the placement of new and existing public utility lines underground.	**Yes**	As proposed, the project will be placing new utility lines underground.
4.35 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.	**Yes**	All development and structures of the Proposed Project would be designed to be consistent with surrounding neighborhoods and to utilize similar architectural themes as those of surrounding houses. The Proposed Project is subject to approval by the Planning Commission, which will ensure the Proposed Project is designed to maintain the appearance and visual character of the neighborhood such that it contributes to the orderly and harmonious

Land Use Plan Policy	Consistent	Discussion
		development of the locality.
4.39 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.	**Yes**	Although the project site would be partially visible along portions of I-280, a designated scenic highway, the visual change induced by the Proposed Project would not substantially degrade the visual character or visual quality of the project site and its surroundings as the Proposed Project will be consistent with the design of the surrounding developed land.
4.46 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.	**Yes**	Although the project site would be partially visible along portions of I-280, a designated scenic highway, the surrounding area does not constitute a rural scenic corridor. Additionally, as stated in the project description, the architectural design of structures would be consistent with surrounding neighborhoods (**Section 3.4.2**) and thereby would not substantially degrade the visual character or visual quality of the project site and its surroundings.
4.57 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.	**Yes**	The Proposed Project would result in the removal of approximately 55 percent of the trees on the project site (approximately 43 of the 78 trees). However, removal will be completed in accordance with existing regulations. The landscape plan required under **Mitigation Measure 4.1-1a**, and the replanting plan required under **Mitigation Measure 4.1-1b** will ensure the Proposed Project is designed such that trees and vegetation are preserved where feasible and those trees removed will be replaced at a minimum of a three to one ratio.
4.59 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.	**Yes**	The Proposed Project would introduce new sources of outdoor light from street lights, exterior lighting at residences, and cars driving along residential streets; however, the surrounding urban uses will buffer the overall visual effect as observed from I-280.
4.60 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.	**Yes**	The proposed access roadway and residential driveways will not be visible within the I-280 scenic corridor.
4.61 Parking and Paved Areas: Integrate paved areas with their site and landscape and/or screen them to reduce visual impact from the scenic corridor.	**Yes**	The proposed access roadway, residential driveways, and parking areas will not be visible within the I-280 scenic corridor.
4.62 Storage Areas: Screen areas used for the storage of equipment, supplies or debris by	**Yes**	The landscape plan required under **Mitigation Measure 4.1-1a** will ensure the Proposed Project is

Land Use Plan Policy	Consistent	Discussion
fencing, landscaping or other means so they are not visible from scenic roadways, trails, parks, and neighborhoods.		designed such that storage areas are not visible from surrounding scenic roadways, trails, open space, and neighborhoods.
4.64 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.	**Yes**	As proposed, the project will be placing new utility lines underground.
Source: SMC,1986a		

Impact

4.1-2 The Proposed Project would not create a significant new source of substantial light or glare which could adversely affect day or nighttime views.

The Proposed Project would introduce new sources of light on the property mainly through street lights, exterior lighting at residences, and cars driving along residential streets, which are considered common and necessary light sources for residential areas by the County. The project site will be annexed into the County-governed Bel Aire Lighting District, and therefore street lights will be consistent with County regulations. The exterior and interior lighting associated with the residences would be designed not to infringe on adjacent properties or people traveling on roadways. These types of light sources that would be introduced as a result of the Proposed Project are frequent in the neighboring residential developments and would not constitute a significant new source of light; therefore, the impact of such lighting on these areas would be negligible.

Glare can result from the use of lighting during the nighttime, which reduces visibility of the sky both at the point of light production and in its surrounding areas. No standards have been adopted by the County related to glare impacts, and there is no commonly accepted method of quantifying glare impacts. While glare will occur from the increase in light sources on the project site, the surrounding urban uses will buffer the overall visual effect. The resulting change in nighttime glare at the project site would not substantially alter views.

The impacts of light and glare from the Proposed Project would therefore be less than significant. **Less than Significant.**

Cumulative Impacts

4.1-3 The Proposed Project in combination with cumulative development surrounding the project site would not significantly impact visual resources nor create new sources of light and glare.

The project site and the surrounding lands to the east, west, and south are designated for

residential uses, while the lands to the north are designated for residential uses and the College of San Mateo. Cumulative impacts in the vicinity of the project site include development projects that are located at least 0.5 mile from the project site (**Table 5-1**). Given the distance, the additive impact to visual resources would be minimal. The Proposed Project would include exterior and interior lighting, such as street lights and residential lighting, that is designed not to infringe on adjacent properties or people traveling on roadways and therefore would not be additive to potential light and glare from additional planned development in the area. Although development of the Proposed Project would create new sources of light, it would not negatively affect the ambient light in the project area. Therefore, the Proposed Project's contribution to visual resource impacts and light and glare generation would not be cumulatively considerable. **Less than Significant.**

4.2 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

4.2.1 INTRODUCTION

This section addresses the potential for the Proposed Project to impact air quality and climate change. Following an overview of the existing air quality and climate change settings in **Subsection 4.2.2** and the relevant regulatory setting in **Subsection 4.2.3**, project-related impacts and recommended mitigation measures, if any, are presented in **Subsection 4.2.4**.

4.2.2 ENVIRONMENTAL SETTING

Local air quality is influenced greatly by regional climate, topography, and pollutant sources. The project site is within the San Francisco Bay Area Air Basin (SFBAAB). The physical characteristics of the SFBAAB provide for the potential for high concentrations of pollutants due to emissions sources within the SFBAAB.

Climate and Topography

The project site is subject to a coastal climate regime. Summer months are often characterized by the presence of a semi-permanent high-pressure cell centered over the California Coast. This high pressure cell sits off the California coast and is the main influence on air quality in the SFBAAB. The SFBAAB is infrequently influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are generally weak and diffuse by the time they reach the San Francisco Bay Area (Bay Area).

The average annual rainfall at the project site is 20.90 inches, with 83 percent of the precipitation occurring from November through March. The project region experiences fog more than 120 days per year. Summer maximum temperatures average 71.0 degrees Fahrenheit (ºF) in July, and winter minimum temperatures average 42.5 ºF in January (WRCC, 2013).

The project site is situated between the Pacific Ocean to the west and the San Francisco Bay (Bay) on the east. Land rises from the Bay and peaks west of the project site at approximately 1,600 feet above mean sea level (amsl). Elevation on the project site ranges from 440 to 600 feet amsl. Winds originating from the open ocean find their way into the Bay and are swept southward through the southern portion of the Bay. Both easterly and southerly winds originating in the Bay Area transport pollutants into California's Central Valley.

Criteria Air Pollutants (CAPs)

The United States Environmental Protection Agency (USEPA) has identified six criteria air pollutants (CAPs) that are both common and detrimental to human health. These CAPs are used as indicators of regional air quality. The six CAPs include ozone (O_3), carbon monoxide (CO), particulate matter (PM) 10 and 2.5 microns in size (PM_{10} and $PM_{2.5}$), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). The California Environmental Protection Agency (CEPA) has identified four additional CAPs: sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles.

CAPs are classified in each air basin, county, or, in some cases, within a specific area. The classification is determined by comparing actual monitoring data with federal and State ambient air quality standards

(refer to **Section 4.2.3**). If a CAP's concentration is lower than the standard or not monitored in an area, the area is classified as attainment or unclassified; unclassified areas are considered attainment areas. If an area exceeds the standard, the area is classified as a non-attainment area for that CAP.

Existing Air Quality

Table 4.2-1 shows the federal and California Ambient Air Quality Standards (CAAQS) and attainment status for the Bay Area Air Quality Management District (BAAQMD). The SFBAAB is designated as non-attainment for ozone and PM_{10} under the CAAQS and a non-attainment area for PM_{10} under the federal standard (the National Ambient Air Quality Standards [NAAQS]). These pollutants are therefore considered pollutants of concern for the SFBAAB. Although the SFBAAB is designated as an attainment area for carbon monoxide under federal and State standards, there is a potential for high concentration to accumulate under certain conditions, such as when there is prolonged vehicle idling at intersections that have reached or exceed their capacity.

TABLE 4.2-1

AMBIENT AIR QUALITY STANDARDS AND STATUS

Pollutant	Standard		Status	
	California	Federal	California	Federal
Ozone (1-hour)	0.09 ppm	N/A	N	-
Ozone (8-hour)	0.070 ppm	0.075 ppm	N	N
PM_{10} (24-hour)	50 µg/m^3	150 µg/m^3	N	U
$PM_{2.5}$ (annual)	12 µg/m^3	15 µg/m^3	N	A
$PM_{2.5}$ (24-hour)	-	35 µg/m^3	-	N
Carbon Monoxide (8-hour)	9.0 ppm	9 ppm	A	A
Nitrogen Dioxide (annual)	0.030 ppm	0.053 ppm		A
Nitrogen Dioxide (1-hour)[1]	0.18 ppm	0.100 ppm	A	U
Lead (calendar quarter)	-	1.5 µg/m^3	-	A
Sulfur Dioxide (24-hour)	0.04 ppm	0.14 ppm	A	A
Visibility Reducing Particles	EC[2]	-	A	-
Sulfates (24-hour)	25 µg/m^3	-	A	-
Vinyl Chloride (24-hour)	0.010 µg/m^3	-	NI	-
Hydrogen Sulfide (1-hour)	0.03 ppm	-	U	-

Note: PM_{10} and $PM_{2.5}$ = particulate matter 10 and 2.5 microns in size, respectively; A = Attainment; N = Non-attainment; U = Unclassified, NI = No information available.
[1] Effective January 22, 2010, attainment/non-attainment areas have not been established under federal standard.
[2] Extinction coefficient of 0.23 kilometer when relative humidity is less than 70 percent.
Source: BAAQMD, 2013.

In addition to CAPs, toxic air contaminants (TACs) are substances that are known or suspected to be emitted in California and are classified by the California Air Resource Board (CARB) as having potential adverse health effects. The health effects associated with the SFBAAB pollutants of concern, including the TAC diesel particulate matter (DPM), are summarized below.

Ozone (O_3)

Ozone is created in the presence of sunlight through a photochemical reaction involving reactive organic gas (ROG) and nitrogen oxides (NOx). ROG and NOx are a result of incomplete combustion of fossil fuels, which is the largest source of ground-level ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. As a photochemical pollutant, ozone is formed only during daylight hours under appropriate conditions, but is destroyed throughout the day and night. Ozone is considered a regional pollutant, as the formation takes place over time and is often most noticeable downwind from the emission sources.

Particulate Matter (PM)

PM is a mixture of microscopic solids and liquid droplets suspended in air. PM is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, soil or dust particles, and allergens (such as fragments of pollen or mold spores). Particulate matter is regulated as either PM_{10} (PM of 10 microns or less in size) or $PM_{2.5}$ (PM of 2.5 microns or less in size), which are the upper limit size restrictions for reaching deep into the lungs (PM_{10}) or reaching the bloodstream ($PM_{2.5}$).

Toxic Air Contaminants (TACs)

DPM is a TAC of concern for the SAFBAAB. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as DPM. DPM differs from many other TACs in that it is not a single substance but rather a complex mixture of compounds. In 1998, the State identified DPM as a TAC. DPM has the potential to cause cancer, premature death, and other health problems. There is also a link between DPM and non-cancer damage to the lungs. Children are the most vulnerable to DPM emissions as their lungs are still developing; the elderly may also be vulnerable to other serious health problems related to DPM emissions. From 2006 through 2008, DPM emissions contributed to approximately 2,000 premature deaths each year in California. Diesel engines also contribute to California's $PM_{2.5}$ air quality problems. In addition, DPM causes visibility reduction and is a potent global warmer. The main carcinogenic constituents within diesel and gas exhaust are as follows:

- Diesel particulate matter;
- Benzene;
- 1,3 Butane;
- Formaldehyde; and
- Acetaldehyde; and

Monitoring

Monitors that collect air quality data are located at monitoring stations throughout California, including the SFBAAB. Some monitoring stations collect data on all federal and State CAPs, while others are specialized and only collect data for certain CAPs. **Table 4.2-2** shows data collected at the monitoring stations for federal and State pollutants of concern nearest to the project site (Redwood City and San Francisco – Arkansas Street).

TABLE 4.2-2

EXCEEDANCES OF FEDERAL AND CALIFORNIA AIR POLLUTION STANDARDS

Pollutant	2010	2011	2012
Ozone (1-hour)[1]			
Highest (ppm)	0.113	0.076	0.063
Days>0.09 ppm	2	0	0
Ozone (8-hour)[1]			
Highest (ppm) (California)	0.077	0.062	0.055
Days>0.07 ppm (California)	1	0	0
Highest (ppm) (federal)	0.077	0.061	0.054
Days>0.75 ppm (federal)	1	0	0
PM_{10}[2]			
California Highest (µg/m3)	39.7	45.6	50.6
Days>50 µg/m3 (California)	*	0	6
$PM_{2.5}$ (annual)			
California Highest (µg/m3)	*	*	*
Days>50 µg/m3 (California)	*	*	*
$PM_{2.5}$ (24-hour)[1]			
Federal Highest (µg/m3)	36.5	39.7	33.3
Days>35 µg/m3 (federal)	1	1	0

Notes:
* There was insufficient (or no) data available to determine the value.
[1] Data provided by the Redwood City monitoring station.
[2] Data provided by the San Francisco – Arkansas Street monitoring station.
Source: CARB, 2013b.

Sources

There are many sources of CAPs in the SFBAAB. These sources can be divided into three categories: mobile, stationary, and "area" sources. Mobile sources consist of on-road vehicles and off-road recreational vehicles, as well as mobile construction equipment. Stationary sources consist of large industrial or commercial polluters that generally emit via a stack. Stationary sources can also be smaller, such as small emergency generators or boilers. Area source emissions are normally produced by processes and products that are individually small, but are numerous and widely dispersed. Normally, these sources are associated with everyday activities such as landscape maintenance, painting, and the use of fireplaces and barbecues. CARB maintains an emission inventory of air pollutants for California's air basins as well as for the counties inside those air basins. **Table 4.2-3** presents the latest emission inventory of CAPs for San Mateo County (County).

Table 4.2-3 shows the greatest emission source of CAPs is from mobile sources. Mobile sources are the main source of CAPs in the region, with the exception of ROG emissions from waste disposal, which comes in the form of methane (CH_4).

TABLE 4.2-3

SAN MATEO COUNTY 2008 EMISSIONS INVENTORY

Source Category	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
	tons per day					
Stationary Sources						
Fuel Combustion	0.36	0.14	1.63	1.61	0.03	0.21
Waste Disposal	56.55	1.35	0.43	0.11	0.03	0.03
Cleaning and Surface Coatings	4.61	3.5	0	0	-	-
Petroleum Production and Marketing	3.93	1.32	-	-	-	-
Industrial Processes	1.46	1.11	0	0.02	-	1.06
Area-Wide Sources						
Solvent Evaporation	8.61	7.65	-	-	-	-
Miscellaneous Processes	5.05	1.06	10.95	1.89	0.05	31.95
Mobile Sources						
On-Road Motor Vehicles	11.68	10.7	106.19	16.29	0.1	0.91
Other Mobile Sources	9.4	8.49	54.95	37.73	7.92	2.13
Total San Mateo County	**101.65**	**35.31**	**174.15**	**57.65**	**8.13**	**36.29**

Source: CARB, 2013a.

Climate Change

Introduction

The fifth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC) had not yet been completed at the time of this Draft EIR; however, the Summary for Policymakers of the Working Group I contribution to the Fifth Assessment Report was approved and the full report accepted by the IPCC on September 27, 2013. The finalized version of the Summary for Policymakers was published on November 11, 2013. The fifth Assessment Report will provide a clear view of the current state of scientific knowledge relevant to climate change. It will comprise three Working Group reports and a Synthesis Report. The fifth Assessment Report is anticipated to be completed by October 2014.

It is anticipated that the average global temperature could rise 0.6 degrees Celsius (^{o}C) (1.08 ^{o}F) to 4.0 ^{o}C (7.2 ^{o}F) between the years 2000 and 2100 (IPCC, 2007). The extent to which human activities affect global climate change is a subject of considerable scientific debate. While some in the scientific community contend that global climate variation is a normal cyclical process that is not necessarily related to human activities, the IPCC report identifies anthropogenic green house gases (GHGs) as a contributing factor to changes in the Earth's climate (IPCC, 2007). Preferring to err on the side of caution, the analysis in this Draft EIR assumes anthropogenic GHGs are contributing to global climate changes.

The U.S. Supreme Court has held that carbon dioxide (CO_2, a GHG) falls under the Clean Air Act's (CAA's) definition of an "air pollutant." Therefore, the USEPA has statutory authority to regulate the emissions of this gas. Further, *Massachusetts v. Environmental Protection Agency, U.S., 1275 S.Ct. 1438, 1462* (2007), concluded that GHG emissions from human activities would result in an additional warming of the Earth's surface.

The Greenhouse Effect and Climate Change

Primary sources of GHG emissions in the County include vehicles, trucks, airplanes and airports, natural gas dispensing stations, and electricity generation facilities. Additionally, there are many other sources of GHG emissions in the vicinity of the project site.

According to the County's Vulnerability Assessment, three primary climate conditions are projected to change in the County region: temperatures in the County are expected to increase between 1.6^{o}F by 2030 and 2.8^{o}F by 2050; precipitation is anticipated to moderately increase; and sea level is anticipated to rise by 7 inches above 2000 baseline levels by 2030 and by 14 inches above 2000 baseline levels by 2050.

According to the IPCC and the USEPA, temperatures in California could increase by about 5 ºF in winter and summer and by about 4ºF in spring and fall over the next 100 years. Precipitation is projected to change little in the spring, summer, and fall and to increase by about 10 percent in winter. The frequency of extreme hot days in summer is expected to increase along with the general warming trend. A recent study issued by the U.S. Department of Energy predicts similar climatic changes for the region.

Carbon Dioxide Equivalent

Carbon dioxide equivalent (CO_2e) is a method by which GHGs values other than CO_2 are converted to a similar CO_2 emissions value based on a heat-capturing ratio for the purposes of analysis and discussion. As shown in **Table 4.2-4**, CO_2 is used as the base and is given a value of one.

TABLE 4.2-4

GREENHOUSE GAS CO_2 EQUIVALENT

GHG Gases	CO_2e Value
CO_2	1
CH_4	21
N_2O	310
HFCs/PFCs	140 -23,900
SF_6	23,900

Source: IPCC, 2007.

CH_4 has the ability to capture 21 times more heat than CO_2; therefore, CH_4 is given a CO_2e value of 21. Emissions are multiplied by the CO_2e value to achieve one GHG emission value. By providing a common measurement, CO_2e provides a means for presenting the relative overall effectiveness of emission reduction measures for various GHGs in reducing project contributions to global climate change.

Diesel Particulate Matter (DPM)

The main source of DPM in the vicinity of the project site is diesel-powered vehicles, which largely operate on arterial roadways or freeways such as State Route 92 (SR-92), Interstate 280 (I-280), Polhemus Road, and De Anza Boulevard. Other sources of DPM emissions come from the operation of emergency generators.

Odor

The land west, southwest, and northwest of the project site is mainly residential land use, which is not considered an odor source by the BAAQMD. There are no odor sources within the vicinity of the project site.

Sensitive Receptors

Some receptors are considered more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions and odor sources, or duration of exposure to air pollutants or odors. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality related health problems. Residential areas are considered sensitive to poor air quality, because people usually stay home for extended periods of time, with greater associated exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system.

The land surrounding the project site is residential. The nearest residential sensitive receptors are located adjacent to the project site to the north. The nearest school is the College of San Mateo, which is located approximately 1,600 feet northwest of the project site. There are no medical facilities within five miles of the project site.

4.2.3 Regulatory Context

Federal

The federal CAA was enacted for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity.

In 1971, the USEPA developed primary and secondary NAAQS. Six pollutants of primary concern were designated: CO, ozone, PM, sulfur dioxide, NO_X, and lead. The primary NAAQS must "protect the public health with an adequate margin of safety," and the secondary standards must "protect the public welfare from known or anticipated adverse effects (aesthetics, crops, architecture, etc.)." The primary standards were established, with a margin of safety, considering long-term exposures to the most sensitive groups in the general population. The USEPA allows states the option to develop different (stricter) standards. California elected this option and adopted standards that are more stringent.

If an air basin is not in federal attainment (e.g. does not meet federal standards provided in **Table 4.2-1**) for a particular pollutant, the basin is classified as a marginal, moderate, serious, severe, or extreme non-attainment area. Non-attainment areas must take steps towards attainment by a specific timeline. These steps include establishing a transportation control program and clean-fuel vehicle program, decreasing the emissions threshold for new stationary sources and major sources, and increasing the stationary source emission offset ratio to at least 1.3:1. The above programs are published in the State Implementation Plan (SIP), which is approved by the USEPA.

The SIP is a number of documents that set forth a state's strategies for achieving federal air quality standards. The Code of Federal Regulations (CFR Title 40, Chapter I, Part 52, Subpart F, §52.220) lists all of the items that are included in the California SIP. The SIP is not a single document, but a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, State regulations, and federal controls. Many of California's SIPs detail control strategies, such as emission standards for cars and heavy trucks, fuel regulations, and limits on emissions from consumer products. Local air districts and other agencies, such as the Bureau of Automotive Repair, prepare SIP elements and submit them to CARB for review and approval. State law makes CARB the lead agency for all purposes related to the SIP.

Climate Change

Federal

In 1997, the Council on Environmental Quality (CEQ) circulated an internal draft memorandum (CEQ, 1997a) on how global climate change should be treated for the purposes of the National Environmental Policy Act (NEPA). The CEQ draft memorandum advised federal lead agencies to consider how proposed actions subject to federal environmental review would affect sources and sinks of GHGs. During the same year, CEQ released guidance on the assessment of cumulative effects in federal environmental review documents (CEQ, 1997b). Consistent with the CEQ draft memorandum, climate change impacts were offered as one example of a cumulative effect.

The following are the most recent regulatory actions taken by the USEPA:

- On July 23, 2009, USEPA published a final "rule which proposes to establish the criteria for including sources or sites in a Registry of Recoverable Waste Energy Sources (Registry)," as required by the Energy Independence and Security Act of 2007. Waste energy can be used to produce clean electricity. The clean electricity produced by waste energy would reduce the need for non-renewable forms of electricity production, thus GHG emissions.
- On September 15, 2009, USEPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) proposed a new national program that would reduce GHG emissions and improve fuel economy for all new cars and trucks sold in the United States. The USEPA proposed the first national GHG emissions standards under the CAA, and NHTSA proposed an increase in the Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act.
- In response to the FY2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110–161), the USEPA issued the Final Mandatory Reporting of Greenhouse Gases Rule. Signed by the Administrator on September 22, 2009, the rule requires that suppliers of fossil fuels and industrial GHGs, manufacturers of vehicles and engines outside of the light duty sector, and facilities that emit 25,000 metric tons or more of GHGs per year to submit annual reports to USEPA. The rule is intended to collect accurate and timely emissions data to guide future policy decisions on climate change.
- On September 30, 2009, the USEPA proposed new thresholds for GHG emissions that define when CAA permits under the New Source Review and Title V operating permits programs would be required. The threshold was set at 25,000 metric ton of GHG emissions.

State

CARB, a part of the CEPA, is responsible for the coordination and administration of both federal and State air pollution control programs within California. In this capacity, CARB conducts research, sets CAAQS, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's SIP, for which it works closely with the Air Quality Management District's (AQMDs) and the USEPA.

California Clean Air Act (CCAA)

The California Clean Air Act (CCAA) of 1988 requires non-attainment areas to achieve and maintain the CAAQS by the earliest practicable date, as well as requires local air districts to develop plans for attaining the State ozone, CO, sulfur dioxide, and NOx standards.

Climate Change

California has been a leader among the states in outlining and aggressively implementing a comprehensive climate change strategy that is designed to result in a substantial reduction in total statewide GHG emissions in the future. California's climate change strategy is multifaceted and involves a number of State agencies implementing a variety of State laws and policies. Laws and policies are summarized below.

Assembly Bill 1493

Signed by the Governor in 2002, Assembly Bill (AB) 1493 requires that the CARB adopt regulations requiring a reduction in GHG emissions emitted by cars in the state. The USEPA granted California's waiver request enabling the State to enforce its GHG emissions standards for new motor vehicles. With the granting of the waiver on June 30, 2009, it is expected that the regulations will reduce GHG emissions from California passenger vehicles by about 22 percent in 2012 and about 30 percent in 2016 (CARB, 2009).

Executive Order S-3-05

Executive Order (EO) S-3-05 was signed by the Governor on June 1, 2005. EO S-3-05 established the following statewide emission reduction targets:

- Reduce GHG emissions to 2000 levels by 2010;
- Reduce GHG emissions to 1990 levels by 2020; and
- Reduce GHG emissions to 80 percent below 1990 levels by 2050.

EO S-3-05 created a "Climate Action Team" or "CAT" headed by the CEPA and including several other State jurisdictional agencies. The CAT is tasked by EO S-3-05 with outlining the effects of climate change on California and recommending an adaptation plan. The CAT is also tasked with creating a strategy to meet the target emission reductions. In April 2006, the CAT published an initial report that accomplished these two tasks.

Assembly Bill 32 (AB 32)

Signed by the Governor on September 27, 2006, AB 32 codifies a key requirement of EO S-3-05: the requirement to reduce Statewide GHG emissions to 1990 levels by 2020. AB 32 tasks CARB with monitoring State sources of GHGs and designing emission reduction measures to comply with the law's emission reduction requirements. However, AB 32 also continues the CAT's efforts to meet the requirements of EO S-3-05 and states that the CAT should coordinate overall state climate policy.

In order to accelerate the implementation of emission reduction strategies, AB 32 requires that CARB identify a list of discrete early action measures that can be implemented relatively quickly. In October 2007, CARB published a list of early action measures that could be implemented and would serve to meet about a quarter of the required 2020 emissions reductions (CARB, 2006). In order to assist CARB in identifying early action measures, the CAT published a report in April 2007 that updated their 2006 report and identified strategies for reducing GHG emissions (CAT, 2007). In the October 2007 report, CARB cited the CAT strategies and other existing strategies that may be utilized in achieving the remainder of the emissions reductions. AB 32 required that CARB prepare a comprehensive "scoping plan" that identifies all strategies necessary to fully achieve the required 2020 emissions reductions. On October 8, 2008 CARB released the Climate Change Scoping Plan 2008, and on December 12, 2008, CARB approved the Climate Change Scoping Plan (CARB, 2007). CARB provided an update to the December 2008 Scoping Report in November 2009. The update provided additional reduction strategies and an overview of methods to further reduce GHG emissions in California; however, no definitive numerical GHG emissions threshold was provided.

Executive Order S-01-07

EO S-01-07 was signed by the Governor on January 18, 2007. It mandates a statewide goal to reduce the carbon intensity of transportation fuels by at least 10 percent by 2020. This target reduction was identified by CARB as one of the AB 32 early action measures identified in their October 2007 report.

California Environmental Quality Act (CEQA) Guidelines

On December 30, 2009, the Natural Resources Agency adopted California Environmental Quality Act (CEQA) Guideline Amendments for the quantification and mitigation of GHG emissions. The adopted guidelines provide the following direction for consideration of climate change impacts in a CEQA document:

- The determination of significance of GHG emissions calls for a careful judgment by the lead agency.
- The lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of GHG emissions resulting from a proposed project.
- A model or methodology shall be used to quantify GHG emissions resulting from a CEQA project.
- Significance may rely on qualitative analysis or performance based standards.
- The lead agency may adopt thresholds of significance previously adopted or recommended by other public agencies or recommended by experts.
- The CEQA document shall discuss regional and/or local GHG reduction plans.
- A CEQA document shall analyze GHG emissions if they are cumulatively considerable.

- A description of the effects of climate change on the environment shall be included in CEQA documents.
- A CEQA document shall contain mitigation measures, which feasibly reduce GHG emissions.
- GHG analysis in a CEQA document may be Tiered or Streamlined.

The methodology and basis of calculation for estimating and analyzing GHG emissions resulting from the Proposed Project is based on scientific and factual data and is consistent with the methodology and guidance identified in the CEQA guideline amendments recently adopted by the National Resources Agency.

Senate Bill 375

SB 375 was approved by the Governor on September 30, 2008. SB 375 provides for the creation of a new regional planning document called a "sustainable communities strategy" (SCS). An SCS is a blueprint for regional transportation infrastructure and development that is designed to reduce GHG emission from cars and light trucks to target levels that will be set by CARB for 18 regions throughout California. Each of the various metropolitan planning organizations and the Association of Bay Area Governments (ABAG) must prepare an SCS and include it in that region's regional transportation plan. The SCS would influence transportation, housing, and land use planning. CARB will determine whether the SCS will achieve the region's GHG emissions reduction goals. Under SB 375 certain qualifying in-fill residential and mixed-use projects would be eligible for streamlined CEQA review.

Toxic Air Contaminants (TACs)

TACs are a group of pollutants of concern. TACs are less pervasive in the urban atmosphere than the CAPs, but are linked to short-term (acute) or long-term (chronic) adverse human health effects. There are 244 constituents listed by the State as TACs with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as accidental releases. Vehicles release at least 40 different TACs. Ambient air quality standards have not been set for TACs. Instead, these pollutants are typically regulated through a technology-based approach for reducing TACs. This approach involves requiring facilities to install Maximum Achievable Control Technology (MACT) on emission sources.

Air Toxics Hot Spots Information and Assessment Act of 1987

The Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588), California Health and Safety Code Section 44300 et seq., is the primary air contaminant legislation in California, which provides for the regulation of over 200 TACs, including DPM. Under AB 2588, local air districts may request that a facility account for its TAC emissions. Local air districts then prioritize facilities on the basis of emissions, and high priority designated facilities are required to submit a health risk assessment and communicate the results to the affected public.

Assembly Bill 1807

AB 1807, enacted in September 1983, sets forth a procedure for the identification and control of TACs in California. CARB is responsible for the identification and control of TACs, except pesticide use.

Senate Bill 656

In October 2000, CARB released a report entitled Risk Reduction Plan to Reduce PM Emissions from Diesel-Fueled Engines and Vehicles. This report identifies DPM as the predominant TAC in California and proposes methods for reducing diesel emissions. California propagated SB 656 in 2003, which was implemented to reduce PM (including DPM) in California. CARB approved a list of the most readily available, feasible, and cost-effective control measures that can be employed by air districts to reduce PM in 2004. The list is based on rules, regulations, and programs existing in California as of January 1, 2004, for stationary, area-wide, and mobile sources. As a second step air districts must adopt implementation schedules for selected measures from the list.

Local

Bay Area Air Quality Management District

The project site is located in the SFBAAB, which is under the jurisdiction of the BAAQMD, the regional agency responsible for planning to meet federal and State CAAQS. In order to demonstrate the area's ability to eventually meet the federal and State 8-hour and State 1-hour ozone standards, the Bay Area Air Quality Management District (BAAQMD) maintains the region's portion of the SIPs for ozone. The non-attainment area's part of the SIP is a compilation of regulations that govern how the region and State will comply with the CAA requirements to attain and maintain the federal and State ozone standard. The SIP components for the SFBAAB are located in the BAAQMD's 2010 Clean Air Plan (Bay Area Plan).

Bay Area Air Quality Management District Rules

The BAAQMD has several rules that relate to the Proposed Project, which are summarized below:

Regulation 2 – Permits, the Regulation specifies the requirements for authorities to construct and permits.

Regulation 6, Rule, 1 – General Requirements, Limits the quantity of particulate matter in the atmosphere by controlling emission rates, concentration, visible emissions and opacity.

Regulation 7 – Odorous Substances, Establishes general limitations on odorous substances and specific emission limitations on certain odorous compounds.

Regulation 8, Rule 3 – Architectural Coatings: Sets volatile organic compound (VOC) limits for coatings that are applied to stationary structures or their appurtenances. The rule also specifies storage and cleanup requirements for these coatings.

San Mateo County

The County has developed a Draft Energy Efficiency Climate Action Plan and a General Plan Energy and Climate Change Element. The San Mateo County Supervisors approved the Energy Efficiency Climate Action Plan and General Plan Energy and Climate Change Element on June 4, 2013. These documents provide strategies and policies for reducing the impacts of climate change; strategies and policies relevant to the Proposed Project are provided below.

Energy Efficiency Climate Action Plan

Goal 1: Residential Energy Efficiency

Measure 1.4: Tree Planting: Incentivize or encourage appropriate tree planting near buildings to reduce heat gain and loss and to sequester greenhouse gases.

Goal 3: Energy Efficiency in New Construction

Measure 3.1: Green Building Ordinance: Strengthen the energy efficiency requirements of the existing Green Building Ordinance, which was initially adopted in 2008, with appropriate outreach to stakeholders.

Measure 3.3: Urban Heat Island: Require tree planting, shading design, solar orientation, and "cool" hardscapes.

Measure 3.4: Expedited Permitting: Expedite the review, permitting, and inspection process for projects targeting higher levels of energy reduction than mandated target goals or incorporating renewable energy systems.

Goal 4: Renewable Energy

Measure 4.3: Pre-Wired Solar Homes: Require all new roofs to be pre-wired for solar PV and all new buildings to be plumbed for solar water heaters.

Measure 4.4: Pilot Solar Program: Encourage developers to offer solar PV and solar water heaters as a standard feature on a percentage of new homes in a development and as an upgrade for redevelopment projects in residential and commercial projects.

Measure 4.9: Emissions Offset Programs: Allow new development projects to participate in CO2 offset programs, such as to purchase electricity generated from renewable sources offsite.

County General Plan Energy and Climate Change Element

Goal 2: Maximize energy efficiency in new and existing development.

Policy 2.1: Support energy conservation and efficiency in the existing building stock.

Policy 2.3: Develop a program for unincorporated communities to reduce heat gain in buildings and sequester greenhouse gases through tree planting and other "cooling" strategies.

Policy 2.5: Continue implementation of green building standards that exceed state energy efficiency standards.

Goal 8: Promote and implement policies and programs to reduce water use.

Policy 8.1: Expand infrastructure for monitoring and reusing water.

City of San Mateo General Plan

The City of San Mateo completed its 2030 General Plan Update in 2010. The following guiding and implementing policies under the City of San Mateo General Plan are applicable to the Proposed Project:

Policy

LU 8.9 Air Quality Construction Impacts.

The City shall mitigate air quality impacts generated during construction activities by requiring the following measures:

1) Use of appropriate dust control measures, based on project size and latest BAAQMD guidance, shall be applied to all construction activities within San Mateo.
2) Applicants seeking demolition permits shall demonstrate compliance with applicable BAAQMD requirements involving lead paint and asbestos containing materials designed to mitigate exposure to lead paint and asbestos.
3) Utilization of construction emission control measures recommended by BAAQMD as appropriate for the specifics of the project (e.g. length of time of construction and distance from sensitive receptors). This may include the utilization of low emission construction equipment, restrictions on the length of time of use of certain heavy-duty construction equipment, and utilization of methods to reduce emissions from construction equipment (alternative fuels, particulate matter traps and diesel particulate filters).

Accordance with the Policy LU 8.9 of the General Plan, construction activities associated with individual developments and infrastructure improvements in San Mateo would generate pollutants intermittently. Generally, the most substantial air pollutant emissions would be dust generated from site grading. Wind erosion and disturbance to exposed areas would also be sources of dust emissions. These construction activities would also temporarily create emissions of fumes, equipment exhaust, and other air contaminants. Adherence to the measures noted above will reduce the air impacts generated by construction activities.

LU 8.10 Odors.

When proposed development generating odors is proposed near residences or sensitive receptors, either adequate buffer distances shall be provided (based on recommendations and requirements of the CARB and BAAQMD), or filters or other equipment/solutions shall be provided to reduce the potential exposure to acceptable levels. Potential mitigation associated with this policy requirement will be coordinated with any required permit conditions from BAAQMD.

When new residential or other sensitive receptors are proposed near existing sources of odors, either adequate buffer distances shall be provided (based on recommendations and requirements of the CARB and BAAQMD), or filters or other equipment/solutions shall be provided to reduce the potential exposure to acceptable levels.

Accordance with the Policy LU 8.10 of the General Plan, the BAAQMD CEQA Guidelines classify a project that could create objectionable odors as any of the following: wastewater treatment plant, sanitary landfill, transfer stations, composting facilities, petroleum refineries, asphalt batch plants, chemical manufacturing, fiberglass manufacturing, auto body shops, rendering plants, and coffee roasters. Impacts resulting from odors can result when sensitive receptors (e.g. new residences) are located near the odor sources listed above.

LU 8.11 Toxic Air Contaminants.

The City shall require that when new development that would be a source of TACs is proposed near residences or sensitive receptors, either adequate buffer distances shall be provided based on recommendations and requirements of the CARB and BAAQMD), or filters or other equipment/solutions shall be provided to reduce the potential exposure to acceptable levels.

When new residential or other sensitive receptors are proposed near existing sources of TACs, either adequate buffer distances shall be provided based on recommendations and requirements of the CARB and BAAQMD), or filters or other equipment/solutions shall be provided to reduce the potential exposure to acceptable levels.

Accordance with the Policy LU 8.11 of the General Plan, TACs are another group of pollutants of concern. However, unlike CAPs, no criteria acceptable levels of TACs have been established. There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust.

Diesel exhaust is a TAC of growing concern in California. The CARB in 1998 identified diesel engine particulate matter as a TAC. The exhaust from diesel engines contains hundreds of different gaseous and particulate components, many of which are toxic. Studies show that diesel particulate matter concentrations are much higher near heavily traveled highways and intersections. In the cases noted above, this policy will be implemented by a site specific air quality analysis.

Goal 8a: Reduce GHG emissions each year consistent with the Sustainable Initiatives Plan.

Goal 8b: Recognize potential climate change consequences such as increased sea level rise, changing weather events, less snow met in the Sierras – therefore less drinking water availability, hotter temperatures, changing air quality and more heat related health issues.

LU 8.1 Carbon Footprint.

The City shall update its GHG emissions inventory consistent with the Citywide Climate Action Strategy.

Accordance with the Policy LU 8.9 of the General Plan, The City of San Mateo Carbon Foot, released in October 2007, identified the sources of CO2 on a city wide basis. The Sustainable Initiatives Plan identifies man different ways in whi9ch the City can Proactively address climate change and benefit other environmental issues such as air quality and resource conservation at

the same time. All recommendations in the report reduce GHG emissions if implemented and so, in addition to being the Sustainable Initiatives Plan, this document can be considered as the Citywide Climate Action Strategy.

LU8.2 Effect of Climate Change.
Incorporate consideration of the effects of climate change in development of General Plan updates, disaster planning, City projects, infrastructure planning, future policies and long-term strategies. Explore voluntary adjustments of base flood elevation.

4.2.4 Impacts and Mitigation Measures

Method of Analysis

The analysis in this section focuses on the nature and magnitude of the change in the air quality environment due to construction and operation of the Proposed Project. Emissions resulting from implementation of the Proposed Project are analyzed in two distinct phases, construction and operation. Construction emissions are temporary in nature and do not overlap with operational emissions. During the construction phase, pollutants of concern for the Proposed Project are NO_X, ROG, $PM_{2.5}$, and PM_{10}. During construction, PM emissions are primarily produced during mass and fine grading activities. NO_X, ROG, PM_{10}, and $PM_{2.5}$ are emitted from earth moving activities, combustion of diesel and gasoline fuels by heavy-duty construction equipment, and employee vehicles.

Criteria Air Pollutants (CAPs) - Construction

California Emissions Estimator Model 2013.2.2 (CalEEMod) was used to estimate emissions from all construction-related sources. The results of the CalEEMod modeling are discussed below and output files are provided in **Appendix C**.

CalEEMod provides default values when site-specific inputs are not available. The default values are provided in **Appendix C**. The following site-specific assumptions were used for the purposes of air quality modeling:

- Construction would occur over a period of 27 months.
- Construction would begin in the year 2014.
- 19 single family-homes would be constructed on 13.3 acres.
- 7.8 acres will be maintained as a conservation area.

Resulting emission estimates associated with construction were compared to applicable BAAQMD emission thresholds to evaluate the effects of construction activities on regional air quality.

Criteria Air Pollutants (CAPs) - Operation

CalEEMod was used to estimate emissions associated with operation of the Proposed Project. Input values for the model included CalEEMod defaults and site specific data. The operational effects to air quality were analyzed for both near-term 2016 conditions and cumulative long-term 2030 conditions. Emissions associated with operation were compared to the BAAQMD CEQA guideline emissions thresholds to evaluate the effects of operational activities on air quality.

Trip Generation Rates

The trip generation rates used in the CalEEMod air quality model are from the Traffic Impact Analysis (TIA) (**Appendix H**). The trip generation rates for the project components were determined using the Institute of Transportation Engineers, 9th Edition Trip Generation Manual (ITE). Trips generated by the Proposed Project were calculated using a trip generation rate of 11.99 average weighted trips per day per residence (ITE code 210, source **Appendix H**).

Toxic Air Contaminates – Construction and Operation

Activities generating diesel emissions assessed for impacts on human receptors include on-site heavy-duty construction equipment and off-site material haul vehicles. For the purpose of this health risk assessment, stochastic Monte Carlo analysis is utilized to determine reasonable exposure parameters for a specified set of residential receptors. Cancer risk and chronic and acute health indexes were calculated by using the California Office of Environmental Health Hazard Assessment (OEHHA) risk factors associated with reasonable exposure assessment.

Cancer risk is defined as the probability (chance) of developing cancer as a result of exposure to a carcinogen, typically expressed as the increased chances in one million. The cancer risk for an inhaled air toxic is estimated by multiplying the exposure concentration (in micrograms per cubic meter [µg/m3]), by its cancer "unit risk factor" (URF), which is the estimated lifetime cancer risk for a continuous exposure to 1 $\mu g/m^3$ of the substance over a specified averaging time, usually assumed as 70 years in a URF value. The calculation procedure for lifetime cancer risk assumes that cancer risk is proportional to concentration at any level of exposure; that is, there is no dose that would result in a zero probability of contracting cancer. This is a conservative assumption for low doses but consistent with the current OEHHA regulatory approach.

Non-cancer health risk of an inhaled air toxic is measured by the hazard index, the ratio of the reported concentration of an air toxic compound to an acceptable or "reference" exposure level (REL). Hazard indices can be calculated both on a chronic toxicity and acute toxicity basis. Chronic toxicity is defined as adverse biologic effects caused by prolonged chemical exposure. Since chemical accumulation to toxic levels typically occurs slowly, symptoms of chronic effects usually do not appear until long after exposure commences. The highest no-effect exposure level is the chronic REL. Below this threshold, the body is capable of eliminating or detoxifying the chemicals rapidly enough to prevent accumulation. Acute toxicity is defined as adverse biologic effects caused by a brief chemical exposure.

During construction of the Proposed Project, the most prevalent source of TACs is diesel-fire construction equipment and haul trucks. These sources emit DPM. DPM is a complex mixture of 47 compounds that are classified by CARB as TACs. Fifteen of these substances are either known or probable human carcinogens. The composition of diesel exhaust varies based on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is present. CARB's evaluation of DPM takes into account all of its individual components; therefore, DPM is the only TAC of concern in this analysis for which cancer risk and chronic and acute health hazard indexes (HI) are evaluated.

Lakes AERMET, Version 8.2.0 meteorology processing model was used to process meteorology data from San Francisco Airport and Moffett Field near San Jose, California. The Lakes AERMOD View, Version 8.2.0 dispersion model was used to determine the dispersion pattern of DPM given the local meteorology. AERMOD is a steady-state dispersion model designed for short-range (up to 50 kilometers) dispersion of air pollutant emissions. The AERMET and AERMOD View models are USEPA approved dispersion models. To determine cancer, chronic, and acute risk from exposure to DPM on site and near roadways where project-related vehicles would operate, the Hotspots Analysis Reporting Program (HARP) on-ramp, Version 1 model processed AERMOD output data so it can be imported into HARP. HARP, Version 1.4f risk assessment model was used to determine the potential impact emissions from on and off site emissions of DPM would have on sensitive receptors in the vicinity of the project site.

In order to provide a conservative approach to assessing the cancer and non-cancer risks from construction of the Proposed Project and meet the minimum emissions requirements to use the model, it was assumed that all the DPM sources would emit simultaneously, 24-hours a day for an entire year. Because these assumptions are necessary to run the model, the BAAQMD typically does not recommend that dispersion modeling and the associated health risk assessment be conducted for construction projects due to the intermittent nature of the actual emission sources and short-term duration (8 to 11 hours per day with the majority of emissions occurring during a 30 to 90 day period of grading). However, the modeling was conducted in response to concerns from local residents regarding short-term and long-term impacts from project construction. Accordingly, because of these assumptions utilized in the modeling and the nature of the calculations, comparison of the model results to ambient air quality standards are not appropriate and are misleading. Emissions assessing compliance with the NAAQS and CAAQS are assessed using the California-approved CalEEMOD as described above which determine the pounds per day of emissions from the project in order to assess implications to the overall air quality of the SFBAAB.

Climate Change

Construction and operational GHG emissions were estimated using the 2010 BAAQMD CEQA Guidelines and CalEEMod.

Odors

Odor is subjective and in most cases not quantifiable. Potential odor impacts were analyzed based on an examination of the existing odor sources, potential odor effects of the Proposed Project, and a comparison of those effects to the significance criteria listed below. The BAAQMD does not classify the Proposed Project as an odor emitter nor is the Proposed Project being located in an area where there are odor emitters as defined in the BAAQMD CEQA Guidelines.

Significance Criteria

Criteria for determining the significance of impacts to air quality and climate change have been developed based on Appendix G of the CEQA *Guidelines* and relevant agency thresholds. Impacts to air quality and climate change would be significant if the Proposed Project would:

- Conflict with or obstruct implementation of the applicable air quality plan;

- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase in any CAP for which the project region is non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people;
- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHG.

Based on the above CEQA standards of significance, the BAAQMD have provided the following CEQA significance thresholds for pollutants of concern (BAAQMD, 2010a):

- If during construction the project emits 54 pounds per day of ROG, NOx, or PM2.5 and/or 82 pounds per day of PM_{10}, then project emissions would have a significant effect on regional air quality.
- If during operation the project emits 54 pounds per day or 10 tons per year of ROG, NOx, and/or $PM_{2.5}$ and/or 82 pounds per day or 15 tons per year of PM_{10}, then project emissions would have a significant effect on regional air quality.
- An air quality analysis should address a project's cumulative impact on ozone and localized pollutants. Any proposed project that would individually have a significant air quality impact (see above for project level Thresholds of Significance) would also have a significant cumulative impact.
- Under the BAAQMD Regulation 7, any project that generates odorous emission in quantities as to cause detriment, nuisance, or annoyance to any considerable number of persons or to the public is significant.
- Since CARB and BAAQMD do not have a significant threshold for construction GHG emissions, for this analysis a 26 percent or greater reduction in construction-related GHG emissions would be a less-than-significant impact to global climate change. The 26 percent reduction mirrors the State reduction goal provided in AB 32.
- The BAAQMD CEQA Guidelines operation GHG emissions significance threshold of 1,100 metric tons (MT) per year is used for this analysis.
- In accordance with the 2010 BAAQMD CEQA Guidelines, locating a project adjacent to a roadway which has greater than 10,000 vehicles per day may result in a significant impact due to DPM.
- In accordance with the 2010 BAAQMD CEQA Guidelines, a cancer risk of greater than ten in one million or a chronic or acute health index of greater than 1.0 would be significant.

Project Specific Impacts and Mitigation Measures

Construction Effects

Impact

4.2-1 Construction of the Proposed Project has the potential to generate emissions of ROG,

NOx, PM10, and PM2.5.

Emissions generated from construction activities associated with grading and building resulting from implementation of the Proposed Project would be short-term, intermittent, and temporary in nature. However, these construction emissions have the potential to represent a significant air quality impact. The grading and construction of the Proposed Project would result in the generation of ROG, NOx, PM_{10}, and $PM_{2.5}$ emissions. PM emissions are generally the direct result of site grading, excavation, road paving, and exhaust associated with construction equipment. PM emissions are largely dependent on the amount of ground disturbance associated with site preparation activities. Emissions of NOx and ROG are generally associated with employee vehicle trips, delivery of materials, and construction equipment exhaust.

Table 4.2-5 shows mitigated and unmitigated emissions from construction activities. Construction emissions are compared to the BAAQMD thresholds to determine if the construction emissions of the Proposed Project would have a significant impact on regional air quality. Mitigation measures are included below to ensure the BAAQMD's Basic Construction Mitigation Measures are implemented during construction. As shown in **Table 4.2-5**, without mitigation the Proposed Project would exceed the BAAQMD threshold for NOx. This is a potentially-significant impact. BAAQMD Guidelines and CalEEMod mitigation measures presented below would minimize the identified significant effect from NOx resulting from construction activities. The reduction in construction emissions resulting from implementation of specific mitigation measures was estimated using CalEEMod. After implementation of construction mitigation measures, project related emissions during construction would be reduced below significance threshold for NOx. Therefore, emissions from construction are a less-than-significant impact. **Less than Significant with Mitigation**.

TABLE 4.2-5

MITIGATED (UNMITIGATED) CONSTRUCTION EMISSIONS

Construction Year	Pollutants of Concern[1]			
	ROG	**NOx**	**PM_{10} (exhaust)[2]**	**$PM_{2.5}$ (exhaust)[2]**
	lb/day	lb/day	lb/day	lb/day
2014	3.80 (5.90)	32.71 (44.34)	0.51 (1.94)	0.49 (1.78)
2015	4.56 (7.20)	35.05 (55.29)	0.53 (3.04)	0.53 (2.80)
2016	4.53 (6.86)	24.88 (26.72)	0.68 (2.20)	0.51 (1.94)
Highest Emission Year	**4.56 (7.20)**	**35.05 (55.29)**	**0.68 (2.20)**	**0.53 (2.80)**
BAAQMD Thresholds	54	54	82	54
Exceed Thresholds	No (No)	No (Yes)	No (No)	No (No)

lb/day = pounds per day.
[1] CalEEMod results rounded to the nearest hundred.
[2] **Mitigation Measure 4.2-1a** would ensure implementation of the BAAQMD's Basic Construction Mitigation Measures; accordingly, quantification of PM_{10} dust emissions is not required.
Source: CalEEMod, 20132.2, 2013.

Mitigation Measure 4.2-1a: The Applicant shall ensure through the enforcement of contractual obligations that construction contractors implement a fugitive dust abatement

program during construction, which shall include the following elements consistent with the Basic Construction Mitigation Measures recommended by the BAAQMD:

- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.
- Cover all exposed stockpiles.
- Water all exposed roadway and construction areas two times a day.
- Sweep paved streets three times daily (with water sweepers) if visible soil material is carried onto adjacent streets.
- Limit traffic speeds on unpaved roads to 15 miles per hour (mph).
- After grading is complete, construction of paved surfaces (e.g. roadways, driveways, sidewalks, building pads) should be completed as soon as possible unless protected by seeding, soil binders, or other similar measures.
- Limit idling time to a maximum of five minutes and turn off equipment when not in use; clear signage indicating this shall be displayed at the project site access point.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer‘s specifications and shall be checked by a certified visible emissions evaluator.
- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph.
- Any burning of cleared vegetation shall be conducted according to the rules and regulations of the BAAQMD’s Regulation 5 (BAAQMD, 2008). Prior notification to BAAQMD shall be made by submitting an Open Burning Prior Notification Form to BAAQMD’s office in San Francisco.
- A publicly visible sign shall be posted with the telephone number and person to contact at the County regarding dust complaints. A response and corrective action shall occur within 48 hours. The BAAQMD’s phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure 4.2-1b: The applicant shall ensure through contractual obligations with construction contractors that the following Best Management Practices (BMPs) shall be implemented during all stages of construction:

- All heavy duty construction equipment be equipped with a diesel particulate matter filters.
- Only low ROG coatings shall be utilized.
- The applicant shall use only Tier 2 or better heavy duty construction equipment.

Impact

4.2-2 Construction of the Proposed Project has the potential to generate TACs from construction equipment exhaust; however, under conservative conditions, emissions would be below BAAQMD thresholds.

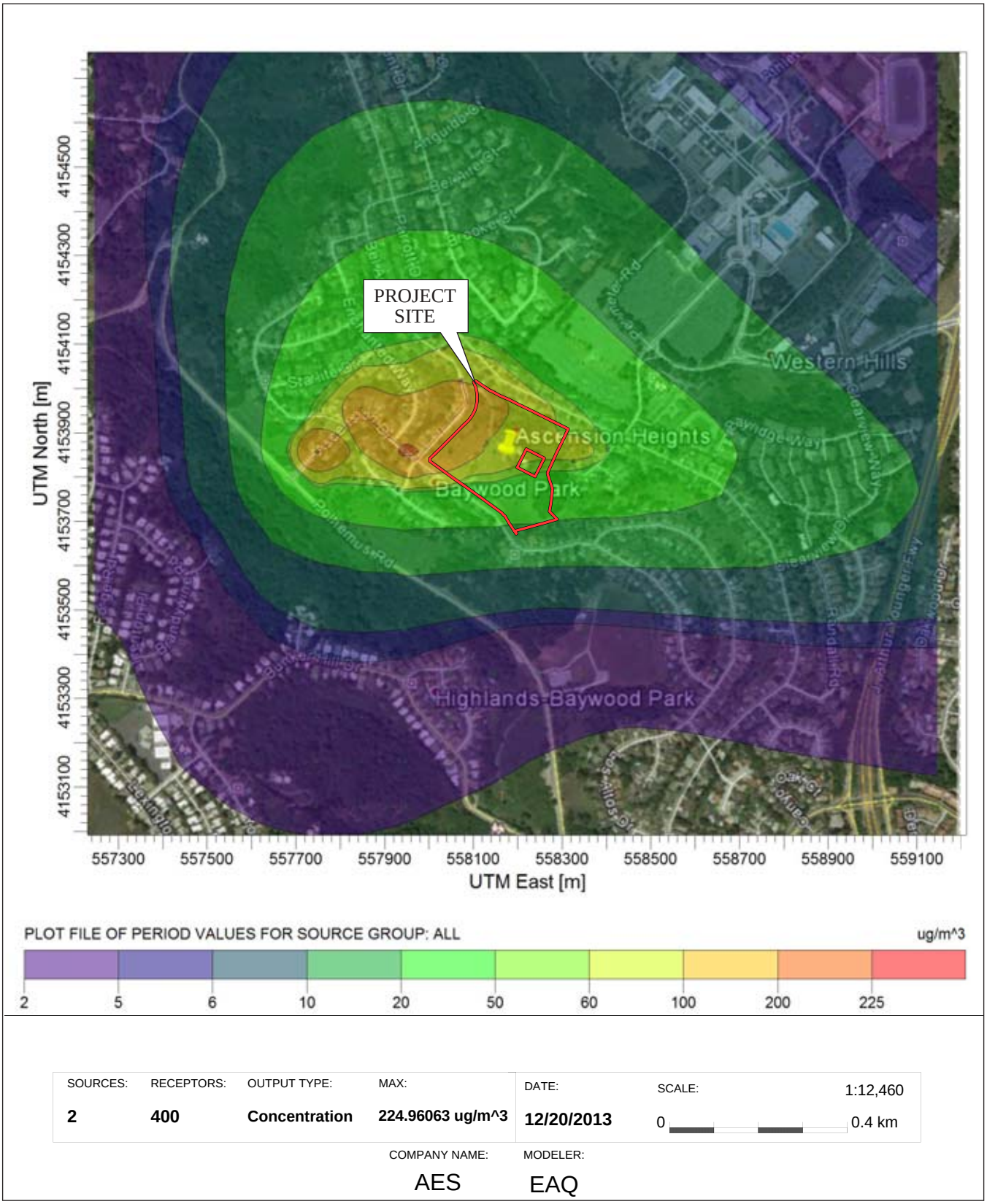
With construction activities occurring concurrently near SR-92, there is a concern of higher levels of DPM and TACs in the vicinity of the project site. Diesel engines used during construction and

vehicles traveling on SR-92 emit a complex mixture of air pollutants composed of gaseous and solid material. Many of these air pollutants are designated TACs. The TAC of concern during construction and along major roadways is DPM.

Exposure to DPM is a health hazard, particularly to sensitive receptors, such as children whose lungs are still developing, the elderly, and persons who may have serious health problems. Construction emissions of DPM are temporary and intermittent and would not create long-term health risk to sensitive receptors. The BAAQMD Guidelines provides cancer significance criteria of 10 in 1,000,000 and a non-cancer chronic health index (HI) of 1.0.

Construction activities, in particular site grading, associated with the Proposed Project would include heavy and stationary equipment that operate on diesel fuel. DPM emissions generated by these uses would be temporary and intermittent and would be generated primarily at a single location or along a single pathway. Idling equipment, including trucks, generators, and stationary equipment, would increase DPM levels at the project site. DPM emissions may be blown to nearby sensitive receptors, including nearby residential units constructed at an earlier time in the construction phase of the project. DPM may cause chronic or acute health risk. Given these circumstances, DPM emissions from on-site construction equipment, off-site equipment and material transport, and SR-92 emissions were modeled using the USEPA approved dispersion model Lakes AERMOD View, Version 8.2.0, and HARP, Version 1.4f.

Figure 4.2-1 shows the dispersion of DPM simultaneously emitted at the project site by on-site construction equipment and by haul vehicles near the proposed haul truck route along Bel Aire Road and Ascension Drive under the assumptions discussed above. Output files are provided in **Appendix C** from the AERMOD and HARP models, which include maximum unit concentration from an annual averaging period, cancer risk, and chronic HI. As shown in **Figure 4.2-1**, the maximum unit concentration of DPM is 224.96 micrograms per cubic meter (µg/m^3) over the first construction year and occurs west of the intersection of Bel Aire Road and Ascension Drive. In **Figure 4.2-1**, the red areas denote concentrations between 200 to 300 µg/m^3, the yellow areas denote concentrations between 50 to 100 µg/m^3, and the purple areas denote concentrations of less than 50 µg/m^3. As discussed above, these are conservative emission rates annualized over the first construction year in order to assess worse-case cancer risk and health indexes. The receptors showing the greatest cancer and chronic HI, while well below BAAQMD thresholds, are located near the east border and center of the project site. Cancer risk and chronic HI at these receptors do not exceed the BAAQMD TAC thresholds of 10 in 1,000,000 (1.0E-5) for a cancer risk and 1.0 for a chronic HI. This is a less-than-significant impact. **Table 4.2-6** shows the top 10 cancer and chronic HI receptors. **Less than Significant.**



SOURCES:	RECEPTORS:	OUTPUT TYPE:	MAX:	DATE:	SCALE:	1:12,460
2	**400**	**Concentration**	**224.96063 ug/m^3**	**12/20/2013**	0	0.4 km

COMPANY NAME: AES

MODELER: EAQ

SOURCE: AERMOD View - Lakes Environmental Software, 2013; AES 2013

Figure 4.2-1
DPM Concentrations

TABLE 4.2-6

CANCER RISK AND CHRONIC HEALTH INDEX

Receptor	Cancer Risk (per million)	Chronic HI	Location
BAAQMD Maximum Acceptable Levels	10.000	1.000000	
192	~~1.53E-07[1]~~0.153	~~7.37E-05~~0.000074	Western Project Border
193	~~8.49E-08~~0.085	0.0000~~4.10E-05~~41	Parrott Drive
191	~~8.40E-08~~0.084	0.0000~~4.05E-05~~41	Western Project Border
212	~~6.87E-08~~0.069	0.0000~~3.31E-05~~33	Parrott Drive
210	~~6.12E-08~~0.061	0.0000~~2.95E-05~~30	Center of Project Site
211	~~5.99E-08~~0.060	0.0000~~2.89E-05~~29	Parrott Drive
194	~~5.27E-08~~0.053	0.0000~~2.54E-05~~25	Parrott/CSM Drive
190	~~5.16E-08~~0.052	0.0000~~2.49E-05~~25	Western Project Border
213	~~4.49E-08~~0.045	0.0000~~2.17E-05~~22	CSM Drive
195	~~3.67E-08~~0.037	0.0000~~1.77E-05~~8	Parrott Drive

~~[1] – Note that in scientific notation, the higher the negative number of the exponent, the lower the number. For example, 1.53E-07 equals a cancer risk of 0.153 in 1,000,000; which is lower than the BAAQMD TAC cancer risk significance threshold of 1.0E-5 or 10 in 1,000,000.~~

Source: HARP, Version 1.4f, 2013.

Actual emissions condition ~~D~~during the construction process would be quite reduced compared to the model assumptions. For example, site-grading activities would result in the greatest DPM emissions and would occur over a minimum of 30 days, as stated in **Section 3.4.3** and not all sources would be simultaneously emitting DPM from the exact same location as assumed in the model. Actual DPM emissions along Bel Aire Road and Ascension Drive would only occur during construction hours and would be reduced with implementation of **Mitigation Measure 4.2-1b**. ~~**Table 4.2-6** shows the top 10 cancer and chronic HI receptors. The receptors showing the greatest cancer and chronic HI are located near the east boarder and center of the project site. Cancer risk and Chronic HI at these receptors do not exceed the BAAQMD TAC thresholds of 10 in 1,000,000 (1.0E-5) cancer risk and a chronic HI of 1.0. This is a less-than-significant impact. **Less than Significant with Mitigation.**~~

Impact

4.2-3 Construction of the Proposed Project would not generate objectionable odors perceptible to nearby receptors.

Construction activities have the potential to emit odors from diesel equipment, paints, solvents, fugitive dust, and adhesives. Odors from construction are intermittent, temporary, and generally do not extend beyond the boundary of a construction site. Construction activities would occur approximately 50 feet from the nearest sensitive odor receptor. Given the distance to the nearest sensitive receptor, the limit on daily construction activities (**Mitigation Measure 4.8-1**), and the temporary and intermittent nature of construction odors, a less-than-significant odor impact would occur during the construction phase of the Proposed Project. **Less than Significant**.

Impact

4.2-4 Operation of the Proposed Project would not generate emissions of ROG, NOx, PM_{10}, and $PM_{2.5}$ in exceedance of applicable standards.

Implementation of the Proposed Project would not result in the development of residences located within approximately 1,000 feet of a freeway with more than 100,000 vehicles per day. Once the Proposed Project has been constructed and occupied, operational activities associated with residential land uses of the Proposed Project would generate ROG, NOx, PM_{10}, and $PM_{2.5}$ emissions. The majority of ROG, NOx, PM_{10}, and $PM_{2.5}$ emissions would be generated by vehicle trips associated with the residences and visitors to the project site. Consumer products (e.g., cleaning products, aerosol sprays, automotive products) used by residents and maintenance workers would also contribute ROG and NOx emissions. Lesser sources of precursors would include energy use (fuel combustion for heating and cooling of buildings) and the application of architectural coatings.

As shown in **Table 4.2-7**, operational ROG, NOx, PM_{10}, and $PM_{2.5}$ emissions do not exceed the BAAQMD significance thresholds without mitigation. Therefore, the Proposed Project would not significantly impact regional air quality; this impact is less than significant. **Less than Significant.**

TABLE 4.2-7

UNMITIGATED OPERATIONAL EMISSIONS

Emission Type	Pollutants of Concern			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
	tpy	tpy	tpy	tpy
Area	0.2978	0.00375	0.0259	0.0259
Energy	0.00523	0.0447	0.00361	0.00361
Mobile	0.2832	0.1942	0.3507	0.0923
Waste	--	--	--	--
Water	--	--	--	--
Total Emission	**0.5862**	**0.2426**	**0.3802**	**0.1217**
BAAQMD/YSAQMD Thresholds	*10*	*10*	*15*	*10*
Exceed Thresholds	*No*	*No*	*No*	*No*

tpy = tons per year
Source: CalEEMod, 20132.2, 2013.

Impact

4.2-5 Operation of the Proposed Project would not generate major emissions of TACs and would not be located near major TAC sources.

The Proposed Project is not considered a major emitter of TACs under the BAAQMD 2010 CEQA Guidelines. Therefore, the Proposed Project would not conflict with or obstruct implementation of the applicable air quality plan, violate any air quality standard, or contribute substantially to an existing or projected air quality violation in relation to TAC emissions.

According to CARB, land use guidelines for health risk from TACs would increase only if sensitive receptors were placed within 500 feet of a major freeway (capacity of 100,000 plus cars per day); within 1,000 feet from a railroad yard, distribution center, large gas dispensing facilities, chrome plating facilities, refineries, and ports; or within 300 to 500 feet from a dry cleaning facility. The closest major freeway is SR-92, which is located approximately 2,625 feet east of the project site. Approximately 138,000 annual average vehicles per day travel on SR-92 near West Hillsdale Boulevard. There are no railroad yards, distribution centers, large gas dispensing facilities, chrome plating facilities, refineries, or ports within 1,000 feet of the project site. Therefore, this is a less-than-significant impact. **Less than Significant**.

Impact

4.2-6 Operation of the Proposed Project would not generate significant odors as defined by the BAAQMD or place sensitive receptors in an area subject to objectionable odors.

Under the BAAQMD Guidelines, the Proposed Project is not considered an odor generating land use. Additionally, in accordance with BAAQMD Regulation 7, the Proposed Project would be restricted from emitting quantities of pollutants that would cause detriment, nuisance, or annoyance to any persons or to the public.

In accordance with the BAAQMD Guidelines, there are no existing odor sources in the vicinity of the project site. The nearest major odor source is the City of San Mateo Wastewater Treatment Plant (WWTP) located approximately 3.7 miles west of the project site. Since the project is not placing residential receptors with two miles of a major odor source and the land use is not considered a major odor source, this impact is less than significant. **Less than Significant**.

Cumulative Impact

4.2-7 Operation of the Proposed Project has the potential to generate emissions of ROG, NOx, PM_{10}, and $PM_{2.5}$, which, in combination with past, present, and future criteria emissions, has the potential to cause an exceedance of the NAAQS and/or the CAAQS.

Past, present, and future development projects contribute to a region's air quality conditions on a cumulative basis. Therefore, by its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to by itself result in non-attainment of the NAAQS or CAAQS. If a project's individual emissions contribute toward an exceedance of the NAAQS, then the project's cumulative impact on air quality would be significant. In developing attainment designations for CAPs, the USEPA and CEPA consider the region's past, present, and future emission levels. AQMDs determine suitable significance thresholds based on an area's designated non-attainment status. These thresholds provide a tool by which the AQMD can achieve attainment for a particular CAP that is designated as non-attainment. Therefore, the AQMD's significance thresholds consider the regions past, present, and future emissions levels.

Implementation of the Proposed Project combined with the proposed developments within the project area could lead to cumulative impacts to air quality. Operational activities of the Proposed Project in the year 2030 would result in ROG, NOx, PM_{10}, and $PM_{2.5}$ emissions, which are assumed to be pollutants of concern in the year 2030. The majority of ROG, NOx, PM_{10}, and $PM_{2.5}$ emissions would be generated by vehicle trips associated with residents, visitors, and maintenance workers of the project site. Consumer products (e.g., cleaning products, aerosol sprays, automotive products) used by residents, visitors, and maintenance workers would also contribute ROG and NOx emissions. Lesser sources of precursors would include energy use (fuel combustion for heating and cooling of buildings) and the application of architectural coatings.

Table 4.2-8 shows the 2030 operational emissions of ROG, NOx, PM_{10}, and $PM_{2.5}$. Project-related NOx, ROG, PM_{10}, and $PM_{2.5}$ emissions would not exceed the BAAQMD's threshold of significance. Operational emissions from the Proposed Project would result in a less-than-significant cumulative impact to the region's air quality in the year 2030. **Less than Significant**.

TABLE 4.2-8

2030 UNMITIGATED OPERATIONAL EMISSIONS

Emission Type	Pollutants of Concern			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
	tpy	tpy	tpy	tpy
Area	0.2977	0.00373	0.0259	0.0259
Energy	0.00523	0.0447	0.00361	0.00361
Mobile	0.1667	0.0907	0.2786	0.0732
Waste	--	--	--	--
Water	--	--	--	--
Total Emission	**0.4696**	**0.1391**	**0.3080**	**0.1027**
BAAQMD Thresholds	*10*	*10*	*15*	*10*
Exceed Thresholds	*No*	*No*	*No*	*No*

tpy = tons per year.
Source: CalEEMod, 20132.2, 2013.

Cumulative Impact

4.2-8 Construction and operation of the Proposed Project has the potential to result in cumulatively considerable emissions of GHGs.

Construction

CalEEMod was used to estimate project-related construction GHG emissions. As shown in **Table 4.2-9**, estimated direct construction emissions would be 957.68 MT of CO_2e over the construction period. As explained above in the Significant Criteria section, the CARB or BAAQMD does not have a construction threshold for GHG emissions; therefore, a 26 percent or greater reduction in construction-related GHG emissions (the overall state reduction goal implement by AB 32) would result in a less-than-significant impact to global climate change. With the implementation of **Mitigation Measure 4.2-8**, construction CO_2e emissions from the Proposed Project would be reduced by 26 percent and would comply with the significance criteria for GHG construction emissions (**Table 4.2-9**). Therefore, construction of the Proposed Project would not generate GHG emissions, either directly or indirectly, that would have a significant impact on the environment or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Construction emissions associated with the Proposed Project would not be cumulatively considerable in relation to global climate change. **Less than Significant with Mitigation**.

TABLE 4.2-9

CONSTRUCTION GHG EMISSIONS

Proposed Project	GHG Emissions in CO_2e (MT per year)
Construction Activities	957.68
Construction Emission Reductions	
Mitigation 4.2-4e (26% reduction in GHG emissions)	-249.00
Total	*708.68*

MT = metric tons
Source: CalEEMod, 20132.2, 2013.

Mitigation Measure 4.2-8: The applicant shall purchase CO_2e emissions reduction credits in the amount of 249 MT prior to the start of construction. GHG CO2e emissions reduction credits are generated by projects that reduce their GHG emissions by the use of technology or a reduction in business over business as usual. The CO2e emission reduction credits must be permanently retired by the project applicant, thereby reducing annual emissions for the lifetime of the Proposed Project.

Operation

Operation of the Proposed Project would result in direct GHG emissions from vehicles of residents, visitors, and maintenance workers travelling to and from the project site. Operation of the Proposed Project would also result in indirect emissions from waste disposal, water usage, and electricity and natural gas usage. CalEEMod, Version 20132.2, 2013 was used to estimate project-related direct and indirect emissions; these values are reported in **Table 4.2-10**. Operational GHG emissions attributable to the Proposed Project are estimated to be 291.98 MT of CO2e per year. Operation of the Proposed Project would not exceed the 1,100 MT significance threshold established in the BAAQMD 2010 CEQA Guidelines. Therefore, operation of the Proposed Project would not generate GHG emissions, either directly or indirectly, that would have a significant impact on the environment or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Operational emissions associated with the Proposed Project would not be cumulatively considerable in relation to global climate change. **Less than Significant**.

TABLE 4.2-10

OPERATIONAL GHG EMISSIONS

Proposed Project	**GHG Emissions in CO_2e (MT per year)**
Area	3.77
Energy	90.63
Mobile	178.68
Waste	10.32
Water	8.58
Total Operation Emissions	*291.98*
First-Year Operation Project-Related GHG Emissions	**884.42**
Source: CalEEMod, 20132.2, 2013.	

4.3 BIOLOGICAL RESOURCES

4.3.1 INTRODUCTION

This section addresses the potential for the Proposed Project to impact biological resources. Following an overview of the relevant biological resources setting in **Subsection 4.3.2** and the regulatory setting in **Subsection 4.3.3**, project-related impacts and recommended mitigation measures are presented in **Subsection 4.3.4**.

4.3.2 ENVIRONMENTAL SETTING

The project site is predominately situated on a hillside with slopes averaging 40 percent. The area was graded over 40 years ago, which consisted of excavating the sides of the hill for the construction of Ascension Drive and Bel Aire Road. Eight-foot wide benches at 30-foot intervals were created along Ascension Drive as a result. Surface runoff from these benches has eroded the hillside over the years. The project site is predominately characterized by grassland, chaparral, and trees such as oak, pine, and eucalyptus. A small grove of eucalyptus trees is located on the southeast side of the area, and pine trees have been planted to shield views of the water tank/cell transmitter.

Wildlife Corridors

Wildlife corridors facilitate wildlife movement between larger habitat areas that exhibit significant value for plants or wildlife. These linear geographic features limit the effects of habitat fragmentation by encouraging dispersal in connected areas which are relatively free of disturbance. In addition, corridors facilitate species migration between areas of seasonal occupancy. The project is currently surrounded by residential development. No wildlife corridors currently exist within the vicinity of the project site.

Habitat Types

This section includes biological data obtained during ~~a~~ biological and botanical surveys conducted on July 25, 2013, March 3, 2015, and March 27, 2015. Plant communities were classified using the List of Vegetation Alliances and Associations (or Natural Communities List), in compliance with the National and State Classification System (List of Vegetation Alliances and Associations; Vegetation Classification and Mapping Program; California Department of Fish and Wildlife; September, 2010). The list is based on the *Manual of California Vegetation, Second Edition* (MCVII; Sawyer et. al, 2009). The nomenclature described in the plant communities is based on *The Jepson Manual: Vascular Plants of California* (Baldwin et. al, 2012). Terrestrial habitat types within the project site include annual brome grassland, coast live oak woodland, coyote brush scrub, eucalyptus grove, knobcone pine forest, and ruderal/developed areas. These habitat types were observed during the biological and botanical survey of the project site, and photographs of representative habitat types are shown in **Figure 4.3-1**. **Figure 4.3.2** depicts the area of each habitat type on the project site, and **Table 4.3-1** provides a summary of the habitat types by acreages. There is no aquatic habitat located within the project site.

Dominant vegetation in each habitat type is discussed below, with descriptions of the plant communities based on the MCVII. A list of plants and wildlife observed within the project site is included in **Appendix D**. The project site does not occur within designated critical habitat for any species.

PHOTO 1: Coast Live Oak Woodland

PHOTO 2: Coyote Brush Scrub

PHOTO 3: Eucalyptus Grove

PHOTO 4: Knobcone Pine Forest

PHOTO 5: Ruderal Developed

PHOTO 6: Ruderal Grassland

SOURCE: AES, 2013

Figure 4.3-1
Site Photographs

SOURCE: Microsoft aerial photograph, 10/26/2010; AES, 2013

Figure 4.3-2
Habitat Types

TABLE 4.3-1
PROJECT SITE HABITAT TYPES

Habitat Type	Acreage[1]
Terrestrial	
Non-Native Annual Brome Grassland	7.44
Coast Live Oak Woodland	1.26
Coyote Brush Scrub	2.54
Eucalyptus Woodland	0.65
Knobcone Pine Forest	1.17
Ruderal/Disturbed	0.28

[1]GIS calculations may not reflect exact acreage due to rounding.

Terrestrial Habitats

Bromus (diandrus, hordaceous) – Brachypodium distachyon Semi Natural Stands Annual Brome Grassland

Annual brome grassland is dispersed throughout the project site (**Figure 4.3-1**). This alliance occurs regionally in cismontane California at low elevations and accounts for the largest acreage of grassland vegetation within its range. Cismontane woodland is defined as having deciduous, evergreen, or both types of trees with a variety of open or closed understories. It is especially dominated by oaks, but may also include conifers (CNPS, 2013). Dominant vegetation observed in the nonnative grassland includes ripgut brome (*Bromus diandrus*), wild oat (*Avena fatua*), clover (*Trifolium* sp.), nit grass (*Gastridium* sp.), and silver European hairgrass (*Aira caryophyllea*). Other species observed includes English plantain (*Plantago lanceolata*), hedge parsley (*Torilis arvensis*), telegraph weed (*Heterotheca grandiflora*), hawkbit (*Leontodon taraxacoides*), prickly lettuce (*Latuca serriola*), teasel (*Dipsacus sp.*), clustered dock (*Rumex conglomeratus*), and California poppy (*Eschscholzia californica*).

Quercus agrifolia Woodland Alliance Coast Live Oak Woodland

Coast live oak woodland occurs within the northeastern portion of the project site (**Figure 4.3-1**, **Photograph 1**). This alliance generally occurs along most of California's coast, in a variety of habitats. The dominant species observed in this alliance was coast live oak (*Quercus agrifolia*). The understory consists of a short grassy layer.

Baccharia pilularis Alliance Coyote Brush Scrub

Coyote brush scrub is interspersed throughout the project site with annual brome grassland within western and central portions of the project site to the south of the existing access road (**Figure 4.3-1**: **Photograph 2**). This alliance is common throughout the Central California Coast. Seedlings of coyote brush (*Baccharis pilularis*) are known to invade grasslands in the central coast, and older, shady stands are known to be transitional to forest types, such as coast live oak. The dominant species observed were coyote brush and poison oak (*Toxicodendron diversilobum*). Clover was also observed in this community.

Eucalyptus (globulus, camaldulensis) Semi-Natural Woodland Stands Eucalyptus Groves

Nonnative blue gum eucalyptus (*Eucalyptus globulus*) occurs on the southeast boundary of the project site (**Figure 4.3-1**: **Photograph 3**), and was the dominant species observed in this area. Blue gum eucalyptus has had widespread commercial plantings since 1870 and is found throughout cismontane California. The understory of eucalyptus groves is usually diminished, due to a buildup of allelopathic chemicals in the soil and high volumes of debris associated with *Eucalyptus*, although sometimes other nonnatives will be present. Though this habitat type is dominated by non-native species, it potentially provides habitat for a number of raptors, small mammals, and reptiles.

Pinus Attenuata Forest Alliance Knobcone Pine Forest

Knobcone pine forest occurs around the water tank at the highest point on the property, and extends ~~downslope~~down slope to the northeast boundary. Knobcone pine was the dominant species observed in this alliance. Knobcone pine (*Pinus attenuata*) is an obligate fire species and is known to occur on slopes of all aspects and ridges. Stands of knobcone pine typically occur on nutrient deficient soils and without dense understories. Surrounding vegetation is often chaparral but is sometimes found to be coniferous forests, montane chaparral, and oak woodlands. Italian cypress (*Cupressus sempervirens*) and toyon (*Heteromeles arbutifolia*) were also observed in the area.

Ruderal/Disturbed

Ruderal/disturbed areas include the graded area surrounding the water tank/cell transmitter parcel and the paved access road that leads to the parcel from the north corner of the property (**Figure 4.3-1**: **Photograph 5**). Ornamental landscaping within the project site includes knobcone pines that have been planted around the water tower. The ruderal/disturbed habitat type does not correspond to any natural community in the Natural Communities List.

Aquatic Habitat

Swale Runoff Ditch

Two ditches occur within the project site that have the potential to accumulate swale flow. Neither of these ditches constitutes a jurisdictional water feature. Water flow on the project site generally drains in a south or westerly direction towards Polhemus Creek. One ditch runs along the south side of Parrott Drive, behind a row of houses and west towards Bel Aire Road. This feature is fairly linear and may be man-made, or may have been shaped to facilitate drainage from adjacent housing. It runs through several adjacent habitat communities including grassland, oak, pine, and coyote brush scrub. The second ditch originates in the west-central region of the property and runs from a patch of annual grassland through coyote brush scrub south towards Ascension Drive. This second ditch was likely formed as a result of soil erosion due to swale runoff from the surrounding area. These swales receive water from direct precipitation and from surface runoff from the surrounding land. Vegetation surrounding each of the ditches was reflective of the relevant listed communities as described above, and did not exhibit specialization of vegetation which would normally indicate a distinctive riparian community.

Waters of the United States (U.S.)

Waters of the United States (U.S.) are defined as:

- All waters which are currently used or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands; or
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use degradation of which could affect interstate or foreign commerce including any such waters (40 CFR 230.3).

Wetlands are defined as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (40 CFR 230.41). Wetlands that meet these criteria during only a portion of the growing season are classified as seasonal wetlands.

The project site does not contain any waters or wetlands of the U.S.

Special-Status Species

For the purposes of this EIR, special-status has been defined to include those species that meet the definitions of rare or endangered plants or animals under the California Environmental Quality Act (CEQA), including species that are:

- Listed as endangered or threatened (or formally proposed for, or candidates for, listing) under the ESA (50 CFR §17.11 and §17.12);
- Listed as endangered or threatened (or proposed for listing) under the CESA (California Fish and Game Wildlife §2050, *et seq.*);
- Designated as endangered or rare, pursuant to California Fish and Wildlife Code (§1901);
- Designated as fully protected, pursuant to California Fish and Wildlife Code (§3511, §4700, or §5050); or
- Designated as species of special concern to the CDFW.

A list of regionally occurring special-status plant and wildlife species for the project site was compiled. The list was generated from the results of scientific database queries including the California Natural Diversity Data Base (CNDDB) query for the San Mateo USGS 7.5-minute topographic quadrangle and the five surrounding quadrangles located within a 5-mile radius; the CNPS database query for the San Mateo USGS 7.5-minute topographic quadrangle and the five surrounding quadrangles; and the USFWS query for the San Mateo USGS 7.5-minute topographic quadrangle (**Appendix D**). The habitat requirements of regionally occurring special-status species was compared to the habitat types that exist within the project site to determine which special-status species have potential to occur onsite. For listed plants, all species identified by the above queries were considered, although special consideration was given for those species with CNDDB-documented occurrences within a five-mile radius of the project site (CDFW, 2013a). Several regionally occurring special-status species were eliminated if the project site lacks suitable habitat or the project site occurs outside of the known elevation range or geographical distribution. If the plants were not observed during the focused botanical surveys conducted within the

blooming period, this was also noted. Species that have no potential to occur within the project site are not discussed further.

A biological and botanical survey of the project site was conducted on July 25, 2013. None of the eleven special status plant species were identified during the survey. The survey was conducted during the identifiable and evident bloom period of four species: Indian Valley bush-mallow, Acuate bush-mallow, Davidson's bush-mallow, and San Francisco campion (three Malacothamnus sp. and *Silene verecunda ssp. verecunda*) and outside the bloom season of the other seven special-status plant species: Bent-flowered fiddleneck, San Francisco collinsia, western leatherwood, San Mateo wooly sunflower, Frangrant fritillary, Dudley's lousewort, and white-rayed pentachaeta (*Amsinckia lunaris, Collinsia multicolor, Dirca occidentalis, Eriophyllum Latilobum, Fritillaria liliacea, Pedicularis dudleyi,* and *Pentachaeta bellidiflora*). Updated biological and botanical surveys were conducted on March 3, 2015 and March 27, 2015. In early March 2015, reference site visits in the vicinity of the Proposed Project confirmed that western leatherwood, fragrant fritillary and white-rayed pentachaeta were evident and identifiable. As a result, a focused survey for these target species was conducted on the project site on March 3, 2015. In late March 2015, reference site visits within two miles of the project site confirmed that bent-flowered fiddleneck, San Francisco collinsia and San Mateo woolly sunflower were evident and identifiable. Although no reference site for Dudley's lousewort was readily accessible in the project vicinity, the closely related warrior's plume (*Pedicularis densiflora*) was observed in full bloom in late March within three miles of the project site. Therefore, a second focused survey was conducted on the project site for these four target species on March 27, 2015. During the March 3 and March 27 surveys, a qualified botanist walked the entire project site surveying for the target special-status plant species. Walking transects chosen to ensure 100 percent visual coverage of the project area. Although target species were a special focus, the surveys were floristic in nature and all plant species identifiable during the surveys were recorded in a field notebook. A complete list of plant species observed on the Ascension Heights Subdivision project site is included In **Appendix D**. No special status species of plants were identified on the project site during the surveys conducted in 2013 and 2015.

Based upon the results of the survey and the review of regionally occurring special-status species and their habitat requirements, the project site has habitat with potential to support 11 special-status plant species~~,~~ 3 special-status birds, and 1 special status insect. The names, regulatory status, habitat requirements, and period of identification for these potentially occurring special-status species are identified in **Table 4.3-2** and discussed below.

TABLE 4.3-2

POTENTIALLY OCCURRING SPECIAL-STATUS SPECIES

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/ CNPS- OTHER STATUS	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION
Plants			
Amsinckia lunaris Bent-flowered fiddleneck	**--/--/1B**	Annual herb found in coastal bluff scrub, cismontane woodland, and valley and foothill grassland from 3-500 meters elevation (CNPS, 2013).	March-June

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/ CNPS-OTHER STATUS	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION
Collinsa multicolor San Francisco collinsia	**--/--/1B**	Found in closed-cone coniferous forest and coastal scrub/sometimes serpentinite from 30-250 meters elevation (CNPS, 2013).	March-May
Dirca occidentalis western leatherwood	**--/--/1B**	Found in broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and riparian woodland/mesic from 50-395 meters elevation (CNPS, 2013).	January-April
Eriophyllum latilobim San Mateo wooly sunflower	**FE/CE/1B**	Found in cismontane woodland, often in serpentine soil on roadcuts, from 45-150 meters elevation (CNPS, 2013).	May-June
Fritillaria liliacea Fragrant fritillary	**--/--/1B**	Found in cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grasslands/often serpentinite from 3-410 meters elevation (CNPS, 2013).	February-April
Malacothamnus aboriginum Indian Valley bush-mallow	--/--/1B	Found in chaparral and cismontane woodland on rocky, granitic soils (often in burned areas from 150-1,700 meters elevation (CNPS, 2013).	April-October
Malacothamnus arcuatus Acuate bush-mallow	--/--/1B	Found in chaparral and cismontane woodland from 15-355 meters elevation (CNPS, 2013).	April-September
Malacothamnus davidsonii Davidson's bush-mallow	**--/--/1B**	Found in chaparral, cismontane woodland, coastal scrub, and riparian woodland from 185–855 meters elevation (CNPS, 2013).	June-January
Pedicularis dudleyi Dudley's lousewort	**--/CR/1B**	Found in chaparral, cismontane woodland, North Coast coniferous forests, and valley and foothill grasslands from 60-900 meters (CNPS, 2013).	April-June
Pentachaeta bellidiflora white-rayed pentachaeta	**FE/CE/1B**	Found in cismontane woodland and valley and foothill grassland (often serpentinite), from 35-620 meters elevation (CNPS, 2013).	March-May
Silene verecunda ssp. verecunda San Francisco campion	**--/--/1B**	Found in coastal bluff scrub, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland/sandy from 30-645 meters elevation (CNPS, 2013).	March- August
Birds			
Athene cunicularia burrowing owl	--/CSC/--	Yearlong resident of open, dry grassland and desert habitats, as well as in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats.	All Year
Circus cyaneus northern harrier	--/CSC/--	Found in coastal scrub, Great Basin grassland, marsh and swamp (coastal and fresh water), riparian scrubs, valley and foothill grassland, and wetlands. Nests on the ground, usually in tall, dense clumps of vegetation, either alone or in loose colonies. Occurs from annual grassland up to lodgepole pine and alpine meadow habitats, as high as 3000 meters.	All Year
Elanus leucurus white-tailed kite	--/CFP/--	Habitats include savanna, open woodland, marshes, partially cleared lands and cultivated fields, mostly in lowland situations. Nesting occurs in trees.	All Year
Invertebrates			

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/ CNPS- OTHER STATUS	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION
Plebejus icaroides missionensis (icaricia) Mission blue butterfly	FE/--/--	Found in coastal chaparral and coastal prairie communities, typically within the fog-belt of the coastal range. Larval food plant is lupine (Lupinus albifrons, L. formosus, and L. variicolor). Adults feed on lupine, hairy golden aster (Heterotheca villosa), blue dicks (Dichelostemma capitatum), and buckwheat (Eriogonum latifolium). Elevation: 210-360 meters.	March-July (mating flight) Wet Season (larvae)

STATUS CODES

FEDERAL: U.S. Fish and Wildlife Service and Marine Fisheries Service

FT Listed as Threatened by the Federal Government

FE Listed as Endangered by the Federal Government

STATE: California Department of Fish and Game

CE Listed as Endangered by the State of California

CT Listed as Threatened by the State of California

CSC California Species of Special Concern

FP California Fully Protected Species

CNPS: California Native Plant Society

List 1B Plants rare or endangered in California and elsewhere

List 2 Plants rare or endangered in California, but more common elsewhere

Special-Status Plants

Bent-flowered fiddleneck (Amsinckia lunaris)

Federal Status – None

State Status – None

Other – CNPS List 1B.2

Bent-flowered fiddleneck is an annual herb from the borage family (Boraginaceae) that occurs in coastal bluff scrub, cismontane woodland, and valley and foothill grassland communities at elevations that range from 3 to 500 meters above mean sea level (amsl). This species blooms from March through June. The known range of bent-flowered fiddleneck includes Alameda, Contra Costa, Colusa, Lake, Marin, Napa, San Benito, Santa Clara, Santa Cruz, San Mateo, and Yolo Counties (CNPS, 2013). Two occurrences have been documented for this species within the CNDDB 5-mile radius (Occurrence numbers: 5 and 52) (CDFW, 2013a). These occurrences were documented in shaded understory in 1953 and in annual grassland in 2008. The nearest documented occurrence of this species is located less than 0.5 mile northwest of the project site. The oak woodland and annual grassland within the project site are suitable habitats for this species. This species was not observed during the March 2015 botanical surveys, which were conducted within the evident and identifiable blooming period; therefore, the species does not have the potential to occur on the project site. ~~This species was not observed during the July 25, 2013 botanical survey; however, the survey was conducted outside of the evident and identifiable blooming period.~~

San Francisco Collinsia (Collinsia multicolor)

Federal Status – None
State Status – None
Other – CNPS List 1B.2

San Francisco collinsia is an annual herb from the plantain family (Plantaginaceae). It occurs in closed-cone coniferous forest and coastal scrub. Elevation ranges from 30 to 250 meters above sea level. San Francisco collinsa blooms from March through May. The known range of this species includes Monterey, Santa Clara, Santa Cruz, San Francisco, and San Mateo Counties. Three occurrences of this species are documented within a CNDDB 5-mile radius surrounding the project site (Occurrence numbers: 11, 14, and 15) (CDFW, 2013a). The nearest occurrence was recorded over 8,700 plants in 2007 below a local dam. Although the exact location of this observance is uncertain, habitat in the area surrounding the occurrence consists of coast live oak woodland and steep slopes with loam soils. Coastal live oak woodland present on the project site provides habitat suitable for this species. This species was not observed during the March 2015 botanical surveys, which were conducted within the evident and identifiable blooming period; therefore the species does not have the potential to occur on the project site. ~~This species was not observed during the July 25, 2013 botanical survey; however, the survey was conducted outside of the evident and identifiable blooming period.~~

Western leatherwood (Dirca occidentalis)

Federal Status – None
State Status – None
Other – CNPS List 1B.2

Western leatherwood is a deciduous shrub from the mezereum family (Thymelaeaceae). It occurs in broadleaf upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and in mesic areas within riparian woodland habitats. It can be found at elevations that range from 50 to 395 meters amsl. Western leatherwood blooms from January through March, though the bloom period can occasionally extend through April. The known range of this species includes Alameda, Contra Costa, Marin, Santa Clara, San Mateo, and Sonoma counties. Western leatherwood is a monotypic genus and the only species within the mez~~s~~ereum family that occurs in California (CNPS, 2013). There are six documented CNDDB occurrences within a 5-mile radius of the project site (Occurrence numbers: 7, 10, 11, 35, 38, and 52) (CDFW, 2013a). The nearest documented occurrence of this species is located less than one-half mile northwest of the project site (CDFW, 2013a). The chaparral and oak woodland within the project site are suitable habitats for this species. This species was not observed during the March 2015 botanical surveys, which were conducted within the evident and identifiable blooming period; therefore the species does not have the potential to occur on the project site. ~~This species was not observed during the July 25, 2013 botanical survey; however, the survey was conducted outside of the evident and identifiable blooming period.~~

San Mateo Wooly Sunflower (Eriophyllum Latilobum)

Federal Status – None
State Status – None
Other – CNPS List 1B.1

San Mateo wooly sunflower is a perennial bulbiferous herb from the lily family (Lilaceae). It occurs in cismontane woodland, often in serpentine soil on road-cuts. Elevation ranges from 45 to 150 meters amsl. San Mateo wooly sunflower blooms from May through June. This species is known to occur in the County from two extant populations. Two occurrences are recorded within a CNDDB 5-mile radius surrounding the project site (Occurrence numbers: 1 and 4) (CDFW, 2013a). The nearest occurrence, 1, was documented approximately 0.5 mile northwest of the project site in a shady area along a road. Although a population of 53 plants was recorded in 2002, it is suspected that over half were killed as a result of herbicide application. The shaded access road which partially runs through woodland habitat on the project site may provide suitable roadside habitat for this species. This species was not observed during the March 2015 botanical surveys, which were conducted within the evident and identifiable blooming period; therefore the species does not have the potential to occur on the project site. ~~This species was not observed during the July 25, 2013 botanical survey; however, the survey was conducted outside of the evident and identifiable blooming period.~~

Fragrant fritillary (Fritillaria liliacea)

Federal Status – None
State Status – None
Other – CNPS List 1B.2

Fragrant fritillary is a bulbous perennial herb from the lily family (Liliaceae). It occurs in cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland (often serpentinite) habitats at elevations that range from 3 to 410 meters amsl. This species blooms from February through April. The known range of fragrant fritillary includes Alameda, Contra Costa, Monterey, Marin, San Benito, Santa Clara, San Francisco, San Mateo, Solano, and Sonoma Counties (CNPS, 2013). This species is noted for having generally more than four alternate, linear to ovate (not sickle-shaped) leaves and obscure nectarines. The petals are characteristically white with faint green stripes. Of four occurrences within a CNDDB 5-mile radius of the project site, the nearest documented occurrence of this species is located approximately one mile southwest of the project site (Occurrence numbers: 19, 37, 55, 59) (CDFW, 2013a). The oak woodland and annual grassland within the project site are suitable habitats for this species. This species was not observed during the March 2015 botanical surveys, which were conducted within the evident and identifiable blooming period; therefore the species does not have the potential to occur on the project site. ~~This species was not observed during the July 25, 2013 botanical survey; however, the survey was conducted outside of the evident and identifiable blooming period.~~

Indian Valley bush-mallow (Malacothamnus aboriginum)

Federal Status – None
State Status – None
Other – CNPS List 1B.2

Indian Valley bush-mallow is a deciduous shrub from the mallow family (Malvaceae). It occurs in chaparral and in rocky, granitic, often burned areas of cismontane woodland communities at elevations ranging from 150 to 1700 meters amsl. Its known range includes Fresno, Monterey, San Benito, and San Mateo Counties. This species blooms from April through October (CNPS, 2013). One documented occurrence of this species within the CNDDB 5-mile radius is located approximately one mile southwest

of the project site (Occurrence number: 26) (CDFW, 2013a). The chaparral and oak woodland within the project site provide suitable habitat for this species. This species was not observed during the July 2013 or March 2015 botanical surveys, which were conducted within the evident and identifiable blooming period; therefore the species does not have the potential to occur on the project site. ~~This species was not observed during the July 25, 2013 botanical survey, which was conducted within the evident and identifiable blooming period; therefore the species does not have the potential to occur on the project site.~~

Arcuate bush-mallow (Malacothamnus arcuatus)

Federal Status – None
State Status – None
Other – CNPS List 1B.2

Arcuate bush-mallow is a perennial evergreen shrub found in chaparral and cismontane woodland. Bloom period is April through September. Elevation ranges from 15 to 355 meters amsl (CNPS, 2013). Four occurrences are documented within a CNDDB 5-mile radius surrounding the project site (Occurrence numbers: 16, 17, 22, and 27) (CDFW, 2013a). In 2004, two colonies were observed on an unstable slope in association with pine trees and a road near San Mateo Creek Canyon. Knobcone pine woodland provides habitat suitable for this species on the project site. This species was not observed during the July 2013 or March 2015 botanical surveys, which were conducted within the evident and identifiable blooming period; therefore the species does not have the potential to occur on the project site. ~~This species was not observed during the July 25, 2013 botanical survey, which was completed within the evident and identifiable bloom period; therefore the species does not have the potential to occur on the project site.~~

Davidson's bush-mallow (Malacothamnus davidsonii)

Federal Status – None
State Status – None
Other – CNPS List 1B.2

Davidson's bush-mallow is a perennial deciduous shrub found in chaparral, cismontane woodland, coastal scrub, and riparian woodland. Bloom period is from June through January. Elevation ranges from 185 to 855 meters msl (CNPS, 2013). The nearest of two documented occurrences of this species is located approximately three miles southeast of the project site (Occurrence numbers: 39 and 40) (CDFW, 2013a). The chaparral and oak woodland within the project site provide suitable habitat for this species. This species was not observed during the July 2013 or March 2015 botanical surveys, which were conducted within the evident and identifiable blooming period; therefore the species does not have the potential to occur on the project site. ~~This species was not observed during the July 25, 2013 botanical survey, which was conducted within the evident and identifiable blooming period; therefore the species does not have the potential to occur on the project site.~~

Dudley's lousewort (Pedicularis dudleyi)

Federal Status – None
State Status – Rare
Other – CNPS List 1B.2

Dudley's lousewort is a perennial herb found in maritime chaparral, cismontane woodland, North Coast coniferous forest, and valley and foothill grassland. Bloom period is from April through June. Elevation ranges from 60 to 900 meters amsl (CNPS, 2013). No occurrence is documented within the CNDDB 5-mile radius surrounding the project site. Grassland and coniferous forest present on the project site provide suitable habitat for this species. This species was not observed during the March 2015 botanical surveys, which were conducted within the evident and identifiable blooming period; therefore the species does not have the potential to occur on the project site. ~~This species was not observed during the July 25, 2013 botanical survey; however, the survey was conducted outside of the evident and identifiable blooming period.~~

White-rayed pentachaeta (Pentachaeta bellidiflora)

Federal Status – Endangered
State Status – Endangered
Other – CNPS List 1B.1
White-rayed pentachaeta is an annual herb found in cismontane woodland and in valley and foothill grassland. It is often, but not always, found in serpentine soils. Bloom period is from March through May. Elevation ranges from 35 to 620 meters msl (CNPS, 2013). Two occurrences are documented within the CNDDB 5-mile radius surrounding the project site (Occurrence numbers: 1 and 7) (CDFW, 2013a). The nearest occurrence was documented approximately one mile to the southwest of the project site. The most recent documentation was of several million plants found in barren serpentine soils. Although no serpentine soils are found on the project site, grassland found in the location provides suitable habitat for white-rayed pentachaeta. This species was not observed during the March 2015 botanical surveys, which were conducted within the evident and identifiable blooming period; therefore the species does not have the potential to occur on the project site. ~~This species was not observed during the July 25, 2013 botanical survey; however, the survey was conducted outside of the evident and identifiable blooming period.~~

San Francisco campion (Silene verecunda ssp. verecunda)

Federal Status – None
State Status – None
Other – CNPS List 1B.2

San Francisco campion is a perennial herb found in coastal bluff scrub, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland. Bloom period is from March through August. Elevation ranges from 30 to 645 meters msl (CNPS, 2013). One CNDDB occurrence is documented just inside the 5-mile radius surrounding the project site (Occurrence number: 11) (CDFW, 2013a). This species was found in 1900 on the south slope of a grade, near the top, with the exact location estimated by CNDDB to within one mile accuracy. The non-native grassland and oak woodland available on the project site provide habitat suitable for San Francisco campion. This species was not observed during the July 2013 or March 2015 botanical surveys, which were conducted within the evident and identifiable blooming period; therefore the species does not have the potential to occur on the project site. ~~This species was not observed during the July 25, 2013 survey that was conducted within the evident and identifiable bloom period; therefore the species does not have the potential to occur on the project site.~~

Special-Status Birds

Burrowing Owl (Athene cunicularia)

Federal Status – None
State Status – Species of Concern

Burrowing owls occur in suitable habitat throughout California, except in northwestern coastal forests and on high mountains. Suitable habitat consists of open grasslands, especially prairie, plains, savanna, and in open areas, including vacant lots and spoils piles near human habitat. Nesting and roosting occurs in burrows dug by mammals (such as ground squirrels) but may also occur in pipes, culverts, and nest boxes. Occupied nests can be identified by the lining of feathers, pellets, debris, and grass. Burrowing owls search for prey on the ground or on low perches such as fence posts or dirt mounds. Burrowing owls are diurnal, crepuscular, and nocturnal depending on time of year. Burrowing owls nest from March to August (CDFW, 2013a). The nearest documented occurrence of this species is located approximately four miles northeast of the project site (Occurrence number: 1106) (CDFW, 2013a). The project site provides potential habitat for burrowing owls within the annual grassland; however, no animal burrows or other structures that could potentially provide habitat for this species were observed on the project site during the 2013 or 2015 surveys. Likewise, burrowing owl was not observed during the biological surveys of the project site.

Northern Harrier (Circus cyaneus)

Federal Status – None
State Status – Species of Concern

Northern harriers occur year-round in the Central Valley, along the coast, in the Sierra Nevada Mountain Range, and in northeastern California. They winter throughout California in suitable habitat, which includes meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands, and frequently in wooded areas. Suitable foraging habitat consists of open areas, such as grassland or agricultural fields where they can fly close to the ground. Northern harriers roost on the ground in tall grasses or emergent wetland species including cattails. Nesting habitat occurs predominately in marshes or emergent wetlands or along rivers or lakes, and occasionally in grasslands, grain fields, or on sagebrush flats. Nesting season occurs from April to September (CDFW, 2005). There are no CNDDB records for this species within five miles of the project site. The annual grassland provides suitable foraging and nesting habitat for this species. Northern harrier was not observed during the July 25, 2013 or March 5, 2015 surveys.

White-Tailed Kite (Elanus leucurus)

Federal Status – None
State Status – Fully Protected

White-tailed kites are year-round residents in coastal and valley lowlands. White-tailed kites forage in open grasslands, meadows, agricultural fields, and emergent wetlands. Nesting occurs in dense stands of oaks, willow, or other deciduous trees from February through October (CDFW, 2005). There are no CNDDB records for this species within five miles of the project site. The coast live oak woodland provides nesting habitat for this species. The annual grassland also provides foraging habitat for this species.

One individual was observed foraging over the project site during the July 25, 2013 or March 5, 2015 surveys.

Special-Status Insects

Mission Blue Butterfly (Plebejus icarioides)

Federal Status – Endangered
State Status – None

The Mission blue butterfly can be found as an adult from March through July when breeding occurs. Larvae can be found during the following wet season. This species relies on a yearly cycle of breeding and spring juvenile recruitment with adults dying at the end of each summer after eggs are laid. This species is found in coastal chaparral and coastal prairie communities, typically within the fog-belt of the coastal range. Larvae feed on lupine (*Lupinus albifrons*, *L. formosus*, and *L. variicolor*). Adults feed on nectar of lupine, hairy golden aster (*Heterotheca villosa*), blue dicks (*Dichelostemma capitatum*), and buckwheat (*Eriogonum latifolium*). One occurrence is documented within the CNDDB 5-mile radius surrounding the project site. This observation was recorded nearly five miles northwest of the project site and was noted at the time to be the southern limit of the distribution of this species. The elevation range of this species is 210 to 360 meters amsl, which is above the elevation of the project site which ranges from 124 to 185 meters amsl. Host plants and an informal observation of this species have been recorded by a member of the general public on the project site. ~~Three biological surveys for the Mission blue butterfly have occurred on the project site in the spring and summer months of 2005, 2008, and 2012, during which 12 adult butterflies were observed.~~Twenty-four biological surveys were conducted over the course of three separate years (2005, 2008, and 2012) during the spring and summer months, including host plant mapping~~, where 12 adult butterflies were observed.~~ ~~The observed butterflies exhibited characteristics of both the *Plebejus icarioides pardalis* and *Plebejus icarioides missionensis* subspecies but were determined to be more closely akin to the *pardalis* subspecies. Due to the relatively small amount of habitat on the project site, it is not possible to sample more than a few butterflies in order to make a more confident determination on subspecies (Kobernus, 2014).~~ Additional surveys for the host plants were conducted during the July 2013 and March 2015 biological and botanical surveys.~~–~~ ~~During the surveys, n~~ Because the rare plant survey also included a floristic survey of the property to document all plant species encountered, locations of the summer lupine (*Lupinus formosus*), the host plant of the Mission blue/ Pardalis blue butterfly, were also noted~~-~~. The patches of this plant species were observed to be consistent with host plant locations observed during the mission blue surveys conducted on the property in 2005, 2008 and 2012. During the course of the surveys conducted in 2005, 2008, 2012, 2013, and 2015, no Mission blue/ Pardalis blue butterflies, or their host plants, were detected within the proposed development envelope of the project site. ~~o Mission blue butterflies were observed within the proposed development envelope of the Project Site.~~ Therefore, ~~although~~ because the project site is outside of the documented geographic distribution and the known elevation range to which this species is suited~~, the~~ and the species were not observed during the multitude of surveys conducted on the project site, the Mission blue butterfly does not have the potential to occur on the project site~~has the potential to occur on the project site~~.

Migratory Birds and Bird of Prey

Migratory birds and other birds of prey, protected under 50 CFR 10 of the Migratory Bird Treaty Act (MBTA), have the potential to nest in the trees and shrubs within the non-native annual grassland and ruderal/disturbed areas. No migratory birds or other birds of prey were observed nesting during the 2013 or 2015 biological surveys of the project site. Several birds protected under the MBTA were observed foraging within the project site including: red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), and white-tailed kite (*Elanus leucurus*). Migratory birds and other birds of prey have the potential to nest within the project site.

4.3.3 Regulatory Context

Federal

Wetlands and Other Waters of the U.S.

Any project that involves working in navigable and other waters of the U.S., including the discharge of dredged or fill material, must first obtain authorization from the U.S. Army Corps of Engineers (USACE), under Section 404 of the Clean Water Act. The San Francisco Regional Water Quality Control Board (SFBRWQCB) requires a Water Quality Certification (Clean Water Act Section 401 permit) before other permits are issued. Stream crossings and any other direct impacts to drainage channels require notification to the California Department of Fish and Wildlife (CDFW) and may require the issuance of a Streambed Alteration Agreement (SAA). In addition, the project must comply with the terms of the Section 402 General Construction National Pollution Discharge Elimination System (NPDES) Permit for construction activities in excess of one acre.

Federal Endangered Species Act (ESA) of 1973

The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) enforce the provisions of the federal Endangered Species Act (ESA). The USFWS administers ESA for all terrestrial species. The NMFS administers ESA for marine fish species, including anadromous salmonids. Section 9 (§1538) prohibits the "taking" of a listed species by anyone, including private individuals, and State and local agencies. Threatened and endangered species on the federal list (50 CFR Sections 17.11 and 17.12) are protected from take, defined as direct or indirect harm. If "take" of a listed species is necessary to complete an otherwise lawful activity, this triggers the need for consultation under Section 7 of the ESA for federal agencies. Under Section 7 of the ESA, all federal agencies are required to ensure that any action they authorize, fund, or carry out will not likely jeopardize the continued existence of a listed species or modify their critical habitat. Therefore, project-related impacts to these species, or their habitats, would be significant and therefore require mitigation.

Critical habitat is defined as a geographic area with certain features determined by USFWS to be essential to the conservation of a species listed as threatened or endangered under the ESA. Critical habitat does not have to be occupied by the species at the time it is designated, but it may be considered by the USFWS as necessary for the recovery of the species.

Section 10(a)(1)(b) of the ESA allows non-federal entities, under consultation with the USFWS and the NMFS, to obtain incidental take permits for federally listed wildlife. Section 10 (a)(1)(b) is not required for federally listed plants. Under Section 10 of the ESA, the applicant for an incidental take permit is required

to submit a "conservation plan" to the USFWS or the NMFS that specifies, among other things, the impacts that are likely to result from the taking, and the measures the permit applicant will undertake to minimize and mitigate such impacts, and the funding that will be available to implement those steps. Conservation plans under the ESA have come to be known as habitat conservation plans (HCPs).

Migratory Bird Treaty Act (MBTA)

Migratory birds are protected under the federal Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed under 50 CFR 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). The direct injury or death of a migratory bird, due to construction activities or other construction-related disturbance that causes nest abandonment, abandonment of nestlings, or forced fledging would be considered take under federal law. As such, project-related disturbances must be reduced or eliminated during the nesting cycle. The general nesting season extends from March 1 to September 15.

State

California Endangered Species Act (CESA)

The California Endangered Species Act (CESA) declares that deserving plant or animal species will be given protection by the State because they are of ecological, educational, historical, recreational, aesthetic, economic, and scientific value to the people of the State. The CESA established that it is State policy to conserve, protect, restore, and enhance endangered species and their habitats. Under State law, plant and animal species may be formally designated rare, threatened, or endangered by official listing by the California Fish and Wildlife Commission.

The CESA authorizes that “Private entities may take plant or wildlife species listed as endangered or threatened under the ESA and the CESA, pursuant to a federal incidental take permit issued in accordance with Section 10 of the ESA, if DFW certifies that the incidental take statement or incidental take permit is consistent with the CESA (Fish & Game Code § 2080.1[a]).

California Environmental Quality Act (CEQA)

Section 15380(b) of the CEQA *Guidelines* provides that a species not listed on the federal or State list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. Section 15380 defines “endangered” species of plants, fish, or wildlife as those whose survival and reproduction in the wild are in immediate jeopardy, and “rare” species as those who are in such low numbers that they could become endangered if their environment worsens. A project will normally have a significant effect on the environment if it will substantially affect a rare or endangered species or the habitat of the species. The significance of impacts to a species under CEQA must be based on analyzing actual rarity and threat of extinction despite legal status or lack thereof.

Fish and Wildlife Code of California

The California Fish and Wildlife Code defines take (Section 86) and prohibits taking of a species listed as threatened or endangered under the CESA (California Fish and Wildlife Code Section 2080), or otherwise fully protected (California Fish and Wildlife Code Sections 3511, 4700, and 5050). Section 2081(b) and

(c) of the CESA allows DFW to issue an incidental take permit for a State listed threatened and endangered species if specific criteria outlined in Title 14 CCR, Sections 783.4(a), (b) and DFW Code Section 2081(b) are met. The DFW Code Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the code. Section 3503.5 states that it is unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird. Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA. If a project is planned in an area where a species or specified bird occurs, an applicant must design the project to avoid all take; DFW cannot provide take authorization under the CESA.

Streambed Alteration Agreement (Section 1600 of the DFW Code)

Fish and Wildlife Code Section 1602 requires notification before beginning any activity that may obstruct or divert the natural flow of a river, stream, or lake; change or use any material from the bed, channel, or bank of a river, stream, or lake; or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State. Notification of DFW will be required prior to installation of the water diversion pump and facilities.

Native Plant Protection Act of 1977

Native Plant Protection Act of 1977 and implementing regulations in Section 1900 et seq. of the Fish and Wildlife Code designates rare and endangered plants, and provides specific protection measures for identified populations. The DFW administers the Native Plant Protection Act.

Local

San Mateo County General Plan

The San Mateo County General Plan (County General Plan) was adopted in 1986 and serves as a guide for both land development and conservation within the unincorporated areas of the County. Polices within the County General Plan relevant to biological resources and applicable to the Proposed Project are as follows:

Conserve, Enhance, Protect, Maintain, and Manage Vegetative, Water, Fish and Wildlife Resources (Sections 1.10, 1.24, 1.25, and 1.26)

Promote the conservation, enhancement, protection, maintenance, and managed use of the County's vegetative, water, fish, and wildlife resources.

a. Vegetative Resources:

Ensure that development will: (1) minimize the removal of vegetative resources and/or; (2) protect vegetation which enhances microclimate and/or (3) protect historic and scenic trees.

b. 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 resources; (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.

c. Protect Fish and Wildlife Resources

Ensure that development will minimize the disruption of fish and wildlife and their habitats.

Sensitive Habitats (Sections 1.20, 1.27, 1.28, 1.29, and 1.31)

Protect sensitive habitats from reduction in size or degradation of the conditions necessary for their maintenance. Consider areas designated as sensitive habitats as a priority resource requiring protection. 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, unique, and endangered 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. Within sensitive habitats, permit only those uses 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 service and private infrastructure. Regulate the location siting and design of development in sensitive habitats and buffer zones to minimize to the greatest extent possible adverse impacts, and to enhance positive impacts.

a. Buffer Zones (Sections 1.28, and 1.30)

Establish necessary buffer zones adjacent to sensitive habitats which include areas that directly affect the natural conditions in the habitats. 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 service 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 surrounding land uses.

b. Performance Criteria

Establish performance criteria and 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.

Economically Valuable Vegetative, Water, Fish, and Wildlife Resources (Sections 1.3, and 1.21)

Protect the availability and preserve the productive use of the County's economically viable vegetative, water, fish, or wildlife resources in a manner which minimizes adverse environmental impacts. 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.

Access to Vegetative, Water, Fish and Wildlife Resources (Section 1.40)

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.

Regulate Development to Protect Vegetative, Water, Fish, and Wildlife Resources (Sections 1.22, and 1.23)

a. Regulate land uses and development activities (including location, density, and design) 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 protection and use of vegetative, water, fish, and wildlife resources in rural areas of the County.

Control of Incompatible Vegetative Resources (Sections 1.38, and 1.39)

Encourage and support the control of incompatible vegetative, fish, and wildlife resources which are harmful to the surrounding environment or pose a threat to public health, safety, or welfare. Minimize the negative impacts and risks of programs controlling incompatible vegetation, fish, and wildlife.

Manage Riparian Corridors (Including Vegetation and Debris Control) (Section 1.47, and 1.48)

Develop guidelines for vegetation and debris control in riparian corridors. Such guidelines should set forth clear directions and procedures to: (1) facilitate the abatement of avoidable flood hazards; and (2) minimize adverse impacts on riparian communities. 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.

San Mateo County Significant Tree Ordinance

The County has a tree ordinance that protects “significant” trees, being identified as any live tree which has a circumference measuring at or greater than 38 inches at a height of 4.5 feet above the ground or immediately below the lowest branch, whichever is lower. “Community of Trees” refers to an aesthetic grouping of trees, the removal of which would cause significant ecological, aesthetic, or environmental impact in the immediate area. An “Indigenous Tree” is one known to be native to San Mateo County including any native willow, box elder, buckeye, madrone, oak, or laurel tree. The County Planning Department must be notified of any significant trees which may be affected by the Proposed Project, and appropriate permits must be obtained prior to further action.

4.3.4 IMPACTS AND MITIGATION MEASURES

Method of Analysis

Analysis of potential project impacts to biological resources is based on the July 25, 2013 botanical and biological survey and a review of the following: a USFWS list of species with the potential to occur on or be affected by projects on the San Mateo quadrangle (USFWS, 2013b); CNDDB and CNPS queries of special-status species known to occur on the San Mateo and surrounding four quadrangles (CDFW, 2013a; CNPS, 2013); and a CNDDB query of special-status species known to occur within five miles of

the project site. Mitigation measures have been proposed to reduce potential impacts to special-status special and biological resources to a less-than-significant level, and are listed below.

Significance Criteria

Criteria for determining the significance of impacts to biological resources have been developed based on Appendix G of the CEQA *Guidelines* and relevant agency thresholds. Impacts to biological resources would be significant if the Proposed Project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

Effects Found Not to be Significant

The Initial Study (**Appendix B**) concluded that the Proposed Project would not result in adverse effects on any federally protected wetlands as defined by Section 404 of the Clean Water Act; conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or State habitat conservation plan; and is not located within 200 feet of a marine or wildlife reserve. These effects are therefore not considered within this EIR.

Project Specific Impacts and Mitigation Measures

Impact

4.3-1 The Proposed Project has the potential to have a substantial adverse impact, either directly or through habitat modifications, on special-status plants.

~~Four~~ None of the eleven species were ~~not~~ identified during the surveys conducted ~~on July 25, 2013~~in July 2013 or March 2015, which ~~was~~ were within the corresponding evident and identifiable bloom period; therefore, they do not have the potential to occur on the Proposed Project site. ~~Because the survey was conducted outside of the evident and identifiable bloom period for the remaining seven species, these species have the potential to occur on the Proposed Project site (**Table 4.3-2**).~~ As a result, implementation of the Proposed Project ~~could~~ would not directly or indirectly~~result in direct~~ impact~~s~~ ~~to~~ these identified vegetative resources. ~~Implementation of **Mitigation Measure 4.3-1** would reduce the potential impacts (i.e., loss of~~

~~potential habitat) of the Proposed Project to special status plant species to a less-than-significant level.~~ **Less than Significant ~~with Mitigation~~.**

~~**Mitigation Measure 4.3-1**: To address potential impacts associated with special status plant species, the following measures will be implemented prior to construction of the Proposed Project:~~

- ~~A qualified biologist/botanist shall conduct a focused botanical survey during the month of May, which corresponds to the overlapping evident and identifiable bloom periods for the remaining seven species, and prior to commencement of construction. Should no special status plant species be observed, then no additional mitigation is required.~~
- ~~Should one or more of these special status plants be found during the focused botanical survey on the project site, the qualified biologist/botanist shall contact CDFW within one day following the focused botanical survey to report the findings. If feasible, a 10-foot buffer shall be established around the species using construction flagging prior to commencement of construction activities.~~
- ~~Should avoidance of special status plant species be infeasible, the qualified botanist would salvage and relocate the individuals in an area comprised of suitable habitat in the vicinity of the project site that would not be impacted by the Proposed Project. Prior to the attempted relocation, seeds shall be gathered from the identified plants for use in the area identified for relocation.~~

Impact

4.3-2 The Proposed Project ~~has the potential to have a substantial adverse impact~~<u>would not adversely impact</u>, either directly or through habitat <u>modifications, the Mission Blue Butterfly</u>.

<u>During the course of the over 25 surveys conducted in 2005, 2008, 2012, 2013, and 2015, no Mission blue/ Pardalis blue butterflies, or their host plants, were detected within the proposed development envelope of the project site. Therefore, because the project site is outside of the documented geographic distribution and the known elevation range to which this species is suited and the species ~~its~~were not observed during the multitude of surveys conducted on the project site, the Mission blue butterfly does not have the potential to occur on the project site. Implementation of the Proposed Project would not result in the take of this species. **Less than significant**.</u> ~~The project site contains 7.44 acres of non-native brome grassland, including potential host plants which provide potential habitat for the Mission blue butterfly. The Mission blue butterfly was not observed during the July 25, 2013 biological surveys of the project site even though this survey was conducted during the designated identification period. Because the Mission blue butterfly often occurs within an elevation range above the project site and because the project site is south of the documented southernmost distribution of this species, the likelihood of this species occurring on the project site is relatively low. However, an informal observation of this species was made and noted by a member of the general public. Therefore, the Mission blue butterfly may occur on the project site and may be significantly impacted by the~~

~~implementation of the Proposed Project. With implementation of **Mitigation Measure 4.3-2**, impacts would be less than significant. **Less than Significant with Mitigation.**~~

~~**Mitigation Measure 4.3-2**: To address potential impacts associated with the Mission blue butterfly, the following measures will be implemented prior to construction of the Proposed Project:~~

- ~~A qualified biologist shall conduct a focused survey within the nonnative grassland on the project site for the Mission blue butterfly during the appropriate identification periods for adults (March-July) or juveniles (wet season) prior to commencement of construction activities. Should no species be observed, then no additional mitigation is required.~~
- ~~Should the Mission blue butterfly be observed during the focused survey on the project site, the qualified biologist shall contact CDFW within one day following the focused botanical survey to report the findings. If feasible, a 10-foot buffer shall be established around the species' host plants using construction flagging prior to commencement of construction activities.~~
- ~~Should avoidance of the Mission blue butterfly be infeasible, the qualified biologist would allow the butterfly to exit the property on its own, or will establish an alternately approved appropriate action following contact with CDFW.~~

Impact

4.3-3 Construction activities have the potential to result in the disturbance of nesting or foraging habitat for northern harrier, burrowing owl, and white-tailed kite.

Although unlikely, white-tailed kite have the potential to nest within the project site in the eucalyptus grove in the southeastern region of the property and in the Oak woodland in the north-central region of the property. Northern harrier has the potential to nest on the ground in non-native grassland habitat, as does the burrowing owl. Construction activities could result in disturbance of potential nest sites through the removal of the potential nest locations, and the temporary increases in ambient noise levels and increased human activity on the project site. Although no active nesting white-tailed kites were observed within the project footprint during the 2013 and 2015 biological surveys, preconstruction surveys are recommended to ensure conditions at the project site did not change between the time the surveys were conducted and the commencement of clearing activities that could impact newly developed nests. ~~This is a potentially-significant impact.~~ The mitigation measures identified below would ensure that impacts to listed nesting birds are reduced to less-than-significant levels through identification and avoidance of active nests or burrows.

CDFW considers 5 or more vacant acres within 10 miles of an active nest to be significant foraging habitat for raptor foraging, and the conversion to urban uses is a significant impact. The project site occurs within four miles of documented burrowing owl habitat/occurrence. No occurrences of Northern harrier have been documented within five miles of the project site. One white-tailed kite was observed foraging over the project site during the July 25, 2013 survey, but no other occurrences have been documented within five miles of the project site. The project site

contains 7.44 acres of non-native brome grassland, 1.26 acres of oak woodland, and 1.17 acres of Knobcone Pine Forest which provide potential habitat for these species. With implementation of **Mitigation Measure 4.3-3a** and **4.3-3b**, impacts would be less than significant. **Less than Significant with Mitigation.**

Mitigation Measure 4.3-3a: Prior to the commencement of construction activities on the project site during the nesting season, a qualified biologist shall conduct a minimum of two protocol level preconstruction surveys for listed bird species during the recommended survey periods for the nesting season that coincides with the commencement of construction activities:

- Northern harrier: Present year-round, breeds March through August;
- Burrowing owl: Present year-round breeds primarily March through August, but can be February-December; and
- White-tailed kite: Present year-round, breeding occurs in autumn. Nesting season begins in February and ends in August.

These surveys will occur in accordance with the USFWS Division of Migratory Bird Management *Guidelines for Raptor Conservation in the United States* (2008). The qualified biologist shall conduct surveys within 14 days of commencement for Northern harrier, burrowing owl, and white-tailed kite in the project site and within 0.25 miles of construction activities where legally permitted. The biologist will use binoculars to visually determine whether nests occur beyond the 0.25-mile survey area if access is denied on adjacent properties. If no active nests are identified on or within 0.25 miles of construction activities within the recommended survey periods, a letter report summarizing the survey results shall be submitted to the County and the CDFW within 30 days following the survey, and no further mitigation for nesting habitat is required. Evidence, in the form of a letter report documenting the results of the survey, shall be submitted to the County prior to the issuance of any grading or building permits within the project site.

Mitigation Measure 4.3-3b: If active listed bird nests are found within 0.25 mile of construction activities, the biologist shall contact the County and CDFW within one day following the pre-construction survey to report the findings. For purposes of this mitigation requirement, construction activities are defined to include heavy equipment operation associated with construction (use of cranes or draglines, new rock crushing activities) or other project-related activities that could cause nest abandonment or forced fledging within 0.25 mile of a nest site during the identified nesting period. Should an active nest be present within 0.25 mile of construction areas, then CDFW shall be consulted to establish an appropriate noise buffer, develop take avoidance measures, and implement a monitoring and reporting program prior to any construction activities occurring within 0.25 mile of the nest/burrow. The monitoring program would require that a qualified biologist shall monitor all activities that occur within the established buffer zone to ensure that disruption of the nest/burrow or forced fledging does not occur. Should the biologist determine that the construction activities are disturbing the

nest/burrow, the biologist shall halt construction activities until CDFW is consulted. The construction activities shall not commence until the CDFW determines that construction activities would not result in abandonment of the nest/burrow site. If the CDFW determines that take may occur, the applicant would be required to obtain a CESA take permit. Should the biologist determine that the nest/burrow has not been disturbed during construction activities within the buffer zone, then a letter report summarizing the survey results will be submitted to the County and CDFW and no further mitigation for nesting habitat is required.

Impact

4.3-4 Grading and construction activities have the potential to result in the disturbance of nesting habitat for migratory birds and other birds of prey.

Nesting habitat for migratory birds and other birds of prey protected under the MBTA may include eucalyptus woodland and annual grassland within the project site and vicinity. Potential disruption of nesting migratory birds and other birds of prey during construction could result in nest abandonment or mortality. Likewise, increased human activity and traffic, elevated noise levels, and operation of machinery could also impact birds if their nests are located within the vicinity of development areas. These impacts are significant. Although no active nesting migratory birds or birds of prey were observed within the project footprint during the 2013 and 2015 biological surveys, preconstruction surveys are recommended to ensure conditions at the project site didn't change between the time the surveys were conducted and the commencement of clearing activities that could impact newly developed nests. With implementation of **Mitigation Measures 4.3-4a** through **4.3-4c**, impacts would be less than significant. **Less than Significant with Mitigation**.

Mitigation Measure 4.3-4a: A qualified biologist shall conduct a pre-construction bird survey for nesting within 14 days prior to commencement of construction activities if anticipated to commence during the appropriate nesting season (between February 1 and August 31). The qualified biologist shall document and submit the results of the pre-construction survey in a letter to CDFW and the County within 30 days following the survey. The letter shall include: a description of the methodology including dates of field visits, the names of survey personnel, a list of references cited and persons contacted, and a map showing the location(s) of any bird nests observed on the project site. If no active nests are identified during the pre-construction survey, then no further mitigation is required. Evidence, in the form of a letter report documenting the results of the survey, shall be submitted to the County Planning Department prior to the issuance of any grading or building permits within the project site.

Mitigation Measure 4.3-4b: If any active nests are identified during the pre-construction survey within the project site, a buffer zone will be established around the nests. A qualified biologist will monitor nests weekly during construction to evaluate potential nesting disturbance by construction activities. The biologist will delimit the buffer zone with construction tape or pin flags within 250 feet of the active nest and maintain the buffer zone until the end of the breeding season or until the young have fledged.

Guidance from CDFW will be requested if establishing a 250-foot buffer zone is impractical. Guidance from CDFW will be requested if the nestlings within the active nest appear disturbed.

Mitigation Measure 4.3-4c: Trees anticipated for removal should be removed outside of the nesting season (February 1 and August 31). If trees are anticipated to be removed during the nesting season, a pre-construction survey shall be conducted by a qualified biologist. If the survey shows that there is no evidence of active nests, then the tree shall be removed within ten days following the survey. If active nests are located within trees identified for removal, a 250-foot buffer shall be installed around the tree. Guidance from CDFW will be requested if the 250-foot buffer is infeasible.

Impact

4.3-5 The Proposed Project would not interfere with the movement of native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

The Proposed Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native residents or migratory wildlife corridors or impede the use of native wildlife nursery sites because none occur within the project site. **Less than Significant.**

Impact

4.3-6 Construction of the Proposed Project has the potential to remove trees protected within the tree preservation ordinance specified in the San Mateo County Significant Tree Ordinance.

The County tree ordinance protects “significant” trees, being identified as any live tree which has a circumference measuring at or greater than 38 inches at a height of 4.5 feet above the ground or immediately below the lowest branch, whichever is lower. “Community of Trees” refers to an aesthetic grouping of trees, the removal of which would cause significant ecological, aesthetic, or environmental impact in the immediate area. An “Indigenous Tree” is one known to be native to the County including any native willow, box elder, buckeye, madrone, oak, or laurel tree. Construction of the Proposed Project would require the removal of approximately 43 of the 78 trees (approximately 55 percent) on site. This impact is significant. Implementation of **Mitigation Measure 4.3-6** would reduce impacts to protected trees to less than significant. **Less than Significant with Mitigation**.

Mitigation Measure 4.3-6: Prior to the issuance of grading permits and removal of any trees, a certified arborist or registered professional forester shall conduct an arborist survey documenting all trees with trunk circumferences of 38 inches or greater and their location, as well as any Tree Communities or Indigenous Trees regardless of size. The report shall be submitted to the County Planning Department. The applicant shall not remove any trees without prior approval from the County Planning Department. All recommendations of the arborist report shall be implemented prior to the issuance of

building permits for development on the project site. The arborist report shall specify measures including, but not limited to the following:

- To the extent feasible, trees anticipated for removal shall be removed outside of the nesting season for birds. Taking into account the nesting season for the white tailed kite, the nesting season shall be defined as February 1 to August 31~~.~~ .
- The project proponent shall plant replacement significant and/or indigenous tree species recommended by the County at a 1:1 ratio within the project site.

Cumulative Impact

4.3-7 Development of the Proposed Project has the potential to contribute to the cumulative loss of special-status wildlife species or their habitat in the region.

Cumulative projects in the vicinity of the project site, including growth resulting from build-out of the County General Plan, are anticipated to permanently remove plant and wildlife resources, which could affect special-status species and their habitat, nesting and foraging habitat for resident and migratory birds, and/or local policies or ordinances protecting biological resources. The primary effects of the Proposed Project, when considered with other projects in the region, would be the cumulative direct loss of sensitive or special-status wildlife species and their habitat, loss of migratory birds, and conflicts with local plans or policies protecting biological resources. As development in the County continues, sensitive plant and wildlife species native to the region and their habitat, including those species listed under CESA and ESA and those individuals identified by State and federal resources agencies as species of concern, fully protected, or sensitive will be lost through conversion of existing open space to urban development. Although mobile species may have the ability to adapt to modifications to their environment by relocating, less mobile species may be locally extirpated. With continued conversion of natural habitat to human use, the availability and accessibility of remaining foraging and natural habitats in this ecosystem would dwindle, and those remaining natural areas may not be able to support additional plant or animal populations above their current carrying capacities. The conversion of plant and wildlife habitat on a regional level as a result of cumulative development would potentially result in a significant cumulative impact on special-status species and their habitats.

Development of the Proposed Project would contribute to a loss of regional biological resources through the conversion of habitat for special-status species to human use and thus limit the availability and accessibility of remaining natural habitats to regional wildlife. Although the project site contains ruderal disturbed plant and wildlife habitat and is isolated from many other areas of similar habitat by urban development, the County would implement mitigation measures specifically designed to avoid, reduce, or mitigate potential impacts to special-status species and their habitat. With incorporation of mitigation measures, the Proposed Project's contribution to regional impacts to biological resources would not be cumulatively considerable. Therefore, with mitigation, impacts would be less than significant. **Less than Significant with Mitigation**.

Mitigation Measures 4.3-7: Implement **Mitigation Measures 4.3-1** through **4.3-6**.

4.4 Geology and Soils

4.4.1 Introduction

This section addresses the potential for the Proposed Project to result in impacts associated with geology and soils. Following an overview of the environmental setting in **Subsection 4.4.2** and the relevant regulatory setting in **Subsection 4.4.3**, project-related impacts and recommended mitigation measures are presented in **Subsection 4.4.4**.

4.4.2 Environmental Setting

Regional Setting

The project site is situated within the Southern Coast Ranges, which are part of the greater Coast Ranges geomorphic province. This geomorphic province is characterized by northwest-trending valleys and ridges which were formed via a series of folds and faults that resulted from the collision of the Farallon and North American tectonic plates, as well as strike-slip faulting along the San Andreas Fault Zone. The Southern Coast Ranges are bounded by the Pacific Ocean to the west, San Francisco Bay to the north, the Central Valley to the east, and the Transverse Ranges to the south.

Site Topography

The project site is situated between the uplifted Santa Cruz Mountains to the west and the flat San Francisco Bay alluvial plain to the east. The 13.3-acre project site is a predominantly undeveloped hillside property that contains a flat ridgetop and steeply sloping sides down the knoll. The knoll is elongated in the southeast – northwest trending direction. The maximum site elevation is approximately 714 feet above mean sea level (amsl), while the lowest elevation is approximately 502 feet amsl (**Appendix E**).

In the 1960s, the site was graded by excavating into the side of the knoll for the construction of Ascension Drive and Bel Aire Road. The cut slopes were made to parallel the street, at 1.5 to 1 slope with 8-foot wide benches spaced at approximately 30-foot vertical intervals (Harlan, 1981). The upper portions of the site are more gently sloping than the downhill areas, especially along the existing benched cut slopes along Ascension Drive and Bel Aire Road, which slope at an average of 1.9 horizontal to 1 vertical above Ascension Drive and 1.6 horizontal to 1 vertical above Bel Aire Road (**Appendix E**).

Site Geology

The general site vicinity is underlain by Cretaceous age Franciscan Complex Rocks, which on a regional basis include shale, chert, sandstone, and greenstone. These rocks are commonly sheared and distorted by past tectonic activity, and the project site has been mapped as being underlain by the Franciscan "Sheared Rock" unit (also referred to as Franciscan "Mélange"). Mélange units are generally highly fractured, weak bedrock. However, test pits dug by Michelucci & Associates (2002; 2013) found that the site is underlain by dense to very dense Franciscan sandstones. The bedrock at the project site is composed of large units of sheared shale, siltstone, and greywacke sandstone, overlain by younger unconsolidated residual and deep colluvial soil deposits (**Appendix E**).

Deep-Seated Landslide Hazards

The Geotechnical Investigation conducted by Harlan and Associates (1981) concluded that slope stability at the project site is good, with a low to moderate susceptibility to landsliding. Minor landslides, slumps, and erosion have occurred on the project site, generally caused by movement of the deep colluviums on the hillsides; these will be discussed further below in the **Shallow Landslide Hazards** section. There are no indications of deep-seated landslides involving bedrock at the project site (Harlan, 1981; Michelucci, 2002; **Appendix E**).

However, deep-seated landslides have occurred in the vicinity of the project site. In 1983, a landslide occurred approximately 800 feet northwest of the project site between Rainbow Drive and Starlite Drive. This landslide was likely caused by oversteepening of the slope during mass grading in the 1950s through 1960s, localized grading in 1979, and high rainfall increasing the soil water and localized pore pressure in the years preceding the landslide (CAJA, 2009). The slope was repaired using engineered fill, which failed again approximately three years later. In addition, in 1997 a landslide occurred approximately 1,200 feet northwest of the project site between Polhemus Road and Rainbow Drive. This landslide was stabilized using a retaining wall to protect local residences and a water supply main (CAJA, 2009).

Subsurface exploration completed by Michelucci (2002; 2013) and review of historical aerial photographs reveal no evidence of deep-seated landslides on the project site, despite their occurrence in the area. The very dense sandstone bedrock underneath the project site, which is likely a singular large block, is a strong foundation for the knoll. This is contrasted with the bedrock condition of the surrounding areas, which is a weak, mélange matrix of sheared material with a higher susceptibility for slope failure.

Shallow Landslide Hazards

Shallow soil slumps are visible on historical aerial photographs taken prior to the cutslope grading of the 1960s, although they were largely removed during site grading. The colluvium deposits that overlay the bedrock on the project site is highly weathered, unconsolidated material with a depth that ranges from 1 to 15 feet, and averages about 5 feet in depth across the project site (Harlan, 1981). This deep, unconsolidated material creates a risk for localized soil slumping and shallow landsliding. Extensive soil erosion and gullying have occurred along the slopes of the project site above Ascension Drive and Bel Aire Road. Erosion has occurred predominantly within residual soil and highly weathered sandstone on the order of 2 to 3 feet deep, although gullies were found that approached 10 feet in depth (**Appendix E**). Minor slumps of approximately 1 to 2 feet in depth were observed in conjunction with the erosion on the eastern areas above Ascension Drive (**Appendix E**). Most areas of soil creep were removed by the 1960s site grading. While native soil on the project site is subject to future soil creep, the rate of creep will be minor and typical of similar slopes in the San Francisco Bay Area (CAJA, 2009).

Regional Seismicity and Fault Zones

The San Francisco Bay Area is a seismically active region of Northern California that includes numerous active, potentially active, and inactive faults. Active faults are defined as those that have shown seismic activity within the past 11,000 years and are classified as Holocene faults by the United States Geological Survey (USGS) (CGS, 2010). The USGS definition, adopted by the California Geological Survey (CGS),

defines potentially active faults as faults showing signs of activity up to the beginning of the Quaternary age (1.6 million years ago). Inactive faults have not moved in the last 1.6 million years.

A fault that the CGS determines to be sufficiently active and well-defined is zoned as an earthquake fault zone according to mandates of the Alquist-Priolo Earthquake Fault Zoning Act of 1972. These earthquake fault zone areas are located along active faults that are susceptible to the hazard of surface fault rupture. The project site is not located within an Alquist-Priolo fault zone, although the nearest designated fault zone is the San Andreas Fault system, located approximately 1.1 miles west of the project site (**Figure 4.4-1**) (California DOC, 1974). Translational movements of the North American and Pacific tectonic plates along the San Andreas fault system result in right-lateral strike-slip faulting.

Other faults in the vicinity of the project site include the Pilarcitos fault, located approximately 2.5 miles west of the project site, and the San Gregorio fault zone, located approximately 7.0 miles west of the project site (**Figure 4.4-1**). The San Gregorio fault zone contains late-Holocene active dextral slip faults believed to be capable of producing a magnitude seven earthquake.

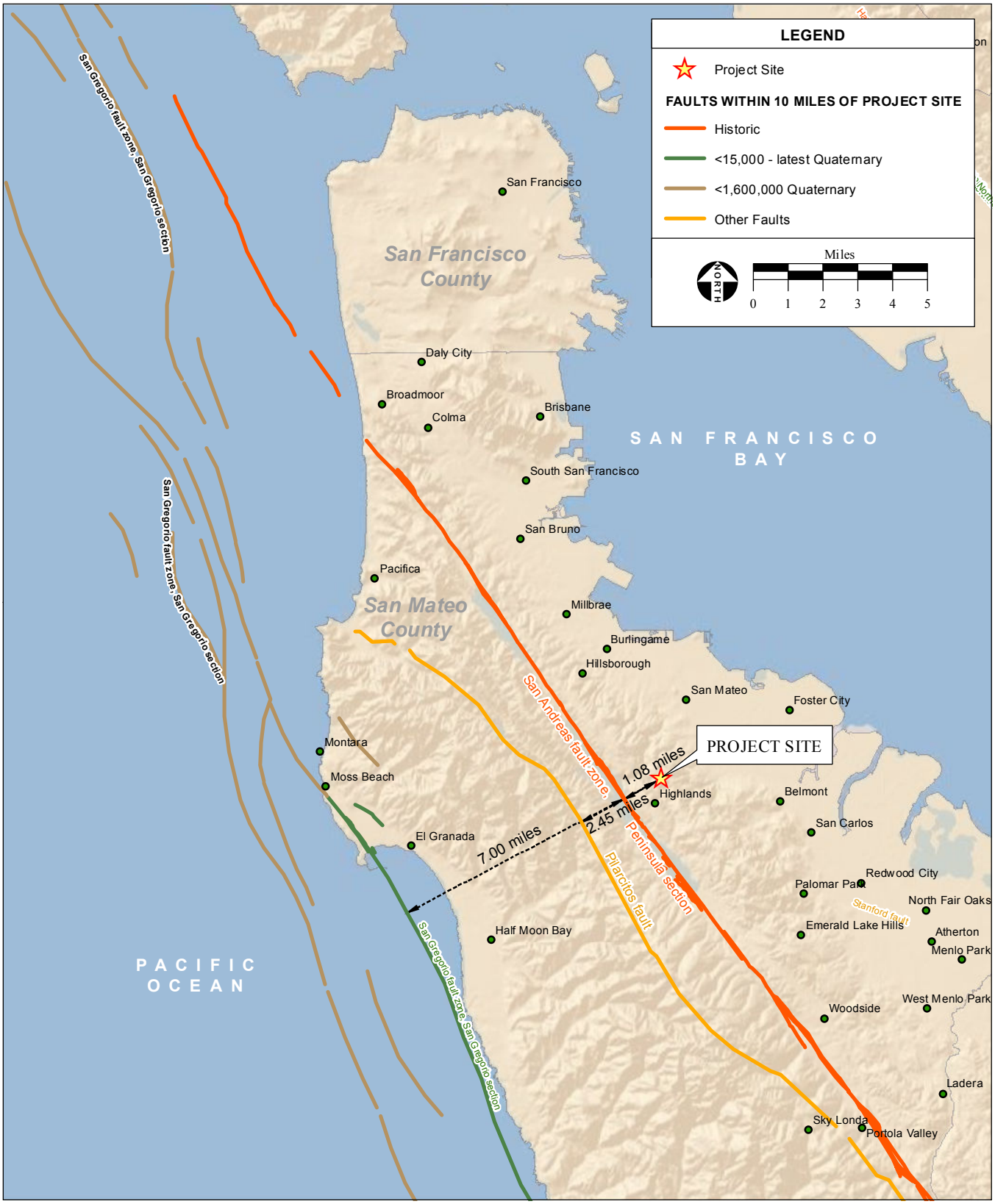
Seismic Shaking Intensity

When an earthquake occurs, energy waves are radiated outward from the fault. The amplitude and frequency of earthquake ground motions partially depends on the material through which it is moving and distance from the source. The earthquake force is transmitted through hard rock in short, rapid vibrations, while this energy movement becomes a long, high-amplitude motion when moving through soft ground materials, such as valley alluvium. The force an earthquake applies to a structure is expressed in terms of a percentage of gravity (g). For example, an earthquake that produces 0.30 g horizontal ground acceleration will impose a lateral force on a structure equal to 30 percent of its total vertical weight. The intensity of an earthquake is expressed in terms of its effects, as measured by the Modified Mercalli Intensity Scale, and in terms of the quantity of energy released, or magnitude, as measured by the Richter scale.

The range of MMI values and a description of intensity factors are displayed in **Table 4.4-1**. The MMI values for intensity range from I to XII, with intensity descriptions ranging from an event not felt by most people (I) to nearly total damage (XII). Between these two extreme ranges, intensities that range from IV to XI have the potential to cause moderate to significant structural damage.

The Richter Scale is a measure of magnitude of an earthquake's seismic energy release, with higher numerical values for stronger earthquakes and the effects associated with each level. On the Richter scale every one-unit increase indicates an increment of roughly 30 times the energy. The relationship between an earthquake's magnitude (Richter) and intensity (MMI) is shown in **Table 4.4-2**.

The USGS produces probabilistic seismic hazard maps that show the potential hazards of earthquakes that could occur in the United States. The seismic hazard map is expressed in terms of probability of exceeding a selected Richter magnitude earthquake. Based on USGS mapping, there is a 90 percent probability that within the next 50 years, a magnitude 6.0 or greater earthquake will affect the project site (USGS, 2009).



SOURCE: USGS Earthquake Hazards Program, 2007; AES, 2014

Figure 4.4-1
Regional Fault Locations

TABLE 4.4-1

MODIFIED MERCALLI INTENSITY SCALE

Intensity Value	Intensity Description	Average Peak Acceleration
I.	Not felt except by a very few persons under especially favorable circumstances.	< 0.0015*g*
II.	Felt only by a few persons at rest, especially on upper floors on buildings. Delicately suspended objects may swing.	< 0.0015*g*
III.	Felt quite noticeably indoors, especially on upper floors of buildings, but many persons do not recognize it as an earthquake. Standing cars may rock slightly. Vibration similar to the passing of a truck. Duration estimated.	< 0.0015*g*
IV.	During the day felt indoor by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motorcars rocked noticeably.	0.015*g*-0.02*g*
V.	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.	0.03*g*-0.04*g*
VI.	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.	0.06*g*-0.07*g*
VII.	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving cars.	0.10*g*-0.15*g*
VIII.	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, and walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving cars disturbed.	0.25*g*-0.30*g*
IX.	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	0.50*g*-0.55*g*
X.	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	> 0.60*g*
XI.	Few, if any, masonry structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	> 0.60*g*
XII.	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	> 0.60*g*

Note: [a] *g* is gravity = 9.8 meters per second squared.
Source: USGS, 2013a

TABLE 4.4-2

APPROXIMATE RELATIONSHIP BETWEEN EARTHQUAKE MAGNITUDE AND INTENSITY

Richter Scale Magnitude	Maximum Expected Intensity (MMI) Scale	Distance Felt (Approximate Miles)
3.0 – 3.9	I – III	15
4.0 – 4.9	IV – V	30
5.0 – 5.9	VI – VII	70
6.0 – 6.9	VII – VIII	125
7.0 – 7.9	IX - X	250
Source: USGS, 2013b		

Liquefaction and Surface Rupture Potential

Liquefaction is a process in which sandy, saturated soils become liquefied and lose their bearing capacity during seismic ground shaking. As a result, sufficiently liquefied soils can no longer support structures built on or beneath them. Liquefaction potential is dependent on such factors as soil type, depth to groundwater, degree of seismic shaking, and the relative density of the soil. Soils most susceptible to liquefaction are saturated, clean, loose, uniformly graded, fine-grained, and unconsolidated materials that are most commonly associated with alluvial valleys with high groundwater levels. The Association of Bay Area Governments (ABAG) creates maps of Bay Area counties that show the susceptibility of mapped areas to liquefaction based on the presence of water-saturated sand and silty materials that may be more prone to liquefaction than other soils. The project site susceptibility to liquefaction is considered very low (ABAG, 2010).

Surface fault rupture occurs when a fault breaks through to the ground surface during a seismic event. Damage due to surface rupturing is limited to the actual location of the fault line break, unlike damage from ground shaking, which can occur at great distances from the fault. With the exception of some right-lateral displacement on the trace of the San Andreas fault in 1906, surface rupture has not historically been a frequent occurrence in San Mateo County (County) (SMC, 1986a). The surface rupture potential of the project site is very low, given the lack of evidence of active faulting on the project site and the location outside of the earthquake fault zone (**Appendix E**).

Subsidence and Settlement

Seismic settlement is the compaction of soil materials caused by ground-shaking or the extraction of underground fluids (water, oil, gas). Settlement can be caused by liquefaction or densification of silts and loose sands as a result of seismic loading. Such settlement may range from a few inches to several feet, and be controlled in part by bedrock surfaces (which prevent settlement) and old lake, slough, swamp, or stream beds which settle readily. Static settlement can occur through increased loading of the surface or subsurface materials, such as that imposed by foundations for structures. Dewatering for excavation and foundation construction can cause settlement of drying subsurface materials if water formed part of the support for the surface soils. Given that the soils on the project site often have a deep water table

(NRCS, 2013) and groundwater extraction is not proposed as part of the Proposed Project, subsidence and settlement is unlikely to occur on the project site.

Lateral Spreading

Lateral spreading is a ground failure in which a subsurface layer of soil liquefies, resulting in the overlying soil mass deforming laterally toward a free face. Limited lateral spreading is extremely unlikely given the project area's very low probability for liquefaction on the slopes of the project site (ABAG, 2010).

Soil Resources

Soil Types

Soil types and their distribution in the project area are depicted in **Figure 4.4-2** and were identified through the WebSoil Survey tool provided by the Natural Resources Conservation Service (NRCS). With the exception of urbanized areas where soils typically consist of engineered fill, the NRCS soil characteristics describe native, undisturbed soils. Descriptions of the soil units mapped for the study area are provided below (NRCS, 2013). Serpentine soils, which can contain naturally occurring asbestos, are not present on the project site.

Fagan loam, 15 to 50% Slopes (113)

Fagan loam is a well-drained soil which generally occurs on hills and hillslopes at elevations between 200 and 1,990 feet amsl. This soil comprises the majority of the project site, or approximately 67.3 percent of the total acreage. The typical profile of this soil is 0-5 inches loam, 5-26 inches clay loam, and 26-43 inches clay. This soil is characterized as having a moderate erosion susceptibility and being moderately corrosive to concrete and steel. Fagan loam has a moderate shrink-swell potential at depths 0-26 inches and a high shrink-swell potential in its lower clay horizon (26-43 inches). This soil has been assigned hydrologic group C, which corresponds to having a slow infiltration rate when thoroughly wet, often due to a layer that impedes the downward movement of water.

Orthents, cut and fill, 15 to 75% Slopes (122)

This soil unit is found on the steeper slopes along the west and south flanks of the knoll and makes up approximately 26.6 percent of the acreage on the project site. Orthents are typically shallow soils lacking horizon development, either due to extreme slopes or parent materials that are highly resistant to weathering. This well-drained soil is assigned hydrologic group D, which corresponds to having a very slow infiltration rate (high runoff potential) when thoroughly wet.

Orthents, cut and fill – Urban land complex, 5 to 75% Slopes (124)

This soil unit is found on the steeper slopes along the northern flanks of the knoll bordering the urban development, and makes up approximately 6.0 percent of the acreage on the project site. The Orthents, cut and fill – Urban land complex have the same soil properties as the Orthents, cut and fill soils described above, but with a complex of urban land interspersed.

SOURCE: USDA NRCS Soil Survey Geographic (SSURGO) database for San Mateo Area, California, 7/2010; USGS Aerial Photograph, 6/30/2008; AES, 2013

Figure 4.4-2
Soil Types

4.4.3 Regulatory Context

Federal Earthquake Hazards Reduction Act

In October 1977, the U.S. Congress passed the Earthquake Hazards Reduction Act to "reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program." To accomplish this, the act established the National Earthquake Hazards Reduction Program (NEHRP). This program was significantly amended in November 1990 by the National Earthquake Hazards Reduction Program Act (NEHRPA), which refined the description of agency responsibilities, program goals, and objectives.

NEHRP's mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improvement of building codes and land use practices; risk reduction through post earthquake investigations and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results. The NEHRPA designates the Federal Emergency Management Agency (FEMA) as the lead agency of the program and assigns it several planning, coordinating, and reporting responsibilities. Other NEHRPA agencies include the National Institute of Standards and Technology, National Science Foundation, and USGS.

State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed by the California Legislature to mitigate the hazard of surface faulting to structures. The act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The act addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. Local agencies must regulate most development in fault zones established by the State Geologist. Before a project can be permitted in a designated Alquist-Priolo Fault Study Zone, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults.

California Seismic Hazards Mapping Act

The California Seismic Hazards Mapping Act of 1990 (Public Resources Code Sections 2690–2699.6) addresses seismic hazards other than surface rupture, such as liquefaction and induced landslides. The Seismic Hazards Mapping Act specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils.

National Pollutant Discharge Elimination System Permit (NPDES)

The State Water Resources Control Board (State Water Board) administers regulations and permitting for the U.S. Environmental Protection Agency (55 CFR 47990) for pollution generated from stormwater under the Nation Pollutant Discharge Elimination System (NPDES). There are nine Regional Water Quality Control Boards (RWQCBs) that implement the State Water Board's jurisdiction and require that an operator of any construction activities with ground disturbances of 1.0 acre or more obtain a General Permit through the NPDES Stormwater Program. The project site is within the jurisdiction of the San

Francisco Bay RWQCB (SFBRWQCB). The General Permit requires that the implementations of Best Management Practices (BMPs) be employed to reduce sedimentation into surface waters and control erosion. The preparation of a Storm Water Pollution Protection Plan (SWPPP) addresses control of water pollution that includes the effects of sediments in the water during construction activities. These elements are further explained within **Section 4.9**, Hydrology and Water Quality.

California Building Standards Code

The State of California provides minimum standard for building design through the California Building Standards Code (CBC) (California Code of Regulations, Title 24). Where no other building codes apply, Chapter 29 regulates excavation, foundations, and retaining walls. The CBC also applies to building design and construction in the state and is based on the federal Uniform Building Code (UBC) used widely throughout the country (generally adopted on a state-by-state or district-by-district basis). The CBC has been modified for California conditions with numerous more detailed and/or more stringent regulations.

The State earthquake protection law (California Health and Safety Code Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. Specific minimum seismic safety and structural design requirements are set forth in Chapter 16 of the CBC. The CBC identifies seismic factors that must be considered in structural design.

San Mateo County General Plan

The San Mateo County General Plan (County General Plan) was adopted in 1986 and serves as a guide for both land development and conservation within the unincorporated areas of the County. Polices within the County General Plan relevant to geologic hazards and applicable to the Proposed Project are as follows:

2.1.1 <u>Protect and Preserve Soil as a Resource</u>
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 <u>Minimize Soil Erosion</u>
Minimize soil erosion through application of appropriate conservation practices.

2.17 <u>Regulate Development to Minimize Soil Erosion and Sedimentation</u>
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.

2.23 <u>Regulate Excavation, Grading, Filling, and Land Clearing Activities Against Accelerated Soil Erosion</u>
Regulate excavation, grading, filling, and land clearing activities to protect against accelerated soil erosion and sedimentation.

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.

2.29 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.

15.20 Review Criteria for Locating Development in Geotechnical Hazard Areas
Avoid unnecessary construction of roads, trails, and other means of public access into or through geotechnical hazard areas.

15.21 Requirement for Detailed Geotechnical Investigations
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.

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: siting and design of roads, grading, utilities, improvements and structures.

4.4.4 Impacts and Mitigation Measures

Method of Analysis

This section identifies any impacts associated with geology and soils that could occur from construction, operation, and/or maintenance of the Proposed Project. Impacts to and from geological resources were analyzed based on an examination of the project site, published information regarding geological hazards of the project area, field studies, and comparison of these factors to the significance criteria listed below.

The impact analysis focused on the potential for the Proposed Project to impact the geology and soils within the project site, as well as geologic features in close proximity that might have an adverse impact on the site. The evaluation was made in light of project plans and applicable regulations and guidelines. If it was determined that implementation of the Proposed Project has the potential to meet or exceed the significance criteria listed below, mitigation measures have been recommended to increase the compatibility and safety of the project site and to reduce impacts to less-than-significant levels.

Significance Criteria

Criteria for determining the significance of impacts associated with geology and soils have been developed based on Appendix G of the California Environmental Quality Act's (CEQA) *Guidelines*. Impacts associated with geology and soils would be considered significant if the Proposed Project would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
  - Strong seismic ground shaking;
  - Seismic-related ground failure, including liquefaction; or
  - Landslides.
- Result in substantial soil erosion or the loss of topsoil;
- Be located in a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- of off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- Be located on expansive soil;
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

Effects Found Not to be Significant

The Initial Study (**Appendix B**) concluded that the Proposed Project would not be located on expansive soils or soils with a high risk of liquefaction. Additionally, the Proposed Project does not propose the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater. These effects are therefore not considered within this EIR.

Project Specific Impacts and Mitigation Measures

Impact

4.4-1 Earth-moving activities associated with construction of the Proposed Project have the potential to result in soil erosion or the loss of topsoil.

As discussed above, the soil conditions on the project site have a moderate potential for soil erosion (NRCS, 2013). Construction of the Proposed Project would involve grading, clearing, and landscaping activities associated with the development of residential units, roadways, and corresponding infrastructure (including potable water lines and storm water and sewage conveyance lines). Construction would result in the temporary disturbance of soil and would expose disturbed areas to potential storm events, which could generate accelerated runoff, localized erosion, and sedimentation of local waterways. Vegetation clearing associated with the Proposed Project could remove obstacles to sediment transport and expose new soils. In addition, construction activities could expose soil to wind erosion effects that could adversely affect both on-site and nearby soils and the re-vegetation potential of the area. Soils at the project site are characterized as having moderate erosion hazards. Without implementation of erosion control measures and BMPs, there could be substantial soil erosion and loss of topsoil from the project site.

Implementation of **Mitigation Measures 4.4-1a** and **4.4-1b** would require construction contractors to install erosion and sediment control measures in accordance with the CWA NPDES construction general permit regulations and to implement an Erosion and Sediment

Control Plan in accordance with San Mateo County Ordinance Code (Section 8600 et seq.). After implementation of these measures, potential impacts would be reduced to less than significant. **Less than Significant with Mitigation**.

Mitigation Measure 4.4-1a: Implement **Mitigation Measure 4.6-1** (**Section 4.6**; Hydrology and Water Quality) to identify and implement erosion control BMPs within the SWPPP prepared for construction activities in accordance with the State's Clean Water Act NPDES general permit for construction activities. Implementation of these BMPs would ensure that temporary and short-term construction-related erosion impacts under the Proposed Project would be reduced to a less-than-significant level.

Mitigation Measure 4.4-1b: The applicant shall obtain a San Mateo County Grading Permit which includes the requirement of an Erosion and Sediment Control Plan. This Erosion and Sediment Control Plan shall be prepared by a licensed civil engineer or certified professional soil erosion and sediment control specialist. The plan shall show the location of proposed vegetative erosion control measures, including landscaping and hydroseeding, and the location and details of all proposed drainage systems. The plan shall include sufficient engineering analysis to show that the proposed erosion and sediment control measures during preconstruction, construction, and post-construction are capable of controlling surface runoff and erosion, retaining sediment on the project site, and preventing pollution of site runoff in compliance with the Clean Water Act.

Impact

4.4-2 The Proposed Project has the potential to result in structural damage and injury from seismic activity and related geologic hazards.

The nearest mapped active fault to the project site is the San Andreas fault located approximately 1.6 miles to the west. Based on USGS mapping, there is a 90 percent probability that within the next 50 years, a magnitude 6.0 or greater earthquake will affect the project site (USGS, 2009). Richter magnitude 6.0 earthquakes correspond to MMI values of VII to VIII, which would result in slight damage to specially designed structures, and moderate damage to buildings not designed for seismically active areas. Although potential damage to people or structures from seismic ground shaking could be a concern, compliance with the CBC would require the site's seismic-design response spectrum to be established and incorporated into the design of all new structures. Structures and utilities would be designed to withstand seismic forces per CBC requirements. The CBC specifies that all proposed structures on the project site should be able to: resist minor earthquakes without damage; resist moderate earthquakes without structural damage but with some nonstructural damage; and resist major earthquakes without collapse but with some structural as well as nonstructural damage. These construction standards would minimize the seismic ground shaking effects on developed structures; therefore, impacts related to ground shaking are less than significant and no mitigation is required.

It is anticipated that approximately 46,500 cubic yards of soil and bedrock will be excavated within the site, and approximately 20,000 cubic yards may be used as engineered fill on-site. If this fill material is determined to be unsuitable for use on-site, soils from other sources in the project

vicinity would be utilized. With the incorporation of mitigation, fill materials would be tested to ensure their stability for use on the project site and placement of fill would be monitored to ensure compliance with all State and local requirements.

As described in **Subsection 4.4.2**, the project site is not located within an Alquist-Priolo Fault Zone and is therefore not susceptible to surface rupture. In addition, the project site has a very low liquefaction potential (ABAG, 2010). However, the project site does have the potential for shallow-seated landslides, which is discussed further in **Impact 4.4-3** below.

Before a building permit can be issued for any structure, the Project applicant must submit a detailed Geotechnical Investigation to the building department (County General Plan Policy 15.21). The recommendations of the qualified engineering geologist in the geotechnical investigation will be incorporated into the project design. In addition, the applicant will comply with the San Mateo regulations for excavating, grading, filling, and clearing (San Mateo County Ordinance Code Section 8600 et seq.) by applying for a Grading Permit and implementing the BMPs therein. With mitigation, the project design would reduce all potential impacts associated with seismic activity to a less-than-significant level. **Less than Significant with Mitigation.**

Mitigation Measure 4.4-2a: Grading and building designs, including foundation requirements, shall be consistent with the findings of the geotechnical investigation, the California Code of Regulations, and the California Building Code.

Mitigation Measure 4.4-2b: The project applicant shall comply with all recommendations contained within the site-specific Geotechnical Investigation conducted by Michelucci & Associates (2013) and attached here as **Appendix E**.

Mitigation Measure 4.4-2c: The applicant shall retain a qualified engineering geologist. All grading and installation of fill shall be performed under the observation of the qualified engineering geologist.

Impact

4.4-3 The Proposed Project could potentially result in shallow landslides due to the depth of unconsolidated colluvium on the project site.

The underlying sandstone bedrock of the Franciscan formation is very stable underneath the project site, meaning there is a low probability of deep-seated bedrock landslides. The unconsolidated colluvial material above the bedrock can be very deep in areas (at least 5 foot depth on average and up to a maximum of 15 feet). Deep, unconsolidated material combined with the steep slopes on the flanks of the knoll can create a shallow landslide hazard. Shallow landslides are typically caused by improper grading and placement of structural fill, loading of the top of a slope, seismic activity, and changes in pore pressure of the soil caused by increased drainage in the slope. Implementation of the mitigation measures described above for site grading and engineered fill will reduce the risk of shallow landslides. With the additional measures described below, impacts will be less than significant. **Less than Significant with Mitigation**.

Mitigation Measure 4.4-3a: Implement **Mitigation Measure 4.6-2** (**Section 4.6**; Hydrology and Water Quality) to ensure that the site storm water drainage system (including individual systems for each residence) shall not allow discharge of uncontrolled runoff onto the site slopes. Concentrated runoff shall not be allowed to flow over graded slopes or areas of thick soil, colluviums, or fill.

Mitigation Measure 4.4-3b: Implement **Mitigation Measure 4.4-2c** to ensure the recommendations of the Geotechnical Investigation regarding subdrains and surface drainage are included in the project design.

Cumulative Impact

4.4-4 Development of the Proposed Project in combination with future projects in the region could result in cumulative effects associated with geology and soils.

The project site falls within the City of San Mateo's sphere of influence, and implementation of the Proposed Project and other potential cumulative projects in the region, including growth resulting from build-out of the City of San Mateo's General Plan, could result in increased erosion and soil hazards and could expose additional structures and people to seismic hazards. Potential soil and seismic hazards from cumulative development could represent a significant cumulative impact if projects do not incorporate grading/erosion plans and are not developed to the latest building standards incorporating recommendations from site-specific geotechnical reports prepared for these projects. The County, City of San Mateo, and surrounding jurisdictions would implement mitigation measures specifically designed to avoid, reduce, or mitigate potential impacts associated with geology and soils. Therefore, after mitigation, cumulative impacts would be considered less than significant and would not be cumulatively considerable. **Less than Significant with Mitigation**.

Mitigation Measure 4.4-4: Implement **Mitigation Measures 4.4-1** through **4.4-3**.

4.5 LAND USE

4.5.1 INTRODUCTION

This section addresses the potential for land use impacts and evaluates the consistency of the Proposed Project with applicable land use designations and policies that are intended to reduce environmental impacts of development projects. Following an overview of existing land uses in **Subsection 4.5.2** and the relevant regulatory setting in **Subsection 4.5.3**, project-related impacts and recommended mitigation measures are presented in **Subsection 4.5.4**.

4.5.2 LAND USE SETTING

The project site is located within unincorporated San Mateo County (County), which is located in the San Francisco Bay Area, south of the City of San Francisco on the San Francisco Bay Peninsula. As discussed in **Section 4.1**, the County is characterized by densely populated cities located along the bay in the northeastern half of the County with more sparsely populated areas and open space in the central and southwestern portions. The unincorporated area of the County includes approximately half of the land area of the entire County, but only nine percent of the County population resides within the unincorporated areas (SMC, 2012a). Further, the population residing within the unincorporated County is primarily located very near city boundaries. The Local Agency Formation Commission (LAFCO) has assigned each of the County's urbanized unincorporated areas to the sphere of influence of an adjacent city, and, as of 2000, these unincorporated, urbanized communities contained about 71 percent of the unincorporated County's housing supply and 75 percent of the unincorporated population (SMC, 2012a). The project site is located adjacent to the southeastern boundary of and is completely within the sphere of influence of the City of San Mateo (SMC LAFCO, 2013).

Project Site Land Uses

The 13.3-acre project site is located east of Interstate 280 (I-280), west of State Route 92 (SR-92), and north of the I-280 and SR-92 interchange within the unincorporated community of San Mateo Highlands. The project site is characterized as a hillside property that slopes steeply near the base of the hill (25 percent to 95 percent grade) and changes to a gentler slope toward the top of the hill. Aside from a potable water tank owned by California Water Service Company [Cal Water] and cell transmitter enclosed by fencing located at the top of the hill (these structures and the immediate surrounding area are not part of the project site, refer to **Figure 3-3**) and a paved service road to the water tank/cell transmitter parcel, the project site is primarily undeveloped open space. There are some man-made cut slopes and shelves along the lower slopes and drainage structures along the northwest and southwest perimeters of the project site (approximately 0.25 percent of the overall project site). The site is vegetated with non-native grasses, shrubs, and trees.

Surrounding Land Uses

The project site is situated on the northeastern corner of Bel Aire Road and Ascension Drive; these roads border the project site to the northeast and southeast, respectively. Single-family residential homes are immediately adjacent to the project site along the northeast and southeast. Single-family residential homes are also located to the northwest and southwest of the project site along Bel Aire Road and

Ascension Drive. The predominate land uses surrounding the site include single-family neighborhoods, including the Baywood Park neighborhood to the northeast, the Enchanted Hills neighborhood to the southeast and southwest, and the Starlite Heights neighborhood to the northwest. The College of San Mateo is located less than 0.25 mile northeast of the project site.

Land Use Designation and Zoning

County of San Mateo General Plan

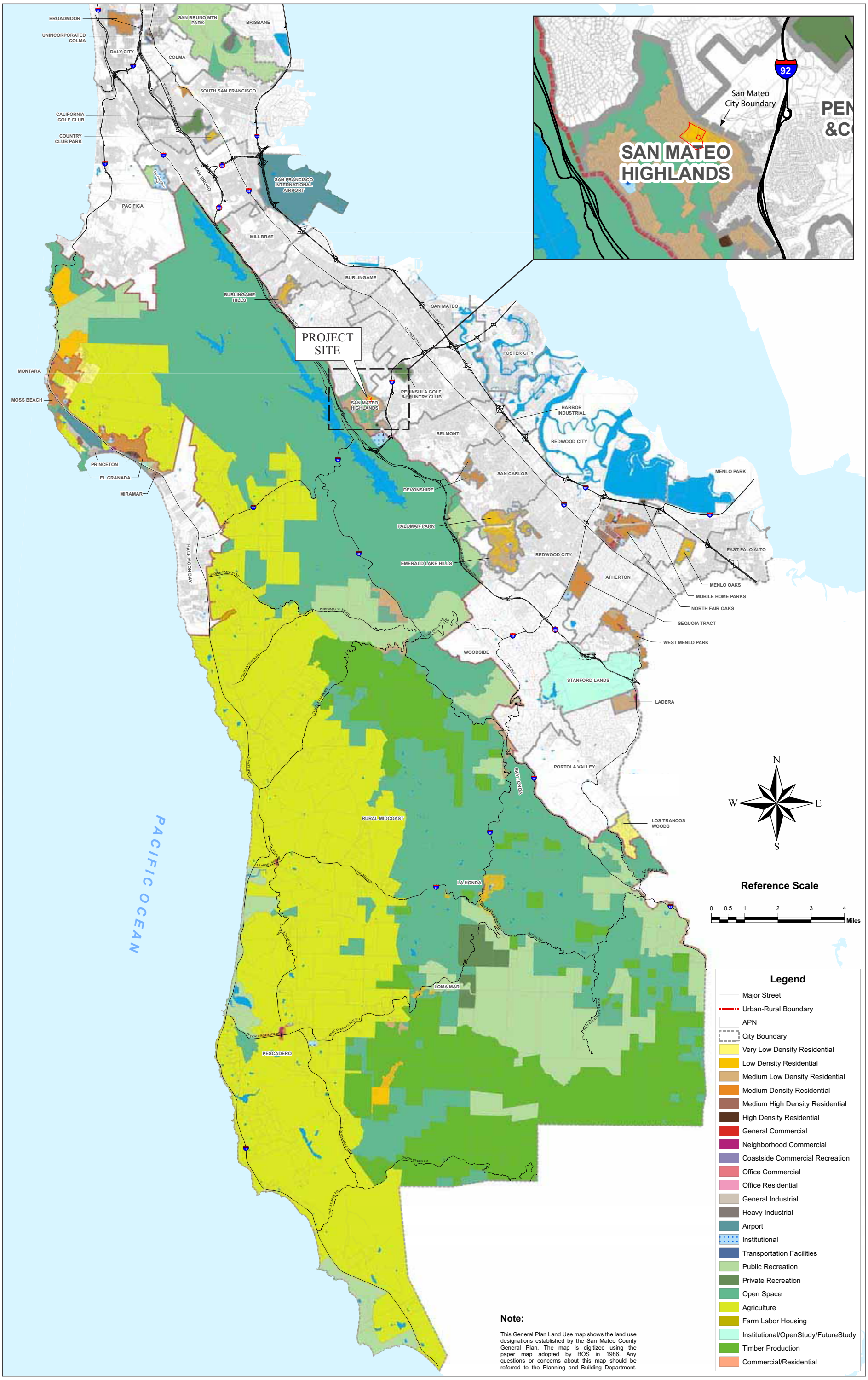
The project site is located in area identified as an "Urban Neighborhood" by the County of San Mateo General Plan (County General Plan), which is defined as an area primarily devoted to residential land uses and that is generally integrated with adjacent cites (SMC, 1986a). The land use designation for the project site provided in the County General Plan is Medium-Low Density Residential (**Figure 4.5-1**), which allows development of 2.4 to 6.0 dwelling units (du) per net acre (du/acre). The criteria for this land use designation are as follows:

- Existing medium-low density areas;
- Hillside areas with steep slopes;
- Adjacent to sensitive habitats;
- Hazardous areas; and/or
- Not within areas of high perceived noise levels.

County of San Mateo Zoning Regulations

The project site is zoned one-family residential district (R-1) and residential density district Number 8 (S-8) (**Figure 4.5-2**). This zoning allows for the following uses:

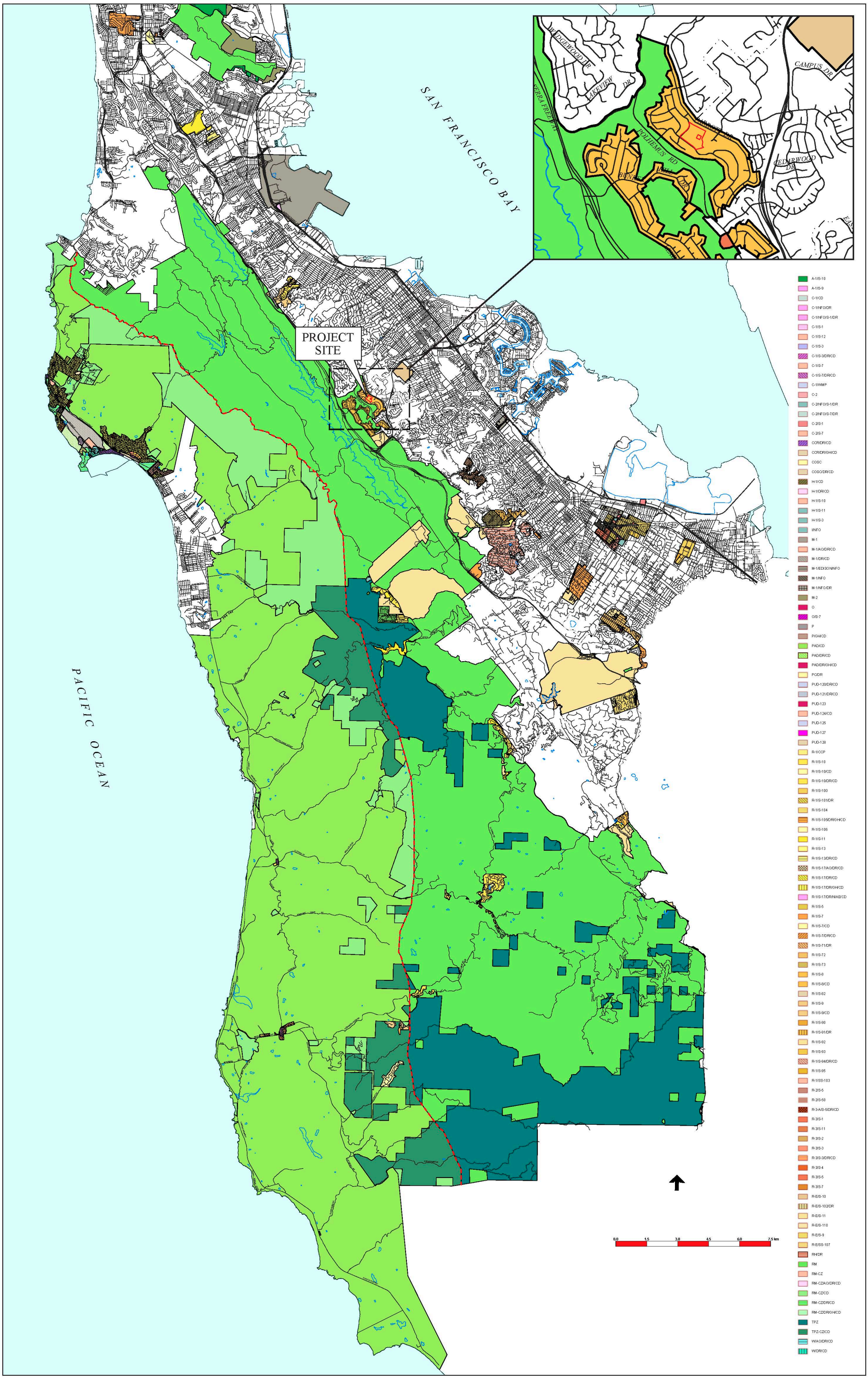
- One-family dwellings;
- Public parks and playgrounds;
- Crop and tree farming and truck gardening;
- Home occupations;
- Accessory buildings and accessory uses appurtenant to a residential use provided; however, that such accessory buildings shall not be constructed until the main building shall have been constructed;
- Keeping of pets in association with a one-family dwelling;
- Limited keeping of pets in association with a second unit;
- Animal Fanciers in association with a one-family dwelling, subject to an animal fanciers' permit issued in accordance with County Ordinance Code, Division III, Part Two, Chapter 6.3;
- Catteries in association with a one-family dwelling, subject to a kennel/cattery permit issued in accordance with County Ordinance Code, Division III, Part Two, Chapter 12;
- On parcels of at least 2,500 square feet in size, and in compliance with the conditions set forth in Section 6401.1.1 of the San Mateo County Ordinance Code, the keeping of no more than six (6) of the following domestic poultry: chicken and ducks. Roosters are prohibited;
- On parcel sizes exceeding 7,500 square feet, and in compliance with the conditions set forth in Section 6401.1.1 of the San Mateo County Ordinance Code, the keeping of no more than ten (10) of the following domestic poultry: chicken and ducks. Roosters are prohibited;



SOURCE: San Mateo County, 7/24/2009; AES, 2013

Figure 4.5-1

San Mateo County General Plan Land Use Designation



SOURCE: San Mateo County, 8/13/2003; AES, 2013

Figure 4.5-2
San Mateo County Zoning

- Reverse vending machines at public facilities;
- Small collection facilities for recyclable materials at public facilities, subject to obtaining a building permit, provided that there is no additional mechanical processing equipment on site, that collection facilities shall not be located within 50 feet of a residence, nor decrease traffic or pedestrian circulation or the required number of on-site parking spaces for the primary use, and all litter and loose debris shall be removed on a daily basis; and/or
- Large Residential Day Care Facilities for Children (Family Day Care Homes; 7 to 12 children), subject to a large family day care permit issued in accordance with the County Zoning Regulations, Chapter 22, Section 6401.2.
- Keeping of confined animals.

Development Regulations

The following development standards set forth in the County of San Mateo Zoning Regulations apply to the R-1/S-8 Districts:

- Minimum Building Site Average Width: 50 feet
- Minimum Lot Area per du: 7,500 square feet
- Minimum Front Yard Setback: 20 feet
- Minimum Side Yard Setback: 5 feet
- Minimum Backyard Setback: 20 feet
- Maximum Height: 3 stories or 36 feet
- Maximum Coverage: 40 percent
- Parking: Two spaces per du. Each off-street parking space shall have an area of not less than 171 square feet exclusive of access drives or aisles, and shall be of usable shape, location, and condition. There shall be adequate provision for ingress and egress to all parking spaces. Parking spaces required in connection with residential uses shall be provided in private garages, carports, or storage garages located on the same building site as the main building.

San Mateo County Service Areas (CSA)

The County provides enhanced police and fire protection services for the residents of the unincorporated area of the County west of the City of San Mateo and east of I-280; this area is known as County Service Area (CSA) #1. Enhanced police and fire protection services are funded through property taxes and a special supplemental parcel tax that requires approval by the voters every four years. Services include Sheriff's patrol units, emergency and non-emergency response, fire prevention, public education, fire safety planning, community support activities, station and equipment maintenance, and training (SMC, 2012c).

The original boundaries of CSA #1 were drawn to encompass the original plan for a subdivision on the project site. However, the Proposed Project proposes development of residences on a small portion of the project site that is not within the CSA boundaries (refer to **Figure 3-~~5~~6**) (SMC LAFCO, 2013). The highlighted territory would need to be annexed to CSA #1 so that all homes to be constructed receive the same level of police and fire protection and so that CSA #1 has both the jurisdiction and the funding to provide such service. Annexation would require application to the LAFCO.

San Mateo County Lighting Districts

The County Public Works Department provides street lighting for residents and businesses in the unincorporated areas of the County through street lighting districts. Pacific Gas and Electric (PG&E) provides electricity and an electrical connection to each street light and is paid a fixed monthly fee for electrical energy to these fixtures. Fixtures on both PG&E and County owned poles are maintained and serviced by personnel of the County Public Works Department. Revenue for each County Lighting District is provided by an annual assessment on tax bills for properties located in within the district. The closest lighting district to the project site is the Bel Aire Lighting District (SMC Department of Public Works, 2012). The applicant proposes to annex the project site into the Bel Aire Lighting District, which would require an application to the LAFCO.

4.5.3 Regulatory Context

California Building Standards Commission - Green Building Standards

The California Building Standards Commission has developed green building standards intended to improve public health, safety, and general welfare by use of building concepts and design that have a reduced impact on the physical environment. The 2010 edition of the California Green Building Standards Code (CALGreen) contains a comprehensive set of mandatory provisions for residential construction addressing such items as water efficiency, energy efficiency, and material conservation and efficiency. CALGreen became effective January 1, 2011 and is Part 11 of Title 24 of the California Building Standards Code.

County of San Mateo

General Plan

The County General Plan was adopted in 1986 and serves as a guide for both land development and conservation; it sets forth goals and policies for the future development of the County in part by designating the location of desired future land uses. Polices applicable to the Proposed Project are listed in **Table 4.5-1** at the end of this section.

Zoning Regulations

The County of San Mateo Zoning Regulations guide development on properties within the unincorporated areas of the County. The Zoning Regulations for the project area were first adopted in 1957; several amendments have since been adopted. The December 2012, edition of the County of San Mateo Zoning Regulations incorporates all adopted amendments through September 2012 (SMC, 2012b).

Subdivision Regulations

The County of San Mateo Subdivision Regulations were adopted on January 14, 1992 to regulate and control the divisions of land, movement/removal of lines between parcels, and determination of parcel legality within the unincorporated areas of the County (SMC, 1992).

Green Building Ordinance

The San Mateo County Green Building Ordinance, adopted on February 26, 2008 and amended on October 7, 2008, strives to enhance public health and welfare by encouraging green building measures in

the design, construction, and maintenance of buildings. Green Building Practices are intended to achieve the following goals:

- To encourage the conservation of natural resources;
- To reduce waste in landfills generated by construction projects;
- To increase energy efficiency and lower energy usage;
- To reduce operating and maintenance costs for buildings; and
- To promote a healthier indoor environment.

Local Agency Formation Commission (LAFCO)

The State Legislature created LAFCOs in 1963 in response to the rapid growth and sporadic formation of cities and special districts in California in the years following World War II. The County LAFCO is a State-mandated, independent agency with countywide jurisdiction over changes in organization and boundaries of cities and special districts including annexations, detachments, incorporations, and formations. The County LAFCO has responsibility in the following areas affecting local government in the County:

1) To discourage urban sprawl and encourage the orderly growth and development of local government agencies;
2) To prevent premature conversion of agricultural and open space lands;
3) To review and approve or disapprove proposals for changes in the boundaries and organization of the 20 cities, 24 independent special districts and approximately 44 county-governed special districts plus incorporations of cities and formations of special districts;
4) To establish and periodically update spheres of influence--future boundary, organization and service plans--for the county's cities and special districts; and
5) To perform and assist in studies of local government agencies with the goal of improving efficiency and reducing costs of providing urban services (SMC LAFCO, 2012).

City of San Mateo General Plan

As discussed in **Section 4.5.2**, the project site is completely within the sphere of influence of the City of San Mateo (SMC LAFCO, 2013). Therefore, consideration of the land use goals and policies of the City of San Mateo General Plan (updated in 2010) is necessary for the Proposed Project. Polices applicable to the Proposed Project are listed in **Table 4.5-1** at the end of this section.

4.5.4 Impacts and Mitigation Measures

Method of Analysis

The Proposed Project was evaluated for compatibility with existing and planned land uses adjacent to the project site and consistency with adopted plans, policies, and zoning designations. Long-term incompatibilities arise when adjacent land uses result in activities that could conflict with each other. The respective environmental sections of this Draft EIR discuss any potential physical/environmental impacts that could impact adjacent sensitive receptors whereas this section addresses the Proposed Projects' consistency with land use plans, polices, and regulations.

Significance Criteria

Section 15125(d) of the CEQA *Guidelines* states that "[t]he EIR shall discuss any inconsistencies between the Proposed Project and applicable general plans and regional plans." Criteria for determining the significance of land use impacts have been developed based on Appendix G of the CEQA *Guidelines*. For the purposes of this Draft EIR, land use impacts are considered significant if the Proposed Project would:

- Physically divide an existing community;
- Result in a substantial inconsistency with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect;
- Conflict with any applicable habitat conservation plan, or natural community conservation plan;
- Result in the congregating of more than 50 people on a regular basis;
- Result in the introduction of activities not currently found within the community;
- Serve to encourage off-site development of presently undeveloped areas or increase development intensity of already developed areas; or
- Create a significant new demand for housing.

Effects Found Not to be Significant

The Initial Study (**Appendix B**) concluded that the Proposed Project would not physically divide an established community, conflict with any applicable habitat conservation plan or natural community conservation plan, result in the congregating of more than 50 people on a regular basis, introduce activities not currently found within the community, nor encourage off-site development of presently undeveloped areas or increase development intensity of already developed areas. The Proposed Project would have no impact on these criteria, and no further discussion of these criteria is contained within this EIR. The Initial Study (**Appendix B**) also concluded the Proposed Project would not conflict with any applicable land use plan, policy, or regulation. However, consistency with land use regulations was identified as an area of controversy during Scoping; therefore, land use consistency is evaluated in the following sections.

Project Specific Impacts and Mitigation Measures

Impact

4.5-1 The Proposed Project would not result in a substantial inconsistency with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect.

As discussed in **Section 3.0**, implementation of the Proposed Project would result in the development of 19 single-family residences with associated infrastructure and 7.8 acres of dedicated open space, 0.45 acres of which would be a protected conservation area. These land uses are consistent with the land use designation of County Medium-Low Density Residential and zoning designation of R-1/S-8. Furthermore, the Proposed Project would aid in achieving polices put forth in the County General Plan. The Proposed Project is a compatible land use with the existing single-family residences and therefore protects and enhances the character of those

existing single-family areas (County General Plan Policy 8.14), achieves infilling in an urban area (County General Plan Policy 8.29), and includes plans for recreational facilities (County General Plan Policy 8.26). **Table 4.5-1** at the end of this section lists all County General Plan and City of San Mateo General Plan policies applicable to the Proposed Project and includes a general discussion of the Proposed Project's consistency with these policies; the Proposed Project is consistent with all applicable polices.

The 19 residences are designed to conform to the development regulations for R-1/S-8 zoned properties. Lot sizes range from a minimum of 7,500 square feet to a maximum of approximately 16,000 square feet. One single-family house would be developed per each lot. House development footprints are no more than 40 percent of the square footage of each lot, leaving at least 60 percent for yard coverage. Setbacks for houses are 20 feet for front and back yards and 5 feet for side yards. Houses do not exceed 36 feet in height or 3 stories. Each residence would be designed with two parking spaces in private garages, carports, and/or storage garages. Off-street parking spaces will have an area of at least 171 square feet exclusive of access drives or aisles and will be of usable shape, location, and condition; adequate provision for ingress and egress will be provided. In addition, buildings will be designed and constructed according to California Building Code, including the CALGreen standards, which will also ensure the Proposed Project is consistent with the San Mateo County Green Building Ordinance.

The Proposed Project would require approval from the County LAFCO for annexation of a portion of the project site to the CSA #1 and annexation of the entire project site to the Bel Aire Lighting District. The Proposed Project discourages urban sprawl and premature conversion of agricultural and open space lands as it promotes infill within an existing residential neighborhood as opposed to expanding a neighborhood and therefore is consistent with the directives of the County LAFCO.

The Proposed Project is consistent with the guidelines and/or objectives of the California Building Code, including the CALGreen Code; the County General Plan, including County land use and zoning designations; the County LAFCO policies; and the City of San Mateo General Plan. Therefore, the Proposed Project's land use compatibility impacts are expected to be less than significant. **Less than Significant**.

Cumulative Impacts

4.5-2 The Proposed Project would not contribute to adverse cumulative impacts associated with land use.

Cumulative projects in the vicinity of the project site are discussed in **Section 5.2.1**. All cumulative projects would be developed in accordance with local and regional planning documents; thus, cumulative impacts associated with land use compatibility would be less than significant. Additionally, as discussed above, the Proposed Project will be consistent with the all applicable land use designations, goals, and policies, and thus would not contribute to the potential for adverse cumulative land use effects. **Less than Significant.**

TABLE 4.5-1

CONSISTENCY WITH COUNTY AND CITY OF SAN MATEO GENERAL PLAN LAND USE POLICIES

Land Use Plan Policy	Consistent	Discussion
San Mateo County General Plan		
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.	**Yes**	The project site is surrounded by developed residential units. Public services and utilities are either currently available or can be provided without impacting existing services.
7.7 Land Use Patterns: Distribute the designation of land uses in order to achieve orderly, understandable, coherent and workable land use patterns.	**Yes**	The Proposed Project is the development of residential units within an area that is designated residential.
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.	**Yes**	The project site is surrounded by existing single-family neighborhoods, and the Proposed Project would therefore maximize efficiency of public facilities, services, and utilities as well as discourage urban sprawl. The Proposed Project includes development of 19 single-family residences and dedicated open space and is designed to minimize energy consumption and protect and enhance the natural environment to the maximum extent feasible.
8.13 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 [of the San Mateo County General Plan (1986)] to achieve stated land use objectives within unincorporated Urban Communities, Urban Neighborhoods and Special Urban Areas. b) Use the criteria in Table 8.1P [of the San Mateo County General Plan (1986)], as guidelines only, to locate land use designations in urban unincorporated areas.	**Yes**	The Proposed Project is a residential development with similar density as the surrounding community; as such it meets the guidelines of Table 8.1P.
8.14 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.	**Yes**	The Proposed Project includes the development of 19 single-family residences and 7.8 acres of designated open space; these land uses are compatible with as well as enhance and protect the character of the existing adjacent single-family areas.
8.26 Recreational Land Use Planning: Plan for recreational land uses to provide recreational opportunities.	**Yes**	The Proposed Project includes7.8 acres of dedicated open space with walking trails to be utilized by residents of the development and the surrounding community.
8.29 Infilling: Encourage the infilling of urban areas where infrastructure and services are	**Yes**	The project site is a mostly undeveloped property surrounded by single-family residences and

Land Use Plan Policy	Consistent	Discussion
available.		neighborhoods. Therefore, the Proposed Project achieves infilling of an existing urban area.
8.31 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.	**Yes**	The Proposed Project is a redesign of a previous land use proposal for the project site. The number of housing units was reduced and the design of the roadway was modified so as to reduce potential impacts to public services and utilities and to minimize the risks associated with natural and man-made hazards to human safety and property.
8.34 Zoning Regulations: To ensure that development is consistent with land use designations, continue to use zoning districts which regulate development by applying specific standards.	**Yes**	The Proposed Project is consistent with the land use designation and zoning district that apply to the project site.
8.35 Uses: Allow uses in zoning districts that are consistent with the overall land use designation.	**Yes**	The Proposed Project is consistent with the allowed uses within the zoning district that applies to the project site.
8.36 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.	**Yes**	The Proposed Project is within the densities established for the zoning district and land use designations. The necessary public facilities, services, and infrastructure can be provided while having a minimal exposure to natural and man-made hazards.
8.37 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.	**Yes**	The Proposed Project meets the County's minimum parcel size.
8.38 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.	**Yes**	The Proposed Project as currently designed is consistent with the County's height, bulk, and setback requirements per the zoning designation.
8.39 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, and (4) establish orderly development patterns.	**Yes**	The Proposed Project is consistent with existing land use designations, which include the associated parking requirements.
8.40 Land Divisions: When creating new land divisions, align streets and parcels to maximize solar access.	**Yes**	The Proposed Project is 19 residential lots aligned on two streets. The streets are in an east/west direction due to limitations of project site. Individual homes will still have solar access.

Land Use Plan Policy	Consistent	Discussion
8.41 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.	**Yes**	Landscaping design of the Proposed Project will minimize obstruction of solar access per each residence.
8.42 Buildings: Encourage the construction of energy efficient buildings which use renewable resources to the maximum extent possible.	**Yes**	Buildings will meet current building codes, which includes Title 22. Title 22 requires that new construction meet new energy efficient guidelines.
City of San Mateo General Plan		
LU 1.9 Single-Family and Duplex Preservation Protect: Established predominantly single-family areas by limiting new development in such areas to single-family uses, and protect predominantly duplex areas by limiting new development to low-density residential uses as delineated on the Land Use Map. Consider redesignating multi-family areas to single-family and low-density residential uses where such uses predominant and where the creation of additional legal non-conforming uses would be minimized.	**Yes**	The Proposed Project is a single-family residential project within a single-family residential area and is consistent with the density of the surrounding area.
LU 5.1 Inter-Agency Cooperation: Promote and participate in cooperative planning with other public agencies and adjacent jurisdictions, especially regarding regional issues such as water supply, traffic congestion, rail transportation, air pollution, waste management, fire services, emergency medical services and climate change	**Yes**	The City of San Mateo will be provided a copy of this Draft EIR and will be invited to provide comments, suggestions, and input on the Proposed Project to best meet the City of San Mateo's goals.
LU 7.2 New Development within the Sphere of Influence: Seek to require new developments and related infrastructure to be consistent with and to be designed to the City's General Plan goals and policies, zoning code requirements, development standards and the City's municipal code.	**Yes**	The City of San Mateo will have an opportunity to discuss the Proposed Project and seek to ensure that the Proposed Project meets the City of San Mateo's design and infrastructure goals within the City's Sphere of Influence.
Source: SMC, 1986a; City of San Mateo, 2010a.		

4.6 HYDROLOGY AND WATER QUALITY

4.6.1 INTRODUCTION

This section addresses the potential for the Proposed Project to cause impacts associated with hydrology and water quality. Following an overview of the hydrological and water quality setting in **Section 4.6.2** and the relevant regulatory setting in **Section 4.6.3**, project-related impacts and recommended mitigation measures are presented in **Section 4.6.4**.

4.6.2 ENVIRONMENTAL SETTING

Surface Water

Regional

The project site is located approximately 9 miles east of the Pacific Ocean and approximately 7 miles west of the San Francisco Bay within the 1,200-square mile San Francisco Bay Subbasin (18050004) of the San Francisco Subregion, which includes a 4,470-square mile area that drains to the South San Francisco Bay. The project site is within the San Mateo Creek Watershed, which includes the Upper and Lower Crystal Springs Reservoir, located approximately one mile to the northwest of the project site. San Mateo Creek is the only waterway that exits the Crystal Springs Reservoir Dam; it flows east through the unincorporated areas of San Mateo County (County) through the City of San Mateo to the San Francisco Bay. Polhemus Creek, which is located less than a mile west of the project site, is the closest jurisdictional water course to the project site. Polhemus Creek connects with San Mateo Creek downstream of the dam.

Local

The project site is located in a relatively hilly area, approximately three miles east from the nearest mountain range. The project site is situated on a hillside property along a ridge that slopes steeply (25 percent to 95 percent grade) with a gentler slope toward the top of the hill; average slopes on the project site are approximately 40 percent. Surface elevation of the site ranges from approximately 410 to 610 feet above mean sea level (amsl).

The project site does not contain any water features that are considered to be waters of the United States (U.S.) or State. During the biological site surveys, two drainages were observed. Water flow on the subject property generally drains in a south or westerly direction towards Polhemus Creek. One drainage runs along the northeast side of the project site, behind a row of houses on the south side of Parrott Drive, and flows west towards Bel Aire Road. This feature is fairly linear and may be man-made, or may have been more thoroughly channelized to facilitate drainage from adjacent housing. The second drainage originates in the west-central region of the project site and was likely formed as a result of soil erosion due to runoff from the surrounding area. The drainage swales receive water from direct precipitation and from surface runoff from the surrounding land (refer to **Section 4.**3 for further discussion).

Surface Water Quality

The San Francisco Bay Region includes 4,603 square miles and is characterized by its dominant feature: 1,100 square miles of the 1,600-square mile San Francisco Bay Estuary. The San Francisco Bay functions as the only drainage outlet for waters of the Central Valley as well as receives water from surrounding bay area lands, which includes upland areas, urban areas, wetlands, and marshes. Water quality is therefore dominated by input from the Central Valley but is also influenced by the land uses and input from surrounding lands. Water quality in the San Francisco Bay Region is affected by a myriad of sources including soil erosion, wastewater treatment discharge, stormwater runoff, agricultural runoff, urban land use and development runoff, industrial wastewater, recreation activities, mining activities, and plants and animals. The South San Francisco Bay is listed as impaired under the 303(d) list for chlordane, dichlorodiphenyltrichloroethane (DDT), dieldrin, dioxin compounds, furan compounds, invasive species, mercury, polychlorinated biphenyls (PCBs), and selenium (SWRCB, 2010).

Local water quality within the San Mateo Creek Watershed is heavily influenced by surrounding land uses. Constituents found in urban runoff vary depending on the location and storm event. In the vicinity of the project site, the natural weather patterns consists of warm, dry summers and mild, damp winters; fog often moves in during the late afternoon through early morning in the summer months. The portion of San Mateo Creek above the Upper and Lower Crystal Springs Reservoir is listed as impaired under the 303(d) list for diazinon and trash associated with urban runoff and storm sewers. Trash is also from illegal dumping. The portion of the San Mateo Creek below the Reservoir is listed as impaired under the 303(d) list for sediment toxicity; potential sources are unknown (SWRCB, 2010).

Flooding

The Federal Emergency Management Agency (FEMA) oversees the delineation of flood zones and the provision of federal disaster assistance. FEMA manages the National Flood Insurance Program (NFIP) and publishes the Flood Insurance Rate Maps (FIRMs), which show the expected frequency and severity of flooding by area, typically for the existing land use and type of drainage/flood control facilities present. Flood zones are determined by the probability of flooding within a certain time period, such as a 100-year or 500-year flood event. Floodplains are divided into flood hazard zones, designated by the potential for flooding of an area during a flood event. Flood zones B, C, and X may include those areas that are located within the 100-year flood plain but are adequately protected by levee systems, while Zone A is designated as areas inundated by a 100-year storm event.

The project site is located outside the 100- and 500-year floodplain, and there are no areas in the immediate vicinity of the project site within the 100- or 500-year floodplain. Additionally, the project area is located just outside of a dam inundation area according to the San Mateo County Dam Failure Inundation Areas Map. However, nearby roadways such Crystal Springs Road and Polhemus Road are at risk of inundation in the event of a dam failure.

Drainage and Stormwater

The soils on the project site consist of Fagan loam, Orthents (cut and fill), and Orthents (cut and fill – Urban land complex). These soils are well-drained but have a slow to very slow infiltration rate and therefore high runoff potential when thoroughly wet (NRCS, 2013). Surface soil is primarily underlain by

dense to very dense Franciscan sandstone bedrock located approximately three feet deep. More weathered rock overlays less weathered rock. The bedrock is fractured at shallow depths (**Appendix E**).

The project site is largely undeveloped, with the single exception of a paved access roadway that bisects the project site from the north corner to the south eastern edge. The roadway connects Bel Aire Drive with parcel upon which a potable water tank (owned by the California Water Service Company [Cal Water]) and a cellular transmitter tower are located. The water tank/cell transmitter parcel is surrounded by but is not part of the project site (refer to **Figure 3-3**). Fencing encloses the tank/cell transmitter parcel and Monterey pine trees visually shield the structures. The access roadway currently serves as the only access point to the project site. The project site supports a variety of native and non-native grasses, shrubs, and trees. Additional land disturbances to the project site include cut slopes and shelves along the lower slopes and drainage structures above Ascension Drive and Bel Aire Road.

The drainage structures currently on the project site were installed to address the severe erosion problems. However, these structures are no longer effective. Extensive soil erosion has occurred on the bottom half of the northwest, southwest, and southeast cut/bench slopes of the project site; all erosion is well outside of the development footprint of the Proposed Project. The highly eroded areas are almost entirely located within previously excavated cuts or originate along abandoned bulldozer tracks located at higher elevations. Erosion occurs broadly along the excavated slope cuts or along surface drainage channels. The erosion along the southeastern slope is likely due to a sudden large volume release from the water tank in the 1960s combined with the natural slope in the topography. In general, there has been little change to the eroded areas in the last 11 years (**Appendix E**).

Most runoff from the project site drains overland and onto adjacent roadways and properties, primarily to the storm drains located in Bel Aire Road and Ascension Drive. Runoff from the western half of the project site and a small portion of the southeastern area of the project site flows over land to the storm drains. Runoff from the northeastern and eastern portion of the project site currently drains into the yard areas of the houses on Parrott Drive and CSM Drive. The storm drains in Bel Aire Road and Ascension Drive, as well as other storm drain lines in the surrounding areas to the northwest, drain through a series of inlets into the main line. The main line follows Ascension Drive westward from the intersection of Ascension Drive and Bel Aire Road and then flows southward to a drop inlet at the intersection of Ascension Drive and Polhemus Road and outfalls under Polhemus Road into Polhemus Creek.

Detailed hydrology calculations for the existing drainage system indicate that the existing system is generally able to accommodate current pre-development runoff, with the exception of two storm drain pipes. The 15-inch diameter pipe that crosses Ascension Drive at Enchanted Way is sloped at 2 percent, and existing flows exceed capacity of this pipe by almost 20 percent. The 30-inch diameter outfall pipe that crosses Polhemus Road is sloped at 1.3 percent and is also over capacity. The capacity problems with both pipes are primarily due to their flat slopes (Appendix G of CAJA, 2009).

Groundwater

Regional

The project site is located above the San Mateo Subbasin of the Santa Clara Valley Groundwater Basin (No. 2-9.03), which includes a surface area of 75 square miles from the northwest trending Coastal

Mountain Ranges to the southwest end of the San Francisco Bay. The Westside Groundwater Basin is located to the north. The western margin is formed by the Santa Cruz Mountains and the San Francisquito Creek forms the southern boundary. The Santa Clara Formation of Plio-Pleistocene age and alluvial deposits of Quaternary age comprise the water bearing formations of the subbasin. All larger yielding wells acquire water from the Quaternary alluvium, primarily from the deeper confined and semi-confined aquifers. Infiltration from waterways that enter the valley from upland areas and percolation of precipitation that falls directly on the valley floor are the sources for natural recharge. Detailed data regarding the groundwater budget, groundwater in storage, and capacity of storage are not available for the subbasin (DWR, 2004).

Local

The technical reports that were prepared for the previous project (refer to **Section 3.3** for discussion) include a soil analysis prepared by Terrasearch, Inc. (1980), a geotechnical analysis prepared by R.C. Harlan & Associates (H&A) (1981), and a geotechnical and engineering analysis prepared by Michelucci & Associates (Michelucci) (2002). Michelucci (2013) also prepared a supplemental Geotechnical Investigation for the Proposed Project that, in general, confirmed the findings of the 2002 report (**Appendix E**). During project site surveys, free groundwater was not encountered in any of the test borings on the project site, although moisture was noticed in one of the borings at a depth of approximately 12 feet (Terrasearch, Inc., 1980). The depth to the groundwater table has not been determined but is anticipated to be relatively deep, given the surface topography, and to fluctuate with precipitation (H&A, 1981). Groundwater was not encountered in any of the borings during project site surveys (Michelucci, 2002), and groundwater levels on the project site tend to fluctuate seasonally, with the potential to rise in the future (**Appendix E**). Given the hydrologic rating of the soils on the project site, which are well-drained and have a high capacity for runoff (reducing the rate of infiltration), the project site does not have a significant contribution to groundwater infiltration in the area (NRCS, 2013).

In areas where the topsoil layer is underlain by dense, less pervious bedrock, shallow, seasonal "perched" groundwater can sometimes occur. Groundwater seepage was observed from the base of weathered rock and above the less pervious rock along Ascension Drive. Following 2 to 3 inches of rain within an approximately 48-hour period in 2002, active seepage of water was observed from the toe of the cut slope adjacent to Ascension Drive and from the base of the weathered rock horizon 1 to 2 feet below the ground surface. Erosion occurs primarily within this zone, and that groundwater, except possibly as relatively slow seepage, does not penetrate to greater depth (**Appendix E**).

Groundwater Quality

Groundwater in the San Mateo Subbasin is generally classified as calcium magnesium carbonate bicarbonate waters. Water is slightly alkaline and considered very hard. Water quality in some wells is impaired by high levels of sodium and nitrates (DWR, 2004). In general, groundwater on the San Francisco Bay Peninsula is not suitable as a water supply as well outputs are typically extremely low (Cal Water, 2011).

4.6.3 Regulatory Context

Federal

Clean Water Act

The Clean Water Act (CWA) (33 USC § 1251-1376), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Important sections of the Act are as follows:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
- Section 401 (Water Quality Certification) requires an applicant for any federal permit that proposes an activity, which may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the Act.
- Section 402 establishes the NPDES, a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permit program is administered by the State Water Resources Control Board (SWRCB) and is discussed in detail below.
- Section 404 establishes a permit program for the discharge of dredged or fill material into waters of the United States. This permit program is jointly administered by the United States Army Corps of Engineers (USACE) and the United States Environmental Protection Agency (USEPA).

Federal Anti-degradation Policy

The federal antidegradation policy is designed to protect water quality and water resources. The policy directs states to adopt a statewide policy that includes the following primary provisions: (1) existing instream uses and the water quality necessary to protect those uses shall be maintained and protected; (2) where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development; and (3) where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

Safe Drinking Water Act

Under the Safe Drinking Water Act (SDWA) (Public Law 93-523), passed in 1974, USEPA regulates contaminants of concern to domestic water supply. Contaminants of concern relevant to domestic water supply are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are regulated by USEPA primary and secondary Maximum Contaminant Levels (MCLs). MCLs and the process for setting these standards are reviewed triennially. Amendments to the SDWA enacted in 1986 established an accelerated schedule for setting drinking water MCLs.

Federal Emergency Management Agency

The County participates in the NFIP, a federal program administered by FEMA. Participants in the NFIP must satisfy certain mandated floodplain management criteria. The National Flood Insurance Act of 1968 adopted a desired level of protection that would protect developments from floodwater damage associated with an Intermediate Regional Flood (IRF), a flood which is defined as having an average frequency of occurrence on the order of once in 100 years, although such a flood may occur in any given year.

State

California Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq.) provides the basis for water quality regulation within California. The Act requires a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state. The San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) implements waste discharge requirements identified in the Report.

State Water Resources Control Board and Regional Water Quality Control Board

The SWRCB administers water rights, water pollution control, and water quality functions throughout the state, while the Regional Water Quality Control Boards conduct planning, permitting, and enforcement activities. The project site is within the jurisdiction of the SFBRWQCB.

Water Quality Control Plan for the San Francisco Bay Basin

The SFBRWQCB uses planning, permitting, and enforcement authorities to meet this responsibility and has adopted the San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan), which includes all amendments through July 2013, to implement plans, policies, and provisions for water quality management (SFBRWQCB, 2013). The Basin Plan was prepared in compliance with the federal CWA and the State Porter-Cologne Water Quality Control Act. The Basin Plan establishes beneficial uses for major surface waters and their tributaries, water quality objectives that are intended to protect the beneficial uses, and implementation programs to meet stated objectives.

NPDES Program - Construction Activity

The SFBRWQCB will require that the Proposed Project comply with the provisions established by the National Pollutant Discharge Elimination System (NPDES). The NPDES program regulates municipal and industrial storm water discharges under the requirements of the CWA. California is authorized to implement a state industrial storm water discharge permitting program, with the SWRCB as the permitting agency.

The Proposed Project must comply with the requirements of the most recent version of the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ). This permit regulates discharges from construction sites that disturb one acre or more of total land area. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance must comply with the provisions of this NPDES permit. The permitting process requires the development and implementation of an effective

Storm Water Pollution Prevention Plan (SWPPP). The project applicant must submit a Notice of Intent to the SWRCB to be covered by a NPDES permit and prepare the SWPPP prior to the beginning of construction. The SWPPP must include Best Management Practices (BMPs) to reduce pollutants and any more stringent controls necessary to meet water quality standards. Dischargers must also comply with water quality objectives as defined in the Basin Plan. If Basin Plan objectives are exceeded, corrective measures would be required.

Implementation of the SWPPP starts with the commencement of construction and continues through completion of the project. Upon completion of the project, the applicant must submit a Notice of Termination to the SWRCB to indicate that construction is completed.

State Nondegradation Policy

In 1968, as required under the federal antidegradation policy described previously, the SWRCB adopted a nondegradation policy aimed at maintaining high quality for waters in California. The nondegradation policy states that the disposal of wastes into state waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the state and to promote the peace, health, safety, and welfare of the people of the state. The policy provides as follows:

A. Where the existing quality of water is better than required under existing water quality control plans, such quality would be maintained until it has been demonstrated that any change would be consistent with maximum benefit to the people of the state and would not unreasonably affect present and anticipated beneficial uses of such water.
B. Any activity which produces waste or increases the volume or concentration of waste and which discharges to existing high-quality waters would be required to meet waste discharge requirements which would ensure (1) pollution or nuisance would not occur and (2) the highest water quality consistent with the maximum benefit to the people of the state would be maintained.

California Toxics Rule

In May 2000, the SWRCB adopted and USEPA approved the California Toxics Rule (CTR), which establishes numeric water quality criteria for approximately 130 priority pollutant trace metals and organic compounds. The SWRCB subsequently adopted its State Implementation Policy (SIP) of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries. The SIP outlines procedures for NPDES permitting for toxic pollutant objectives that have been adopted in Basin Plans and in the CTR.

Local

San Mateo Countywide Water Pollution Prevention Program (SMCWPPP)

The CWA and the California Porter-Cologne Water Quality Control Act require that large urban areas discharging storm water into the San Francisco Bay or the Pacific Ocean have an NPDES storm water discharge permit. The counties surrounding the San Francisco Bay, including San Mateo, Santa Clara, Alameda, Marin, and Contra Costa, have each obtained these permits. The City/County Association of Governments of the County (CCAG) created the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) to coordinate County-wide efforts and prevent stormwater pollution (also known as the San Mateo Countywide Stormwater Pollution Prevention Program [STOPPP]). The SMCWPPP

includes 21 member agencies, the 20 cities within the County and the unincorporated County, all of whom are joint permit holders of the County-wide NPDES storm water discharge permit. The agencies are responsible for preventing stormwater pollution and implementing their local stormwater pollution prevention and control activities (SMCWPPP, 2013). Certain types of businesses must also apply for individual coverage by filing a notice of intent (NOI) with the SWRCB. New residential subdivisions in the County are not required to apply for individual coverage at this time. Additionally, the SMCWPPP has also developed a C.3 Stormwater Technical Guidance, Version 3.2 (revised January 2013) to help developers and builders include post-construction stormwater controls in their project so as to meet local requirements and reduce long term impacts of development on stormwater quality (SMCWPPP, 2013).

Hydromodification Management Plan (HMP)

Hydromodification occurs when undeveloped land is covered with impervious surfaces, such as buildings and pavement, which can cause excessive erosion and sedimentation in local waterways due to increases in flows associated with the newly constructed impervious surfaces. Requirements to develop a Hydromodification Management Plan (HMP), which specifies management practices to ensure post-project flows and durations match pre-project conditions, are included in the County-wide NPDES storm water discharge permit (SMCWPPP, 2010). The project location is in an area of the County that is non-exempt from the HMP.

Bay Area Hydrology Model (BAHM)

The SMCWPPP, along with other local county pollution prevention programs, sponsored the development of the Bay Area Hydrology Model (BAHM). This software tool can be used to analyze the potential hydrograph modification effects of land development projects and to size structural solutions to mitigate the increased stormwater runoff from these projects. Local rainfall and climate data as well as calibrated model parameters for an internal modeling engine using Hydrologic Simulation Program - Fortran (HSPF) are incorporated into BAHM. Of particular advantage, the software's input and reporting interfaces allow both project designers and municipal reviewers to check designs without previous experience with simulation modeling (BAHM, 2007).

San Mateo County General Plan

The San Mateo County General Plan (County General Plan) was adopted in 1986 and serves as a guide for both land development and conservation within the unincorporated areas of the County. Polices within the County General Plan relevant to water resources and applicable to the Proposed Project are as follows:

Water Conservation

10.25 <u>Efficient Water Use</u>

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.

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.

Natural Hazards

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.

15.46 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.

San Mateo County Code of Ordinances

Division 14.100 of the County's Code of Ordinances provides regulations for Stormwater Management and Discharge Control. The purpose is to ensure the future health, safety, and general welfare of the County citizens by: eliminating non-storm water discharges to the municipal separate storm sewer; controlling the discharge to municipal separate storm sewers from spills, dumping, or disposal of materials other than storm water; and reducing pollutants in storm water discharges to the maximum extent practicable. The intent of this ordinance is to protect and enhance the water quality of our watercourses, water bodies, and wetlands in a manner pursuant to and consistent with the CWA.

4.6.4 Impacts and Mitigation Measures

Method of Analysis

This section identifies any impacts to hydrology and water quality that could occur from construction, operation, and/or maintenance of the Proposed Project. An examination of the project site, project components, and published information regarding the water resources in the project area was conducted to determine impacts to hydrology and water quality. Where it was concluded that impacts to hydrology and water quality resulting from the Proposed Project would exceed the significance thresholds listed below, mitigation measures have been recommended to reduce impacts to less-than-significant levels.

Significance Criteria

Criteria for determining the significance of impacts to hydrology and water quality have been developed based on Appendix G of the California Environmental Quality Act (CEQA) *Guidelines* and relevant agency thresholds. Impacts to hydrology and water quality would be considered significant if the Proposed Project would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial pollution on-site or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on-site or off-site;
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows; or
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam or inundation by seiche, tsunami, or mudflow.

Project Specific Impacts and Mitigation Measures

Impact

4.6-1 Construction activities could substantially degrade surface water and/or groundwater quality, which could violate water quality standards.

Construction of the Proposed Project would involve grading, clearing, and landscaping activities associated with the development of residential units, roadways, and corresponding infrastructure (including potable water lines and storm water and sewage conveyance lines). Construction would result in the temporary disturbance of soil and would expose disturbed areas to potential storm events, which could generate accelerated runoff, localized erosion, and sedimentation of local waterways. Disturbed areas and stockpiled soils exposed to winter rainfall could lead to sediment discharge into surface waters, resulting in a degradation of water quality. In addition, construction equipment and materials have the potential to leak, thereby discharging additional pollutants into local waterways. Pollutants potentially include particulate matter, sediment, oils, and greases and construction supplies such as concrete, paints and adhesives. Changes to drainage patterns resulting from construction activities could result in discharge of these pollutants into surface waterways causing an exceedance of water quality objectives, which could adversely impact beneficial uses of downstream water resources.

The Proposed Project is required to comply with the most recent version of the California NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ), which mandates the development and implementation of a SWPPP. **Mitigation Measure 4.4-1a** outlines the BMPs that shall be incorporated, at a minimum, into the SWPPP prepared in accordance with regulatory requirements. Additionally, implementation of the Proposed Project requires obtaining a San Mateo County Grading Permit, which includes the development of a site-specific Erosion and Sediment Control Plan. **Mitigation Measure 4.4-1b** specifies items and control measures that shall be included, at a minimum, in the Erosion and Sediment Control Plan. With implementation of the proposed mitigation, impacts to surface water and groundwater quality from construction activities would be less than significant. **Less than Significant with Mitigation.**

> **Mitigation Measure 4.6-1.** The applicant shall comply with the SWRCB NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Permit). The SWRCB requires that all construction sites have adequate control measures to reduce the discharge of sediment and other pollutants to streams to ensure compliance with Section 303 of the Clean Water Act. To comply with the NPDES permit, the applicant will file a Notice of Intent with the SWRCB and prepare a SWPPP prior to construction, which includes a detailed, site-specific listing of the potential sources of stormwater pollution; pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills) to include a description of the type and location of erosion and sediment control BMPs to be implemented at the project site, and a BMP monitoring and maintenance schedule to determine the amount of pollutants leaving the Proposed Project site. A copy of the SWPPP must be current and remain on the project site. Control measures are required

prior to and throughout the rainy season. Water quality BMPs identified in the SWPPP shall include, but are not limited to, the following:

- Temporary erosion control measures (such as silt fences, staked straw bales, and temporary revegetation) shall be employed for disturbed areas. No disturbed surfaces will be left without erosion control measures in place during the winter and spring months.
- Sediment shall be retained onsite by detention basins, onsite sediment traps, or other appropriate measures.
- A spill prevention and countermeasure plan shall be developed which would identify proper storage, collection, and disposal measures for potential pollutants (such as fuel, fertilizers, pesticides, etc.) used onsite. The plan would also require the proper storage, handling, use, and disposal of petroleum products.
- Construction activities shall be scheduled to minimize land disturbance during peak runoff periods and to the immediate area required for construction. Soil conservation practices shall be completed during the fall or late winter to reduce erosion during spring runoff. Existing vegetation will be retained where possible. To the extent feasible, grading activities shall be limited to the immediate area required for construction.
- Surface water runoff shall be controlled by directing flowing water away from critical areas and by reducing runoff velocity. Diversion structures such as terraces, dikes, and ditches shall collect and direct runoff water around vulnerable areas to prepared drainage outlets. Surface roughening, berms, check dams, hay bales, or similar devices shall be used to reduce runoff velocity and erosion.
- Sediment shall be contained when conditions are too extreme for treatment by surface protection. Temporary sediment traps, filter fabric fences, inlet protectors, vegetative filters and buffers, or settling basins shall be used to detain runoff water long enough for sediment particles to settle out.
- Construction materials, including topsoil and chemicals, shall be stored, covered, and isolated to prevent runoff losses and contamination of groundwater.
- Topsoil removed during construction shall be carefully stored and treated as an important resource. Berms shall be placed around topsoil stockpiles to prevent runoff during storm events.
- Establish fuel and vehicle maintenance areas away from all drainage courses and design these areas to control runoff.
- Disturbed areas shall be revegetated after completion of construction activities.
- All necessary permits and approvals shall be obtained.
- Provide sanitary facilities for construction workers.

Impact

4.6-2 Urban runoff resulting from the development of impervious surfaces and urban land uses on the project site has the potential to degrade water quality and violate water quality standards or waste discharge requirements.

The Proposed Project includes development of 19 residences and, as discussed in **Section 3.4**, proposes to connect to and utilize local wastewater services, including the sewer systems owned and operated by Cal Water and the Town of Hillsborough and the wastewater treatment plant (WWTP) owned and operated by the City of San Mateo. The contents and quality of wastewater produced by the Proposed Project would be consistent with contents and quality of wastewater produced at other residential subdivisions served by the City of San Mateo's WWTP, and therefore no changes or modifications to the City of San Mateo's NPDES permit would be required. Implementation of **Mitigation Measure 4.10-3**, discussed in **Section 4.10**, would ensure the City of San Mateo WWTP adequately treats wastewater from the Proposed Project, and wastewater therefore poses no threat to waste discharge requirements.

The Proposed Project has the potential to violate water quality standards during operation. The conversion of land would increase the amount of impervious surfaces, which would alter the existing drainage pattern of the project site and could result in increased runoff flows that could lead to increased soil erosion or sedimentation to local surface waters. During storm events, rainwater collects atmospheric pollutants and, upon surface impact, gathers roadway contaminant deposits including oxygen-consuming constituents, suspended solids/particulates, nutrients, heavy metals, trace organics, and microorganisms. The increase in vehicular traffic and roadway surfaces on the project site would increase the level of contaminants in stormwater run-off. In addition, residential land uses typically result in the use of various household products that often are deposited into the drainage system both directly by pouring oil down a storm drain or indirectly by fertilizer and pesticide runoff into storm drains. Landscaped areas typically result in the use of pesticides, herbicides, and fertilizers. Urban runoff might include waste associated with typical residential uses including: motor oil; grease; paints; solvents; trace metals from pavement runoff; nutrients and bacteria from pet wastes; and landscape maintenance debris that may be mobilized in wet-season storm runoff from housing and roadway areas, parking areas, and in dry-season "nuisance flows" from landscape irrigation. Potential adverse impacts to local surface waters include an exceedance of surface water quality objectives resulting in sedimentation, eutrophication, and accumulation of pollutants in sediments and benthic organisms, and harm to native species.

In Order No. 99-059, adopted July 21, 2004, the SFBRWQCB amended the SMCWPPP NPDES Permit to incorporate specific new development and redevelopment requirements (SFBWQCB, 2004). The requirements apply to development projects that exceed certain thresholds of impervious surface area. Beginning in August 2006, any project that creates at least 10,000 square feet of impervious surface must comply with C.3 Provisions of the NPDES permit. In 2003, the San Mateo Countywide NPDES Municipal Stormwater Discharge Permit (NPDES Permit No. CAS0029921) was amended to include stricter requirements for post-construction stormwater control measures. New development projects, including the Proposed Project, are required by the NPDES permit to incorporate site design, source control, and treatment measures

to the "maximum extent practicable" and to use stormwater control measures that are technically feasible (likely to be effective) and not cost prohibitive, as described in C.3 Provisions of the NPDES permit. Since more than 10,000 square feet of impervious surface would be created by the Proposed Project, the project must comply with C.3 Provisions of the NPDES permit and incorporate various prescribed measures into the project design. The proposed on-site detention and drainage systems as described in **Section 3.4** (individual lot retention systems and bioretention treatment system) serve to meet C.3 Provisions; **Mitigation Measure 4.6-2a** is included below to ensure proper installation and maintenance of the detention and drainage systems. Potentially significant effects to water quality resulting from urban runoff would be reduced to less than significant through project design features (as required by the NPDES permit) and through implementation of the BMPs included in **Mitigation Measures 4.6-2b** and **4.6-2c**. **Less than Significant with Mitigation.**

Mitigation Measure 4.6-2a: Upon acceptance of the design concept, a maintenance agreement shall be developed between the County and the Homeowners Association (HOA) or equivalent entity requiring the HOA or equivalent entity to complete the following tasks and provide the following information on a routine basis. These requirements apply only to the bioretention treatment system area of the project site and are as follows:

- Maintenance of soils and plantings, including routine pruning, mowing, irrigation, replenishment of mulch, weeding, and fertilizing with a slow-release fertilizer with trace elements;
- Removal of obstructions and trash from bioretention areas;
- Use of only pesticides and fertilizers that are accepted within the integrated pest management approach for use in the bioretention areas;
- Repair of erosion at inflow points;
- Monthly review and inspection of bioretention areas for the following:
    - Obstruction of trash,
    - If ponded water is observed, the surface soils shall be removed and replaced and subdrain systems inspected, and
    - Condition of grasses;
- Distribution of the following:
    - A copy of the storm water management plans shall be made available to personnel in charge of facility maintenance and shall be distributed to the subcontractor representative engaged in the maintenance or installation of the bioretention system, and
    - Material presented in the integrated pest management program will be made available to personnel in charge of facility maintenance and shall be distributed to the subcontractor representative engaged in the maintenance or installation of the bioretention system.

Mitigation Measure 4.6-2b: Upon acceptance of the design concept, a maintenance agreement shall be developed between the County and the HOA or equivalent entity

requiring the HOA or equivalent entity to complete the following tasks and provide the following information on a routine basis. These requirements apply to all common areas of the project site and are as follows:

- Drainage inlets shall be inspected monthly and kept clean of any trash that may have accumulated. It is the responsibility of the property manager/owner to have those inspections performed, documented, and any repairs made.
- Landscape areas shall be covered with plants or some type of ground cover to minimize erosion. No areas are to be left as bare dirt that could erode. Mounding slopes shall not exceed two horizontal to one vertical.
- Pesticides and fertilizers shall be stored as hazardous materials and in appropriate packaging, over spraying onto paved areas shall be avoided when applying fertilizers and pesticides. Pesticides and fertilizers shall be prohibited from storage outside.
- Landscape areas shall be inspected and all trash picked up and obstruction to the drainage flow removed on a monthly basis minimum. The project site shall be designed with efficient irrigation and drainage to reduce pesticide use. Plants shall be selected based on size and situation to reduce maintenance and routine pruning.
- Integrated pest management information shall be provided to the building management.

Mitigation Measure 4.6-2c. Infiltration systems shall be designed in accordance with the following procedures outlined in the California Storm Water Best Management Practice Handbooks to reduce runoff and restore natural flows to groundwater:

- Biofilters and/or vegetative swale drainage systems will be installed at roof downspouts for all buildings on the project site, allowing sediments and particulates to filter and degrade biologically.
- Structural source controls, such as covers, impermeable surfaces, secondary containment facilities, runoff diversion berms, sediment, and grease traps in parking areas will be installed.
- Designated trash storage areas will be covered to protect bins from rainfall.

Impact

4.6-3 Development of the Proposed Project would substantially alter the existing drainage patterns and may cause flows to exceed the capacity of existing stormwater drainage systems, result in substantial pollution on or off site, or result in flooding on or off site.

Assuming the maximum allowable development footprint would be developed, the Proposed Project will create approximately 2.1 acres of impervious surfaces through construction of residences, driveways, roads, and sidewalks. Therefore, the Proposed Project must comply with C.3 Provisions of the NPDES general permit, as described in **Impact 4.6-2** above.

As discussed in **Section 4.6.2**, the existing drainage system on the project site is able to accommodate the current pre-development runoff, with two exceptions. During rainfall events, discharge exceeds the capacity of the stormwater drain pipe that cross Ascension Drive at Enchanted Way (15 inch diameter, 2 percent slope) and the outfall stormwater drain pipe that crosses Polhemus Road (30-inch, 1.3 percent slope). This conclusion was based on hydrological calculations performed using the Rational Method (Q=C*I*A) for 10-year storm events, as required by the County's "Guidelines for Drainage Review" (Appendix G of CAJA, 2009).

As discussed in **Section 3.4**, the Proposed Project would include an on-site stormwater drainage system designed and sized such that runoff from the Proposed Project will be released at pre-development rates. Each individual lot will have its own separate stormwater retention system that will be oversized to accommodate runoff from the on-site private street. The system will meter discharge from each individual lot to the collective on-site storm drainage system, which consists of underground pipes, inlets, drainage structures and retention systems, concrete valley gutters, and a bioretention treatment system. The bioretention treatment system is a CDS hydrodynamic separator runoff treatment device designed to remove as many pollutants as possible, including small sedimentation particles. Given the long retention time of the proposed stormwater retention systems per each individual lot, impacts to the existing system during peak flows will be minimized. However, the system requires regular maintenance to ensure proper performance. **Mitigation Measure 4.6-3a** is therefore included.

Given the capacity of the proposed stormwater drainage system and ability to delay peak flows, the Proposed Project would have a minimal impact to the existing stormwater drain system. However, the systems are designed for a 10-year event. Should the rainfall exceed that of a 10-year event or should the system become intermittently clogged, the slope of the project site and surrounding areas is such that water will run as over land flow and will drain into the nearby creek and thereby would neither pond on the project site nor flood adjacent properties. To ensure off-site drainage associated with the Proposed Project would not exceed the capacity of existing stormwater drainage systems, **Mitigation Measure 4.6-3b** is included below to reduce impacts to a less-than-significant level.

As discussed in **Impact 4.6-2**, pollutants accumulated on the project site, from sources such as vehicular traffic or residential landscaping, have the potential to be mobilized during storm events, thereby resulting in pollution on-site or off-site. **Mitigation Measure 4.6-1b** is included above to protect water quality and, in turn, also reduces the potential impact of on-site or off-site pollution resulting from a change in drainage patterns to a less-than-significant level. **Less than Significant with Mitigation.**

> **Mitigation Measure 4.6-3a**: Upon acceptance of the design concept, a maintenance agreement shall be developed between the County and the HOA or equivalent entity requiring the HOA or equivalent entity to complete and provide the documentation of annual inspection and cleaning of each of the 19 individual lot storm drainage systems. The inspection shall be performed during the dry season and shall include removal of all trash and obstructions from area drains, cleanouts, and catch basins.

Mitigation Measure 4.6-3b: The 15-inch diameter stormwater drain pipe flowing at 2 percent that crosses Ascension Drive at Enchanted Way shall be replaced with a 21-inch diameter pipe. The 30-inch diameter stormwater drain pipe flowing at 1.3 percent shall be replaced with a 36-inch diameter pipe sloped at 2 percent. Stormwater drain pipe infrastructure improvements shall adhere to all applicable regulations and ordinances.

Impact

4.6-4 Development of the Proposed Project would not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map; place within a 100-year flood hazard area structures that would impede or redirect flood flows; or expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam or inundation by seiche, tsunami, or mudflow.

As discussed in **Section 4.6.2**, the project site is located in an area designated Zone X on the FEMA FIRM map. Zone X is defined as "(a)reas determined to be outside the 0.2 percent annual chance of a flood plain (FEMA, 2011). Additionally, there are no water bodies or unstable soil types within or adjacent to the project site that could lead to inundation by seiche, tsunami, or mudflow. As discussed in **Section 4.6.2**, the project area is located outside of the County-designated dam inundation area. **No Impact.**

Impact

4.6-5 Implementation of the Proposed Project would neither degrade groundwater quality nor substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table.

As stated in **Section 4.6.2**, the project site does not contain a high groundwater table, as evidenced by project site surveys and test borings conducted on the project site (Michelucci, 2002; **Appendix E**). The soils on the project site are well-drained with a high runoff potential, which reduces the ability of the project site to contribute to groundwater recharge of the underlying basin (NRCS, 2013). Increasing impervious surfaces on the project site as a result of implementation of the Proposed Project would not result in a significant decrease in groundwater infiltration. There are no aquifers below the site or in the vicinity of the project site. No pumping activities or drilling of groundwater wells are proposed with Proposed Project. Potable water demands created by the project would be served by Cal Water, which is ultimately supplied by the Hetch Hetchy Reservoir.

Mitigation Measures 4.6-1, **4.6-2a**, and **4.6-2b**, which are protective of surface water quality, would also protect groundwater from potential contamination by pollutants. The Proposed Project would not impact groundwater quality.

Therefore, project impacts would be less than significant with the proposed mitigation measures. **Less than Significant with Mitigation**.

Cumulative Impact

4.6-6 The Proposed Project in combination with future growth and development within the County and project vicinity could result in cumulative impacts to hydrology and water quality.

The project site falls within the City of San Mateo's sphere of influence, and implementation of the Proposed Project and other potential cumulative projects in the region, including growth resulting from build-out of the County General Plan and the City of San Mateo General Plan, could have a cumulative impact on hydrology and water quality in the region. However, all developments in the area are required to comply with the general NPDES permit, which is intended to reduce the potential for cumulative impacts to water quality during construction. In addition, the San Mateo Countywide NPDES Municipal Stormwater Discharge Permit (NPDES Permit No. CAS0029921) now includes stricter provisions for post-construction water quality control. Therefore, impacts on cumulative construction- and operation- related water quality effects would be less than significant.

Each of the cumulative development projects and the Proposed Project would be subject to local, State, and federal regulations designed to minimize cumulative impacts. Mitigation measures for the Proposed Project in combination with compliance with City of San Mateo, County, State, and federal regulations, are expected to reduce cumulatively considerable impacts to a less than significant level. **Less than Significant Impact.**

4.7 Hazards and Hazardous Materials

4.7.1 Introduction

This section addresses the potential effects on human health and the environment due to hazards and hazardous materials. **Subsection 4.7.2** describes the environmental setting, including hazards and hazardous materials in and around the project site. **Subsection 4.7.3** describes the relevant regulatory setting. Project-related impacts and recommended mitigation measures, if any, are presented in **Subsection 4.7.4**.

4.7.2 Environmental Setting

Definition of Hazardous Material

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, State, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined in Title 22 of the California Code of Regulations (CCR) as:

> "A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed" (CCR, Title 22, Section 66260.10).

Project Site Setting

Sensitive Receptors

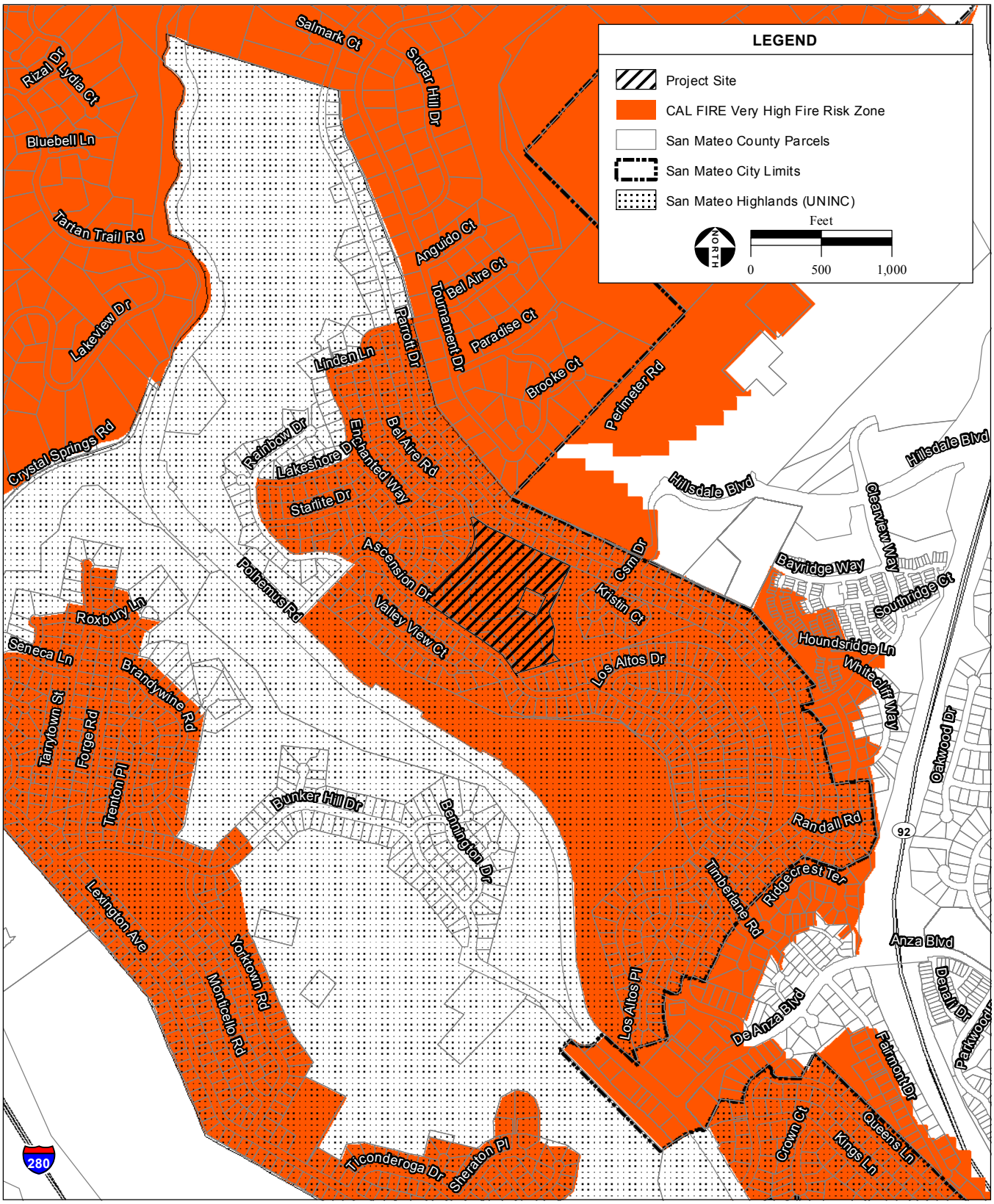
Residences and schools are considered sensitive receptors to hazardous materials. Single-family residential neighborhoods are the primary land use in the vicinity of the project site and are all sensitive receptors. Additionally, the College of San Mateo is located approximately 0.25 mile to the northeast of the project site and constitutes a sensitive receptor.

Air Strips and Airports

The closest airport is the San Carlos Airport, approximately five miles east of the project site. The most recent Comprehensive Airport Land Use Plan (CALUP) was updated in 1996 and distributed by the City/County Association of Governments (CCAG). This CALUP shows that the project site is outside the Airport Influence Area Boundary for the San Carlos Airport.

Wildland Fires

The project site is located within the San Mateo County (County) Local Responsibility Area (LRA) produced by the California Department of Forestry and Fire Protection (CAL FIRE). The CAL FIRE map designates the project site in a Very High Fire Hazard Severity Zone (VHFHSZ) (**Figure 4.7-1**). This designation is based on data and models of potential fuels over a 30 to 50 year time horizon and their associated and expected fire behavior, and expected burn probabilities to quantify the likelihood and



SOURCE: Calfire FRAP 11/24/2008; AES, 2013

Figure 4.7-1

CAL FIRE Wildland Fire Hazard

nature of vegetation fire exposure (including firebrands) to buildings (CAL FIRE, 2008). In addition, the County designates the project site and surrounding areas as a Community at Risk Zone (**Figure 4.7-2**). Housing developments, a community college, and other urban residential development surround the project site. This area east of Interstate 280 (I-280) contains more than 95 percent of the urbanized land in the County and is developed with a mix of principal urban land uses, including industrial, commercial, and residential (SMC, 1986a).

Hazardous Waste and Substances Sites

The project site is not listed on the annually updated Hazardous Waste and Substances Sites (Cortese) List as containing any hazardous materials (DTSC, 2013). During project site surveys conducted on July 25, 2013, no hazardous materials were observed at or adjacent to the project site.

4.7.3 Regulatory Context

Federal

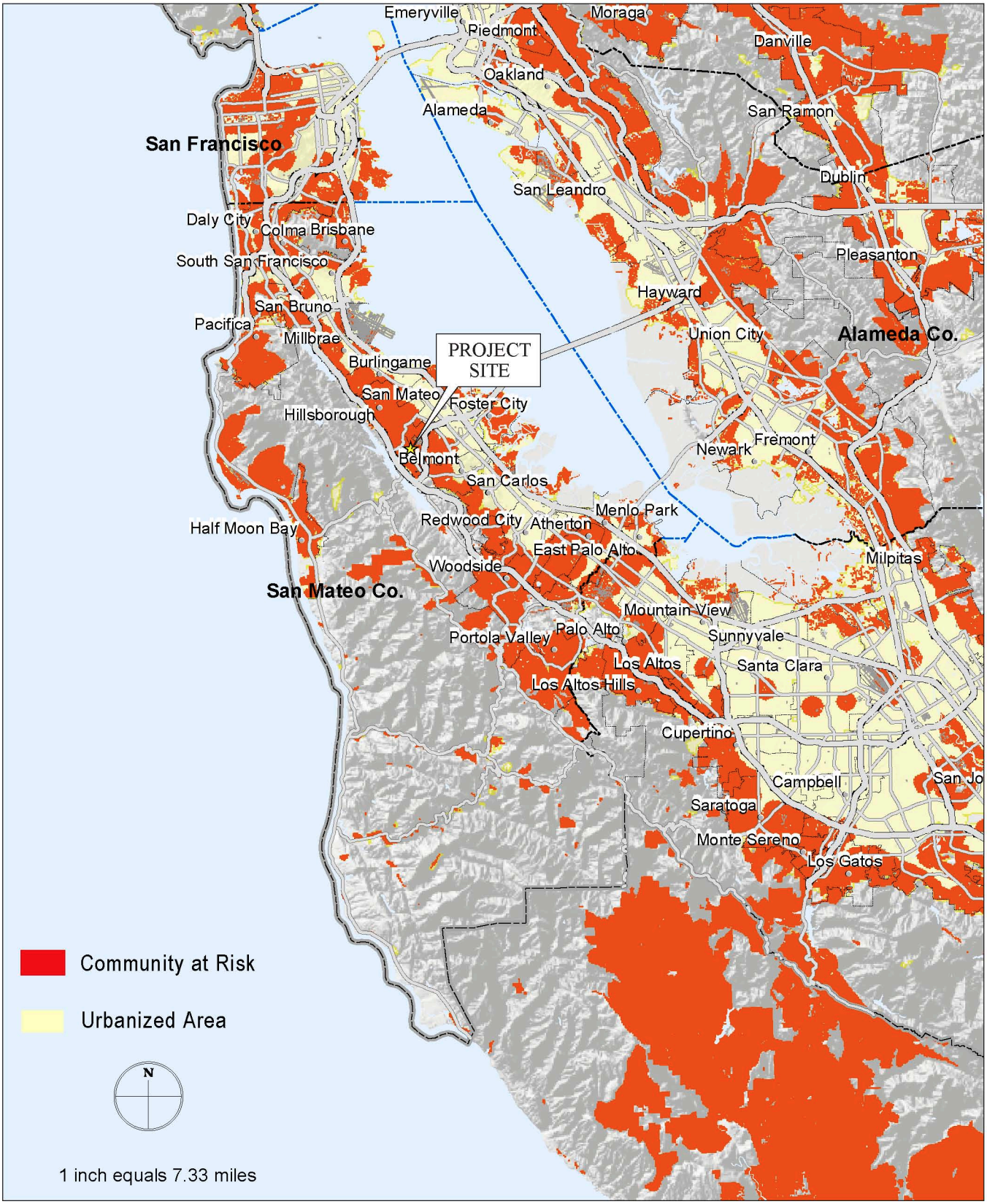
United States Environmental Protection Agency

The United States Environmental Protection Agency (USEPA) administers numerous statutes pertaining to human health and the environment. The USEPA regulates toxic air contaminants through its implementation of the Clean Air Act (CAA). Although the CAA covers a range of air pollutants, Section 112(r) specifically covers “extremely hazardous materials” which include acutely toxic, extremely flammable, and highly explosive substances. Section 112(r) (referred to as the USEPA’s Risk Management Program) requires facilities involved in the use or storage of extremely hazardous materials to implement a Risk Management Plan (RMP). A RMP requires a detailed analysis of potential accident factors present at a facility and requires the implementation of mitigation measures designed to reduce the identified accident potential.

The USEPA also regulates the land disposal of hazardous materials through the Resource Conservation and Recovery Act (RCRA). Under RCRA, the USEPA regulates the activities of waste generators, transporters, and handlers (any individual who treats, stores, and/or disposes of a designated hazardous waste). RCRA further requires the tracking of hazardous waste from its generation to its final disposal through a process often referred to as the “cradle-to-grave” regulation. The “cradle-to-grave” regulation requires detailed documentation and record keeping for hazardous materials generators, transporters, and/or handlers in order to ensure proper accountability for violations.

Federal Occupational Safety and Health Administration

The Occupational Safety and Health Act (OSHA) regulates the preparation and enforcement of occupational health and safety regulations with the goal of providing employees a safe working environment. OSHA regulations apply to the work place and cover activities ranging from confined space entry to toxic chemical exposure. OSHA regulates workplace exposure to hazardous chemicals and activities through regulations governing work place procedures and equipment.



SOURCE: California Department of Forestry and Fire Protection, 2003; AES 2013

Figure 4.7-2
Fire Threatened Communities

U.S. Department of Transportation (U.S. DOT)

The United States Department of Transportation (USDOT) regulates the interstate transport of hazardous materials and wastes through implementation of the Hazardous Materials Transportation Act. This act specifies driver-training requirements, load labeling procedures, and container design and safety specifications. Transporters of hazardous wastes must also meet the requirements of additional statutes such as RCRA, discussed previously.

State

Department of Toxic Substances Control

The California Department of Toxic Substances Control (DTSC) regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under RCRA and the State Hazardous Waste Control Law. Both laws impose “cradle-to-grave” regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

California Occupational Safety and Health Administration (Cal/OSHA)

The California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing state workplace safety regulations. Because California’s program is federally approved, it is required to adopt regulations that are at least as stringent as those found in 29 CFR. Cal/OSHA standards are generally more stringent than federal regulations.

Cal/OSHA regulations concerning the use of hazardous materials in the workplace, as detailed in Title 8 of the CCR, include requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations that contain training and information requirements, including procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees at hazardous waste sites. The hazard communication program requires that Material Safety Data Sheets (MSDSs) be available to employees and that employee information and training programs be documented.

California Hazardous Materials Release Response Plans and Inventory Law of 1985

The California Hazardous Materials Release Response Plans and Inventory Law of 1985, often referred to as the Business Plan Act, requires facility operators to prepare Hazardous Materials Business Plans (HMBP). HMBPs are required to inventory hazardous materials stored and used on site, disclose the location of storage and use on site, maintain an emergency response plan, and contain provisions specifying employee training in safety and emergency response procedures. Local regulatory authorities such as local Environmental Health Departments collect hazardous Materials Business Plans.

Regional Water Quality Control Board

The State Water Resources Control Board, along with the Regional Water Quality Control Boards (Regional Boards), also regulate hazardous substances, materials and wastes through a variety of state statutes including, for example, the Porter Cologne Water Quality Control Act, Cal. Water Code §13000 et seq., and the underground storage tank cleanup laws. Cal. Health and Safety Code §§25280-25299.8.

Regional Boards regulate all pollutant or nuisance discharges that may affect either surface water or groundwater. Any person proposing to discharge waste to waters of the State within any region must file a report of waste discharge with the appropriate Regional Board. The project is located within the jurisdiction of the San Francisco Regional Water Quality Control Board (SFRWQCB).

California Accidental Release Program

The California Accidental Release Program (CalARP), governed by regulations set forth in the California Health and Safety Code (Section 25531 through 25543.3), requires that a facility that stores, generates, treats, or manufactures a regulated hazardous material to develop and submit Risk Management Plans (RMPs). The RMPs must document all regulated hazardous materials, method of storage, location of storage areas, amounts present at a facility, and safety features for containing a potential release. The purpose of the CalARP is to prevent the accidental release of hazardous materials from a stationary source.

Emergency Response to Hazardous Materials Incidents

California has developed an Emergency Response Plan to coordinate emergency services provided by federal, State, and local government and private agencies. Response to hazardous materials incidents is one part of this plan. The plan is administered by the state OES, which coordinates the responses of other agencies including CalEPA, the California Highway Patrol (CHP), California Department of Fish and Wildlife (CDFW), the SFRWQCB, and the San Mateo County Hazardous Materials Program.

Municipal Solid Waste

The California Integrated Waste Management Board (CIWMB) is the State-level agency within the CalEPA that oversees solid waste disposal and recycling and implements the Integrated Waste Management Act of 1989. The CIWMB issues, and in some cases enforces, regulations, policies and guidance on waste prevention and reduction, and closure. The CIWMB has promulgated detailed regulations for the closure and post closure monitoring and maintenance of municipal solid waste landfill. Additionally, because a municipal solid waste landfill may impact groundwater, a Regional Board may assert jurisdiction over an operating or closed landfill that is discharging or has discharged effluent and/or require corrective actions.

San Mateo County

San Mateo County Comprehensive Airport Land Use Plan

California Government Code Section 65302.3 states that a local agency general plan and/or any effected specific plan must be consistent with the applicable airport/land use compatibility criteria contained in the relevant adopted CALUP. Any city or county general plan, specific plan, and/or zoning ordinance that affects property in an airport environs area must be reviewed by the CCAG for a determination of consistency with the relevant provisions in the CALUP. The airport/land use compatibility review process in the County is a unique two-step process. This process determines the consistency with the CALUP. The review process is initiated by a local agency, as specified in the airport land use commission statutes, as amended. Each step of the process is described below (CCAG, 1996):

Step 1: Review by the CCAG Airport Land Use Committee (ALUC)
Step 2: Review/Final Action by the Airport Land Use Commission (CCAG)

Hazardous Materials Program

The Hazardous Materials Program provides regulatory oversight, enforcement, emergency response, and educational services for businesses, public agencies, and residents of the County in order to protect public health and the environment against hazardous chemicals and chemical pollution. This program consists of six components: the Certified Unified Program Agency (CUPA), the Hazardous Material Inspection (HMI), the Emergency Response Team (ERT), the Solid Waste and Medical Waste Program, the Ground Water Protection Program (GPP), and the Household Hazardous Waste Program (HHW).

The Hazardous Materials Emergency Response Team consists of trained Hazardous Materials specialists who respond to and manage hazardous materials emergencies and potential bio-terrorism threats throughout the County on a seven-day, twenty-four hour basis. The Hazardous Materials Team is comprised of a (part-time) Battalion Chief; 24 fire Hazmat Technicians; four Environmental Health Specialists, and four Area Office of Emergency Services (OES) Duty Officers, who are divided into separate on-duty teams to provide seven day/24-hour response to all County Hazardous Materials incidents.

Fire Hazards

Hazardous Fire Areas

In the County, most of the rural areas located outside of the cultivated regions of the Coastal Zone have been included in the designated fire areas map.

Fire Hazard Severity Zones

Senate Bill (SB) 78 (1981) and SB 1916 (1982) require the Director of the CAL FIRE to zone all State responsibility areas according to the degree of fire hazard severity.

San Mateo County Ordinances

San Mateo County Fire Ordinance

This ordinance applies to all of the unincorporated area of the County that is served by the CAL FIRE under the terms of its contract with the County.

Subdivision Ordinance

This subdivision ordinance more precisely defines many of the access requirements of the County Fire Ordinance with regard to access and water supply requirements.

San Mateo County General Plan

The San Mateo County General Plan (County General Plan) was adopted in 1986 and serves as a guide for both land development and conservation within the unincorporated areas of the County. Polices within the County General Plan relevant to hazards and hazardous materials and applicable to the Proposed Project are as follows:

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 standards for new development proposed in these areas.
d) Require detailed analysis of hazard risk and design of appropriate mitigation when development is proposed in these areas.

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.

15.27 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.

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.

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.

4.7.4 Impacts and Mitigation Measures

Method of Analysis

Potential hazardous materials and hazards impacts were analyzed through a review of the existing project site setting, project description, and risks inherent to the proposed construction methods and materials. As discussed above, methods used to characterize the existing hazardous material setting in the project site and vicinity include, but are not limited to, regulatory agency database searches conducted for records of known sites of hazardous waste and substances within the project area.

The impact analysis focused on potential effects of hazardous materials or waste associated with current and past conditions at the project site, as well as properties and associated hazards in close proximity that might have an adverse impact on the site. The evaluation was made in light of project plans, and applicable regulations and guidelines. If it was determined that implementation of the Proposed Project has the potential to meet or exceed the significance criteria listed below, mitigation measures have been recommended to increase the compatibility and safety of the project site and to reduce impacts to less-than-significant levels.

Significance Criteria

Criteria for determining the significance of impacts to hazardous materials have been developed based on Appendix G of the CEQA *Guidelines* and any relevant agency thresholds. For the purposes of this EIR, the Proposed Project would generally be considered to have a significant adverse impact to the public or the environment if it would:

- Create a significant hazard through the routine transport, use or disposal of hazardous materials;
- Create a significant hazard through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site that is listed as a hazardous materials site compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment;
- Be located within an airport land use plan or within an area were such a plan has not been adopted, that would result in a safety hazard to people residing or working in the project area;
- Result in a safety hazard for people residing or working in the project area for a project located within the vicinity of a private airstrip;

- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;
- Or expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Effects Found Not to be Significant

The project site is not included on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5. Operation of the Proposed Project would not emit hazardous materials nor result in a safety hazard for people residing or working in the vicinity of a private airstrip. The implementation of emergency response or evacuation plans would not be interfered with as a result of the Proposed Project. These effects are therefore not considered within this EIR.

Project Specific Impacts and Mitigation Measures

Impact

4.7-1 Construction of the Proposed Project would include the routine transport, storage, and handling of hazardous materials, which has the potential to result in a public health or safety hazard from the accidental release of hazardous materials into the environment.

During grading and construction activities, it is anticipated that limited quantities of miscellaneous hazardous substances, such as gasoline, diesel fuel, hydraulic fluid, solvents, oils, paints, etc. would be brought onto the site. Temporary storage units (bulk above-ground storage tanks, 55-gallon drums, sheds/trailers, etc.) would likely be used by various contractors for fueling and maintenance purposes. As with any liquid and solid, the handling and transfer between one container to another has the potential for an accidental release. Construction contractors will be required to comply with applicable federal and State environmental and workplace safety laws. Adherence to these regulatory requirements would ensure that this impact is less than significant. **Mitigation Measures 4.7-1** is provided to further decrease the potential for impacts from accidental release of hazardous materials during construction of the Proposed Project. **Less than Significant Impact with Mitigation.**

> **Mitigation Measure 4.7-1**: The project applicant shall ensure through the enforcement of contractual obligations that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended and enforced by the San Mateo County Planning and Building Department, Office of Environmental Health Services Division, and Office of Emergency Services. Recommendations may include, but are not limited to, transporting and storing materials in appropriate and approved containers, maintaining required clearances, and handling materials using approved protocols.

Impact

4.7-2 Construction of the Proposed Project has the potential to release hazardous materials into the environment through reasonably foreseeable upset or accident conditions, which may create a significant hazard.

Underground utilities, such as water, sewer, electrical, and gas lines, may be located in the construction area of the project site. During the initial phases of construction of the Proposed Project, underground utilities could be encountered. Ground disturbance and excavation activities in areas with underground utilities could result in damage to those utilities, increasing the risk for explosion or release of hazardous materials into the environment. This is considered a potentially-significant impact. Implementation of **Mitigation Measure 4.7-2a** would require construction contractors to coordinate with utility service providers prior to ground disturbing activities to identify the location and information necessary to avoid accidental damage to underground utilities present at the project site. Therefore, after mitigation, the risk of potential health and safety hazards associated with damage to underground utilities would be reduced to a less than significant level. **Less than Significant with Mitigation.**

> **Mitigation Measure 4.7-2**: The project applicant shall require through contractual obligations that the construction contractor(s) marks the areas planned to be disturbed in white paint and notify Underground Service Alert (USA) one week prior to the beginning of excavation activities. This will be completed so the entire construction area is properly surveyed in order to minimize the risk of exposing or damaging underground utilities. USA provides a free "Dig Alert" service to all excavators (contractors, homeowners and others), in northern California, and will automatically notify all USA Members (utility service providers) who may have underground facilities at their work site. In response, the USA Members will mark or stake the horizontal path of their underground facilities, provide information about, or give clearance to dig. This service protects excavators from personal injury and underground facilities from being damaged. The utility companies will be responsible for the timely removal or protection of any existing utility facilities located within construction areas.

Impact

4.7-3 The Proposed Project has the potential to expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

Construction

Equipment used during grading and construction activities may create sparks, which could ignite dry grass on the project site. During construction, the use of power tools and acetylene torches may also increase the risk of fire hazard. This risk, similar to that found at other construction sites, is considered potentially significant. Implementation of **Mitigation Measure 4.7-3a** would reduce potential impacts to less-than-significant levels. **Less than Significant with Mitigation**.

Mitigation Measure 4.7-3a: The applicant shall ensure through the enforcement of contractual obligations that the following measures are implemented by contractors during project construction:

- Staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. To the extent feasible, the contractor shall keep these areas clear of combustible materials in order to maintain a fire break.
- Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.

Operation

The project site is located within the County LRA. The CAL FIRE map designates the project site within a VHFHSZ (CAL FIRE, 2008). Any buildings and infrastructure associated with the Proposed Project would be required to meet all applicable fire standards relating to construction quality, equipment access, and fire flow requirements. The County, the Uniform Building Code, and current CAL FIRE regulations adequately address issues related to wildland fires. **Mitigation Measure 4.7-3b** is included to ensure compliance with all applicable fire standards. This impact is considered less than significant with mitigation. **Less than Significant with Mitigation.**

Mitigation Measure 4.7-3b: The building plans of the Proposed Project shall be reviewed by a representative from County Fire/CAL FIRE to ensure that regulations in the County's Fire Ordinance are met and the project complies with County Fire/CAL FIRE requirements. The development of the Proposed Project shall be in compliance with Chapter 15 of the County General Plan with respect to residential uses adjacent to open space areas where wildfire is a threat.

Impact

4.7-4 The Proposed Project is located outside the Airport Influence Area for the San Carlos Airport and would not result in potential safety hazards for people residing or working in the project area.

Operation of the Proposed Project is not subject to the airport/land use compatibility review process of the County. The Proposed Project will include a bioretention area. Due to the infrequent and short periods of time that water would be stored in this area, the increase in storm water run-off from the Proposed Project that would be diverted to the bioretention area is not expected to result in the attraction of wildlife and waterfowl beyond existing conditions. Thus, the Proposed Project would not result in the development of facilities that would increase hazardous wildlife attractants on the project site. The Proposed Project is not expected to result in a safety hazard to people residing or working in the project area. This impact is considered less than significant. **Less than Significant.**

Cumulative Impact

4.7-5 The Proposed Project in combination with future growth and development in the project vicinity would result in cumulative effects associated with hazards and hazardous materials.

Construction

If unmitigated, construction and operation of the Proposed Project in combination with potential cumulative development in the project vicinity could lead to impacts related to hazards and hazardous materials. The Proposed Project and related projects in the cumulative year, would all involve the storage, use, disposal, and transport of hazardous materials to varying degrees during construction. Impacts related to these activities are extensively regulated by various federal, State, and local agencies, and it is assumed that related projects would also comply with these hazardous materials regulations.

Hazard-related impacts are site specific (e.g., have the potential to affect only a limited area). These hazards require implementation of project-specific mitigation measures to reduce the potential for adverse impacts to a less-than-significant level. Reduction of on-site hazardous-related impacts, as discussed above, would ensure that construction activities would not result in impacts that would be cumulatively considerable. Implementation of **Mitigation Measure 4.7-5** would ensure that cumulatively considerable impacts would not occur, and this impact is therefore considered less than significant. **Less than Significant with Mitigation.**

Operation

Operation of the Proposed Project and cumulative development projects could result in impacts if development were to result in potential exposure of hazardous materials to sensitive individuals or the general public-at-large or if additional projects in the vicinity were to include the use or storage of hazardous materials. Because hazardous materials impacts are site specific and the Proposed Project would not include land uses that utilize or require substantial volumes of hazardous materials, the project would not contribute to cumulatively considerable hazardous impacts. Implementation of **Mitigation Measure 4.7-5** would ensure that cumulatively considerable impacts would not occur. Therefore, this impact is considered less than significant. **Less than Significant with Mitigation.**

Mitigation Measure 4.7-5: Implement **Mitigation Measures 4.7-1** through **4.7-3**.

4.8 Noise and Vibration

4.8.1 Introduction

This section addresses the potential for the Proposed Project to produce noise and vibration impacts. Following an overview of the existing noise setting in **Subsection 4.8.2** and the relevant regulatory setting in **Subsection 4.8.3**, project-related impacts and recommended mitigation measures, if any, are presented in **Subsection 4.8.4**.

4.8.2 Environmental Setting

Fundamentals of Acoustics

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If pressure variations occur frequently enough (at least 20 times per second) they can be heard and hence are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second, known as Hertz (Hz).

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel (dB) scale was devised. The decibel scale uses the hearing threshold (20 micropascals of pressure), as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in decibel levels correspond closely to human perception of relative loudness.

Acoustical Terminology

Community noise is commonly described in terms of the "ambient" noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (Leq), which corresponds to a steady-state A-weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The Leq is the foundation of the composite noise descriptors, Day-Night Average Level (Ldn) and community noise equivalency level (CNEL), and shows very good correlation with community response to noise.

The Ldn is based upon the average noise level over a 24-hour day, with a +10 decibel weighting applied to noise occurring during nighttime (10:00 P.M. to 7:00 A.M.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because Ldn represents a 24-hour average, it tends to disguise short-term variations in the noise environment. Where short-term noise sources are an issue, noise impacts may be assessed in terms of maximum noise levels, hourly averages, or other statistical descriptors.

Another common descriptor is the CNEL. The CNEL is similar to the Ldn, except it has an additional weighting factor. Both average noise energy over a 24-hour period. The CNEL applies a +5 decibel weighting to events that occur between 7:00 P.M. and 10:00 P.M., in addition to the +10 decibel weighting

between 10:00 P.M. and 7:00 A.M. associated with Ldn. Typically, the CNEL and Ldn have similar results for the same noise events, with the CNEL sometimes reporting a 1 dB increase compared to the Ldn to account for noise events between 7:00 and 10:00 P.M. that have the additional weighting factor.

The perceived loudness of sounds and corresponding reactions to noise are dependent upon many factors, including sound pressure level, duration of intrusive sound, frequency of occurrence, time of occurrence, and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by weighing the frequency response of a sound level meter by means of the standardized A-weighing network. There is a strong correlation between A-weighted sound levels (expressed as A-weighted decibel [dBA]) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessments. All noise levels reported in this section are in terms of A-weighted levels in decibels. **Table 4.8-1** shows examples of noise levels for several common noise sources.

TABLE 4.8-1

TYPICAL A-WEIGHTED SOUND LEVELS OF COMMON NOISE SOURCES

dBA	Description
120	Jet aircraft take-off at 200 feet, Threshold of pain
110	Rock music band
100	Jackhammer at 25 feet
90	Motorcycle accelerating at 25 feet
80	Power lawn mower at 20 feet
70	Steady urban traffic at 25 feet
60	Normal conversation at 3 feet
50	Daytime street, no nearby traffic
40	Inside average residence
30	Inside quiet home
20	Rustling leaves
10	Mosquito at 3 feet

Source: City of San Mateo, 2010a.

Noise Attenuation

In general, stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of six to nine dB per doubling of distance from the source, depending on environmental conditions (i.e., atmospheric conditions and noise barriers, either vegetative or manufactured, etc.). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate, approximately four to six dB (Caltrans, 2013).

Vibration

Vibration is similar to noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating. Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities (PPV) in inches per second. The vibration velocity, VdB, is a logarithmic scaling of vibration magnitude, and it allows relative measurements to be easily made.

Existing Conditions

The existing ambient noise environment in the project vicinity is defined primarily by residential traffic on the local roadways and aircraft operations associated with San Francisco International Airport (SFO), located approximately 5.5 miles northwest of the project site.

Existing Noise Levels

Noise levels measurements were taken at the project site on October 23 through October 24, 2013. Noise levels were measured at locations adjacent to sensitive noise receptors and where project-related noise has the potential to raise the ambient noise level. **Figure 4.8-1** displays the six measurement locations on the project site; measurements at points 1, 2, and 3 were conducted over a 24-hour period, and measurements at points A, B, and C were conducted over a 15-minute period. Measurement equipment consisted of Quest Sound Pro SE/DL sound level meters. An acoustical calibrator was used to calibrate the sound level meter before and after use. All instrumentation satisfies the Type II (precision) requirements.

Table 4.8-2 displays the results of the noise measurements, which constitute the ambient noise levels in the vicinity of the project site. The maximum ambient noise measurement was 51.7 dBA Lnd. Noise in the vicinity of the project site was dominated by traffic from Ascension Drive, Bel Aire Road, Parrot Drive, and CSM Drive. Airplane noise was noted while conducting the noise measurements. Noise measurement output files are provided as **Appendix F**.

Aircraft Noise

SFO is located approximated 5.5 miles northeast of the project site. The October 2012 Comprehensive Airport Land Use Compatibility Plan (CALUCP) for the Environs of San Francisco International Airport provides noise contours for aircraft operations at the SFO. The project site lies well outside of the 60 dB CNEL contour for air traffic noise (CALUCP, 2012). However, during the noise monitoring at the project site, single-event noise associated with airplanes was observed.

Noise Sensitive Receptors

Noise sensitive land uses are generally defined as land uses with the potential to be adversely affected by the presence of noise. Examples of noise sensitive land uses include residential housing, schools,

SOURCE: Microsoft aerial photograph, 10/26/2010; AES, 2013

Figure 4.8-1
Noise Measurement Sites

TABLE 4.8-2
EXISTING AMBIENT NOISE LEVELS

Site	Date	Start Time	End Time	Noise Source	Receptor	Measured Noise Level (dBA Ldn)
1	10/23/13 – 10/24/13	11:50 AM	11:50 AM	Transportation and Residential	Residences	47
2	10/23/13 – 10/24/13	1:50 PM	1:50 PM	Transportation and Residential	Residences	48.2
3	10/23/13 – 10/24/13	12:06 PM	12:06 PM	Transportation and Residential	Residences	51.7
A	10/24/13	1:58 PM	2:13 PM	Transportation and Residential	Residences	51
B	10/23/13	10:55 AM	11:10 AM	Transportation and Residential	Residences	49.5
C	10/23/13	11:15 AM	11:30 AM	Transportation and Residential	Residences	40.4

health care facilities, and outdoor activity areas. Existing noise sensitive receptors in the project area with the potential to be adversely affected by the project are residents located adjacent to the project site and along roadways utilized by construction-related traffic. The nearest residential sensitive receptors consist of a single-family homes located within approximately 50 feet from the northeast boundary of the project site where construction activities would occur. On-road construction vehicles would use Bel Aire Road and Ascension Drive. Residents located along these roadways are generally situated 35 feet from the roadway. The nearest school to the project site is College of San Mateo located 1,600 feet northeast of the project site. There are no medical facilities within five miles of the project site.

4.8.3 Regulatory Context

Federal

San Francisco International Airport Land Use Compatibility Plan (2012)

The project site is located near SFO. The CALUCP sets forth land use compatibility policies to ensure that future land uses in the surrounding area will be compatible with the realistically foreseeable aircraft activity. The project site is not located within noise contours of SFO (CALUCP, 2012).

United States Department of Transportation, Federal Transit Administration

The Federal Transit Administration set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. These criteria include 65 VdB for land uses where low ambient vibration is essential for interior operations (e.g., hospitals, high-tech manufacturing, and laboratory facilities), 80 VdB for residential uses and buildings within which people sleep, and 83 VdB for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, and offices) (FTA, 2006).

Standards have been established by the Committee of Hearing, Bio Acoustics, and Bio Mechanics (CHABA) to address the potential for groundborne vibration, which may cause structural damage to buildings. For fragile structures, CHABA recommends a maximum limit of 0.25 in/sec PPV (FTA, 2006).

Local

San Mateo County General Plan

The San Mateo County (County) General Plan Noise Element contained in the Man-Made Hazards Element was adopted in 1986 and contains State and County policies, ordinances and standards relevant to noise (e.g., exterior and interior noise level performance standards for new projects affected by or including non-transportation noise sources, and maximum allowable noise exposure levels for transportation noise sources). Polices within the County General Plan Noise Element applicable to the Proposed Project are as follows:

Section A. 3. a. The Noise Element adopts State land use-noise compatibility standards to guide unincorporated development and extends State law to require an acoustical analysis for all new residential development, including single family dwellings, experiencing noise levels of 60 CNEL or greater. It requires that structural design reduce internal exposure to 45 CNEL.

San Mateo County Noise Ordinances

4.88.330 Exterior Noise Standards

It is unlawful for any person at any location within the unincorporated area of the County to create any noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person which causes the exterior noise level when measured at any single or multiple family residence, school, hospital, church, public library situated in either the incorporated or unincorporated area to exceed the noise level standards as set forth in **Table 4.8-3** (Table I in the County General Plan) following:

a) In the event the measured background noise level exceeds the applicable noise level standard in any category in **Table 4.8-3**, the applicable standard shall be adjusted in five (5) dBA increments so as to encompass the background noise level.
b) Each of the noise level standards specified in **Table 4.8-3**shall be reduced by 5 dBA for simple tone noises, consisting primarily of speech or music, or for recurring or intermittent impulsive noises.
c) If the intruding noise source is continuous and cannot reasonably be stopped for a period of time whereby the background noise level can be measured, the noise level measured while the source is in operation shall be compared directly to the noise level standards in **Table 4.8-3**.

TABLE 4.8-3

NOISE RECEPTOR LAND USES

Table I - Receiving Land use: Single or Multiple Family Residence, School, Hospital, Church, or Public Library Properties. Noise Level Standards, dBA			
Category[1]	**Cumulative Number of Minutes in any one hour time period**	**Daytime 7 A.M.—10 P.M.**	**Nighttime 10 P.M.—7 A.M.**
1	30	55	50
2	15	60	55
3	5	65	60
4	1	70	65
5	0	75	70

[1] Category definitions available at: SMC Noise Ordinance 4.88.330, http://library.municode.com/index.aspx?clientId=16029.
Source: SMC, 2013.

4.88.340 Interior Noise Standards

No person shall, at any location within the unincorporated area of the County operate, or cause to be operated within a dwelling unit, any source of sound, or create, or allow the creation of, any noise which causes the noise level when measured inside a receiving dwelling unit with windows in their normal seasonal configuration to exceed the following noise level standards as set forth in **Table 4.8-4** (Table II in the County General Plan) following:

a) In the event the measured background noise level exceeds the applicable noise level standard in any category in **Table 4.8-4**, the applicable standard shall be adjusted in five (5) dBA increments so to encompass the background noise level.
b) Each of the noise level standards specified in **Table 4.8-4** shall be reduced by 5 dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring or intermittent impulsive noises.
c) If the intruding noise source is continuous and cannot reasonably be stopped for a period of time whereby the background noise level can be measured, the noise level measured while the source is in operation shall be compared directly to the noise level standards in **Table 4.8-4**.

TABLE 4.8-4

INTERIOR NOISE LEVEL STANDARDS

Table II - Interior Noise Level Standards - Dwelling Unit Noise Level Standards, dBA			
Category[1]	**Cumulative Number of Minutes in any one hour time period**	**Daytime 7 A.M.—10 P.M.**	**Nighttime 10 P.M.—7 A.M.**
1	5	45	40
2	1	50	45
3	0	55	50

[1] Category definitions available at; SMC Noise Ordinance 4.88.330, http://library.municode.com/index.aspx?clientId=16029.
Source: SMC, 2013.

4.88.360 Exemptions

Noise sources associated with demolition, construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 6:00 P.M. and 7:00 A.M. weekdays, 5:00 P.M. and 9:00 A.M. on Saturdays or at any time on Sundays, Thanksgiving and Christmas are exempt from County Noise Ordinances 4.88.330 and 4.88.340.

City of San Mateo General Plan

Although the project site is not within the City of San Mateo, it is within the City of San Mateo's sphere of influence. The City of San Mateo General Plan Noise Element contains the following noise policies and standards.

Policy N 1.1: Interior Noise Level Standard
Require submittal of an acoustical analysis and interior noise insulation for all "noise sensitive" land uses listed in **Table 4.8-5** (N-1 and N-2) that have an exterior noise level of 60 dB (Ldn) or above, as shown on Figure N-1. The maximum interior noise level shall not exceed 45 dB (Ldn) in any habitable rooms.

Policy N 2.2: Minimize Noise Impact
Protect all "noise-sensitive" land uses listed in Tables N-1 and N-2 (**Table 4.8-5**) from adverse impacts caused by the noise generated on-site by new developments. Incorporate necessary mitigation measures into development design to minimize noise impacts. Prohibit long-term exposure increases of 3 dB (Ldn) or greater at the common property line, or new uses which generate noise levels of 60 dB (Ldn) or greater at the property line, excluding existing ambient noise levels.

City of San Mateo Noise Ordinances

7.30.060 Special Provisions.

(e) Construction. Construction, alteration, repair or land development activities which are authorized by a valid city permit shall be allowed on weekdays between the hours of seven A.M. and seven P.M., on Saturdays between the hours of eight A.M. and five P.M., and on Sundays and holidays between the hours of noon and four P.M., or at such other hours as may be authorized or restricted by the permit, if they meet at least one of the following noise limitations:

(1) No individual piece of equipment shall produce a noise level exceeding ninety dB at a distance of twenty-five feet. If the device is housed within a structure or trailer on the property, the measurement shall be made outside the structure at a distance as close to twenty-five feet from the equipment as possible.
(2) The noise level at any point outside of the property plane of the project shall not exceed ninety dB.
(3) The operation of leaf blowers shall additionally comply with Chapter 10.80 "Operation of Leaf Blowers". (Ord. 2004-16 § 1, 2004).

TABLE 4.8-5

NOISE SENSITIVE LAND USE COMPATIBILITY POLICY

Table N-1: NOISE SENSITIVE LAND-USE COMPATIBILITY GUIDELINES FOR COMMUNITY NOISE ENVIRONMENTS[1] Day-Night Average Sound Level (Ldn), Decibels			
Land-Use Category	**Normally Acceptable[2]**	**Conditionally Acceptable[3]**	**Normally Unacceptable[4]**
Single-Family Residential	50 to 59	60 to 70	Greater than 70
Multi-Family Residential	50 to 59	60 to 70	Greater than 70
Hotels, Motels, and other Lodging Houses	50 to 59	60 to 70	Greater than 70
Long-Term Care Facilities	50 to 59	60 to 70	Greater than 70
Hospitals	50 to 59	60 to 70	Greater than 70
Schools	50 to 59	60 to 70	Greater than 70
Multi-Family Common Open Space Intended for the Use and Enjoyment of Residents	50 to 67	--	Greater than 67
Table N-2: NOISE GUIDELINES FOR OUTDOOR ACTIVITIES Average Sound Level (Leq), Decibels			
Land-Use Category	**Normally Acceptable[2]**	**Conditionally Acceptable[3]**	**Normally Unacceptable[4]**
Parks, Playgrounds	50 to 65*	--	Greater than 65*

[1] These guidelines are derived from the California Department of Health Services, Guidelines for the Preparation and Content of the Noise Element of the General Plan, 2003. The State Guidelines have been modified to reflect San Mateo's preference for distinct noise compatibility categories and to better reflect local land-use and noise conditions. It is intended that these guidelines be utilized to evaluate the suitability of land-use changes only and not to determine cumulative noise impacts. Land uses other than those classified as being "noise sensitive" are exempt from these compatibility guidelines.
[2] Normally Acceptable – Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
[3] Conditionally Acceptable – New construction should be undertaken only after a detailed analysis of the noise reduction requirement is conducted and needed noise insulation features included in the design.
[4] Normally Unacceptable – New construction should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
* Average Sound Level (Leq) for peak hour.
Source: City of San Mateo, 2010b.

Single Event Levels

Single event levels (SEL) describes a receiver's total noise exposure from a single impulsive event. SELs are often used to characterize noise from aircraft takeoffs and flyovers. Neither the County nor City of San Mateo have established SEL standards and no definitive, widely-recognized, SEL guidelines currently exist. The Federal Aviation Administration (FAA) has suggested that the threshold of speech interference, which is 60 dBA be used. The Federal Interagency Committee on Aviation Noise (FICAN) has provided studies on sleep disturbance; however, FICAN has not recommended a threshold for SELs.

4.8.4 Impacts and Mitigation Measures

This section identifies any impacts to the existing noise environment that could occur from construction, operation, and/or maintenance of the Proposed Project. If significant impacts are likely to occur,

mitigation measures are included to increase the compatibility of the Proposed Project and reduce impacts to less-than-significant levels.

Method of Analysis

Impacts of the Proposed Project to ambient noise conditions were analyzed based on an examination of the project site and published information regarding noise in the vicinity of the project site. These factors were then compared to the significance criteria listed below.

Project-related traffic noise impacts on existing and proposed residences were evaluated by estimating the project traffic noise levels for each of the project-area roadways using project-related traffic counts, which are provided in **Appendix H**, and guidance provided in Caltrans's 2009 Technical Noise Supplement. The equation used to determine traffic noise in the vicinity of the Proposed Project is as follows:

> **Eq4.8-1**: Increase in noise level = $10\log_{10}$ (existing traffic +project traffic/existing traffic) (Caltrans, 2009).

The results of the project-related traffic counts were compared to estimated baseline and predicted 2030 traffic noise levels listed below.

There are no vibration sources with the vicinity of the project site. However, during construction, heavy construction equipment has the potential to cause vibration exposure. Construction vibration is evaluated based on resulting vibration caused by individual construction equipment. The results were compared to significance criteria to determine if the vibration from construction activities and equipment would expose residences to excessive groundborne vibration.

All proposed structures shall be constructed to meet the California Building Standards Code. Standard construction in accordance with building code requirements will typically provide 25 dB of exterior to interior noise reduction with windows in the closed position. This level of reduction is based on standard 2x4 stud walls with stucco siding exterior and gypsum board interior surfaces, and fiberglass insulation in the stud cavity. It also assumes standard 0.5-inch dual pane thermal windows (sound transmission class rating 27) and composition roof.

Significance Criteria

Criteria for determining the significance of impacts to the noise environment have been developed based on Appendix G of the California Environmental Quality Act (CEQA) *Guidelines* and relevant agency thresholds. Impacts to the noise environment would be considered significant if the Proposed Project would result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;

- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels; or
- For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

Additionally, the following significance criteria were developed based on guidance provided by CEQA *Guidelines*, and on other federal, State, and local guidance. Impacts of the Proposed Project on noise would be significant if project implementation would do any of the following:

- Exposure of persons to or generation of noise levels in excess of the County's noise threshold of 60 dB Ldn, exterior or 45 dB Ldn, interior;
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels that exceed the annoyance threshold of 0.1 inches per second PPV, would be considered significant; or
- Operation of construction equipment between the hours of 6:00 P.M. and 7:00 A.M. weekdays, 5:00 P.M. and 9:00 A.M. on Saturdays, or at any time on Sundays, Thanksgiving, and Christmas.

Effects Found Not to be Significant

As discussed within the Initial Study (**Appendix B**), the project site is not within an airport land use plan, is not within two miles of a public use airport, and is not in the vicinity of a private airstrip. These effects are therefore not considered within this EIR.

Project Specific Impacts and Mitigation Measures

Impact

4.8-1 Construction of the Proposed Project has the potential to generate a substantial temporary or periodic noise level greater than existing ambient levels in the project vicinity.

During the construction phases of the project, noise from construction activities would add to the noise environment in the immediate vicinity of the project site. Activities and equipment involved in construction would likely generate maximum noise levels listed in **Table 4.8-6**. Noise would also be generated during the construction phase by increased truck traffic on area roadways from the hauling of materials to and from the project site. Noise increases would be of short duration and would be limited to daytime hours.

Impacts to Existing Sensitive Receptors

The nearest sensitive receptor is approximately 50 feet from the northeast boundary of the project site where construction activities would occur. As indicated in **Table 4.8-6**, the loudest activities associated with construction would be 85 dBA, Lmax at 50 feet from the construction equipment.

Noises of different levels from different sources can combine resulting in a different noise level; the noise resulting from the combination depends on the inequality between the two noise levels. If two noise sources combine and the difference between the two noises is of 0 or 1 dB, then an addition of 3 dB should be added to the higher noise level. If two noise sources combine and the difference between the two noise levels is greater than 10 Decibels, then 0 dB is added to the greater noise level (Engineering Tool Box, 2013).

TABLE 4.8-6

NOISE EMISSION LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment Description	Typical Use Factor (%)	Predicted Lmax @ 50 ft (dBA, Lmax)
Backhoe	40	80
Concrete Mixer Truck	40	85
Concrete Pump Truck	20	82
Dozer	40	85
Dump Truck	40	84
Excavator	40	85
Flat Bed Truck	40	84
Front End Loader	40	80
Jack Hammer	25	80
Pickup Truck	40	55
Pneumatic Tools	50	85
All Other Equipment > 5 HP	50	85
Source: FHWA, 2006.		

Taking into account existing ambient noise level (maximum 51.7 dBA, **Table 4.8-2**), the resulting maximum noise level as a result of construction activities that would occur at the nearest sensitive receptor northeast of the project site would be 85 dBA, Lmax.

Impacts to Future Sensitive Receptors from Phased Construction

As described in **Section 3.4**, it is anticipated that construction would occur over a 27 month period but may not be continuous. Like other residential developments, residences are likely to be occupied as they are constructed; therefore, sensitive receptors will potentially be located adjacent to construction areas. Future sensitive receptors located adjacent to construction areas will experience the unattenuated noise levels of activities associated with construction. As indicated in **Table 4.8-6**, the loudest activities associated with construction would average 85 dBA, Lmax at 50 feet from the construction equipment.

Conclusion

Noise levels as a result of construction would cause an exceedance of the County's land use compatibility maximum level of 60 dBA for exterior residential land uses. Implementation of **Mitigation Measure 4.8-1**, identified below, would reduce noise-related construction impacts and facilitate communication between construction managers and adjacent sensitive receptors. However, because of the nature of construction activities of the Proposed Project and the location

of the project site, feasible noise mitigation for consistently reducing the noise levels below the 60 dBA threshold is unavailable. As a result, temporary substantial noise increases associated with project construction would be considered potentially significant. However, in accordance with the County Noise Ordinance 4.88.360, noise from construction activities occurring during the hours specified in **Mitigation Measure 4.8-1** is exempt from the 60 dB noise threshold. Therefore, with the implementation of **Mitigation Measure 4.8-1**, construction of the Proposed Project would result in a less-than-significant impact to the noise environment. **Less than Significant with Mitigation.**

Mitigation Measure 4.8-1: The project applicant shall ensure through contractual agreements that the following measures are implemented during construction:

- Construction activities shall be limited to occur between the hours of 7:00 A.M. to 6:00 P.M. Monday through Friday, and 9:00 A.M. to 5:00 P.M. on Saturdays. Construction activities shall not occur on Sundays, Thanksgiving, or Christmas. The intent of this measure is to prevent construction activities during the more sensitive time period and minimize the potential for effects.
- Stationary equipment and staging areas shall be located as far as practical from noise-sensitive receptors.
- All construction vehicles or equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers and acoustical shields or shrouds, in accordance with manufacturers' recommendations.
- Construction activities shall conform to the following standards: (a) there shall be no start-up of machines or equipment, no delivery of materials or equipment, no cleaning of machines or equipment and no servicing of equipment except during the permitted hours of construction; (b) radios played at high volume, loud talking and other forms of communication constituting a nuisance shall not be permitted.
- The general contractors for all construction activities shall provide a contact number for citizen complaints and a methodology for dealing with such complaints such as designating a noise disturbance coordinator. This noise disturbance coordinator shall receive all public complaints about construction-related noise and vibration, shall be responsible for determining the cause of the complaint, and shall implement any feasible measures to be taken to alleviate the problem. All complaints and resolution of complaints shall be reported to the County weekly.

Impact

4.8-2 Construction of the Proposed Project has the potential to expose existing sensitive noise receptors to construction traffic noise in excess of the County's noise standards.

During construction of the Proposed Project, a maximum of 20 worker round trips per day would occur, as stated in **Section 3.4.3**. Although construction trips would generally occur outside of the peak hour, it is assumed for this noise analysis that all construction trips occur during the peak traffic hour to provide a worst case scenario analysis. In addition, it is estimated that an average of 156 soil and material hauling trips per day would occur during the 30-day period of

grading activities on the project site (**Appendix H**). Because trucks are louder than passenger cars, a passenger car equivalence (PCE) multiplier of 8 cars per truck was used (TRB, 2000). Therefore, the total equivalent passenger car trips added by the Proposed Project would be 1,268 per day in the worst case scenario analysis.

The traffic volume is 1,592 vehicle trips per day on Ascension Drive and 806 vehicle trips per day on Bel Aire Road (**Appendix H**). The existing ambient noise level along Bel Aire Road was measured at 51.7 dBA, Ldn (**Table 4.8-2**). The addition of 20 vehicle trips and 156 truck trips (equivalent to 1,268 vehicle trips) per day on Bel Aire Road would increase the noise level to 55.8 dBA, Ldn (refer to **Eq4.8-1** in the Method of Analysis Section above), which is less than the 60 dBA, Ldn County noise significance threshold. With implementation of **Mitigation Measure 4.8-1**, noise from the construction vehicle traffic associated with the Proposed Project would result in a less-than-significant impact. **Less than Significant with Mitigation.**

Impact

4.8-3 Construction of the Proposed Project would not expose existing sensitive receptors to groundborne vibration or groundborne noise levels in excess of the State's vibration standard.

Construction activities for the Proposed Project would consist of using the earthmoving equipment shown in **Table 4.8-7**. This equipment can produce detectable or damaging levels of vibration at nearby sensitive land uses, depending on the distance between the source and the nearby sensitive land use. Generally, physical damage is only an issue when construction requires the use of equipment with high vibration levels (i.e., compactors, large dozers, etc.) and occurs within 25 feet of an existing structure. **Table 4.8-7** provides estimated vibration levels at 25 feet and 50 feet from construction activities. The predicted PPV levels are below the significance threshold of 0.5 PPV for structures at 25 feet and 0.1 PPV for annoyance of people at 50 feet (FTA, 2006). Therefore, vibration from construction of the Proposed Project would result in less-than-significant impact to nearby structures and sensitive receptors. **Less than Significant.**

TABLE 4.8-7

REFERENCE AND PREDICTED PPV FROM CONSTRUCTION EQUIPMENT

Equipment	Reference PPV at 25 feet	Predicted PPV at 50 feet
	Inches per Second	
Large bulldozer	0.089	0.034
Excavator	0.089	0.034
Compactor	0.170	0.064
Scaper	0.089	0.034
Loaded trucks	0.076	0.029
Small bulldozer	0.003	0.0011

Note: PPV was predicted using the equation $PPV_{predicted} = PPV_{ref} *(D_{ref}/D_{source})$^1.4.
Source: FTA, 2006.

Impact

4.8-4 Operation of the Proposed Project would not expose newly placed sensitive receptors to traffic noise in excess of the County's noise thresholds.

The Proposed Project would result in the development of sensitive receptors within the project site, including residential housing along a new private street and near existing roadways. Proposed sensitive receptors could be exposed to excessive traffic noise levels in excess of the County's thresholds for outdoor activity areas. The level of traffic noise depends on: 1) the volume of the traffic, 2) the speed of the traffic, and 3) the number of trucks in the flow of the traffic. It is not anticipated that speed in the vicinity of the project site or the mix of trucks in the traffic would change during the operational phase; however, with the implementation of the Proposed Project, traffic volumes would increase.

New Private Street

The Proposed Project includes development of a new private street with the proposed residences aligned along the street (**Figure 3-4**). Traffic volumes on the newly developed street would be less than traffic volumes on Ascension Drive (**Appendix H**). As shown in **Table 4.8-2**, the ambient noise level along Ascension Drive is less than the County's 60 dBA, Ldn noise threshold. Therefore, it is assumed that the ambient noise level along the newly developed street would also be below the County's noise threshold.

Ascension Drive

Newly placed residential sensitive receptors situated close to Ascension Drive are at a distance of approximately 400 feet and at an elevation of greater than 120 feet. Due to this distance and elevation, traffic noise associated with Ascension Drive would not be audible at newly placed residential receptors.

Bel Aire Road

Bel Aire Road is located adjacent to the project site, approximately 300 feet from future sensitive noise receptors. The existing traffic volume on Bel Aire Road is 806 vehicle trips per day (**Appendix H**). The Proposed Project would add 78 vehicle trips per day to Bel Aire Road. The existing ambient noise level in the vicinity of Bel Aire Road was measured at 51.7 dBA, Ldn (refer to **Table 4.8-2**). An approximately 0.40 dBA Ldn increase in the ambient noise level would result as operation of the Proposed Project would not double the traffic volume on Bel Aire Road (refer to **Eq4.8-1** in the Method of Analysis Section above). With implementation of the Proposed Project, the ambient noise level on Bel Aire Road would be 52.1 dBA, Ldn, which is less than the County's threshold of 60 dBA, Ldn for residential sensitive receptors.

Conclusion

Given that the ambient noise level on the roadways in the vicinity of the newly placed sensitive receptors would not exceed the County's threshold, operation of the Proposed Project would therefore result in a less-than-significant impact associated with traffic noise levels for newly placed sensitive noise receptors. **Less than Significant.**

Impact

4.8-5 Operation of the Proposed Project would not result in a substantial permanent increase in ambient noise levels in the project vicinity above existing levels.

The primary source of noise in the immediate vicinity of the project site is traffic on area roadways. The primary source of noise associated with operation of the Proposed Project would also be noise due to increased traffic volumes. To determine the level of significance of noise impacts due to operation of the Proposed Project, traffic noise from Ascension Drive, Bel Aire Road, Parrot Drive, and CSM Drive was analyzed because these roadways would experience an increase in traffic volumes as a result of the Proposed Project and because sensitive noise receptors (residences) are located within 40 feet of the roadways. Data from the Traffic Impact Analysis (TIA) (**Appendix H**) prepared for the Proposed Project were used in the analysis.

Ascension Drive

There are approximately 1,592 vehicle trips per day on Ascension Drive adjacent to the project site. The Proposed Project would add an estimated 78 vehicle trips per day to this roadway (**Appendix H**). The existing ambient noise level in the vicinity of Ascension Drive was measured at 40.4 dBA, Ldn (**Table 4.8-2**). The Proposed Project would not double the traffic volume on Ascension Drive; therefore, a 0.10 dBA Ldn increase in the ambient noise level would result (refer to **Eq4.8-1** in the Method of Analysis Section above). With implementation of the Proposed Project, the ambient noise level on Ascension Drive would be 40.5 dBA, Ldn.

Bel Aire Road

There are approximately 806 vehicle trips per day on Bel Aire Road adjacent to the project site. The Proposed Project would add an estimated 78 vehicle trips per day to this roadway (**Appendix H**). The existing ambient noise level in the vicinity of Bel Aire Road was measured at approximately 51.7 dBA, Ldn (**Table 4.8-2**). The Proposed Project would not double the traffic volume on Bel Aire Road; therefore, a 0.40 dBA Ldn increase in the ambient noise level would result (refer to **Eq4.8-1** in the Method of Analysis Section above). With implementation of the Proposed Project, the ambient noise level on Bel Aire Road would be 52.1 dBA, Ldn.

Parrott Drive

There are approximately 2,462 vehicle trips per day on Parrott Drive north of the project site. The Proposed Project would add an estimated 140 vehicle trips per day to this roadway (**Appendix H**). The existing ambient noise level in the vicinity of Parrott Drive was measured at approximately 47 dBA, Ldn (**Table 4.8-2**). The Proposed Project would not double the traffic volume on Parrott Drive; therefore, a 0.24 dBA Ldn increase in the ambient noise level would result (refer to **Eq4.8-1** in the Method of Analysis Section above). With implementation of the Proposed Project, the ambient noise level on Parrott Drive would be 47.24 dBA, Ldn.

CSM Drive

There are approximately 3,757 vehicle trips per day on CSM Drive west of the project site. The Proposed Project would add an estimated 322 vehicle trips per day to this roadway (**Appendix H**). The existing ambient noise level in the vicinity of CSM Drive was measured at approximately

48.2 dBA, Ldn (**Table 4.8-2**). The Proposed Project would not double the traffic volume on CSM Drive; therefore, a 0.37 dBA Ldn increase in the ambient noise level would result (refer to **Eq4.8-1** in the Method of Analysis Section above). With implementation of the Proposed Project, the ambient noise level on CSM Drive would be 48.57 dBA, Ldn.

Conclusion

With the implementation of the Proposed Project, noise levels in the vicinity of roadways with sensitive noise receptors would not exceed the County's noise threshold of 60 dBA, Ldn for residential sensitive receptors. Therefore, the Proposed Project would result in a less-than-significant impact associated with traffic noise levels for sensitive noise receptors. **Less than Significant.**

Cumulative Impact

4.8-6 Traffic resulting from the Proposed Project in combination with cumulative development would not increase cumulative ambient and traffic noise levels at new and existing residences in excess of the County's noise thresholds.

The Proposed Project in combination with cumulative growth development would generate additional traffic along local roadways. The proposed sensitive receptors could be exposed to excessive traffic noise levels in excess of the County's noise thresholds for outdoor activity areas under cumulative traffic conditions.

The TIA (**Appendix H**) prepared for the Proposed Project shows that traffic associated with the 2030 cumulative with project (2030) traffic scenario would not result in a doubling of traffic volumes on any of the study roadways. As such, cumulative increases in traffic due to the project would result in less than a 1 dBA, Ldn increase in noise levels along area roadways over the existing noise environment. Because noise levels associated with 2030 cumulative with project traffic would not result in an increase of 3 dB(A) or more, cumulative traffic noise impacts on the proposed on- and off-site land uses would not be audible. Therefore, a less-than-significant impact to the noise environment in the cumulative year 2030 would occur. **Less than Significant.**

4.9 POPULATION AND HOUSING

4.9.1 INTRODUCTION

This section addresses the potential for population and housing impacts and evaluates the consistency between the Proposed Project and San Mateo County's General Plan Housing Element (2012). Following an overview of the environmental setting in **Subsection 4.9.2** and the relevant regulatory setting in **Subsection 4.9.3**, project-related impacts and recommended mitigation measures are presented in **Subsection 4.9.4**.

4.9.2 ENVIRONMENTAL SETTING

Population

Regional

As shown in **Table 4.9-1**, the population of San Mateo County (County) as of January 1, 2013 was approximately 736,000 people. The 2013 population of the unincorporated areas of the County was approximately 64,000 people or approximately 8.7 percent of the County's total population (California Department of Finance, 2013a).

TABLE 4.9-1

REGIONAL POPULATION

Location	Population			
	2000	2005	2010	2013
State of California	33,873,086	35,869,173	37,253,956	37,966,471
San Mateo County	707,163	700,350	718,451	735,678
Unincorporated County	61,275	61,308	61,624	63,603
City of San Mateo	92,482	93,396	97,207	99,061

Source: California Department of Finance, 2012; California Department of Finance, 2013a

Population Trends

Across the first decade of the twenty-first century, the County population increased at an overall rate of 1.6 percent. The population of the County declined during the first half of the decade from 707,163 in 2000 to 700,350 in 2005, a decrease of approximately 1.0 percent. The County population reached its lowest point in 2007 at 699,347 people and then grew at a rate of approximately 4.9 percent to the 2013 population of 735,678 people. Growth in the unincorporated areas of the County was slightly positive during the same time period, increasing at a rate of 0.6 percent from 61,275 people in 2000 to 61,624 people in 2010. Notably, the population growth rate of unincorporated areas spiked in recent years to a rate of 3.1 percent between 2010 and 2013; this is an average of 1.03 percent per year. Similarly, the city nearest the project site, the City of San Mateo, saw an increase in the population growth rate during the latter half of the first decade of the twenty-first century; the City's population grew at a rate of 3.9 percent from 2005 to 2010 compared to only 1.0 percent from 2000 to 2005 (California Department of Finance, 2012; California Department of Finance, 2013a).

While the County, unincorporated areas of the County, and the City of San Mateo saw spikes in population growth in recent years, this trend is opposite that of the State. California continues to increase in population; the overall growth rate from 2000 to 2013 was 10.8 percent. However, the State population increased at a rate of 5.6 percent from 2000 to 2005 but slowed to a growth rate of only 1.9 percent from 2010 to 2013 (California Department of Finance, 2012; California Department of Finance, 2013a).

Housing

California was estimated to have approximately 13,786,000 housing units as of January 1, 2013, of which approximately 1,110,000 units, or 8.1 percent, were vacant (California Department of Finance, 2013a). In the same year, the County, the unincorporated areas of the County, and the City of San Mateo had a lower percentage of vacant units compared to the State. In 2013, there were estimated to be 272,000 housing units in the County, of which 4.9 percent were vacant (**Table 4.9-2**). The unincorporated areas of the County had approximately 23,000 housing units, of which 6.4 percent were vacant, and the City of San Mateo had approximately 40,000 housing units, of which 4.5 percent were vacant (California Department of Finance, 2013a).

During the first decade of the twentieth century, the number of housing units increased overall in the County, unincorporated areas of the County, and the City of San Mateo. However, the number of housing units increased at a higher rate from 2000 to 2005 compared to 2005 to 2010. Of note, the number of housing units was greater in 2013 compared to 2010 while the vacancy rate remained steady, indicating an upward trend in demand for housing (California Department of Finance, 2012; California Department of Finance, 2013a).

TABLE 4.9-2

REGIONAL HOUSING

Location	2000		2005		2010		2013	
	Total Units	% Vacant	Total Units	% Vacant	Total Units	% Vacant	Total Units	% Vacant
State of California	12,214,550	5.8%	12,978,524	6.9%	13,670,304	8.1%	13,785,797	8.1%
San Mateo County	260,578	2.5%	267,149	3.9%	271,031	4.9%	272,477	4.9%
Unincorporated County	21,270	3.3%	22,296	5.1%	22,508	6.4%	22,583	6.4%
City of San Mateo	38,249	2.4%	39,425	3.7%	40,014	4.5%	40,060	4.5%

Source: California Department of Finance, 2012; California Department of Finance, 2013a

Growth Projections

The Department of Finance estimates the population of the County will grow at an approximate rate of 2.5 percent every 5 years from 2015 to 2060 (California Department of Finance, 2013b). The Final Regional Housing Need Allocation (RHNA) for 2014 through 2022 estimates the housing needs for the unincorporated areas of the County as determined and assigned by the Association of Bay Area Governments (ABAG). The County determined an addition of 913 housing units in unincorporated areas between 2014 and 2022 would be necessary to support population growth (ABAG, 2013).

4.9.3 Regulatory Context

The project site is located in an unincorporated area of the County. However, the project site is located adjacent to the city limits of the City of San Mateo and is within the City of San Mateo's sphere of influence.

San Mateo County General Plan

The San Mateo County General Plan (County General Plan) serves as a guide for both land development and conservation in the unincorporated portions of the County. The County General Plan (1986) land use designation for the project site is Medium Low Density Residential (2.4 – 6.0 dwelling units [du]/acre). The project site is zoned R-1/S-8 (single-family residential/7,500 square foot minimum lot size). With respect to the County's urban-rural boundary, the project site is located within an area designated as an "Urban Neighborhood," which indicates the County has determined the area is most appropriate for housing development and limited resources, such as utilities and infrastructure, are concentrated to support such development. Policies regarding housing and population from the County General Plan applicable to the Proposed Project include the following:

7.21 <u>Suitable Land Within City Sphere of Influence</u>
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.

8.14 <u>Land Use Compatibility</u>
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.

8.29 <u>Infilling</u>
Encourage the infilling of urban areas where infrastructure and services are available.

8.31 <u>Overcoming Constraints to Development</u>
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.

8.34 <u>Zoning Regulations</u>
To ensure that development is consistent with land use designations, continue to use zoning districts which regulate development by applying specific standards.

8.35 <u>Uses</u>
Allow uses in zoning districts that are consistent with the overall land use designation.

8.36 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.

8.37 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.

8.38 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.

Regional Housing Needs Allocation

The California Department of Housing and Community Development (HCD) identifies the supply of housing necessary to meet the existing and projected growth in population and households in the State, and passes a portion along to each of the State's 38 Councils of Government (COG). ABAG, the COG overseeing the Bay Area including San Mateo County, receives a RHNA from HCD that specifies the number of units, by affordability level, that need to be accommodated within the nine-county Bay Area during the Housing Element planning period. ABAG is then responsible for calculating specific RHNAs for San Mateo County and other jurisdictions.

The County and its cities utilized the option of forming a subregion to independently allocate the County's portion of its RHNA for the 2014 through 2022 planning period. ABAG allotted a total amount of regional need to the San Mateo County subregion, which included the unincorporated County and all cities within the County. The County and cities, in collaboration, then determined each jurisdiction's share of that allotment. Rather than being allotted directly by ABAG, RHNA for each jurisdiction was determined in a collaborative, participatory process involving the jurisdictions themselves, with ABAG's approval (SMC, 2012a).

San Mateo County 2007-2014 Housing Element

The San Mateo County 2007-2014 Housing Element (2012) of the County General Plan includes a housing needs assessment that identifies current and projected housing needs, as well as policies to accommodate housing development that will be affordable to a range of household types and income ranges. The Housing Element of the County General Plan serves as the overall guiding policy document for housing and development within the unincorporated County by integrating standards of population density and building density so that circulation and public-facilities needs are met. The Housing Element identifies areas that are potentially developable from 2007 to 2014, and the project site was identified as such an area (SMC, 2012a). Polices regarding housing and population from the Housing Element applicable to the Proposed Project include the following:

HE 2.1 Continue to enforce development policies, building code requirements, permit conditions, and health and safety standards before, during, and after the construction of residential projects.

HE 2.3 Continue residential health and safety code enforcement efforts in unincorporated areas.

HE 14.1 As part of staff reports to the Planning Commission and the Board on residential developments, continue to include a section outlining mitigation measures to reduce community concerns and environmental impacts other than lowering densities, and recommend reductions in density only after other mitigation measures have been determined to be infeasible.

HE 49.1 Continue to administer and enforce the County's Green Building ordinance.

San Mateo County Housing Needs Study

As noted in **Section 4.9.2**, the 2008 San Mateo County Housing Needs Study assessed housing needs based on projected job growth, associated new worker household formation, expected commute patterns, and estimates of non-worker household formation. This information is intended to compliment the RHNA housing needs assessment and aid the County in making housing-related planning and development decisions (Rice-Evans et al., 2008).

City of San Mateo General Plan (2013)

The City of San Mateo seeks to influence County decisions and projects within its sphere of influence so that developments are built in compliance with the City of San Mateo's development standards. Policies contained within the City of San Mateo 2030 General Plan relevant to population and housing impacts of the Proposed Project include:

LU 7.2 <u>New Development within the Sphere of Influence</u>
Seek to require new developments and related infrastructure to be consistent with and to be designed to the City's General Plan goals and policies, zoning code requirements, development standards and the City's municipal code.

4.9.4 Impacts and Mitigation Measures

Method of Analysis

This section evaluates the Proposed Project's compatibility with existing and planned development, and discusses the consistency of the Proposed Project with adopted plans, policies, and zoning designations. Physical environmental impacts resulting from the Proposed Project and mitigation measures are discussed in the applicable technical sections in this EIR.

Significance Criteria

Section 15125(d) of the CEQA *Guidelines* states that "[t]he EIR shall discuss any inconsistencies between the Proposed Project and applicable general plans and regional plans." Criteria for determining the significance of population and housing impacts have been developed based on Appendix G of the CEQA *Guidelines*. For the purposes of this Draft EIR, population and housing impacts are considered significant if the Proposed Project would:

- Induce substantial population growth in an area, either directly or indirectly;
- Displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere; or
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Project Specific Impacts and Mitigation Measures

Impact

4.9-1 Construction of the Proposed Project would induce population growth in the area; however, this growth would not be substantial and would not result in adverse environmental consequences.

Construction of the Proposed Project would generate a temporary increased demand for construction workers. Project construction is anticipated to occur over a period of 27 months, beginning in 2014. However, construction jobs are expected to be filled by people who already reside in the area, and the construction of the Proposed Project is not anticipated to contribute to significant population growth or increase housing demand. The impact of the construction of the Proposed Project on housing and population is less than significant. **Less than Significant**.

Impact

4.9-2 Development of the Proposed Project would induce population growth in the area; however, this growth would not be substantial and would not result in adverse environmental consequences.

The Proposed Project would result in the development of 19 single-family residences on the project site. Assuming an average of 2.9 people per household, as specified in the County General Plan 2007-2014 Housing Element (2012), full build-out of proposed residential development is estimated to generate approximately 55 new residents. Construction of the Proposed Project is expected to occur over a 27-month period, with an anticipated completion date of 2017. Assuming the population of the unincorporated County grows at the same rate in 2014 through 2017 as the population grew from 2010 through 2013 (an average rate of 1.03 percent per year [California Department of Finance, 2013a]), 2,661 new people would reside in the unincorporated County in 2017. Therefore, the number of people anticipated to occupy the Proposed Project is well within the anticipated growth for the unincorporated County. Moreover, the HCD, ABAG, and subregional allocation process identified a total need for 16,418 units to be constructed in the County during the 2014 to 2022 planning period, with 913 being allocated to the unincorporated County area (ABAG, 2013). The Proposed Project is therefore consistent with the goals of the HCD, ABAG, and subregional housing allocation process as it would add 19 housing units and serves to meet the needs of an increased population and the needs identified in the County General Plan 2007-2014 Housing Element (2012).

Population growth is considered to have significant adverse environmental impacts only if it results in adverse physical environmental consequences. These could occur through land conversions, commitment of resources, exceeding the capacity of utilities and other infrastructure,

and other mechanisms. Developers are required to fund all necessary infrastructure and provide access to non-renewable resources including water, electricity, and natural gas, without adversely impacting existing residents, and the impact of the Proposed Project to each of these topics is addressed in the specific sections of **Section 4.0**. The Proposed Project would be consistent with applicable County General Plan policies, including designated land use and zoning ordinances, and would serve to fulfill housing needs identified in the County General Plan. A full discussion of the potential for indirect and growth inducing impacts is provided in **Section 5.1**. The Proposed Project would not result in direct adverse effects from population growth, and the impact is considered less than significant. **Less than Significant**.

Impact

4.9-3 Development of the Proposed Project would not displace substantial numbers of existing housing or people and therefore would not necessitate the construction of replacement housing elsewhere.

The project site is primarily undeveloped; aside from an access road, no houses or other structures exist on the site (the water tank/cell transmitter parcel is not part of the project site). The Proposed Project would not require the removal of any houses nor would the Proposed Project displace any people. The impact is therefore less than significant. **Less than Significant**.

Cumulative Impacts

4.9-4 The Proposed Project could contribute to adverse cumulative impacts associated with population and housing.

The Proposed Project and cumulative development within the surrounding unincorporated County areas and the City of San Mateo would induce substantial population growth in an area through the development of new homes and businesses. However, population growth alone is not considered a significant cumulative effect. As discussed above, the Proposed Project will be consistent with the County General Plan housing policies and thus would not contribute to the potential for adverse cumulative population and housing effects. The growth induced by cumulative development would also be guided by the policies set forth in the existing County General Plan Housing Element, the City of San Mateo General Plan, and the Regional Housing Needs Allocation as administered by HCD, ABAG, and the San Mateo subregion and is therefore projected to occur in an orderly manner such that it would not contribute to the potential for adverse cumulative population and housing effects. Land conversions, utility upgrades, and other cumulative physical impacts associated with population growth are considered in applicable issue areas. Thus, the Proposed Project and cumulative development would have a less than significant cumulative impact. **Less than Significant.**

4.10 PUBLIC SERVICES, UTILITIES, AND RECREATION

4.10.1 INTRODUCTION

This section addresses the potential for the Proposed Project to impact public services, utilities, and recreational facilities. Following an overview of the existing public services, utilities, and recreation in **Subsection 4.10.2** and the relevant regulatory setting in **Subsection 4.10.3**, project-related impacts and recommended mitigation measures are presented in **Subsection 4.10.4**.

4.10.2 ENVIRONMENTAL SETTING

Water Supply

The California Water Service Company (Cal Water) Bayshore District (BSD) (also known as Mid-Peninsula District) provides potable water supply to the project site and surrounding areas (Low, 2013). Cal Water is an investor-owned public utility supplying water service to 1.7 million Californians through over 435,000 connections in 24 separate water systems. Since 1931, Cal Water has supplied water to the BSD, which includes approximately 17 square miles consisting of the Cites of San Carlos and San Mateo and adjacent unincorporated portions of San Mateo County, including the Highlands and Palomar Park communities. The BSD served 35,494 connections supporting a population of 126,850 in 2010 (Cal Water, 2011).

Water furnished to customers in the BSD is entirely purchased water. Cal Water has an annual purchased water supply from the City and County of San Francisco's Regional Water System, operated by the San Francisco Public Utilities Commission (SFPUC), of 35.68 million gallons per day (mgd) (39,967 acre feet per year [AFY]) in normal hydrologic years. The purchased water is shared among the BSD, Bear Gulch Water District, and South San Francisco Water District, and the amount available to the BSD in any given year varies and depends on the availability of local supplies in the other two districts (Cal Water, 2011).

Purchased Water Source

Water from the Hetch Hetchy Reservoir in the Sierra Nevada Mountain Range is the primary source of the City and County of San Francisco's Regional Water System. Other sources include treated water produced by the SFPUC from its local watersheds and facilities in Alameda and San Mateo Counties.

The amount of imported water available to the SFPUC's retail and wholesale customers, which includes Cal Water, is constrained by hydrology, physical facilities, and the institutional parameters that allocate the water supply of the Tuolumne River. Due to these constraints, the SFPUC is very dependent on reservoir storage to firm-up its water supplies. The SFPUC serves its retail and wholesale water demands with an integrated operation of local Bay Area water production and imported water from Hetch Hetchy Reservoir. In practice, the local watershed facilities are operated to capture local runoff. The local reservoirs include the Crystal Springs Reservoirs, San Andreas Reservoir, Pilarcitos Reservoir, Calaveras Reservoir, and San Antonio Reservoir (Cal Water, 2011).

In 1984, Cal Water, along with 29 other Bay Area water suppliers, signed a Settlement Agreement and Master Water Sales Contract (Master Contract) with San Francisco, supplemented by an individual Water

Supply Contract. These contracts provide for a 184 mgd (expressed on an annual average basis) Supply Assurance Allocation to the SFPUC's wholesale customers collectively. This allocation was reached through negotiation in the early 1990s between the SFPUC and Bay Area Water Users Association, the predecessor organization to the Bay Area Water Supply and Conservation Agency (BAWSCA) that was created in 2003 to represent the interests of the Bay Area water suppliers. In July 2009, the SFPUC and BAWSCA adopted a Water Supply Agreement (WSA) that extended the Master Contract through 2018, keeping the Supply Assurance Allocation at 184 mgd, but changing its name to the Individual Supply Guarantee (ISG) (Cal Water, 2011).

Cal Water's ISG is 35.39 mgd (or approximately 39,642 AFY) for the BSD, Bear Gulch Water District, and South San Francisco Water District. Additionally, the acquisition of the Los Trancos County Water District in July 2005 allowed the transfer of its 0.11 mgd ISG to Cal Water. In 2009, Cal Water acquired the Skyline County Water District, which also transferred its 0.181 mgd ISG to Cal Water. This increased Cal Water's total ISG for the three districts to 35.68 mgd (39,967 AFY) (Cal Water, 2011).

Other Water Sources

Cal Water does not have the ability to divert local surface water to supply the BSD. Surface water from local sources is ultimately the source for the BSD, but this supply is under jurisdiction of the SFPUC (Cal Water, 2011).

Cal Water does not have any groundwater wells to supply water for BSD. Development of groundwater supply wells is not economically feasible as the well output would be extremely low (Cal Water, 2011).

Presently, recycled water is not utilized by Cal Water as a direct supply source (Cal Water, 2011). Cal Water does not obtain water from any desalination projects nor through transfers or exchanges (Cal Water, 2011). All of these options are being considered and evaluated as a long term options for increasing the available water supply (Cal Water, 2011).

Water Demand

Table 4.10-1 summarizes the actual and projected demand for water in the BSD through 2040.

TABLE 4.10-1

BSD CURRENT AND PROJECTED WATER DEMAND

	2005 Actual	2010 Actual	2015	2020	2025	2030	2035	2040
Water Use	18,253	15,956	18,911	18,613	19,143	19,703	20,293	20,915

Note: All values are acre-feet per year.
Source: Cal Water, 2011.

Water Supply Summary

As discussed above, the amount of water available to the BSD in any given year varies and depends on the availability of local supplies in the Bear Gulch Water District and South San Francisco Water District. Hence water supply and demand are evaluated together for the three districts. **Table 4.10-2** summarizes

the estimated water availability to be shared among the three districts under normal, single dry, and multiple dry years. The three separate hydrologic conditions considered are described as follows:

- **Normal Year:** This is a year when average rainfall has been received. During a normal year, the water availability from some sources may be less than the allocated amount.
- **Singe Dry Year:** This is a solitary dry or critical dry year and may be the first year of a multiple year drought.
- **Multiple Dry Years:** This is a series of three consecutive dry and/or critical dry years.

TABLE 4.10-2

WATER SUPPLY AVAILIBILITY[1]

Year Type	Year Number	Item	2015	2020	2025	2030	2035	2040
Normal Year	Year 1	Supply	42,762	42,762	42,762	42,762	42,762	42,762
		Demand	42,047	39,900	41,046	42,255	43,530	44,875
		Difference	715	2,862	1,716	507	(768)	(2,113)
Single Dry Year	Year 1	Supply	35,059	35,059	35,059	35,059	35,059	35,059
		Demand	41,746	39,540	40,675	41,871	43,134	44,465
		Difference	(6,687)	(4,481)	(5,616)	(6,813)	(8,075)	(9,406)
Multiple Dry Year	Year 1	Supply	35,316	35,316	35,316	35,316	35,316	NA
		Demand	37,212	35,362	36,379	37,451	38,582	NA
		Difference	(1,896)	(46)	(1,063)	(2,135)	(3,266)	NA
	Year 2	Supply	28,522	28,522	28,522	28,522	28,522	NA
		Demand	36,439	35,077	36,091	37,160	38,287	NA
		Difference	(7,917)	(6,555)	(7,569)	(8,638)	(9,765)	NA
	Year 3	Supply	28,522	28,522	28,522	28,522	28,522	NA
		Demand	35,404	34,548	35,552	36,610	37,726	NA
		Difference	(6,882)	(6,026)	(7,030)	(8,088)	(9,204)	NA

Notes: [1] Water supply shared among BSD, Bear Gulch Water District, and South San Francisco Water District.
All values are acre-feet annually.
NA – Not available
Source: Cal Water, 2011.

The projected demand and surplus/shortage ("difference") per each year under each condition are also provided in **Table 4.10-2**.

The SFPUC can meet the demands of its retail and wholesale customers in years of average and above average precipitation. However, this is not the case in drought years as the WSA allows the SFPUC to reduce water deliveries during droughts, emergencies, and for scheduled maintenance activities. The SFPUC and all wholesale customers adopted an Interim Water Shortage Allocation Plan in 2000 to address the allocation of water between San Francisco, wholesale customers, and individual wholesale customers during water shortages of up to 20 percent of system-wide use (Cal Water, 2011).

In addition, Cal Water updated its Water Shortage Contingency Plan for the BSD, Bear Gulch Water District, and South San Francisco Water District in its 2010 Urban Water Management Plan. Cal Water is

considering and has adopted several demand management measures. As noted above, other supply options are being evaluated as potential supplemental sources.

Water Supply Facilities

This City and County of San Francisco's Regional Water System is delivered from Hetch Hetchy Reservoir through a network of pipelines, tunnels, and treatment plants (**Figure 4.10-1**). Purchased water is treated by SFPUC prior to delivery to Cal Water. The BSD takes delivery from SFPUC from eleven active and three standby metered turnouts from SFPUC transmission lines. The City of Belmont separates the Cities of San Carlos and San Mateo and divides the BSD into two systems, which are considered separate divisions of BSD (Cal Water, 2011). In the BSD's San Mateo Division, 14.656 million gallons of potable water is contained in 19 tanks, and 5.748 million gallons of potable water are stored in 21 tanks in the San Carlos Division.

A potable water tank owned by Cal Water, enclosed by fencing and surrounded by Monterey pine trees, is located within the project site (APN 041-111-020) and is served by a small access road that connects to Bel Aire Road. This parcel is not a part of the Proposed Project. This water tank is one of 40 tanks serving the BSD. Two water mains transverse through the project site connecting the water tank to water mains located in Parrot Drive and Bel Aire Drive. Cal Water holds a twenty-foot wide easement along the alignment of the water mains.

Fire Flow

Mains, tanks, and pump stations are designed to deliver fire flows for normal residential, commercial, and industrial fires. Fire flows are supplied by the same water mains as the domestic water system, including the lines located in local streets and major roadways. In general, fire flow requirements are closely related to land use as the quantity of water necessary for fire protection varies with the type of development, life hazard, type and level of occupancy, and degree of fire hazard (based on such factors as building age or type of construction). Water mains and lines that are designed and sized according to the required standards take into account fire flow and pressure requirements. Most storage tanks are designed to provide fire flows for a minimum of two hours. Facilities are not designed to handle wildfires or extended power outages such as could be possible after a major forest fire, earthquake, or other disaster (Cal Water, 2007).

Wastewater

The project site is served by the Crystal Springs County Sanitation District (CSCSD), which is located on the San Francisco Peninsula in the area roughly bounded by the Arthur Younger Freeway (State Route 92 [SR-92]) in the south, the Junipero Serra Freeway (Interstate 280 [I-280]) in the west, Crystal Springs Road in the north and Parrot Drive in the east. The CSCSD is administered by the San Mateo County Department of Public Works and serves approximately 5,600 people (**Appendix G**). The CSCSD's sewer collection system is characterized as a gravity system that consists of approximately 19 miles of 6-inch to 15-inch-diameter vitrified clay pipe with some sections of plastic pipe (Brown and Caldwell, 1999; **Appendix G**). The main trunk sewer in the CSCSD is a 10-inch to 15-inch-diameter sewer located in the valley along Polhemus Road (**Appendix G**).

SOURCE: California Water Service Company, 6/2011; AES, 2013

Figure 4.10-1
Regional Water System

The project site, which is currently undeveloped and does not generate sanitary sewer effluent, is not connected to a wastewater collection system. In general, wastewater generated from uses in the surrounding area enters existing sewer infrastructure owned and maintained by CSCSD and flows to the Crystal Springs/El Cerrito Trunk Sewer, which is owned and maintained by the Town of Hillsborough.

This wastewater then flows to sewer infrastructure owned and maintained by the City of San Mateo for treatment at the wastewater treatment plant owned and operated by the City of San Mateo. There are no sewer deficiencies in the immediate area of the project site; however, downstream sewer pipelines within the Town of Hillsborough and the City of San Mateo have capacity issues during wet weather events (Porter, 2013).

The City of San Mateo Wastewater Treatment Plant (WWTP), located at 2050 Detroit Drive, provides secondary treatment during the winter and advanced secondary treatment by adding filtration during the summer to the City of San Mateo, Foster City, Hillsborough, Belmont, and portions of unincorporated San Mateo County. The WWTP includes primary clarifiers, aeration basins, secondary clarifiers, pressure filters, chlorination, dechlorination, and an outfall which discharges an average of 12.4 mgd to a deep water channel in lower San Francisco Bay (SFBWQCD, 2009; Zammit, 2013).

Given that the WWTP accepts wastewater from other districts, a Sanitary Sewer Agreement was developed between CSCSD and City of San Mateo that requires CSCSD be responsible for paying a proportionate share for downstream, out-of-district, capital improvement projects. The City of San Mateo completed an improvement project at the WWTP for which CSCSD was responsible for $1.57 million. In a letter addressed to the County from the City of San Mateo Department of Public Works regarding two subdivisions in CSCSD, CSCSD is noted in 2009 as being in arrears in payments to the City of San Mateo for operating and capital costs due under the Sanitary Sewer Agreement. The City of San Mateo Department of Public Works has a resolution in place to not approve additional flows from new developments in CSCSD service area until the owed payments are made (**Appendix G**). The City of San Mateo has not indicated any recent changes or developments with regards to this resolution (Zammit, 2013).

The WWTP operates under a discharge permit (National Pollution Discharge Elimination System [NPDES] Permit Number CA0037541) issued by the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB), by authority of the United States (U.S.) Environmental Protection Agency (USEPA). This discharge permit specifies operating conditions, including strict discharge limitations on the final effluent. Operating personnel are required to be certified by the State Water Resources Control Board (SWRCB), at a level corresponding to the level of complexity and the design flow of the WWTP. The WWTP has been modified and expanded over the years to accommodate the increasing flows and to improve treatment efficiency. In the spring of 1996, the City of San Mateo completed the last expansion that increased the hydraulic capacity of the plant to 15.7 mgd during the dry months (April 11 through October 31) and 40 mgd total primary capacity (SFBRWQCB, 2009; Von Aspern, 2008; **Appendix G**). However, the projected peak wet weather flow under five-year design storm conditions in year 2020 is 88 mgd. The City of San Mateo is in process of preparing an updated master plan for capacity assurance improvements at the WWTP (Zammit, 2013).

On March 11, 2009, Cease and Desist Order No. R2-2009-0020 was issued by the SFBRWQCB and requires the City of San Mateo, Town of Hillsborough, and the CSCSD in the County to cease and desist discharging waste from their respective sanitary sewer systems in violation of requirements SFBRWQCB Order Nos. 01-071 and R2-2007-0075 (NPDES Permit No. CA 0037541), Water Quality Control Plan for the San Francisco Bay Basin, and State Water Quality Control Board (SWQCB) Order No. 2006-0003 DWQ. Factors contributing to these violations include the collection system and the WWTP receiving high flows during rainy season, WWTP problems, and the Crystal Springs/El Cerrito Trunk being significantly surcharged during wet weather.

In accordance with California Water Code Section 13301, the City of San Mateo, Town of Hillsborough, and the CSCSD has ceased and desisted from discharging and threatening to discharge wastes in violation of SFBRWQCB and SWQCB orders by complying with provisions related to immediate elimination of sanitary sewer overflows; spill response, recordkeeping, notification, and reporting; collection system maintenance and management; collection system condition and capacity assessments; capacity assurance; infrastructure renewal; and options for coordination. The City of San Mateo, Town of Hillsborough, and the CSCSD ordered wet weather flow monitoring and modeling studies be conducted to evaluate sewer system flows and capacity requirements in each respective system and the combined flows in jointly used facilities. The results of these studies are presented in the *City of San Mateo, Town of Hillsborough, and Crystal Springs County Sanitation District Sewer System Flow Monitoring and Hydraulic Modeling – Final Report* and have been used to develop and test proposed solutions to identify capacity deficiencies thereby providing information for the design of wet weather capacity improvements (RMC, 2010). The City of San Mateo and Town of Hillsborough are in the design phase of capital improvement projects that will address aspects of the CDO (Porter, 2013). The CSCSD ~~is in the process of constructing~~completed construction of the eight remaining capital improvement projects ~~that will address the aspects of the CDO; completion is estimated 2014~~in February of 2015 (Porter, 2014~~5~~). These projects include reducing wet weather sewer overflows by increasing capacity of the shared trunk lines, pursuant to the CDO. In addition, the capacity assurance improvement projects that are to be identified in the City of San Mateo's updated master plan will be integrated in to the ongoing capital improvement program. Presently, connections of new development projects to the sewer system and WWTP are permitted if the project applicant commits to construction of improvements to reduce Inflow and Infiltration (I&I) to the sanitary sewer system such that the new project would result in a zero net increase in flow during wet weather events and completes such construction prior to the start of the construction of the project (Zammit, 2013).

Solid Waste Disposal

Recology San Mateo County (RSMC) is the current collection service provider for garbage and recyclables for the project site. The County has a franchise agreement with RSMC to collect solid waste and recycling from the County franchised area, which includes the San Mateo Highlands and Baywood Park area (Porter, 2013). Waste is collected by RSMC, transported to the Shoreway Environmental Center (also known as the South Bayside Integrated Facility Transfer Station), and disposed of at the Ox Mountain Sanitary Landfill (also known as the Corinda Los Trancos Landfill).

Shoreway Environmental Center

Solid waste from the area in the vicinity of the project site is transported to the Shoreway Environmental Center (Permit No. 41-AA-0016) where sorting and recycling occurs. The facility, located at 225 Shoreway Road in the City of San Carlos and operated by the South Bayside Waste Management Authority, is a large volume transfer and processing facility and is permitted to accept solid waste that includes construction / demolition, industrial, mixed municipal, and tires. The facility is permitted for a maximum throughput of 3,000 tons per day and currently processes approximately 1,500 tons per day (CalRecycle, 2013; Feldman, 2013).

AB 939 and SB 1322, which enacted the Integrated Waste Management Act of 1989, mandated a goal for California Counties of 50 percent diversion of solid waste from landfills by 2000. The Shoreway Environmental Center is committed to complying with these regulations and completed its Transfer Station Improvements Project in June 2011 that is a part of its larger Shoreway Master Plan approved in April 2007. Improvements focused on renovations and environmental enhancements at the Shoreway Environmental Center to further reduce diversion of solid waste in the County. Key features include:

- A new state-of-the-art single stream Materials Recovery Facility;
- An expanded Transfer Station;
- An expanded Public Recycling Center;
- “Green Building” features including white roof (cool roof), natural lighting, and photovoltaic panels;
- Improvements to traffic and customer convenience and safety; and
- A new Environmental Education Center (South Bayside Waste Management Authority, n.d.).

The RSMC currently provides one 64-gallon single stream recycling cart and one 96-gallon organics cart to each residence for the purpose of reducing solid waste (resident also receive one 32-gallon solid waste cart) (Porter, 2013). The Shoreway Environmental Center processes recyclables on site. Presently, the Shoreway Environmental Center recycles approximately half of its throughput; approximately 750 tons per day are recycled and approximately 750 tons per day are transferred to either compost facilities or solid waste disposal facilities (Feldman, 2013). The South Bayside Waste Management Authority reported a diversion rate for single family dwellings the County franchised area of 68.3 percent for 2012 (Porter, 2013).

Ox Mountain Sanitary Landfill

Solid waste designated for disposal is transferred from the Shoreway Environmental Center to the Ox Mountain Sanitary Landfill (Permit No.: 41-AA-0002), which is owned and operated by Republic Services. The Ox Mountain Sanitary Landfill is located two miles northeast of Half Moon Bay (12310 SR-92) and is the only active landfill in the County (SMC Health System, 2012b). The disposal facility is a Class III Municipal Solid Waste Landfill and is permitted to accept solid waste that includes construction/ demolition, mixed municipal, sludge (biosolids), asbestos, and tires.

The Ox Mountain Sanitary Landfill is permitted to a maximum capacity of 49 million cubic yards (mcy). Presently, the facility has a municipal solid waste (MSW) stream per day of approximately 1,600 cubic yards or 484 tons, which is approximately 44 percent of its maximum permitted daily throughput of 3,598 cubic yards or 1,090 tons of MSW (assuming 1 ton is equivalent to 3.3 cubic yards of MSW) (McGourty,

2013). Estimated closure date for the Ox Mountain facility is approximately 2039 (McGourty, 2013; Porter, 2013).

Residential Solid Waste Generation

Solid waste is generated by industrial, commercial, institutional, residential, and other types of land uses. The current waste disposal rate for the County unincorporated area that includes the project site is 3.0 pounds or less per person per day (Porter, 2013). The current recycling rate for County unincorporated area that includes the project site is 63.9 percent, which is equivalent to 1.92 pounds per person per day of recycling material.

Fire Protection and Emergency Medical Services

Fire protection and emergency medical services are provided in the County via a public and private partnership among the County Health Services Department's Emergency Medical System (EMS) office; the private emergency response company, American Medical Response (AMR); and the fire service agencies in the County. The County EMS office provides operational and medical oversight of the system. All emergency calls are received at a single dispatch center, San Mateo County's Public Safety Communications in Redwood City. The system dispatches the closest fire engine and/or ambulance to every medical incident regardless of local fire agency boundaries. For medical emergencies, fire engines with paramedics on board have a typical response time of 7 minutes, and emergency ambulances typically respond within 13 minutes (SMC Health System, 2012a). Emergency personnel and equipment is determined by the type and severity of an emergency.

The San Mateo City Fire Department participates in a Joint Powers Agreement providing automatic aid response in the County (City of San Mateo Fire Department, 2013; Keefe 2013). In addition, the San Mateo County Fire Department (County Fire), which contracts with the California Department of Forestry and Fire Protection (CAL FIRE) through CAL FIRE's Cooperative Fire Protection program, provides fire protection and emergency medical services to the County. The County Fire/CAL FIRE is an all-risk department and responds to wildland fires, structure fires, medical emergencies, motor vehicle accidents, hazardous material spills, swift water rescues, cliff rescues, floods, civil disturbances, and earthquakes. Five fire engines, each staffed with three firefighters one of whom is a paramedic, are operated by County Fire/ CAL FIRE out of four County-owned fire stations. During declared fire season, one wildland engine is staffed at three of the five stations, and one bulldozer is staffed at the headquarters station. The Fire Protection/ Planning Division of County Fire provides comprehensive fire and life safety review for new construction, remodels and land development (County Fire and CAL FIRE, n.d.).

Response Times and Staffing

Depending on what type of emergency is called in, the project site would primarily be served by San Mateo City Fire Department's Station 27, which is located at 1801 De Anza Boulevard in the City of San Mateo. Station 27 equipment includes a fire engine, a brush engine (used for wildland areas), and a State-owned fire engine; staff at Station 27 includes a captain, firefighter, and firefighter/medic. The San Mateo City Fire Department does not have a preferred ratio of firefighters per population but instead bases its stations and equipment locations on desired performance standards, which is primarily that 90 percent of response times shall be less than 7 minutes. Station 27 is located approximately 1.25 miles from the project site, and the average response time for the project area is just under 5 minutes, with 90

percent of responses under 6.5 minutes. This distance and response time meet the desired performance standards (Keefe, 2013).

If the emergency escalated or warranted further personnel and equipment, County Fire/ CAL FIRE Station 17, which is located at 320 Paul Scannell Drive in the City of San Mateo, would also respond (Keefe, 2013). Station 17 houses two fire engines (E 17 and E 217), and an additional state wildland engine (E1771) and dozer are brought in during fire season (Colbert, 2013). Each engine is staffed with a minimum of three firefighters, one of whom has paramedic certification (Colbert, 2013; County Fire and CAL FIRE, n.d.). The equipment and staffing at Station 17 meet or exceed the requirements set forth by the Joint Powers Agreement (Colbert, 2013). The average response time for Station 17 to the project area is approximately five minutes (Colbert, 2013). County Fire/CAL FIRE does keep track of its service ratio and does not have a preferred ratio of firefighters per population (Colbert, 2013).

Station 15, located at 2701 Cipriani Boulevard in the City of Belmont, and Station 25, located at 545 Barneson Avenue in the City of San Mateo, would be the third and forth responding stations to the project site, respectively (Keefe, 2013).

Fire Suppression Water Flow

Cal Water's BSD provides fire flow for the project area (refer to Water Supply section above for a discussion of infrastructure in the vicinity of the project site). According to Cal Water, the existing water system would not have adequate pressure to serve fire protection standards and would require installation of booster pumps to meet fire protection needs (Low, 2013).

Wildland Fire

As discussed in **Section 4.7**, the project site is located within a Very High Fire Hazard Severity Zone, as designated by CAL FIRE, and a Community at Risk Zone, as designated by the County, both of which indicates the area contains very substantial fire hazard risks (**Figures 4.7-1** and **4.7-2**). The normal fire season in California is typically from July until the first precipitation in the fall, typically late October.

Emergency Access

Emergency vehicle access to the project site is provided from major roadways near and adjacent to the site. Major roadways near the project site include Polhemus Road and Bunker Hill Drive. Bel Aire Road and Ascension Drive are located adjacent to the project site. The emergency medical facility nearest the project site is San Mateo Medical Center, located approximately 3 miles from the project site at 222 West 39th Avenue in the City of San Mateo.

Law Enforcement

The San Mateo County Sheriff's Office (SMCSO) has direct jurisdiction over the unincorporated areas in the County, including the project site. The SMCSO is organized into seven divisions: Operations Division, Investigations Division, Corrections Division, Homeland Security Division, Multi-Jurisdictional Division, Administration, and Support Services Division. The Operations Division provides public safety and law enforcement services through its Patrol Bureau, which is responsible for keeping the unincorporated areas of the County safe through enforcement, prevention, education, and community policing efforts

(SMCSO, 2012). The Investigations Division of the SMCSO provides investigative and specialized services to unincorporated areas in the County, including the project site, and includes a Narcotics Task Force, Vehicle Theft Task Force, and Gang Task Force. The Corrections Division, Homeland Security Division, Multi-Jurisdictional Division work collectively with the other divisions, outside agencies and government, and the community to provide comprehensive and effective services while the Administration and Support Services Division provide overall management, policy-setting, and procedural guidance as well as fulfill support roles, such as court security and fiscal administration, for the SMCSO.

The SMCSO's Patrol Bureau of the Operations Division responds to law enforcement emergencies and alarms or any other reports of criminal activity 24 hours a day, 7 days a week. The SMCSO does not have a preferred deputy-to-population ration and instead bases deployment of personnel on variables such as crime rates and the structure of the identified community, including residential areas, commercial areas, schools, and traffic patterns.

The Sheriff's Office Millbrae Police Bureau, located at 581 Magnolia Avenue in the City of Millbrae, currently serves the project site. Additionally, the Highlands Recreation Center provides office space for preparing reports and completing investigations. Based on a contractual agreement, 1 dedicated Sheriff's deputy is assigned to the Highlands area, which includes the project site, from 6 A.M. to midnight, 7 days a week. From midnight through 6 A.M., service to the Highlands area is included with those services provided to other unincorporated areas in the vicinity. Deputies assigned to the Highlands area supported by an Investigations Bureau, one supervisor, one manager, and one administrative staff member and are provided patrol vehicles and other safety equipment. The target response time for emergency calls for service in this area is under four minutes. The existing staff levels and equipment are adequate to meet the current demand for law enforcement response in the Highlands area (Munks, 2013).

Table 4.10-3 details crime statistics for the County over the last five years. Larceny-theft crimes account for just over half of the crimes in the County during 2012, with burglary accounting for approximately 18 percent, and violent crimes and motor vehicle theft each accounting for approximately 10 percent (Office of the Attorney General, 2013). The crime rate in the vicinity of the project site is generally lower than in other unincorporated areas of the County. The project site falls within the SMCSO's Reporting District 40 Beat. There were nine Part I crimes reported and five arrests made in the Reporting District 40 Beat from April 1 through September 30, 2013 (Munks, 2013). Part I crimes include violent crimes, such as aggravated assault or robbery, and property crimes, such as burglary and larceny-theft.

TABLE 4.10-3

SAN MATEO COUNTY CRIME STATISTICS

Type of Crime	Number of Crimes				
	2008	2009	2010	2011	2012
Violent Crimes	2,167	2,072	1,795	1,576	1,764
Robbery	731	734	594	492	508
Aggravated Assault	1,276	1,194	1,053	933	1,140
Burglary	2,854	3,072	3,092	3,196	3,273
Motor Vehicle Theft	2,415	1,988	1,888	1,488	1,566

Type of Crime	Number of Crimes				
	2008	2009	2010	2011	2012
Larceny-Theft	11,698	10,712	10,204	9,331	9,594
Arson	118	125	96	88	84
Source: Office of the Attorney General, 2013.					

Public Schools

Public education services near the project site are provided by the San Mateo-Foster City School District (SMFCSD) and the San Mateo Union High School District (SMUHSD). The SMFCSD provides a total of 16 elementary schools serving transitional kindergarten through 5th grade, 4 middle schools serving 6th through 8th grades, and 1 school serving kindergarten through 8th grade (Barton, 2013). The SMUHSD provides high school services to the project site and surrounding areas, with six comprehensive high schools, one adult school, and one continuation high school (SMUHSD, 2013a). These schools serve the cities of Burlingame, Foster City, Hillsborough, Millbrae, San Bruno, and San Mateo.

Highlands Elementary School, located at 2320 Newport in the City of San Mateo, and Borel Middle School, located at 425 Barneson in the City of San Mateo, are the SMFCSD schools that serve the project site and surrounding area (Barton, 2013). Highlands Elementary, with a current enrollment of 606 students, is slightly below its capacity of approximately 650 students. Borel Middle School is also slightly below its approximate capacity of 1,000 students as it has a current enrollment of 947 students. If capacity is exceeded at a school within the SMFCSD, students are administratively placed at the nearest school with capacity (Barton, 2013). Available space is determined by the program capacity, staffing entitlement, program considerations, and facilities. Presently, there are no plans to expand capacity at the Highlands Elementary School or Borel Middle School.

Aragon High School, located at 900 Alameda de las Pulgas in the City of San Mateo, serves the project site and surrounding area. Aragon High School is currently at capacity with an enrollment of 1,444 students. School enrollment data; facility capacity and design; school feeder patterns; federal, State, or court mandates; community input; student safety; transportation capacity; community and neighborhood identity; geographic features; and educational programs are all factors considered by the SMUHSD when assessing capacity. Aragon High School has had recent upgrades and improvements, but there are no plans to expand school capacity. The SMUHSD has recently noted significant population growth in the southern part of its district and plans to accommodate the anticipated increased student population by expanding three high schools serving that area (Beeken, 2013). Expanding these high schools will also alleviate capacity concerns at other high schools in the SMUHSD.

Table 4.10-4 shows enrollment and class size trends for these schools over the school years between 2009 and 2012 as reported to the California Department of Education (2013). These numbers differ slightly from numbers reported by school administrators during personal communication. The SMFCSD School Board's 2013 Enrollment Management Plan indicated that all its public schools are projected to be at or above capacity by the fall of 2017.

TABLE 4.10-4
PUBLIC SCHOOL STATISTICS

	Highlands Elementary			Borel Middle School			Aragon High School		
	2009-10	2010-11	2011-12	2009-10	2010-11	2011-12	2009-10	2010-11	2011-12
Enrollment	515	549	577	908	902	929	1,632	1,587	1,499
Pupil to Teacher Ratio	17.8	20.3	NA	19.7	19.2	20.6	20.7	21.4	19.7

Source: California Department of Education, 2013.

School Impact Fees

School districts have a variety of funding mechanisms available to them to pay for the financing of school construction, including local general obligation bonds, local Mello-Roos bonds, developer fees, and State funding. Developer fees are charged by school districts on new residential and commercial construction to offset the costs of the new school construction for which new development may create a demand. Prior to passage of Proposition 1A, school districts were limited in the amount of school facility developer fees they could charge. Also, as a result of a series of court decisions in the years preceding the passage of Proposition 1A, known as the *Mira, Hart, and Murietta* decisions, cities and counties were able to impose additional school facility fees on development as a condition of obtaining land use approval.

Pursuant to California Education Code §17620(a)(1), the governing board at any school district is authorized to levy a fee, charge, dedication, or other requirement against any construction within the boundaries of the district, for the purpose of funding the construction or reconstruction of school facilities. As of July 1, 2012, the SMUHSD will collect School Impact (also known as Developer) Fees for the SMFCSD. The fees are $1.92 per square foot for residential construction, of which SMUHSD receives $1.28 per square foot and SMFCSD receives $0.64 per square foot (Barton, 2013; Beeken, 2013). Provided in §65996 of the California Government Code, the payment of such fees is deemed to fully mitigate the impacts of new development on schools services.

Library

Although the project site is located beyond the city limits of the City of San Mateo, the libraries located closest to and therefore serving the project site are branches of the City of San Mateo Public Library (SMPL). The Main Library, located at 55 West 3rd Avenue in the City of San Mateo, and the Hillsdale Library, located at 205 W. Hillsdale Boulevard in the City of San Mateo, serve the project site and surrounding area. The Main Library, which was constructed to address needs of residents identified in a Needs Assessment that included a 50 year projection into the future, is open seven days per week with 40.8 full time equivalent (FTE) staff (Busa, 2013). The Hillsdale Library is open five days per week with 3.9 FTE staff (City of San Mateo Library, 2013). Free Internet access is available at both libraries, and both facilities adequately meet the existing need of City residents (Busa, 2013).

In addition, the San Mateo County Library (SMCL) is a Joint Powers Authority comprised of the cities of Atherton, Belmont, Brisbane, East Palo Alto, Foster City, Half Moon Bay, Millbrae, Pacifica, Portola Valley, San Carlos, and Woodside, as well as unincorporated areas of the County. The SMCL is comprised of 12 community libraries located in the 11 cities. The SMCL's Belmont Library, located at 1110 Alameda de las Pulgas in the City of Belmont, serves the project site and surrounding area. The Belmont Library is open seven days per week and free Internet access is available. Other services

include an eclectic, up-to-date collection of books, magazines, books on CD, music CDs, downloadable books and music, and DVDs; multimedia foreign language collections; daily and weekly discussion groups , programs, and educational opportunities; homework center; meeting center and study rooms; and tax resources (SMCL, n.d).

Parks and Recreation

Federal park and recreational opportunities include the San Francisco Bay National Wildlife Refuge (Refuge), which is authorized to contain 23,000 acres and is operated by the U.S. Fish and Wildlife Service (USFWS) of the U.S. Department of the Interior (DOI). The Refuge is located in the South Bay and contains lands located in San Mateo, Santa Clara, and Alameda Counties. The portion within the County contains approximately 1,863 acres. The Refuge, comprised of marshes, mudflats and salt ponds, provides protective habitats for wildlife and offers environmental, educational and wildlife interpretation opportunities for visitors (SMC, 1986a).

The Golden Gate National Recreation Area (GGNRA) was established by the federal government to preserve for public use open space lands of significant natural, historic, scenic, and recreational value. Approximately 23,000 acres of land in the County have been authorized for inclusion in this federal government facility operated by the National Park Service (NPS) of the DOI. Included with the new boundaries of the GGNRA are public parks and beaches located in Pacifica, Daly City, and Sweeney Ridge in unincorporated parts of the County. Also included in the GGNRA are the watershed properties owned by the City and County of San Francisco. These properties are regulated by scenic and recreation easements, granted to the City and County of San Francisco, the State of California, the federal government, and the County. Most of the watershed lands, with the exception of approximately 4,000 acres, are under the terms and conditions of a scenic easement. The remaining 4,000 acres are under the terms and conditions of a scenic and recreation easement. The administration of these easements remains with the DOI; however, the function has now been transferred from the Heritage Recreation and Conservation Service to the National Park Service (SMC, 1986a).

Several California Department of Parks and Recreation (CDPR) parks are located in the County (**Table 4.10-5**). The CDPR owns and operates 8,353 acres of recreational facilities in the County in the form of parks, beaches, and marine reserves. These facilities are located along the coast and in the southern portion of the County.

The San Mateo County Department of Parks provides recreational opportunities while protecting and enhancing the natural resources of the County. The County Department of Parks operates 17 separate parks, 3 regional trails, and numerous other County and local trails encompassing 15,680 acres (**Table 4.10-4)**. Recreational facilities are located throughout the County and represent a wide variety of natural settings, such as coastside areas, bayside areas, coastal mountain and woodland areas, and urban areas. Examples of recreational activities available include camping, hiking, running, picnicking, horseback riding, boating, and windsurfing.

TABLE 4.10-5

RECREATIONAL FACILITIES

Recreational Site	Responsible Agency	Features/Types of Use
San Francisco Bay National Wildlife Refuge (Refuge)	USFWS	Environmental Education, Fishing, Hunting, Photography, Wildlife Observation
Golden Gate National Recreation Area (GGNRA)	NPS	Camping, Historical Interest, Environmental Education Photography, Wildlife Observation
Año Nuevo State Park/Natural Reserve	CDPR	Day Use, Environmental Education
Bean Hollow State Beach	CDPR	Fishing, Picnic, Beachcombing
Burleigh H. Murray Ranch	CDPR	Hiking, Day use
Butano State Park	CDPR	Camping, Hiking
Gray Whale Cove State Beach	CDPR	Day use
Half Moon Bay State Beach	CDPR	Day use, Hiking, Picnics
Montara State Beach	CDPR	Day use, surfing
Pacifica State Beach	CDPR	Day use, surfing
Pescadero State Beach	CDPR	Day use, Bird watching
Pigeon Point Light Station	CDPR	Historical Interest
Point Montara Light Station	CDPR	Historical Interest
Pomponio State Beach	CDPR	Day use
Portola Redwoods State Park	CDPR	Camping, hiking
San Gregorio State Beach	CDPR	Day use
San Bruno Mountain State Park	CDPR	Day use, hiking
Thornton State Beach	CDPR	Day use
Coyote Point	County	Picnics, Trails
Coyote Point Marina	County	Water sports
Crystal Springs	County	Trails
Edgewood Park	County	Picnics, Trails
Fitzgerald Marine Reserve	County	Day use
Flood Park	County	Picnics
Heritage Grove	County	Picnics, Trails
Huddart Park	County	Camping, Picnics, Trails
Junipero Serra	County	Camping Picnics, Trails
Memorial Park	County	Camping Picnics, Trails
Mirada Surf	County	Picnics, Trails
Pescadero Creek	County	Trails
Pillar Point Bluff	County	Day use
Quarry Park	County	Picnics, Trails
Sam McDonald	County	Camping, Trails
San Bruno Mountain	County	Camping, Picnics, Trails
San Pedro Valley Park	County	Camping, Picnics, Trails
Sanchez Adobe	County	Historical Interest
Woodside Store	County	Historical Interest
Wunderlich Park	County	Trails

The Highlands Recreation District (HRD) serves residents of the Highlands Neighborhood, whom contribute property taxes to the HDR. The project site is located east of the HRD boundaries, and the HRD is therefore not obligated to serve the Proposed Project. However, HRD facilities and programs are open to residents outside of the Highlands Neighborhood, subject to availability and for an additional fee. The HRD currently operates a 3.45 acre facility on Lexington Avenue, which is located less than a mile west of the project site, as well as oversees programs at Highlands Elementary School and Crystal Springs United Methodist Church on Bunker Hill Drive. The HRD also manages 40 acres of open space in the Highlands Neighborhood located west of the project site, but the area is not open to the public. The HRD may open the 40 acres of open space to the public and may be grated additional acreage for use as recreational facilities in the future but has no plans to pursue such endeavors or expand capacity at existing facilities at this time (Shearer, 2013).

Electrical, Natural Gas, and Telephone Service

Pacific Gas & Electric (PG&E) provides electrical and natural gas service to the County and will provide these services to the project site. There are currently no existing electrical lines within the project site; however, existing overhead electrical utility lines run adjacent to the project site along Bel Aire Road and Ascension Drive. Comcast Corporation provides telecommunication services in the vicinity of the project site.

4.10.3 Regulatory Context

Federal

National Pollutant Discharge Elimination System Permit (NPDES)

The NPDES permit system was established in the Federal CWA to regulate municipal and industrial discharges to surface waters of the United States. Each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. The SFBRWQCB establishes the quality of the effluent that can be discharged to waterways within the Bay Area through Waste Discharge Requirements (WDRs) that implement the NPDES permit. WDRs are updated at least every five years. A new permit must be issued in the event of a major change or expansion of the facility.

Safe Drinking Water Act

Under the Safe Drinking Water Act (SDWA) (Public Law 93-523), passed in 1974, USEPA regulates contaminants of concern to domestic water supply. Contaminants of concern relevant to domestic water supply are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are regulated by USEPA primary and secondary Maximum Contaminant Levels (MCLs). MCLs and the process for setting these standards are reviewed triennially. Amendments to the SDWA enacted in 1986 established an accelerated schedule for setting drinking water MCLs.

State

Senate Bill 610 and 221

Senate Bill 610 and Senate Bill 221 amended State law, effective January 1, 2002, to improve the link between information on water supply availability and certain land use decisions made by cities and

counties. SB 610 and SB 221 are intended to promote collaborative planning between local water suppliers and cities and counties. Both statutes require detailed information regarding water availability to be provided to the city and county decision-makers prior to approval of development projects proposing over 500 dwelling units or proposing subdivisions that would cause an increase of 10 percent or more of service connections for public water systems with less than 5,000 service connections. Accordingly, these regulations are not applicable to the Proposed Project as it proposes only 19 dwelling units (**Section 3.0**) and the water supplier serves well over 5,000 service connections (**Section 4.10.2**).

The Urban Water Management Planning Act

The Urban Water Management Planning Act (Planning Act) was established in 1983 and was most recently amended in 2010 (California Code §10620-10621). The Planning Act requires urban water suppliers, such as Cal Water, to prepare a management plan of its current and future water sources so as to continue to provide its customers with a 20-year plan to provide adequate and reliable water supply. Urban Water Management Plans describe the projected uses for all water resources within an agency to meet the goal of managing water supplies for their highest and best uses. Cal Water adopted its 2010 UWMP Update on June 24, 2011 (Cal Water, 2011). Urban Water Management Plans must be updated every five years, and the next update is due in 2015.

AB 939 – The Integrated Waste Management Act

The Integrated Waste Management Act, adopted in 1989, was adopted with the purpose of directing attention to the nation's increasing waste stream and decreasing landfill capacity and to mandate a reduction of waste being disposed. For this purpose, the act established waste diversion goals for cities and counties of 25 percent by 1995 and 50 percent by the year 2000. A disposal reporting system was established with California Integrated Waste Management Board (CIWMB) oversight, and jurisdictions were required to develop Source Reduction and Recycling Elements and Household and Hazardous Waste disposal programs.

AB 2926 – School Impact Fees

The State of California has traditionally been responsible for the funding of local public schools. To assist in providing facilities to serve students generated by new development projects, the State passed Assembly Bill 2926 (AB 2926) in 1986. This bill allowed school districts to collect impact fees from developers of new residential and commercial/industrial building space. Development impact fees were also referenced in the 1987 Leroy Greene Lease-Purchase Act, which required school districts to contribute a matching share of project costs for construction, modernization, or reconstruction. California Education Code §17620(a)(1) authorizes the governing board at any school district to levy a fee, charge, dedication, or other requirement against any construction within the boundaries of the district, for the purpose of funding the construction or reconstruction of school facilities.

SB 50 and Proposition 1A

Senate Bill 50 (SB 50), approved by voters as Proposition 1A, provides a comprehensive school facilities financing and reform program. The provisions of SB 50 prohibit local agencies from denying land use approvals on the basis that school facilities are inadequate and reinstate the school facility fee cap for

legislative actions. Government Code §65996 states that the development fees authorized by SB 50 are deemed to be "full and complete school facilities mitigation."

Quimby Act

The Quimby Act (California Government Code Section 66477), established by the California Legislature in 1965, authorizes counties and cities to pass ordinances requiring developers of new subdivisions to set aside open space, donate conservation easements, and/or pay an in-lieu fee to preserve open space and parkland in the rapidly urbanizing areas of the State. This legislation was in response to California's increased rate of urbanization and the need to preserve open space and provide parks and recreation facilities for California's growing communities.

The Quimby Act provides two standards for the dedication of land for use as parkland and is based upon the residential density. The community may require dedication based on a standard of 5 acres per 1,000 persons residing in the subdivision if the existing area of parkland in a community is 3 acres per 1,000 persons. If the existing amount of parkland in a community is less than 3 acres per 1,000 persons, then the community may require dedication based on a standard of only 3 acres per 1,000 persons residing in the subdivision. A county or city is required by the Quimby Act to adopt standards for recreational facilities in its general plan recreation element if it is to adopt a parkland dedication/fee ordinance.

Local

San Mateo County General Plan

The San Mateo County General Plan (County General Plan) was adopted in 1986 and serves as a guide for both land development and conservation within the unincorporated areas of the County. Policies within the County General Plan relevant to public services, utilities, and recreation and applicable to the Proposed Project are as follows:

General

7.21 <u>Suitable Land Within City Sphere of Influence</u>
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.

Fire Protection Services

15.10 <u>Designation of Fire Hazard Areas</u>
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.

15.26 <u>Determination of the Existence of a Fire Hazard</u>

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) [now, CAL FIRE], any other source of information considered to be valid by CDF [CAL FIRE] or by fire protection districts.

15.27 Appropriate Land Uses and Densities in Fire Hazard Areas

In urban areas, consider higher density land uses to be appropriate if development can be served by California Department of Forestry/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.

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.

15.30 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 fire protection agencies to identify emergency access and evacuation routes for existing developed areas and to provide this information to area residents.

15.35 Fire Retardant Vegetation
Encourage the use of fire retardant vegetation when reviewing new development proposals.

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.

Solid Waste

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.

13.25 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.

San Mateo County Green Building Ordinance

The County Green Building Ordinance applies to development projects within the unincorporated areas of the County and is intended to enhance public health and welfare by encouraging green building measures in the design, construction, and maintenance of buildings. The County Green Building Ordinance includes green building practices that are intended to achieve the following goals:

- To encourage the conservation of natural resources;
- To reduce waste in landfills generated by construction projects;
- To increase energy efficiency and lower energy usage;
- To reduce operating and maintenance costs for buildings; and
- To promote a healthier indoor environment.

San Mateo County Ordinance No. 04099

The purpose of County Ordinance No. 04099 is to promote the reduction of solid waste and reduce the stream of solid waste going to landfills. County Ordinance No. 04099 requires a Waste Management Plan (WMP) be developed to ensure the salvage, reuse, or recycle of 100 percent of inert solids (e.g. concrete, rock, etc.) and of at least 50 percent of the remaining construction and demolition debris

generated by the project. County Ordinance No. 04099 is applicable if a project meets one of the following criteria:

1) Demolition work only, where the cost of the work exceeds $5,000 as determined by the Building Official;
2) The renovation, remodel or addition to an existing structure or the construction of a new structure where the cost of the work exceeds $250,000 as determined by the Building Official or
3) Any new structure that is equal to or greater than 2,000 square feet (SMC Recycle Works, 2013).

Recreation

6.3 Build upon Existing System

Consider the feasibility of redesigning and/or expanding existing park and recreation facilities to meet future needs while developing new acquisition and development programs.

San Mateo County Subdivision Regulations

7053 General Requirements

As a condition of approval of a tentative map or tentative parcel map, the subdivider will be required to dedicate land or pay a fee in lieu of dedication for the purposes of (a) acquiring, developing, or rehabilitating County park and recreation facilities, and/or (b) assisting other providers of park and recreation facilities in acquiring, developing, or rehabilitating facilities that will serve the proposed subdivision. The provisions of this article are enacted pursuant to Section 66477 of the State Government Code and are hereby found to be consistent with the recreational policies of the General Plan.

7055 Standard Requirements

1) Standard.

Consistent with the County General Plan, the County finds that the public health, welfare and safety require that three (3) acres of real property for each one thousand persons residing in the County be devoted to park and recreational purposes.

2) Parkland Dedication.

When the recreational policies of the County General Plan or any applicable area plan support the location of a park or recreational facility within the proposed subdivision to serve the immediate or future needs of its residents, the subdivider will be required to dedicate land within the subdivision for park and recreational purposes. The amount of land to be dedicated will be based on the standard established in subsection 1, above, and in accordance with the following formulas:

Parkland Demand Due to Subdivision (acres)	=	Number of Persons Per Subdivision	x	0.003 Acres per person
Number of Persons Per Subdivision	=	Number of Dwelling Units Per Subdivision	x	Number of Persons Per Dwelling Unit

Number of persons per dwelling is determined by using data on household size from the most recent federal census

(3) Fees In Lieu of Land Dedication.

When the proposed subdivision contains 50 parcels or less, an in-lieu fee only may be required of the subdivider. For subdivisions with more than 50 parcels, at the County's option either an in-lieu fee or dedication of land may be required. If a fee is imposed, the amount of the fee shall be equal to the value of the amount of land which would otherwise be dedicated pursuant to 2, above, and is determined by the following formula:

Parkland Fee (dollars)	=	Parkland Demand Due to Subdivision (acres)	x	Value per Acre of Parcel

Proposed for Subdivision (dollars/acre) Value, per acre of parcel proposed for subdivision, is determined by using the assessed value of the parcel proposed for subdivision as shown in the most recent equalized assessment roll.

Water Supply

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.

10.13 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.

Wastewater

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.

11.16 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.

San Mateo County Ordinance Code

4.04.220 Minimum residential service levels in the Service Area.
This section establishes the minimum curbside levels of service required per Unit of Pickup (U.P) for parcel(s) containing dwelling unit(s) within the Service Area (also defined as the County franchised area [CFA]). "Unit of Pickup" (U P.) means two (2) 32-gallon carts or cubic yard equivalent or one (1) 64-gallon cart or cubic yard equivalent located at the curb or within five feet of the right of way for service by the refuse collector. Residential parcels, defined as parcels containing one to four dwelling units, shall have one (1) U.P. per dwelling unit.

3.84.120 Construction, relocation and alteration.
Every person who constructs, relocates, alters (adding to a building which will increase the size or value of the building by fifty (50) percent or more); a building or portion of a building shall comply with the provisions of California Fire Code Sections 503 and 508 for Fire Apparatus Access Roads and Fire Protection Water Supply. Valuation of a building and alterations shall be determined in the same manner as determined under applicable building codes.

4.10.4 IMPACTS AND MITIGATION MEASURES

Method of Analysis

This section identifies any impacts to existing public services, utilities, and recreation facilities that could occur from the implementation of the Proposed Project as determined in the Initial Study (**Appendix B**). Impacts to public services, utilities, and recreation facilities were analyzed based on existing and future service capacities of the public services, utilities, and recreation facilities and comparison of these factors to the significance criteria listed below. Additionally, letters were sent to public services, utilities, and recreation providers requesting their assessment of the potential impacts of the Proposed Project in their respective resource; responses received are included in **Appendix I**. If significant impacts are likely to occur, mitigation measures are included to increase the compatibility of the Proposed Project and to reduce impacts to less-than-significant levels. Because impacts associated with public services are

inherently cumulative in nature, both the direct and cumulative impacts of the Proposed Project are discussed under each identified issue area below.

Significance Criteria

Criteria for determining the significance of impacts to public utilities and services have been developed based on Appendix G of the California Environmental Quality Act (CEQA) *Guidelines*. For the purposes of this DEIR, an impact to public services, utilities, and recreation facilities would be considered significant if the Proposed Project would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response time, or other performance objectives for any of the public services (fire protection, police protection, schools, parks, other public facilities);
- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated;
- Include recreational facilities or require the construction or expansion of recreational facilities that might have been an adverse physical effect on the environment;
- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Not have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed;
- Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- Not comply with federal, state, and local statutes and regulations related to solid waste.

Project Specific Impacts and Mitigation Measures

Impact

4.10-1 The Proposed Project would not result in an exceedance of wastewater discharge limits of the San Francisco Bay Regional Water Quality Control Board.

The Proposed Project proposes to connect to the City of San Mateo WWTP. Wastewater generated by the Proposed Project would be consistent with the single-family residences currently served by the WWTP and therefore no changes or modifications to the City of San Mateo's NPDES permit would be required to treat wastewater from the Proposed Project. The content of the Proposed Project's wastewater would not change over time. Therefore, the direct

and cumulative impact of the Proposed Project to the City of San Mateo's wastewater treatment requirements is less than significant. **Less than Significant.**

Impact

4.10-2 The Proposed Project would require the construction of new and relocation of existing water supply facilities, the construction of which could cause significant environmental effects.

The Proposed Project proposes to connect to the BSD for water supply. The per capita water demand for single-family residences in 2010 was 260 gallons per day (gpd) per residence. Water demand for the proposed 19 single-family residences is therefore approximately 4,940 gpd (0.005 mgd). The maximum day demand of the Proposed Project would be approximately 8,000 mgd, which correlates to a peak day peak factor of 1.62. The peak hour demand for the Proposed Project is estimated to be 12,000 mgd, which correlates to a peak hour peaking factor of 1.50 (**Appendix G**).

The water demand of the Proposed Project is approximately 0.038 percent of the 2010 BSD water demand of 13.254 mgd. The increase in population due to the Proposed Project is consistent with population projections contained in the 2010 Urban Water Management Plan. As discussed in **Section 4.10.2**, water supply is projected to fall short of water demand in single and multiple dry years. The BSD anticipates meeting water demands in dry years by implementing its Water Shortage Contingency Plan, which is a series of procedures and outreach strategies designed to reduce customer demand. **Mitigation Measure 4.10-2a** is included below to ensure the Proposed Project would comply with the Water Shortage Contingency Plan and reduce the impact of the Proposed Project to less than significant (**Appendix G**).

As discussed in **Section 3.4**, an existing water storage tank owned by Cal Water is located on a parcel that is surrounded by the project site (**Figure 3-4**). Water from this existing storage tank would be used to supply the proposed development. Dead-end water lines will convey water to the proposed residences from the water main currently existing on the project site; all water supply infrastructure would be designed in compliance with BSD and San Mateo County Department of Public Works standards. However, the existing water system does not have adequate pressure to supply peak day and peak hour water demands of the Proposed Project. Additionally, the existing water mains and associated Cal Water easements are located in areas proposed for development of individual residential lots. **Mitigation Measures 4.10-2b and 4.10-2c** are included below to ensure adequate pressure is provided and water mains are relocated such as not to cause significant environmental effects. With incorporation of mitigation, the impact of the Proposed Project would be less than significant. **Less than Significant with Mitigation.**

Cumulative

Cal Water is near build out conditions and has set boundaries. Increases in water demand will likely be due to infill projects. Seven reasonably foreseeable projects in addition to the Proposed Project are located in BSD, one of which will result in an additional water demand equaling 2,781

gpd (0.003 mgd). **Table 4.10-6** is a summary of water demand for BSD. The sum of the existing demand and demand of reasonably foreseeable projects (total demand) is approximately 13.262 mgd. As discussed in **Section 4.10.2**, shortfalls exist in the water supply during single and multiple dry years in future years. With implementation of **Mitigation Measure 4.10-2a**, the impacts of the Proposed Project would be reduced to a less-than-significant level. **Less than Significant with Mitigation.**

TABLE 4.10-6

BSD DEMAND SUMMARY

Description	Demand (mgd)
2010 Water Demand	13.254
Reasonably Foreseeable Projects[1]	0.003
Ascension Heights Subdivision Project	0.005
Total Demand	**13.262**

[1]Refer to **Appendix G**
Source **Appendix G** (NV5, 2013)

Mitigation Measure 4.10-2a: Residents of the Proposed Project shall comply with all requirements of Cal Water's Water Shortage Contingency Plan as mandated by Cal Water and BSD. These requirements may include, but are not limited to the following:

- Voluntarily reduce water consumption at single-family residences;
- Adhere to the minimum allocation given to single-family residential customers or pay penalty rate applied to service bill for use that is in excess of costumer's allocation; and/or
- Comply with orders prohibiting the use of water for specific activities, such as a prohibition of potable water use for landscape irrigation.

Mitigation Measure 4.10-2b: Pumping facilities shall be installed at the existing water tank owned by Cal Water to provide adequate water pressure for residential and fire protection uses. Cal Water shall be contacted to review pumping facilities design and ensure compliance with applicable standards. The project applicant shall fund the development of these facilities.

Mitigation Measure 4.10-2c: Two existing water mains shall be relocated such that they are within the right-of-way of the proposed private street or at the property boundary so as to allow ease of maintenance of the water mains. New Cal Water easements shall be established on the project site to replace the existing Cal Water easements. The two water mains include an 8-inch diameter water main connecting the water tank to the water main located on Parrot Drive and a 10-inch diameter water main connecting the water tank to the water main located on Bel Aire Drive.

Impact

4.10-3 The Proposed Project would exceed the wet weather capacity of the wastewater conveyance system and would require upgrades to existing wastewater treatment facilities, the construction of which could cause significant environmental effects.

The Proposed Project proposed to connect to and utilize the CSCSD, Town of Hillsborough, and City of San Mateo sewer conveyance and treatment systems and pay associated impact fees. The sewer system infrastructure and facilities that would be included in the development of the Proposed Project are described in **Appendix G**. The San Mateo County Department of Public Works, which is administers the CSCSD, uses a sewer generation rate of 220 gpd per equivalent residential unit. Therefore, the Proposed Project, with 19 residential units, is anticipated to generate approximately 4,180 gpd (0.004 mgd) of wastewater (**Appendix G**; Porter, 2013).

As discussed in **Section 4.10.2**, the City of San Mateo's WWTP has an average dry weather design capacity of 15.7 mgd, and a peak wet weather flow capacity of approximately 40 mgd. The WWTP treats and disposes of an average dry weather flow of 12.4 mgd of wastewater, leaving a surplus capacity of 3.3 mgd. The anticipated 0.004 mgd of wastewater anticipated to be produced by the Proposed Project is well within the current surplus capacity at the WWTP.

However, sewer pipelines within the Town of Hillsborough and the City of San Mateo that would serve the Proposed Project have capacity issues during wet weather events. The additional wastewater generated by the Proposed Project would exacerbate these issues (Porter, 2013). Additionally, the Proposed Project cannot connect to the sewer system and WWTP unless the project applicant commits to and completes construction of improvements to reduce I&I to the sanitary sewer system such that the new project would result in a zero net increase of in flow during wet weather events (Zammit, 2013). **Mitigation Measure 4.10-3** is included below to ensure the project applicant commits to a plan that achieves a next zero increase of in flow during wet weather events and thereby does not contribute to capacity issues associated with the pipelines within the Town of Hillsborough and the City of San Mateo. The mitigation measure would also ensure the construction of sewer pipeline upgrades would not result in significant environmental effects. With mitigation, the impacts of the Proposed Project would be less than significant.

The resolution remains in place that will not allow the City of San Mateo Department of Public Works to approve additional flows from new developments in CSCSD service area until the payments owed by CSCSD are made to the City of San Mateo. This resolution was established because the CSCSD failed to make or present a plan to generate payments in the amount of $1.57 million to the City of San Mateo for operating and capital costs due under the Sanitary Sewer Agreement. Because this resolution was established due to a breach in a business agreement and not because of capacity limitations, it does not constitute a significant impact per the CEQA *Guidelines*. **Less than Significant with Mitigation.**

> **Mitigation Measure 4.10-3**: The applicant shall offset the increase in sewer flow generated by the Proposed Project by reducing the amount of existing I&I into the CSCSD sewer system. The offset amount shall achieve a zero net increase in flow

during wet weather events with implementation of the Proposed Project. This shall be achieved through the construction of improvements to impacted areas of the sewer system, with construction plans subject to CSCSD approval and required to be in compliance with applicable regulatory requirements. Construction of improvements, as approved by the CSCSD, shall be completed prior to the start of the construction of the residences.

Cumulative

As discussed in **Section 4.10.2**, the projected peak wet weather flow at the City of San Mateo WWTP under five-year design storm conditions in year 2020 is 88 mgd, which exceeds the plant design outfall capacity of 40 mgd (**Appendix G** and Zammit, 2013). The City of San Mateo is in process of preparing an updated master plan for capacity assurance improvements at the WWTP; identified projects will be integrated into the capital improvement program (Zammit, 2013). The impact fees to be paid by the Proposed Project applicant and any future rate increases paid by residents of the Proposed Project would contribute to any necessary infrastructure and facility upgrades, thereby reducing the impact to less than significant.

The combined wastewater generated by the Proposed Project and by 22 reasonably foreseeable projects (refer to **Appendix G**) served by the City of San Mateo WWTP was determined to be 0.460 mgd, which is less than the WWTP surplus capacity of 3.3 mgd. In addition, only two of the reasonably foreseeable projects are located within the CSCSD service area; the wastewater generation rate for the posed Project and by reasonably foreseeable projects within the CSCSD service area is 0.0064 mgd (**Appendix G**). CSCSD is predominantly built-out and is not expected to experience a significant growing demand for sewer service in the long term (**Appendix G** and Porter, 2013). With implementation of **Mitigation Measure 4.10-3**, the cumulative impact of the Proposed Project on existing wastewater treatment facilities will be less than significant. **Less than Significant with Mitigation.**

Impact

4.10-4 The Proposed Project would require the expansion of existing stormwater drainage facilities, the construction of which would cause significant environmental effects.

As discussed in **Section 4.6.4 (Impact 4.6-3)**, development of the Proposed Project would substantially alter existing drainage patterns and may cause flows to exceed the capacity of existing stormwater culverts. The existing drainage system on the project site is able to handle the current pre-development runoff, with two exceptions. During rainfall events, discharge exceeds the capacity of the stormwater drain pipe that crosses Ascension Drive at Enchanted Way (15 inch diameter, 2 percent slope) and the outfall stormwater drain pipe that crosses Polhemus Road (30-inch diameter, 1.3 percent slope). **Mitigation Measure 4.6-3b** is included to increase the capacity of the existing stormwater drainage system and ensure the construction of such infrastructure upgrades would not result in a significant environmental effect. Furthermore, as discussed in **Section 4.6.4 (Impact 4.6-3)**, the Proposed Project would include an on-site stormwater drainage system designed and sized such that runoff from the Proposed Project will be released at pre-development rates. Each individual lot will have its own separate stormwater

retention system that will meter discharge from each individual lot to the collective on-site storm drainage system. **Mitigation Measure 4.6-3a** is included to ensure proper maintenance of each lot's individual stormwater retention system. In the cumulative scenario, the amount of stormwater drainage from the Proposed Project would not increase and other cumulative development projects would be subject to local, State, and federal regulations designed to minimize cumulative impacts, including those impacts related to stormwater drainage. With implementation of the proposed mitigation, the direct and cumulative impacts of expanding existing stormwater drainage facilities due to the Proposed Project will be less than significant. **Less than Significant with Mitigation.**

Impact

4.10-5 The Proposed Project would generate a demand for fire protection services, which could require the construction of new or expanded facilities that may cause significant environmental impacts.

Construction

Construction of the Proposed Project would introduce additional potential sources of fire to the project site that could result in the need for fire-fighting services. Construction activities would be temporary in nature and are anticipated to occur periodically over a 27-month period. Equipment used during grading and periodic construction activities may create sparks, which could ignite dry grass on the project site. During construction, the use of power tools and acetylene torches may also increase the risk of fire hazard. In addition, medical emergencies could result from construction related-accidents, which could result in a response from fire protection services. Strict fire and personnel safety requirements and standards, typical of the industry, would be included in the construction contractor's contract. Additionally, implementation of **Mitigation Measure 4.7-3** would reduce the risk of wildland fires during construction to a less-than-significant level. Therefore, construction of the Proposed Project would not strain the San Mateo City Fire Department or County Fire/ CAL FIRE such that the construction of new or expanded facilities would be required and the potential impact would be less-than-significant with mitigation.

In addition, construction of the Proposed Project would increase the number of vehicles on the road due to worker trips and construction trucks and equipment. An increase in the volume, frequency, and type of traffic could result in more traffic-related incidents that require an emergency response. Construction trips will occur during off-peak hours and would be temporary in nature; construction would occur periodically over a 27-month period. All contractors will adhere to standard safety protocols for construction in a residential area, including obeying all traffic laws. Any minor traffic delays that could result from construction activities would be known in advance and would be coordinated with local law enforcement. The impacts of construction traffic on law enforcement services would therefore be less-than-significant.

Additionally, because construction activities would be temporary in nature, no cumulative impacts would occur. **Less than significant with mitigation.**

Operation

The Proposed Project includes a residential community that would be constructed on a project site that is currently uninhabited and undeveloped open space. Residential uses require a higher level of fire protection services compared to open space, due to the increased number of emergency calls and higher associated fire risk. Increased calls for service could decrease area response times as well as strain fire protection resources, which could result in the need to construct new or expanded facilities to meet demands. The Proposed Project would be designed to minimize service demands on the San Mateo City Fire Department and County Fire/CAL FIRE; these design features include the installation of fire hydrants, access roads without physical barriers, and water service to provide adequate fire flow. **Mitigation Measure 4.10-2a**, discussed above, would ensure adequate water pressure for fire protection services. All buildings would be built to current California Building Code and California Fire Code. Additionally, per the alternate materials and methods request of County Fire/CAL FIRE, fire sprinklers for all structures within the proposed development would have a higher discharge thereby further alleviating impacts to fire protection services; **Mitigation Measure 4.10-5** is included to ensure installation of this type of fire sprinkler.

The project site would be primarily severed by San Mateo City Fire Department's Station 27 with secondary response by County Fire/CAL FIRE's Station 17. The San Mateo City Fire Department reported that Station 27 has adequate staffing and equipment to serve the Proposed Project. The proposed new private street with turnarounds would be sufficient to achieve desired response times for the project site. Implementation of the Proposed Project and the anticipated additional demand on fire services would not require that the San Mateo City Fire Department construct new or expand existing facilities. The San Mateo City Fire Department could continue to achieve performance standards for existing responsibilities as well as achieve performance standards for the Proposed Project (Keefe, 2013). Additionally, County Fire/ CAL FIRE reports that implementation of the Proposed Project would not require the construction of new or expansion of existing facilities to accommodate the potential increased demand created by the Proposed Project (Colbert, 2013). Therefore, operation of the Proposed Project would have a less-than-significant impact on fire protection services.

The property taxes to be paid by residents of the Proposed Project would mitigate any long-term impacts to fire protection services, and therefore cumulative impacts would be less-than-significant. **Less than significant with mitigation.**

> **Mitigation Measure 4.10-5**: The applicant shall ensure that fire sprinklers with appropriate flow rates are installed for all structures that would be developed as a part of the Proposed Project, per County Fire/CAL FIRE's alternate materials and methods request.

Impact

4.10-6 The Proposed Project would not generate a demand for law enforcement services that would require the construction of new or expanded facilities to maintain service level standards.

Construction

Construction sites can attract nuisance and criminal activity, such as vandalism and theft, thereby distracting law enforcement from other activities. Developers will take precautions to prevent trespassing to the project site during construction, which may include installation of temporary fencing, signage, and other security features. Given the established, adjacent neighborhoods and the relatively low crime rate in the vicinity of the project site, it is not anticipated that construction of the Proposed Project would significantly impact law enforcement services. Additionally, construction activities would be temporary in nature; therefore no cumulative impacts to law enforcement services would occur. **Less than significant.**

Operation

The Proposed Project has the potential to increase the number of calls for law enforcement services given the construction of 19 new residences, which would result in approximately 55 new people, on a project site that is currently uninhabited and undeveloped open space. The Proposed Project would be designed with safety features such as lighting at nights on the street and a private access road. In addition, the SMCSO that would serve the Proposed Project reports staffing and equipment are adequate to serve the Proposed Project while maintaining existing service standards and responsibilities. Implementation of the Proposed Project would not require that the SMCSO construct new or expand existing facilities to meet the increased demand for services. Therefore, the Proposed Project would have a less-than-significant direct impact on law enforcement services. The property taxes to be paid by residents of the Proposed Project would mitigate any long-term impacts to law enforcement services, and therefore cumulative impacts would also be less-than-significant. **Less than significant.**

Impact

4.10-7 The Proposed Project would neither require additional capacity nor substantially increase demand for electrical, natural gas, and/or telecommunication services that would require the development of new infrastructure, the construction of which would result in adverse environmental effects.

Development of the Proposed Project would require the extension of electrical, natural gas, and telecommunication service lines to the project site. During the construction of the Proposed Project, the County and developers will work with the utility companies to ensure the transmission line corridors are within appropriate rights-of-way and all new utilities and utility vault appurtenance will adhere to County guidelines. Utility lines would tie into the project site from existing lines located in the near vicinity of the project site that currently serve adjacent residences. The applicant shall be required to demonstrate to the County that they have coordinated with utility providers regarding the extension, location, and phasing of electrical, natural gas, and telecommunication infrastructure to serve the Proposed Project. The project site

is not constrained by any features that may limit or impair the ability of utility companies to provide these services. The environmental effects associated with new electrical, natural gas, and telecommunication utility lines would be less than significant as all utilities would be located within the right-of-ways of the proposed new roadway and construction would occur in compliance with State and local regulations. Direct and cumulative impacts are less than significant, and no mitigation is required. **Less than Significant**.

Impact

4.10-8 The Proposed Project would comply with federal, State, and local statutes and regulations related to solid waste and would not generate solid waste beyond the capacity of the solid waste collectors, transfer station, and/or landfill serving the project area requiring development of new or expanded solid waste management facilities, the construction of which would result in adverse environmental effects.

Construction

Collectively, the Shoreway Environmental Center and Ox Mountain Landfill accept, process, recycle, and dispose of construction debris and waste material. Construction waste generated by the Proposed Project would be standard for any subdivision construction site and may include excess soils and rubble, packaging materials, insulation, nails, rebar, and electrical wire. Construction waste from the Proposed Project would be temporary in nature. Construction of the Proposed Project would adhere to the County Green Building Ordinance, which includes striving to conserve natural resources in the construction as well as reduce waste in landfills generated by construction projects. Additionally, construction of the Proposed Project would also adhere to the County Ordinance No 04099, which requires a WMP be developed to ensure the salvage, reuse, or recycle of 100 percent of inert solids (e.g. concrete, rock, etc.) and of at least 50 percent of the remaining construction and demolition debris generated by the project. The impact of solid waste generated during construction of the Proposed Project would constitute a less-than-significant impact on the capacity of the solid waste transfer station and/or landfill and therefore would not require the development of new or expanded solid waste management facilities. **Less than significant.**

Operation

The amount of solid waste generated by operation of the Proposed Project was estimated based on an average amount of daily residential waste generated per resident as provided by the County (3.0 pounds/person/day; Porter, 2014). Given the estimated population of 55 new residents (assumes 2.9 people per household [SMC, 2012a] multiplied by 19 residences), the total amount of waste generated by the Proposed Project is estimated at 0.08 tons per day (approximately 165 pounds per day). Using the County's current recycling rate (1.92 pounds/person/day; Porter, 2014), the Proposed Project would generate an additional 0.05 tons per day (approximately 106 pounds per day) of recycling materials, for a total of 0.14 tons per day (approximately 271 pounds per day).

The Shoreway Environmental Center currently processes only approximately half of is permitted maximum throughput capacity of 3,000 tons per day. Operation of the Proposed Project would add approximately 0.14 tons per day of waste, which would increase the throughput at the Shoreway Environmental Center by less than 0.1 percent. The Shoreway Environmental Center has the capacity to process waste produced by the Proposed Project without developing new or expanding existing solid waste management facilities (Feldman, 2013).

The Ox Mountain Sanitary Landfill also has the capacity to accommodate disposal of solid waste from operation of the Proposed Project without expanding or developing new facilities (McGourty, 2013). The Proposed Project would generate 0.08 tons per day or 2.64cubic yards per day (assuming 1 ton is equivalent to 3.3 cubic yards of MSW), which would increase the existing throughput to the Ox Mountain Sanitary Landfill by less than 0.01 percent.

Given the Proposed Project's minimal contribution to daily throughput at the Ox Mountain Sanitary Landfill (less than 0.01 percent) and the estimated closure date of 2039, the Proposed Project would not contribute to cumulative impacts at the facility (McGourty, 2013). Additionally, the Proposed Project would generate a very minimal contribution to throughput at the Shoreway Environmental Center and, when considering the recent expansion of the facility in June 2011 as part of its Transfer Station Improvements Project, would therefore not contribute to cumulative impacts at the facility. Thus, the cumulative impact would be less than significant. **Less than Significant**.

Impact

4.10-9 The Proposed Project would not generate a demand for educational services that would require the construction of new or expanded school facilities to maintain service level standards.

The Proposed Project would result in the development of 19 single family residential units. Assuming a conservative student generation rate of one grammar and middle school child per single family residence and one high school child per single family residence, implementation of the Proposed Project would result in an additional 19 students to the SMFCSD and an additional 19 students to the SMUHSD. Highlands Elementary School and Borel Middle School, the SMFCSD grammar and middle schools, respectively, serving the project site, have more than enough capacity to accommodate the Proposed Project, and the SMFCSD reports that implementation of the Proposed Project is unlikely to have a significant impact at either school (Barton, 2013). Aragon High School, the SMUHSD school serving the project site, is at capacity. ~~However, the SMUHSD indicated that implementation of the Proposed Project would not have a significant impact on the SMUHSD (Beeken, 2013). Furthermore, t~~The applicant would pay school impact fees that, in accordance within AB2926 would ~~should further~~ mitigate any potential ~~impacts of the Proposed Project to the schools serving the Proposed Project as well as the entire SMFCSD and SMUHSD. The potential impact of the Proposed Project on schools would therefore be less-than-significant as construction of new or expanded schools would not be required.~~ mitigate any impacts to potentially affected schools in the SMUHSD prior to the issuance of building permits. With the payment of such school impact fees, the Proposed Project and cumulative developments would have a less-than-significant impact on the public school

facilities and systems affected by the project. Payment of statutory fees is considered appropriate mitigation under CEQA. Direct and cumulative impacts are considered less than significant. **Less than Significant.**

In the long term, the SMFCSD and SMUHSD schools are projected to be at or near capacity in the fall of 2017 with or without development of the Proposed Project. Payments of school impact fees would contribute funding to address any adverse environmental impacts associated with renovating and/or expanding schools to increase capacity. Residents of the Proposed Project would also be subject to any future tax or bond measures designed to raise funding to address future capacity concerns at SMFCSD and SMUHSD schools, which would further offset any potential cumulative impacts of the Proposed Project. **Less than Significant.**

Impact

4.10-10 The Proposed Project would not generate a demand for library services that would require the construction of new or expanded library facilities to maintain service level standards.

The Proposed Project would result in the development of 19 single family residential units, which would increase the demand for library services. The SMPL reports that implementation of the Proposed Project would not significantly impact the SMPL's Main and Hillsdale Libraries that would serve the project site in both the immediate and cumulative scenarios (Busa, 2013). It is anticipated that residents of the Proposed Project would primarily utilize the library facilities closest in proximity to the project site; therefore increased use of the SMCL's Belmont Library would be minimal. The potential impacts, including cumulative impacts, of the Proposed Project on libraries is therefore less-than-significant. **Less than Significant.**

Impact

4.10-11 The Proposed Project may increase the use of local and regional parks and recreational facilities; however, physical deterioration of such facilities would be minimal.

Implementation of the Proposed Project would increase demand on parks and recreational facilities for two reasons. First, adding housing to the project site would increase the number of people using local and regional parks and recreational facilities in the vicinity of the project site, which could contribute to the physical deterioration of recreational facilities. As discussed above, County parks and the HRD are the primary recreational facilities in the vicinity of the project site. The San Mateo County Department of Parks reports that implementation of the Proposed Project would not have a significant impact on County park and recreational facilities (Herzberg, 2013). The project site is outside of the HRD boundaries, and therefore use of HRD facilities by new residents would be subject to an additional fee and would depend on available capacity of the parks. Given that the HRD is not required to serve the Proposed Project and capacity limitations are in place, the Proposed Project would not have a significant impact on HRD facilities in neither the immediate nor cumulative scenarios.

Additionally, per San Mateo County Subdivision Regulations 7055.2 Parkland Dedication, the subdivider is required to dedicate land within the project site for park and recreational purposes to ensure 0.003 acres of land per each new resident. Assuming an average of 2.9 people per

household, as specified in the County General Plan 2007-2014 Housing Element (2012), full build-out of Proposed Project is estimated to generate approximately 55 new residents, which equates to a minimum requirement of 0.165 acres of land for park and recreational purposes. The Proposed Project includes plans for preserving 7.8 acres of the 13.3-acre project site as open space for use as a recreational facility by new residents and the general public. The Proposed Project therefore more than exceeds the minimum requirement of land dedicated to park and recreational purposes for new subdivisions, which minimizes potential immediate and cumulative impacts to a less than significant level.

Secondly, the Proposed Project also has the potential to increase demand on local parks and recreational facilities because development of the residences would eliminate an informal recreational area. During the scoping period, several private citizens indicated the 13.3-acre project site provides hiking/walking trails for local residents. The Proposed Project would convert 5.5 acres of the project site to housing and associated infrastructure while preserving 7.8 acres of the project site as open space (0.45 acres of which will become a conservation area). Foot trails will be developed in the open space, and the area will be available to the new residents and the general public. This planned recreational facility will further mitigate any impacts of the Proposed Project to existing parks and recreational facilities, and therefore the impact is less-than-significant. **Less-than-Significant.**

Impact

4.10-12 The Proposed Project includes passive recreational facilities, the development of which would not have an adverse physical effect on the environment.

The project site is currently undeveloped vacant land, and as discussed above, the Proposed Project includes preservation of 7.8 acres of the project site as open space with foot trails for use by new residents and the general public. Included in the open space is 0.45 acres that would be set aside as a conservation area. The proposed open space and foot trails would serve as a recreational facility but would be designed to maintain the natural characteristics of the landscape and minimize adverse physical effects. Therefore, the proposed recreational facility would have a less-than-significant immediate and cumulative impact on the environment. **Less than significant.**

4.11 TRANSPORTATION AND CIRCULATION

4.11.1 INTRODUCTION

This section addresses the potential for the Proposed Project to impact transportation and circulation. Following an overview of the existing and background traffic setting in **Subsection 4.11.2** and the relevant regulatory setting in **Subsection 4.11.3**, project-related impacts and recommended mitigation measures are presented in **Subsection 4.11.4**. A Traffic Impact Analysis (TIA) was developed for the project alternatives and is included as **Appendix H**.

4.11.2 ENVIRONMENTAL SETTING

Existing Roadway Network

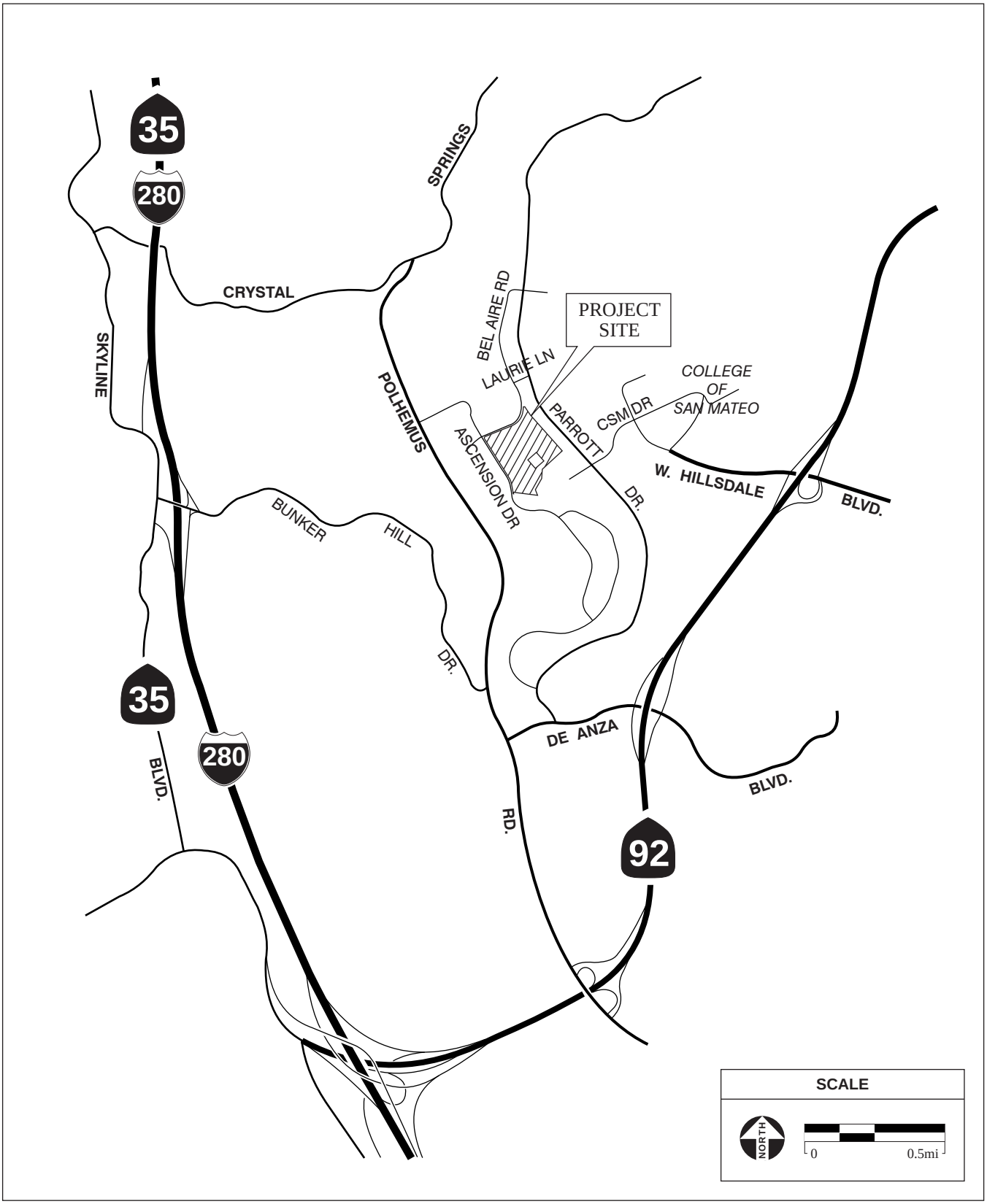
The project site is located within the unincorporated community of San Mateo Highlands within San Mateo County (County), at the northeast corner of Bel Aire Road and Ascension Drive, east of Interstate 280 (I-280) and west of State Route 92 (SR-92). Neighboring cities and communities include the City of San Mateo to the northeast, Foster City to the east, and Highlands – Baywood Park to the west. Access to the project site is primarily provided by Bel Aire Road, Ascension Drive, and Polhemus Road on the existing roadway network shown in **Figure 4.11-1**. Roadways that would provide circulation to and from the project area are described below.

- Polhemus Road is classified in the San Mateo County General Plan (County General Plan) (1986) as a two-lane north/south oriented arterial highway roadway. Polhemus Road terminates at Crystal Springs Road north of the project site and terminates at Ralston Avenue south of the project site.
- Ascension Drive, Bel Aire Road, and Laurie Lane are two-lane residential streets which serve the Ascension Heights residential neighborhood. Parking on these streets is generally allowed on either side of the street.
- Parrott Drive is a two-lane north-south arterial roadway which originates at De Anza Boulevard and terminates at Columbia Drive north of the project site. Parking along Parrott Drive is generally allowed on either side of the street.
- CSM Drive is a two-lane north/south minor collector which connects Parrott Drive on the west to W. Hillsdale Boulevard on the east at the College of San Mateo.

Traffic Impact Analysis

The following six street segments were analyzed in the TIA (**Appendix H**) and constitute the project study area:

- Polhemus Road south of Ascension Drive;
- Ascension Drive from Polhemus Road to Bel Aire Road;
- Bel Aire Road from Ascension Drive to Laurie Lane;
- Laurie Lane;



SOURCE: RKH Engineering, 12/10/2013; AES 2013

Figure 4.11-1
Existing Transportation Network

- Parrott Drive from Laurie Lane to CSM Drive; and
- CSM Drive east of Parrott Drive.

The street segments were analyzed in accordance with the Traffic Infusion on Residential Environment (TIRE) index, which is a representation of the effects of traffic on safety, pedestrians, bicyclists, children playing near the street and the ability to freely maneuver into and out of driveways. The TIRE index levels are shown in **Table 4.11-1**.

TABLE 4.11-1

TIRE INDEX LEVELS

TIRE Index	Daily Traffic Volume	Residential Environment
0	1	
		A cul-de-sac street with one home.
1	10	
		A cul-de-sac street with 2-15 home.
2	100	
		A 2-lane minor street
3	1,000	
		A 2-lane collector or arterial street
4	10,000	
		A 2 to 6-lane arterial street
5	100,000	

Source: RKH TIA, 2013 (**Appendix H**).

Existing Traffic Condition

Existing 2013 daily traffic volumes on study roadways are shown in Figure 3 of the TIA (**Appendix H**). Traffic counts were performed during the month of May 2013 prior to the close of the spring semester at the College of San Mateo, which is located approximately 1,000 feet northeast of the project site. Traffic count data is provided in the TIA (**Appendix H**). **Table 4.11-2** shows traffic volume in vehicles per day (VPD) and the TIRE index for the existing traffic condition per each studied road segment.

TABLE 4.11-2

EXISTING TRAFFIC VOLUMES AND TIRE INDEX

Roadway	Traffic Volume (VPD)	TIRE Index
Polhemus Road south of Ascension Drive	4,900	3.69
Ascension Drive, Polhemus Road to Bel Aire Road	1,500	3.18
Bel Aire Road, Ascension Drive to Laurie Lane	760	2.88
Laurie Lane	900	3.00
Parrott Drive, Laurie Lane to CSM Drive	2,320	3.37
CSM Drive east of Parrott Drive	3,540	3.55

Source: RKH TIA, 2013 (**Appendix H**).

Background Traffic Condition

The background traffic conditions are those that occur immediately prior to the completion and occupancy of the Proposed Project. Traffic occurring from approved and reasonable foreseeable projects is added to existing traffic volumes to determine background traffic volumes. There are no approved projects in the vicinity of the project study area that would be operational prior to the Proposed Project becoming operational.

However, future traffic growth would occur on study roadways regardless. A 1.5 percent per year growth factor was applied to determine traffic volumes at the time the Proposed Project becomes operational in the year 2017. **Table 4.11-3** shows the without project traffic TIRE index for the operational year 2017.

TABLE 4.11-3

BACKGROUND WITHOUT PROJECT TRAFFIC VOLUMES AND TIRE INDEX

Roadway	Traffic Volume (VPD)	TIRE Index
Polhemus Road south of Ascension Drive	5,201	3.72
Ascension Drive, Polhemus Road to Bel Aire Road	1,592	3.20
Bel Aire Road, Ascension Drive to Laurie Lane	806	2.91
Laurie Lane	1,051	3.02
Parrott Drive, Laurie Lane to CSM Drive	2,462	3.39
CSM Drive east of Parrott Drive	3,757	3.57
Source: RKH TIA, 2013 (**Appendix H**).		

Bikeways and Pedestrian Facilities

Bikeways and pedestrian facilities were also analyzed in the TIA (**Appendix H**). Most roadways in the immediate vicinity of the project site do not have bicycle pathways/routes. Polhemus Road, located southwest of the project site, has a bicycle pathway/route. Pedestrian facilities are present along all roadways except Polhemus Road and CSM Drive north of Parrott Drive.

Public Transit System

The San Mateo County Transit District (SamTrans) is the administrative body for the principal public transit and transportation programs in the County. It operates SamTrans public bus routes 58 and 260 in the vicinity of the project site. These routes operate along CSM Drive, Parrott Drive, Polhemus Road, and De Anza Boulevard. No public transit currently serves the project site. The nearest bus stop for SamTrans is located on CSM Drive north of Parrott Drive. These buses provide connections to local and regional destinations.

4.11.3 Regulatory Context

California Department of Transportation (Caltrans)

The California Department of Transportation (Caltrans) manages interregional transportation, including the management and construction of the California highway system. In addition, Caltrans is responsible for the permitting and regulation of State roadways. The State facilities providing regional access to and

from the project site are SR-92 and I-280. Caltrans establishes performance standards that apply to specific routes and publishes those standards in transportation concept reports (TCRs). Performance standards in TCRs are often expressed as level of service (LOS) standards. LOS standards are established based on current operating conditions, surrounding land uses, local policies, and current plans for improvement on the facility. Caltrans standards for interchange ramp terminal intersections or other SR intersections are typically consistent with the local jurisdiction's standards, which may include a city or the County, as well as the Regional Congestion Management Agencies.

Regional and Local

City/County Association of Governments of San Mateo County (CCAG), Countywide Transportation Plan

The City/County Association of Governments of San Mateo County (CCAG) Countywide Transportation Plan (CTP) 2010 was adopted on January 18, 2001 in association with the cities within the County, SamTrans, and the San Mateo County Transportation Authority (TA). The CTP 2010 is a planning document that envisions, directs, and prioritizes the transportation needs of the County by analyzing various transportation-related elements, such as roadways, transit services, land use, transportation systems management, and pricing.

City/County Association of Governments of San Mateo County (CCAG), Congestion Management Plan (CMP)

Per the requirements of Propositions 111 and 108, every urban county within California designates a Congestion Management Agency (CMA) to prepare and implement a Congestion Management Program (CMP) that includes all jurisdictions within the county. The CMA is also responsible for updating the CMP at least every two years. In the County, the CCAG was designated as the CMA. Passage of Assembly Bill (AB) 2419 allowed existing CMAs to opt to discontinue activities; however, the CCAG voted to continue to participate in and adopt a CMP. The first CMP for the County was adopted by the CCAG in 1991. It was updated and amended in 1993, 1995, 1997, 1999, 2001, 2003, and 2005. The current 2007 CMP is the eighth CMP for the County. It describes the decisions adopted by CCAG in 2000, 2001, 2003, and 2005 to comply with the applicable sections of AB 471, AB 1791, AB 1963, Senate Bill (SB) 1636, and to include new provisions required by SB 45 and Transportation Equity Act (TEA) 21. As discussed previously, since the Proposed Project would add less than 100 peak hour trips to regional roads, no analysis under the CMP is required.

City/County Association of Governments of San Mateo County (CCAG), San Mateo County Comprehensive Bicycle Route Plan

The San Mateo County Comprehensive Bicycle Route Plan (CBRP) was developed by the CCAG, the Bicycle and Pedestrian Advisory Committee, the individual cities and agencies, and citizens interested in improving the County bicycling environment. The primary study area of the CBRP includes the entire County and all connections into adjacent communities. The focus of the CBRP is on a primary (rather than local) network of bikeway corridors for inter-city and regional travel. As an Element of the CTP, the CBRP is intended to coordinate and guide the provisions of all bicycle-related plans, programs, and projects within the County. As a Countywide Bicycle Plan, it focuses on providing bikeway connections between the incorporated cities, adjacent counties, and major regional destinations within the County.

The CBRP also prioritizes recommended bikeway projects through the study area and serves as a guide to the incorporated cities regarding bikeway policies and design standards.

San Mateo County General Plan

The San Mateo County General Plan (County General Plan) was adopted in 1986 and serves as a guide for both land development and conservation within the unincorporated areas of the County. Polices within the County General Plan relevant to transportation and circulation and applicable to the Proposed Project are as follows:

12.8 Additional Capacity

When providing additional capacity for automobile traffic where needed, give priority to upgrading and expanding existing roads before developing new road alignments.

12.10 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.

12.14 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.

12.15 Local Circulation Policies

In unincorporated communities, plan for providing:

- Maximum freedom of movement and adequate access to various land uses;
- Improved streets, sidewalks, and bikeways in developed areas;
- Minimal through traffic in residential areas;
- Routes for truck traffic which avoid residential areas and are structurally designed to accommodate trucks;
- Access for emergency vehicles; and
- Bicycle and pedestrian travel.

12.16 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.

12.39 Pedestrian Paths

Encourage the provision of safe and adequate pedestrian paths in new development connecting to activity centers, schools, transit stops, and shopping centers.

4.11.4 Impacts and Mitigation Measures

Method of Analysis

This section identifies impacts to transportation and circulation that could occur from the implementation of the Proposed Project under existing, near term, and cumulative conditions. Impacts to transportation and circulation were analyzed based on an examination of the project site and published information regarding transportation and circulation within the vicinity of the project site. These factors were then compared to the significance criteria listed below. If significant impacts may occur, mitigation measures are included to increase the compatibility and safety of the Proposed Project and reduce impacts to less-than-significant levels.

Transportation impact assessment was analyzed using the Traffix traffic program. Traffix was used to generate and distribute the traffic throughout the study street segments. The TIRE Index was used to determine the impact of the Proposed Project's traffic on the surrounding roadway system. This index is based on the idea that increases in traffic volume have a greater impact on the residential environment on a lower volume street than along a street with a much higher level of baseline traffic. The TIRE index is a representation of the effects of traffic on safety, pedestrians, bicyclists, children playing near the street and the ability to freely maneuver into and out of driveways.

Trip Generation and Distribution

Table 4.11-4 presents the estimated number of trips generated by the Proposed Project. The projected project trip generation is based on the proposed land uses and trip generation rates in the *Trip Generation, 9th Edition* informational report published by the Institute of Transportation Engineers (ITE). The project trips are distributed onto the roadway network based on the 2009 National Household Travel Survey using Google Maps to determine travel time routes to the trip purpose destinations. Figure 4 in the TIA provides the vehicle trip distribution and assignment (**Appendix H**).

TABLE 4.11-4

TRIP GENERATION RATE

Land Use	Size	Units	AM Peak Hour			PM Peak Hour			AWDT
			In	Out	Total	In	Out	Total	
Single-Family Detached Housing	19	DU	16	7	23	15	9	24	228

Source: RKH TIA, 2013 (**Appendix H**).

Significance Criteria

Criteria for determining the significance of impacts to traffic and circulation have been developed based on Appendix G of the California Environmental Quality Act (CEQA) *Guidelines* and relevant agency guidelines. Impacts to the existing transportation network would be considered significant if the Proposed Project would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation

including mass transit and non-motorized travel and relevant components of the circulation system including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;

In addition, a change in the TIRE index of 0.1 or more would be a noticeable increase in traffic on the street and would therefore result in a significant impact upon the residential environment.

Effects Found Not to be Significant

As discussed within the Initial Study of the Proposed Project (**Appendix B**), the Proposed Project would not result in a change in air traffic patterns. The Proposed Project is not within an airport sphere of influence and is not a roadway project. Therefore, further discussion of these issue areas is not included within this EIR.

Project Specific Impacts and Mitigation Measures

Impact

4.11-1 Construction of the Proposed Project would not increase traffic on roadways in the vicinity of the project site beyond acceptable capacities and therefore would not conflict with any applicable plan, ordinance, or policy establishing measures of effectiveness and would not conflict with an applicable congestion management program.

Construction worker vehicles would park on the project site and/or on the east side of Bel Aire Road. It is estimated that workers would generate approximately 20 round trips per day. The largest volume and frequency of traffic would result from large trucks transporting excavated soil off site during the grading phase of construction. An estimated 26,510 cubic yards of soil will be removed from the project site, which equates to approximately 40,000 bulk cubic yards of soil. Assuming 30 working days for off haul and an average of 17 bulk cubic yards per truck, the number of truck trips per day to and from the project site would be ~~156~~156 trips to and from the project site. This would equate to 78 trips on each of the access and egress routes of the project site given an eight hour workday, -or one truck trip per 6 minutes each way. Assuming a constant speed of 25 miles per hour (or 0.42 miles per minute), there would be a 2.6 mile gap between the 78 trucks travelling in each direction, allowing adequate residential maneuverability between haul trips within the local roadway network. These truck trips would likely be on Bel Aire Road, to Ascension Drive east of Bel Aire Road to Polhemus Road. Therefore, construction of the Proposed Project would add approximately 176 vehicles per day during the soil hauling phase of construction; this represents the worst case scenario. Given the existing volume of traffic on Bel Aire Road and Ascension Drive, the addition of 176 vehicle trips to these roadways would not result in an increase of greater than 0.1 TIRE Index, which is defined as a noticeable increase in traffic on the street, for either for Bel Aire Road or Ascension Drive (**Appendix H**). **Less than Significant.**

Impact

4.11-2 Operation of the Proposed Project would not increase traffic on roadway segments in the vicinity of the project site beyond acceptable capacities and therefore would not conflict with any applicable plan, ordinance, or policy establishing measures of effectiveness and would not conflict with an applicable congestion management program.

Table 4.11-5 displays the background TIRE index, the background with project TIRE Index, and the change in TIRE index. As discussed in **Section 4.11.2**, the background traffic conditions are those that would occur immediately prior to the completion and occupancy of the Proposed Project; the background traffic conditions are based on existing traffic conditions and include an assumed 1.5 percent per year increase in traffic until Proposed Project completion in 2017. No roadway segment would experience an increase in the TIRE Index greater than 0.1. Therefore, the Proposed Project would not exceed acceptable roadway capacities and the impact is less than significant. As required under CEQA, Figure 6 in the TIA (**Appendix H**) shows the existing and the existing plus project conditions. As shown in Figure 6 of the TIA (**Appendix H**) and **Table 4.11-5**, the increase in TIRE Index is less than 0.1. **Less than Significant.**

TABLE 4.11-5

CHANGE IN TIRE INDEX WITH OPERATION OF PROPOSED PROJECT

Roadway	Background TIRE Index[1]	Background with Project TIRE Index[1]	Change in TIRE Index
Polhemus Road south of Ascension Drive	3.72	3.72	0.00
Ascension Drive, Polhemus Road to Bel Aire Road	3.20	3.22	0.02
Bel Aire Road, Ascension Drive to Laurie Lane	2.91	2.95	0.04
Laurie Lane	3.02	3.08	0.06
Parrott Drive, Laurie Lane to CSM Drive	3.39	3.42	0.03
CSM Drive east of Parrott Drive	3.57	3.59	0.02

[1]Including traffic due to growth.
Source: RKH TIA, 2013 (**Appendix H**).

Impact

4.11-3 Implementation of the Proposed Project would not conflict with adopted policies, plans, or programs, including those related to safety and performance, regarding public transit, bicycle, and pedestrian facilities but does have the potential develop unsafe pedestrian and bicycle facilities.

The Proposed Project would result in an increase in bicycle and pedestrian trips in the vicinity of the project site by residents and visitors. The Proposed Project may also result in an increase in demand for mass transit service. However, the Proposed Project is not anticipated to hinder and would not eliminate any existing bikeways or pedestrian way or interfere with the implementation of the planned bicycle and pedestrian improvements in the project study area. Likewise, the Proposed Project would not interfere with mass transit systems, and the level of transit usage generated by the Proposed Project is not anticipated to exceed the capacity of the available and

planned transit system in the project study area and the region. The Proposed Project would provide off-street sidewalks along all new roadways. Such provisions would result in enhanced pedestrian connectivity between the existing neighborhoods to the north and west of the project site. The project is not anticipated to result in unsafe condition for pedestrians and bicyclists; to ensure pedestrians' and bicyclists' safety at night on the project site, Mitigation Measure 4.11-3 is provided. With implementation of the proposed mitigation, the impact of the Proposed Project would be less than significant. **Less than Significant with Mitigation.**

> **Mitigation Measure 4.11-3**: Either provide street lighting on the private streets to a level of 0.4 minimum maintained average foot-candles with a uniformity ratio of 6:1, average to minimum or ensure street lighting is consistent with safety standards of the County-governed Bel Aire Lighting District.

Impact

4.11-4 Implementation of the Proposed Project has the potential to substantially increase hazards due to the design of the new private street and proposed intersection with Bel Aire Drive.

As discussed in **Section 3.4**, the Proposed Project includes development of a new private street on the project site to provide access to all proposed residences. The private street would connect with Bel Aire Road at the northern corner of the project site via a new intersection. The paved area of the private street would be approximately 36 feet wide, providing 22 feet for two travel lanes (11 feet per lane) and 14 feet for parallel parking spaces (7 feet per side). Street grades would range from 11 to 19 percent; any street with a slope greater than 15 percent would be constructed of concrete whereas all other streets would be asphalt. **Figure 3-~~6~~ 7** (Private Street Cross Sections) provides a diagram. The private street and intersection would be developed in accordance with applicable County standards. **Mitigation Measure 4.11-4** is included to ensure a safe sight distance at the proposed new intersection. With the proposed mitigation, the potential of the Proposed Project to result in a substantial increase in hazards is less-than-significant. **Less than Significant with Mitigation.**

> **Mitigation Measure 4.11-4**: Within the corner sight triangles at the new street intersection there should be no walls, fencing, or signs that would obstruct visibility. Trees should be planted so as to not create a "wall" effect when viewed at a shallow angle. The type of shrubbery planted within the triangles should be such that it will grow no higher than three feet above the adjacent roadway surface. Trees planted within the sight triangle areas should be large enough that the lowest limbs are at least seven feet above the surface of the adjacent roadway. Street parking should be prohibited within the bounds of the sight triangle.

Impact

4.11-5 Implementation of the Proposed Project would not result in inadequate emergency access.

As discussed in **Section 3.4** and above, the private street would be developed in accordance with applicable County standards. As designed, the private street provides adequate emergency

access for emergency vehicles to the project site (Colbert, 2013; Keefe, 2013). **Less than Significant.**

Cumulative Impact

4.11-6 Implementation of the Proposed Project would not increase traffic on local roadways beyond acceptable capacities in the cumulative year 2030.

The analysis of transportation under cumulative conditions focuses on year 2030 conditions. The discussion addresses impacts of the Proposed Project related to roadway operations. The Proposed Project would not cause additional cumulative impacts beyond those already identified for existing conditions in the areas of bikeway and pedestrian facilities and mass transit service. Cumulative conditions were analyzed to determine the effect of the Proposed Project in combination with the effects of a 2030 projected build-out of the surrounding community. There are no identified future developments that could affect traffic volumes in the project study area. A background growth factor of 1.5 percent per year was applied to the existing traffic volumes to extrapolate them to the year 2030.

The TIRE index for the cumulative year 2030 background with and without the Proposed Project per each studied traffic roadway segment is presented in **Table 4.11-6**. Under cumulative conditions, the TIRE Index of none of the roadway segments would increase by more than 0.04. Therefore, operation of the Proposed Project in the cumulative condition would result in a less-than-significant impact. **Less than Significant.**

TABLE 4.11-6

CHANGE IN TIRE INDEX WITH OPERATION OF PROPOSED PROJECT IN THE CUMULATIVE SCENARIO

Roadway	Background TIRE Index	Background w/Project TIRE Index	Change in TIRE Index
Polhemus Road south of Ascension Drive	3.80	3.80	0.0
Ascension Drive, Polhemus Road to Bel Aire Road	3.29	3.30	0.01
Bel Aire Road, Ascension Drive to Laurie Lane	2.99	3.02	0.03
Laurie Lane	3.11	3.15	0.04
Parrott Drive, Laurie Lane to CSM Drive	3.48	3.50	0.02
CSM Drive east of Parrott Drive	3.66	3.67	0.01

Source: RKH TIA, 2013 (**Appendix H**).

SECTION 5.0

CEQA CONSIDERATIONS

5.0 CEQA CONSIDERATIONS

California Environmental Quality Act (CEQA)-required discussions are included in this section, including the following:

- **Section 5.1**: Indirect and Growth-inducing Impacts of the Proposed Project
- **Section 5.2**: Cumulative Impacts of the Proposed Project
- **Section 5.3**: Significant and Unavoidable Impacts of the Proposed Project (i.e., residually significant impacts)
- **Section 5.4**: Irreversible Changes

5.1 INDIRECT AND GROWTH-INDUCING IMPACTS

CEQA Guidelines Section 15126.2(d) requires that an EIR evaluate the growth-inducing impacts of a proposed project. A growth-inducing impact is defined by the CEQA Guidelines as an impact that fosters economic or population growth or the construction of additional housing, either directly or indirectly. Direct growth inducement would result, for example, if a project involved the construction of new housing. Indirect growth inducement would result if a project established substantial new permanent employment opportunities (e.g., new commercial, industrial, or governmental enterprises) or if a project would remove obstacles to population growth (e.g., expansion of a wastewater treatment plant that could allow more construction in the service area).

Growth inducement may constitute an adverse impact if the growth is not consistent with or accommodated by the land use plans and growth management plans and policies for the area affected. Local land use plans provide development patterns and growth policies that guide orderly urban development supported by adequate urban public services, such as water supply, roadway infrastructure, sewer services, and solid waste services. A project that would induce “disorderly” growth (i.e., conflict with the local land use plans) could directly or indirectly cause additional adverse environmental impacts and other public services impacts. An example of this would be the re-designation of property planned for agricultural uses to urban uses, possibly resulting in the development of services and facilities that encourage the transition of additional land in the vicinity to more intense urban uses. Another example would be the extension of urban services to a non-urban site, thereby encouraging conversion of non-urban lands to urban lands.

5.1.1 GROWTH INDUCEMENT POTENTIAL OF PROPOSED PROJECT

Growth can be induced in several ways, such as eliminating obstacles to growth and stimulating economic activity within a region. Based on the significance thresholds contained in CEQA *Guidelines*, a project is considered to be directly or indirectly growth-inducing if it:

- Fosters economic or population growth or additional housing;
- Removes obstacles to growth (e.g., through development of physical infrastructure, roadways, and utilities); or

- Taxes community services or facilities to such an extent that new services or facilities would be necessary.

The following discussion examines whether the Proposed Project would induce growth beyond that envisioned in the County of San Mateo General Plan (County General Plan).

Geographic Setting

Areas immediately surrounding the project site would be most susceptible to growth-inducing impacts because of their proximity to project-related population growth and infrastructure expansion. Areas surrounding the project site are within the County's jurisdiction, yet within the City of San Mateo's sphere of influence. The predominate land uses surrounding the site include single-family neighborhoods, including the Baywood Park neighborhood to the northeast, the Enchanted Hills neighborhood to the southeast and southwest, and the Starlite Heights neighborhood to the northwest. The College of San Mateo is located less than 0.25 mile northeast of the project site. The existing land use constraints in these areas would limit the potential for growth inducement.

Fostering of Economic or Population Growth

The Proposed Project would contribute to future population growth in the County and the City of San Mateo's sphere of influence; however this would be to a minor degree. Assuming an average of 2.9 people per household, as specified in the County's General Plan Housing Element (2012), full build-out of the proposed residential development is estimated to generate approximately 55 new residents within the unincorporated area of the County, which currently supports approximately 64,000 residents. The estimated population increase attributable to the Proposed Project would constitute a population increase of 0.09 percent within the unincorporated area of the County. This population increase, associated job opportunity increases, and housing increases resulting from the Proposed Project are further discussed in **Section 4.9**. This minor inflow of residents and their demand for services would result in a corresponding level of economic growth in areas surrounding the project site. However, the increase in the demands for goods and services as a result from the anticipated population growth attributable to the Proposed Project would be met from the existing services within the County and City of San Mateo. Implementation of the Proposed Project would not foster economic growth in such a manner that would result in substantial new growth within the County or City of San Mateo.

Removal of Obstacles To Growth

Development of the Proposed Project would extend public services to the project site including water, sewer, and utility lines and would require annexation into the San Mateo County Service Area (CSA) #1 (refer to **Section 3.4** and **Section 4.10**). Proposed infrastructure would be proportionate to the level of service necessary to accommodate the Proposed Project and would originate from the extension of services provided to the existing residential developments surrounding the project site. Because public and utility services currently support the development surrounding the project site, there are no obstacles to growth that would be removed as a result of the implementation of the Proposed Project. In addition, as discussed in **Section 4.11**, the existing transportation network is adequate to meet the needs of the Proposed Project; no new major roadways would be required thereby eliminating the potential to foster new growth.

Community Services and Facilities

Development of the Proposed Project would result in an increased demand for community services and facilities. The direct impacts of the Proposed Project are addressed in **Section 4.10**. The County has implemented provisions to reduce impacts to community services through the establishment of development and impact fees to offset increased demands. Accordingly, a development agreement will be entered into by the County and the project applicant, which will include requirements to offset impact to community services.

Summary Of Growth Inducement Potential

Development of the Proposed Project would generate minor population growth (estimated at 55 persons) and stimulate a corresponding level of economic growth within the County and City of San Mateo. Extending public services, including water, sewer, and utility lines, from surrounding established neighborhoods to the project site would not remove an obstacle to development of surrounding areas. The indirect impacts of potential growth inducement are briefly discussed below.

5.1.2 Indirect Impacts of Potential Growth Inducement

As previously stated, growth inducement may constitute an adverse impact if the growth is not consistent with adopted land use plans for the affected area. As discussed above, while the Proposed Project would induce minor growth within the County and City of San Mateo sphere of influence, existing constraints including surrounding residential development and existing County planning documents would prevent inconsistent growth within the project area. The Proposed Project and associated growth are consistent with the County General Plan and the housing needs of the unincorporated area of the County. As discussed above, implementation of the Proposed Project would not remove obstacles to development as the surrounding area is currently developed with residential land uses. While the Proposed Project would result in impacts to community services and facilities, the project design and incorporation of mitigation measures proposed in this Draft EIR would reduce these impacts to less-than-significant levels. Additionally, the anticipated physical impacts associated with new public facilities have been addressed throughout **Section 4.0**. Therefore, implementation of the Proposed Project would not result in significant indirect environmental impacts associated with population growth.

5.2 Cumulative Impact Analysis

Cumulative impacts refer to the effects of two or more projects that, when combined, are considerable or compound other environmental effects. Cumulative impacts must consider the combined impact of past, present, and reasonably foreseeable future projects. When assessing a cumulative impact, an EIR must identify if the project makes a “cumulatively considerable” contribution to the cumulative impact. A project’s contribution may be cumulatively considerable even if the project’s individual impact is considered less than significant. CEQA *Guidelines* Section 15130(b) requires that discussion of cumulative impacts reflect the severity of the impacts and their likelihood of occurrence. The CEQA *Guidelines* state that the cumulative impacts discussion does not need to provide as much detail as is provided in the analysis of project-only impacts and should be guided by the standards of practicality and reasonableness. Pursuant to CEQA *Guidelines* Section 15130(b), this Draft EIR uses projections contained in the County General Plan (1986) and related planning documents, and in prior environmental

documents that have been adopted or certified, which described or evaluated regional or area-wide conditions contributing to cumulative impacts.

5.2.1 Cumulative Context

For the purposes of this Draft EIR, the cumulative setting is defined primarily as the County with consideration of the broader development trends impacting the City of San Mateo and Town of Hillsborough. As discussed in **Section 4.9.3**, the Regional Housing Needs Allocation (RHNA) for the unincorporated areas of the County for the 2014 to 2022 planning period identified a total need for 913 units to be constructed during this time period in order to accommodate population growth. As of January 1, 2014, no units had been approved pursuant to the 2014 to 2022 planning period as the planning period had just begun.

The cumulative analysis is based on the long term development levels projected in the County General Plan, as well as reasonably foreseeable potential development projects in the vicinity of the project site obtained through consultation with the County, City, and Town of Hillsborough. Reasonably foreseeable development projects generally considered within this Draft EIR are shown in **Table 5-1**. Some specific resources require analysis of additional or other reasonably foreseeable development projects; variation in analysis is noted in the individual resource sections of **Section 4.0**.

TABLE 5-1

FORESEEABLE DEVELOPMENT PROJECTS

Project Name	Project Status	Project Type	Description	Impacted Area	Distance from Project Site
Callan Subdivision	Conceptual Review	Residential	8 units, single-family	North east corner Crystal Springs Road and Tartan Trail Road	0.7 mile
San Mateo Executive Park	Approved Project	Commercial	100,000 sf	3000 & 3155 Clearview Way, City of San Mateo	0.5 mile
Verona Ridge	Construction Authorized	Residential	34 units, single-family	Campus Drive, Highway 92, the Peninsula Golf and Country Club and the Peninsula Office Park, City of San Mateo	1.0 mile
Source: City of San Mateo, 2013a; Town of Hillsborough, 2013					

5.2.2 Cumulatively Considerable Impacts

CEQA *Guidelines* Section 15130(a) provides the following direction with respect to the cumulative impact analysis and the determination of significant effects:

1. A cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts.

2. When the combined cumulative impact associated with the project's incremental effect is not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed further.
3. An EIR may determine that a project's contribution to a significant cumulative effect will be rendered less than cumulative considerable and thus is not significant. A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

Refer to **Section 4.0** for a detailed discussion of the nature and scope of cumulative impacts associated with the Proposed Project.

5.3 Significant and Unavoidable Impacts

The analysis of the Proposed Project did not identify any significant and unavoidable impacts. All potential impacts would be either less than significant or would be reduced to a less-than-significant level with incorporation of proposed mitigation measures pursuant to the criteria contained in Appendix G of the CEQA *Guidelines* and relevant agency thresholds.

5.4 Irreversible Changes

CEQA *Guidelines* Section 15126.2(c) provides the following direction for the discussion of irreversible changes:

> Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

The Proposed Project would result in an irreversible commitment of energy resources, primarily fossil fuels for construction equipment (e.g., fuel, oil, natural gas, and gasoline), and the consumption or destruction of other nonrenewable or slowly renewable resources (e.g., gravel, metals, and water).

Construction of new facilities would involve substantial quantities of building materials and energy, some of which are nonrenewable. Implementation of the Proposed Project would result in the urbanization of open space. The significance of the Proposed Project's environmental impacts is characterized in **Sections 4.2** through **4.13**, including both reversible and irreversible impacts.

SECTION 6.0

ANALYSIS OF ALTERNATIVES

6.0 ANALYSIS OF ALTERNATIVES

6.1 INTRODUCTION

This section reviews alternatives to the Proposed Project considered during the preparation of this EIR. The purpose of the alternative analysis, according to the California Environmental Quality Act (CEQA) *Guidelines* Section 15126.6(a), is to describe a range of reasonable alternative projects that could feasibly attain most of the objectives of the Proposed Project and to evaluate the comparative merits of the alternatives. CEQA *Guidelines* Section 15126.6(b) requires consideration of alternatives that could reduce to a less-than-significant level or eliminate any significant adverse environmental effects of the Proposed Project, including alternatives that may be more costly or could otherwise impede the Proposed Project's objectives. The range of alternatives evaluated in an EIR is governed by a "rule of reason," which requires the evaluation of alternatives "necessary to permit a reasoned choice." Alternatives considered must include those that offer substantial environmental advantages over the Proposed Project and may be feasibly accomplished in a successful manner considering economic, environmental, social, technological, and legal factors.

In accordance with the CEQA *Guidelines*, the alternatives considered in this EIR include those that 1) could accomplish most of the basic objectives of the project, and 2) could avoid or substantially lessen one or more of the significant effects of the project. To provide the appropriate context for this alternatives analysis, the objectives and key significant effects of the Proposed Project are summarized below in **Section 6.2**. Alternatives initially considered but eliminated from further consideration due to their inability to achieve the project objectives and/or to reduce environmental impacts associated with the Proposed Project are described in **Section 6.3**. Alternatives determined to achieve the selection criteria are discussed in **Section 6.4**. This discussion evaluates the capacity of selected project alternatives to accomplish the basic objectives of the project and provides a comparison of the potential environmental impacts expected to occur for each issue area. These comparisons are used in **Section 6.5** to determine the Environmentally Superior Alternative.

6.2 OVERVIEW OF THE PROPOSED PROJECT

6.2.1 PROJECT OBJECTIVES

The objectives of the Proposed Project are as follows:

- Provide sufficient housing supply jointly with the cities located in the County that meet San Mateo County's projected housing needs;
- Provide residential development consistent with economic and social needs and environmental constraints;
- Enhance and preserve the environmental quality of residential areas in the County through appropriate mitigation programs;
- Work with all affected local jurisdictions and agencies to develop appropriate impact mitigation and fee structure programs to greatly reduce or eliminate the project's impacts on the community's existing residents;

- Provide development of open space and trails in the County's residential areas;
- Provide a well-designed development that is compatible and complementary with surrounding land uses; and
- Blend the building types and densities with surrounding residential developments to provide orderly visual and land use transitions.

6.2.2 KEY IMPACTS OF THE PROPOSED PROJECT

The impacts of the Proposed Project are evaluated in **Section 4.0** of this Draft EIR and are summarized in **Table 2-1**. Construction of the Proposed Project could result in potential short-term impacts associated with air quality, geology and soils, hazardous materials, hydrology and water quality, and noise. Project design, regulatory requirements, and mitigation measures would reduce all potential short-term impacts to a less-than-significant level. Operation and maintenance of the Proposed Project could result in potential long-term adverse impacts associated with air quality, biological resources, geology and soils, hazardous materials, hydrology and water quality, water supply facilities, and wastewater treatment facilities. Project design, regulatory requirements, and recommended mitigation measures would reduce all potential long-term impacts to a less-than-significant level. None of the potential impacts of the Proposed Project would be significant and unavoidable.

6.3 ALTERNATIVES ELIMINATED FROM CONSIDERATION

In addition to the alternatives evaluated in **Section 6.4** below, an off-site alternative and alternate-use alternative were considered for their potential to reduce the environmental impacts of the Proposed Project. These alternatives were preliminarily considered but eventually excluded from full comparative analysis within the EIR because they were determined to be infeasible, unable to meet the objectives of the Proposed Project, and/or were not likely to reduce significant environmental impacts of the Proposed Project. The applicant does not own an alternate site with similar requirements (zoning, acreage, and infrastructure). Thus, alternative site locations were not selected for detailed analysis as a site could not be identified that would reasonably accomplish the stated objectives of the project while reducing the environmental effects. Alternatives involving commercial, recreational, and/or industrial land uses were dismissed as being infeasible because they would not satisfy the proposed project's primary objective of increasing housing opportunities in the County. Also, commercial and/or industrial land use alternatives would not necessarily reduce the significant impacts associated with the proposed project and would conflict with the zoning of the project site, requiring a General Plan Amendment.

During the scoping process, it was suggested that a Minimal Grading Alternative be considered to reduce the environmental impacts of the Proposed Project. Thirteen residential lots would be developed on the project site. The six lots requiring the most substantial grading under the Proposed Project would not be developed and instead retained as open space. This alternative was preliminarily considered but eventually excluded from full comparative analysis within the EIR because it would not offer new information to foster informed decision making and public participation, pursuant to CEQA *Guidelines* Section 15126.6(a). An alternative that considered reducing the number of residential lots included in the Proposed Project by approximately half ~~or more~~ would also avoid development of the six lots requiring the most substantial grading while also reducing the magnitude of other impacts compared to the Proposed Project, such as impacts to public services. Accordingly, a Reduced Intensity Alternative was selected for

full comparative analysis within the EIR. The Minimal Grading Alternative would result in environmental impacts similar to but slightly greater than those that would occur under a Reduced Intensity Alternative and was therefore excluded from full analyzed within the EIR.

6.4 ALTERNATIVES EVALUATED IN THIS DRAFT EIR

6.4.1 ALTERNATIVE A – NO PROJECT/NO DEVELOPMENT ALTERNATIVE

Description

As required by CEQA *Guidelines* Section 15126.6(e), a No Project Alternative has been evaluated. The evaluation of the No Project Alternative allows decision makers to compare the impacts of the Proposed Project against no development of the project. According to the CEQA *Guidelines* Section 15126.6(e)(2), the No Project Alternative shall discuss what would reasonably be expected to occur in the foreseeable future if the project were not approved. Under the No Project/No Development Alternative there would be no change to the current land use of the project site. Thus, the No Project/No Development Alternative consists of the environmental conditions that currently exist with no future development on the project site. The project site would remain as currently described in the existing setting under each issue area discussed in **Section 4.0**.

Ability to Meet Project Objectives

This alternative would not accomplish the basic objectives of the Proposed Project to provide sufficient housing supply jointly with the cities located in the County that meet San Mateo County's projected housing needs and other associated objectives.

Summary of Environmental Impacts

Under Alternative A, the project site would remain in its existing state and no development would occur. Therefore, Alternative A would eliminate the short-term impacts related to construction activities, including impacts related to noise, traffic, hazardous materials, and pollutant emissions. Additionally, potential long-term impacts relating to aesthetic resources, air quality, climate change, biological resources, soils, hazards and hazardous materials, hydrology and water quality, noise, public services and utilities, and transportation would be avoided.

6.4.2 ALTERNATIVE B – REDUCED INTENSITY

Description

Alternative B consists of the subdivision of 6 parcels into 21 lots, 10 of which would be developed as single-family residences. The remaining lots would be retained as open space. Lot sizes would be generally smaller than under the Proposed Project, ranging from 7,549 sf to 9,054 sf. Under this alternative, access to the site would be provided via a new main access roadway that would extend from Bel Aire Road, splitting into eastern and southern legs. The eastern leg of the access roadway would terminate in a hammerhead turnaround. The southern leg would also terminate in a hammerhead turnaround with the water tank/cell site access road realigned from its current entrance to the site (at Bel Aire Road) to the southern leg's turnaround. The design features of the new main access road

(i.e., sufficient width, hammerhead turnaround) would comply with California Department of Forestry and Fire Protection (CAL FIRE) and County design standards and requirements for emergency access.

All development and structures would be designed to be consistent with surrounding neighborhoods and to utilize similar architectural themes as those of surrounding houses. Landscaping would be designed to be consistent with surrounding neighborhoods and to minimize erosion, maximize soil stability, and screen existing viewsheds from the new development while still minimizing obstruction of solar access per each residence. The development footprint of the residences and roadway would be approximately 3.0 acres. No project development or site improvement would occur on the lots retained as open space.

Ability to Meet Project Objectives

Alternative B would generally accomplish the project objectives identified by the County and project applicant, however to a lesser extent than the Proposed Project.

Summary of Environmental Impacts

Short-term construction impacts resulting from Alternative B associated with traffic, noise, and air quality would be proportionately less than impacts from the Proposed Project because less construction would be required. Short-term impacts that could result from hazardous materials used during construction would be similar, as the same materials would be used under Alternative B and the Proposed Project. The reduced development and construction footprint would result in proportionately lessened long-term impacts relating to air quality, biology, climate change, geology, noise, hazards, traffic, and public services, utilities, and recreation. Impacts to aesthetic resources would be similar to the Proposed Project, as development of Alternative B would result in construction of new homes on a previously unimproved lot and would inherently change the viewshed. However, like the Proposed Project, the development would be similar to the surrounding visual character and impacts would be less than significant. Impacts to hydrology have the potential to be greater than the Proposed Project, as no improvements to existing site drainage would occur on the lots that are retained as open space. Therefore, the project site's existing drainage and erosion issues would not be improved under Alternative B.

6.4.3 Alternative C – Alternate (Large Lot) Design

Description

Alternative C is an alternate design featuring larger lot sizes and includes a residential subdivision of the northeastern portion of the project site into six lots. Each lot would be developed with one single-family home and associated landscaping; utility and access infrastructure is also proposed. Lot sizes would be larger than under the Proposed Project, ranging from 13,959 sf to 21,138 sf. Access to the lots would be provided via a new main access roadway that would extend from Bel Aire Road, parallel the northern boundary of the site, and end in a hammerhead turnaround. Access to the water tank site would be relocated to connect to Alternative C's new access road, rather than coming from Bel Aire Road.

No homes would be built near the top of the hill or the southern slopes, which would reduce the visual impacts associated with Alternative C. The remainder of the project site would be retained as open spaces, and no project development or site improvement would occur. The design features of the new

access roads would comply with CAL FIRE and County design standards and requirements for emergency access, including sufficient width and turnaround areas. Grading under Alternative C would be reduced as compared with the Proposed Project, and much of the development would avoid the steeper slopes on the site.

Other project characteristics such as lighting and landscaping are assumed to be similar to those of the Proposed Project for the purpose of analyzing this alternative. The potential environmental impacts associated with this alternative are described below and are compared to the environmental impacts associated with the Proposed Project.

Ability to Meet Project Objectives

Alternative C would accomplish some of the project objectives, however to a lesser degree than the Proposed Project. As with the Proposed Project, Alternative C would result in the addition of single-family homes. However, the proposed low density construction would not meet the objectives, which require sufficient housing supply to meet County projected housing needs. Low density development would impact the ability of the County and the City of San Mateo to meet housing needs as stated and required by the General Plan Housing Element.

Summary of Environmental Impacts

Due to the reduced square footage of construction, short-term construction impacts resulting from Alternative C associated with traffic, noise, and air quality would be proportionately less than impacts from the Proposed Project. Short-term impacts that could result from hazardous materials used during construction would be similar, as the same materials would be used under Alternative C and the Proposed Project. The reduced development would generate proportionately fewer long-term impacts relating to air quality, climate change, geology, noise, hazards, traffic, and public services, utilities, and recreation. The overall impact of Alternative C to biological resources is similar to the Proposed Project. As described above, the larger lots placed on the northeast portion of the project site would reduce the impacts to aesthetics and visual resources when compared with the Proposed Project. In addition, avoiding the steeper southern slopes would reduce impacts to geology under Alternative C. Impacts to hydrology have the potential to be greater than the Proposed Project, as no improvements to existing site drainage would occur on the lots that are retained as open space. Therefore, the project site's existing drainage and erosion issues would not be improved under Alternative C.

6.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA *Guidelines* Section 15126.6(d) requires an evaluation of alternatives to the Proposed Project.

The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.

Consistent with this CEQA requirement, a summary matrix has been prepared which qualitatively compares the effectiveness of each of the alternatives in reducing environmental impacts. This matrix, presented in **Table 6-1**, identifies whether each impact area of the project alternatives would have greater, lesser, or similar impacts compared with the Proposed Project.

TABLE 6-1
ENVIRONMENTAL IMPACT COMPARISON BETWEEN
THE PROPOSED PROJECT AND ALTERNATIVES

Issue Area	**~~Project Alternatives~~Alternatives to the Proposed Project**		
	Alternative A No Project/ No Development Alternative	**Alternative B Reduced Intensity Alternative**	**Alternative C Alternate Design Alternative**
Aesthetics	Lesser	Similar	Lesser
Air Quality	Lesser	Lesser	Lesser
Biological Resources	Lesser	Lesser	Similar
Geology and Soils	Lesser	Greater	Lesser
Hazards and Hazardous Materials	Lesser	Similar	Similar
Hydrology and Water Quality	Lesser	Greater	Greater
Land Use	Lesser	Similar	Similar
Noise and Vibration	Lesser	Lesser	Lesser
Population and Housing	Lesser	Similar	Similar
Public Services, Utilities, and Recreation	Lesser	Lesser	Lesser
Transportation and Circulation	Lesser	Lesser	Lesser

Generally, the environmentally superior alternative is the alternative that would cause the least damage to the biological and physical environment. Since implementation of the Alternative A to the Proposed Project also referenced as the No Project Alternative would result in ~~the~~ fewer adverse environmental effects than would occur under the Proposed Project and other alternatives, Alternative A to the Proposed Project ~~- No Project/No Development Alternative~~ would be considered the environmentally superior alternative. However, ~~the No Project/No Development~~ Alternative A would not achieve any of the project objectives.

If the No-Project Alternative is the environmentally superior alternative, CEQA *Guidelines* Section 1526.6(e)(2) requires identification of an environmentally superior alternative among the other alternatives considered in the EIR. When comparing the remaining development alternatives, Alternative C to the Proposed Project, also referred to as the Alternative Design Alternative, is the most environmentally superior alternative. Under Alternative C to the Proposed Project, development of fewer housing units on larger lots with increased open space would achieve some of the project objectives. Development of

Alternative C would result in lesser impacts than the Proposed Project in six issue areas, similar impacts to the Proposed Project in three issue areas, and greater impacts in one issue area.

SECTION 7.0

REPORT PREPARATION

7.0 REPORT PREPARATION

7.1 LEAD AGENCY – SAN MATEO COUNTY STAFF

Lisa Aozasa, Senior Planner, Planning and Building Department
James Castañeda, ACIP, Planner III, Planning and Building Department

7.2 EIR CONSULTANTS

ANALYTICAL ENVIRONMENTAL SERVICES

Principal:	David Zweig, P.E.
Project Manager:	Trent Wilson
Deputy Project Manager:	Stephanie Henderson
Technical Staff:	
	Annalee Sandborn – Geology and Soils
	Erin Quinn – Air Quality, Greenhouse Gas Emissions, Traffic, Noise
	Jasmyne Readye – Biological Resources
	Kelly Bayne – Biological Resources
	Kurt Steinert – Aesthetics
	Olivia Tinney – Hazardous Materials, Population and Housing
	Sarah Moffitt – Biological Resources
	Stephanie Henderson – Public Services, Utilities, and Recreation; Hydrology and Water Quality; Land Use
	Dana Hirschberg – Graphics
	Glenn Mayfield – Graphics

MICHELUCCI AND ASSOCIATES, INC. (GEOTECHNICAL REPORT)

Joseph Michelucci, G.E.
Richard Quarry

NV5, INC. (WATER AND SEWER)

Victor M. Alaniz

RKH, CIVIL AND TRANSPORTATION ENGINEERING (TRAFFIC)

Richard Hopper, P.E., PTOE

SECTION 8.0

REFERENCES

8.0 REFERENCES

Association of Bay Area Governments (ABAG), 2010. Seismic Hazards Mapping. Interactive GIS maps. Available online at: http://gis.abag.ca.gov/website/liquefactionsusceptibility/index.html. Accessed by AES Staff on November 20, 2013.

ABAG, 2013. Regional Housing Need Plan San Francisco Bay Area 2014-2022. Available online at: http://www.abag.ca.gov/planning/housingneeds/pdfs/ABAG_Final_RHNA_Publication.pdf Accessed by AES Staff on April 21, 2014.

Baldwin, B., Goldman, D., Keil, D., Patterson, R., Rosatti, T., and Wilken, D. 2012. The Jepson Manual: Vascular Plants of California. Second edition. January 2012. University of California Press. Berkeley, CA.

Barton, Molly, 2013. Personal Communication with Molly Barton, Assistant Superintendent, Student Services, San Mateo-Foster City School District via an email to AES Staff dated October 22, 2013.

Bay Area Air Quality Management District (BAAQMD), 2008. Regulation 5, Open Burning. Available online at: http://www.baaqmd.gov/Divisions/Planning-and-Research/Rules-and-Regulations.aspx. Accessed by AES Staff on November, 2013.

BAAQMD, 2010a. CEQA Air Quality Guidelines. Available online at: http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines_May%202011_5_3_11.ashx. Accessed by AES Staff on November, 2013.

BAAQMD, 2010b. BAAQMD Clean Air Plan. Available online at: http://www.baaqmd.gov/. Accessed by AES Staff in November, 2013.

BAAQMD, 2013. Ambient Air Quality Standards and Status. Available online at: http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm. Accessed by AES Staff in November 2013.

Bay Area Hydrology Model (BAHM), 2007. About BAHM. Available online at: http://www.bayareahydrologymodel.org/home.html. Accessed by AES Staff on December 3, 2013.

Beeken, Roberta, 2013. Personal Communication with Roberta Beeken, Administrative Assistant to the Superintendent, San Mateo Union High School District via an email to AES Staff dated October 25, 2013.

Brown and Caldwell, 1999. San Mateo County Crystal Springs County Sanitation District Master Plan. August 1999. Available online at: http://www.co.sanmateo.ca.us/vgn/images/portal/cit_609/35/52/1193061871CSCSD%20Master%20Plan.pdf. Accessed by AES on September 23, 2013.

Busa, Jan, 2013. Personal Communication with Jan Busa, Management Analyst II, San Mateo Public Library, via an email to AES Staff dated November 5, 2013.

California Air Resources Board (CARB), 2006. The Proposed Early Action to Mitigate Climate Change in California, 2006.

CARB, 2007. Climate Change Scoping Plan, 2007. Available online at: http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm. Accessed by AES Staff in November 2013.

CARB, 2009. Clean Car Standards - Pavley, Assembly Bill 1493. Available online at: http://www.arb.ca.gov/cc/ccms/ccms.htm. Accessed by AES Staff in November 2013.

CARB, 2013a. Emissions inventory data. Available online at: http://www.arb.ca.gov/app/emsinv/emseic1_query.php?F_DIV=-4&F_YR=2008&F_SEASON=A&SP=2009&F_COAB=Y&F_AREA=CO&F_CO=48&F_DD=Y. Accessed by AES Staff in November 2013.

CARB, 2013b. Monitoring data. Available online at: http://www.arb.ca.gov/adam/cgi-bin/db2www/adamtop4b.d2w/start. Accessed by AES Staff in November 2013.

California Department of Conservation (DOC), 1974. Special Studies Zones: San Mateo Quadrangle. Available online at: http://www.quake.ca.gov/gmaps/WH/regulatorymaps.htm. Accessed by AES Staff on November 20, 2013.

California Department of Education, 2013. DataQuest. Last updated August 21, 2013. Available online at: http://dq.cde.ca.gov/dataquest/dataquest.asp. Accessed by AES Staff on September 20, 2013.

California Department of Finance, 2012. E-8 Historical Population and Housing Estimates for Cities, Counties, and the State, 2000-2010. Sacramento, California, November 2012. Available online at: http://www.dof.ca.gov/research/demographic/reports/estimates/e-8/2000-10/. Accessed by AES Staff on October 8, 2013.

California Department of Finance, 2013a. E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2013 with 2010 Census Benchmark. May 10, 2013. Available online at: http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php. Accessed by AES Staff on September 19, 2013.

California Department of Finance, 2013b. Report P-1 (County) State and County Population Projections July 1, 2010-2060 (5-year increments). January 31, 2013. Available online at: http://www.dof.ca.gov/research/demographic/reports/projections/view.php. Accessed by AES Staff on October 8, 2013.

California Department of Fish and Wildlife (CDFW), 2005. California Wildlife Habitat Relationships. Version 8.1. California Interagency Wildlife Task Group. Sacramento, California.

CDFW, 2013a. RareFind, Version 3.1.0, California Natural Diversity Data Base (CNDDB) Biogeographic Data Branch. Last updated January, 2013. Accessed by AES Staff on August 5, 2013.

California Department of Forestry and Fire Protection (CAL FIRE), 2008. San Mateo County Very High Fire Hazard Severity Zones in LRA. November 24, 2008. Available online at: http://frap.cdf.ca.gov/webdata/maps/san_mateo/fhszl_map.41.pdf. Accessed by AES Staff in November 2013.

CAL FIRE, Not Dated (n.d.). CAL FIRE Fire and Emergency Response. Available online at: http://calfire.ca.gov/communications/downloads/fact_sheets/FireandEmergencyResponse.pdf. Accessed by AES Staff on October 9, 2013.

California Department of Resources Recycling and Recovery (CalRecycle), 1999. Solid Waste Characterization Database: 1999. Overall Residential Waste Stream by Material Type (San Mateo-Unincorporated). Available online at http://www.calrecycle.ca.gov/wastechar/rescomp.asp?J=417&SortBy=Disposal. Accessed by AES Staff on September 19, 2013.

CalRecycle, 2013. Facility/Site Summary Details: Shoreway Environmental Center (41-AA-0016). Available online at: http://www.calrecycle.ca.gov/SWFacilities/Directory/41-AA-0016/Detail/. Accessed by AES Staff on September 19, 2013.

California Department of Toxic Substances Control (DTSC), 2013. Hazardous Waste and Substances Sites (Cortese) List. Available online at: http://www.envirostor.dtsc.ca.gov/public/search.asp?cmd=search&reporttype=CORTESE&site_type=CSITES%2COPEN%2CFUDS%2CCLOSE&status=ACT%2CBKLG%2CCOM&reporttitle=HAZARDOUS%20WASTE%20AND%20SUBSTANCES%20SITE%20LIST. Accessed by AES Staff on November 2013.

California Department of Transportation (Caltrans), 2013. Technical Noise Supplement. Available online at http://www.dot.ca.gov/hq/env/noise/index.htm. Accessed April 14, 2014.

California Department of Transportation (Caltrans), 2012. Officially Designated State Scenic Highways. Available online at: http://www.dot.ca.gov/hq/LandArch/scenic/schwy.htm. Accessed by AES Staff on September 30, 2013.

California Department of Water Resources (DWR), 2004. California's Groundwater Bulletin 118, Santa Clara Groundwater Basin, San Mateo Subbasin, February 27, 2004. Available online at: http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/2-9.03.pdf. Accessed by AES Staff on December 4, 2013.

California Emissions Estimator Model (CalEEMod) 2013.2.2, 2013. Computer modeling program, Version 2.2. Available online at http://www.aqmd.gov/caleemod/download.htm.

California Geological Survey (CGS), 2010. An Explanatory Text to Accompany the Fault Activity Map of California. J.G. Parrish, C.W. Jennings, and W.A. Bryant. Available online at:

www.consrv.ca.gov/cgs/cgs_history/documents/fam_phamplet.pdf. Accessed by AES Staff on November 6, 2013.

California Native Plant Society (CNPS), 2013. Inventory of Rare and Endangered Plants (online edition, v7-11). California Native Plant Society. Sacramento, California. Available online at: http://www.cnps.org/inventory. Accessed by AES Staff August 5, 2013.

California State Water Resources Control Board (SWRCB), 2010. 2010 Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report). April 2010. Available online at: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml. Accessed by AES staff on December 4, 2013.

California Water Service Company (Cal Water), 2007. Urban Water Management Plan Mid-Peninsula District, Adopted December 21, 2007.

Cal Water, 2011. 2010 Urban Water Management Plan. Mid-Peninsula District. Adopted June 2011. Available online at: https://www.calwater.com/your_district/uwmp/bay/Mid-Peninsula/2010_Urban_Water_Management_Plan_(MPS).pdf. Accessed by AES Staff on September 17, 2013.

Christopher A. Joseph and Associates (CAJA), 2009. Ascension Heights Subdivision Project Draft Environmental Impact Report. Prepared for County of San Mateo. June 2009.

City/County Association of Governments (C/CAG) of San Mateo, 1996. San Mateo County Comprehensive Airport Land Use Plan. December 1996. Available online at: http://www.ccag.ca.gov/pdf/documents/2009/SMC_Airports_CLUP.pdf. Accessed by AES Staff on November 2013.

City of San Mateo, 2010a. 2030 General Plan. Available online at: http://www.cityofsanmateo.org/index.aspx?NID=2021. Accessed by AES Staff on November 2013.

City of San Mateo, 2010b. San Mateo City General Plan Noise Element. Available online at http://www.cityofsanmateo.org/DocumentCenter/Home/View/7167. Accessed in March 2014.

City of San Mateo Fire Department, 2013. About Us. Available online at: http://www.cityofsanmateo.org/index.aspx?NID=76. Accessed by AES Staff on September 20, 2013.

City of San Mateo Library, 2013. Library Locations and Hours. Available online at: http://www.cityofsanmateo.org/index.aspx?NID=514. Accessed by AES Staff on September 23, 2013.

Climate Action Team (CAT), 2007. Climate Action Team Report to Governor Schwarzenegger and the Legislature, 2007. Available online at: http://www.climatechange.ca.gov/publications/cat/2007-04-20_CAT_REPORT.PDF. Accessed by AES Staff in November 2013.

Colbert, Marc, 2013. Personal Communication with Marc Colbert, Deputy Fire Marshall, San Mateo County Fire Department/California Department of Forestry and Fire Protection (CAL FIRE) via an email to AES Staff on December 10, 2013.

Council on Environmental Quality (CEQ), 1997a. Considering Cumulative Effects Under the National Environmental Policy Act. Council on Environmental Quality (CEQ). January 1997.

CEQ, 1997b. Environmental Justice Guidance Under the National Environmental Policy Act. Council on Environmental Quality (CEQ). December 10, 1997.

Federal Emergency Management Agency (FEMA), 2011. Flood Insurance Rate Map (FIRM). Available at: http://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1. Accessed by AES Staff in November 2013.

Federal Highway Administration (FHWA), 2006. FHWA Highway Construction Noise Handbook, 2006. Available online at: http://www.fhwa.dot.gov/environment/noise/handbook/index.htm. Accessed by AES Staff on in November, 2013.

Federal Transit Authority (FTA), 2006. Transit Noise and Vibration Impact Assessment, May 2006. Available online at: http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf. Accessed March 2014.

Feldman, Cliff, 2013. Personal Communication with Cliff Feldman, Recycling Programs Manager, Rethink Waste, South Bayside Waste Management Authority via an email to AES Staff dated December 9, 2013.

Harlan, R.C., 1981. Feasibility Geotechnical Investigation. Ascension/Bel Aire P.U.D. San Mateo County, California. Prepared for Whitecliff Homes. Prepared by R.C. Harlan and Associates. July 8, 1981.

Herzberg, Sam, 2013. Personal Communication with Sam Herzberg, Senior Planner, County of San Mateo Parks Department via a letter to AES Staff dated October 24, 2013.

Hotspots Analysis Reporting Program (HARP), Version 1.4f, 2013. Computer modeling program, Version 1.4f. Available online at: http://www.arb.ca.gov/toxics/harp/harpdownload.htm.

Intergovernmental Panel on Climate Change (IPCC), 2007. IPCC Fourth Assessment Report, 2007. Available online at: http://www.ipcc.ch/ipccreports/ar4-syr.htm. Accessed by AES Staff in November 2013.

IPCC, 2013. IPCC Fifth Assessment Report, Summary for Policy Makers. Available online at: http://www.ipcc.ch/ipccreports/ar4-syr.htm. Accessed by AES Staff in November 2013.

Keefe, Michael, 2013. Personal Communication with Michael Keefe, Fire Chief, Foster City-San Mateo-Belmont FPD via an email to AES Staff dated October 24, 2013.

Kobernus, Patrick, 2014. RE: 2012 Mission Blue Butterfly Surveys at Ascension Heights Project Area, San Mateo, California. Letter to Mr. Dennis Thomas on February 6, 2014.

Low, Leighton, 2013. Personal Communication with Leighton Low, Construction Superintendent, California Water Service Company via a letter to AES Staff dated November 17, 2013.

Massachusetts v. Environmental Protection Agency, U.S., 1275 S.Ct. 1438, 1462 (2007).

McGourty, Scott, 2013. Personal Communication with Scott McGourty, Environmental Manager, Republic Services via phone conversation with AES Staff on December 12, 2013.

Michelucci & Associates (Michelucci), 2002. Geotechnical and Engineering Geologic Investigation, Proposed Ascension Heights Subdivision, San Mateo County, California. Prepared by Michelucci & Associates, Inc. December 16, 2002.

Michelucci, 2013. Supplemental Geotechnical Investigation. Prepared by Michelucci & Associates, Inc. December 5, 2013.

Munks, Greg, 2013. Personal Communication with Greg Munks, Sherriff, San Mateo County Sheriff's Office via a letter to AES Staff dated October 14, 2013.

Natural Resource Conservation Service (NRCS), 2013. Custom Soil Survey Report for San Mateo County, California: Ascension Heights Subdivision Project. WebSoil Survey available online at: http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm. Accessed by AES Staff on November 20, 2013.

NatureServe, 2013. NatureServe Explorer: An online encyclopedia of life [web application]. NatureServe, Arlington, Virginia. Available online at: http://www.natureserve.org/explorer. Accessed by AES Staff in December 2013.

Office of the Attorney General, 2013. Criminal Justice Statistics Center (CJSC) Statistics: Crimes and Clearances. California Department of Justice. Available online at: http://oag.ca.gov/crime/cjsc/stats/crimes-clearances. Accessed by AES Staff on September 13, 2013.

Porter, James, 2013. Personal Communication with James Porter, Director, County of San Mateo Department of Public Works via a letter to AES Staff dated November 8, 2013.

Porter, James, 2015. Inter-Departmental Correspondence: FY 2015-2016 Sewer Service Rates and Charges for the Ten County Sewer / Sanitation Districts governed by the Board of Supervisors. Aprils 296, 2015. Available online at: http://publicworks.smcgov.org/sites/publicworks.smcgov.org/files/SSC%202015%20BOS%2020150602.PDF. Accessed August 13, 2015.

Rice-Evans, T., Melnitzer, S., Walter, K., 2008. Technical Memorandum. Subject: 2008 San Mateo County Housing Needs Study; EPS #18038. To: Duane Bay, Janet Stone, and Maryam Hariri; San Mateo County Department of Housing / Richard Napier; City/County Association of Governments of San Mateo County. August 15, 2008. Available online at: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=4&cad=rja&ved=0CEgQFjAD&url=http%3A%2F%2Fwww.21elements.com%2FDownload-document%2F100-2008-Housing-Need-Study-by-EPS.html&ei=VWFUUum1IIn3iwK_roGgDQ&usg=AFQjCNEIEfjomdriW1-FMRadZP5oxnFemw&sig2=u7jlOe1FRW32KGV_UXnhSA&bvm=bv.53760139,d.cGE. Accessed by AES Staff on October 8, 2013.

Ricondo and Associates, 2012. Comprehensive Airport Land Use Compatibility Plan (CALUCP) for the Environs of San Francisco International Airport. October 2012. Available online at: http://www.ccag.ca.gov/pdf/plans-reports/2012/Consolidated_CCAG_ALUCP_10-29-12.pdf. Accessed by AES staff on April 14, 2014.

RKH Civil and Transportation Engineering, 2013. Traffic Impact Analysis. December 10, 2013.

RMC Water and Environment (RMC), 2010. City of San Mateo, Town of Hillsborough, and Crystal Springs County Sanitation District Sewer System Flow Monitoring and Hydraulic Modeling – Final Report. May 2010. Available online at: http://www.co.sanmateo.ca.us/publicworks/Divisions/Flood%20Control,%20Lighting,%20Sewer%20and%20Water/Sewer%20Services/CSCSD%20SSFM%20and%20HM%20Report%202010.pd. Accessed by AES Staff on September 23, 2013.

San Francisco Bay Regional Water Quality Control Board (SFBRWQCB), 2004. Order No. R2-2004-0062 Amending NPDES Permit No. CASOO2992I. California Regional Water Quality Control Board, San Francisco Bay Region. July 21, 2004.

SFBRWQCB, 2009. Cease and Desist Order No. R2-2009-0020. Certified by Bruce H. Wolfe, Executive Officer, on March 11, 2009. Available online at: http://www.waterboards.ca.gov/rwqcb2/board_decisions/adopted_orders/2009/R2-2009-0020.pdf. Accessed by AES Staff on September 23, 2013.

SFBRWQCB, 2013. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Available online at: http://www.waterboards.ca.gov/rwqcb2/basin_planning.shtml. Accessed by AES Staff on December 3, 2013.

San Mateo County (SMC), 1986a. San Mateo County General Plan. Available online at: http://www.co.sanmateo.ca.us/planning/genplan/. Accessed by AES Staff in November 2013.

SMC, 1986b. San Mateo County Zoning. Available online at: http://www.co.sanmateo.ca.us/vgn/images/portal/cit_609/39/43/1168665697zoning.pdf. Accessed by AES Staff on November 20, 2013.

SMC, 1992. Subdivision Regulations. Available online at: http://www.co.sanmateo.ca.us/vgn/images/portal/cit_609/43/30/390508706subdiv_regs.pdf. Accessed by AES Staff on October 21, 2013.

SMC, 2012a. San Mateo County 2007-2014 Draft Housing Element. Available online at: http://www.co.sanmateo.ca.us/Attachments/planning/PDFs/Major_Projects/Housing%20Element%20Project%20Draft/SMCo%20Housing%20Element%20May%202012.pdf. Accessed by AES Staff on September 30, 2013.

SMC, 2012b. San Mateo County Zoning Regulations. December 2012 Edition. Available online at: http://www.co.sanmateo.ca.us/Attachments/planning/PDFs/Regulations/2012_ZoneRegs[FINAL].pdf. Accessed by AES Staff on November 20, 2013.

SMC, 2012c. County Service Area #1 (3560 B). FY 2012-2013 Budget Unit Summary. Available online at: http://www.co.sanmateo.ca.us/bos.dir/Budget/recommend2012/safe/1-73.pdf. Accessed by AES Staff on December 6, 2013.

SMC, 2013. Noise Ordinance 4.88.330. Available online at: http://library.municode.com/index.aspx?clientId=16029. Accessed March 2014.

SMC Department of Public Works, 2012. Lighting Districts. Available online at: http://www.co.sanmateo.ca.us/portal/site/publicworks/menuitem.a4bfacf14e50a00d82439054d17332a0/?vgnextoid=327d4b3a4b71f110VgnVCM1000001d37230aRCRD&vgnextfmt=DivisionsLanding. Accessed by AES Staff on November 20, 2013.

SMC Fire Department (County Fire) and California Department of Forestry and Fire Protection (CAL FIRE), Not Dated (n.d.). Your Full Service Fire Department Brochure. Available online at: http://cfsfire.org/brochure.pdf. Accessed by AES Staff on September 20, 2013.

SMC Health System, 2012a. Emergency Medical Services General Information. Available online at: http://smchealth.org/EMS/Background. Accessed by AES Staff on September 13, 2013.

SMC Health System, 2012b. Solid Waste Program. Available online at: http://smchealth.org/node/387. Accessed by AES Staff on September 16, 2013.

SMC Local Agency Formation Commission (LAFCO), 2012. About LAFCO. Available online at http://www.co.sanmateo.ca.us/portal/site/lafco/menuitem.1935d6d126efab1874452b31d17332a0/?vgnextoid=9d300f68ed180210VgnVCM1000001d37230aRCRD. Accessed by AES Staff on November 20, 2013

SMC LAFCO, 2013. Municipal Service Review and Sphere of Influence Update City of San Mateo, Crystal Spring County Sanitation District, County Service Area 1 and Other Related County-Governed Districts. March 13, 2013. Available online at: http://www.co.sanmateo.ca.us/Attachments/lafco/pdfs/reports/msr_sanmateo_csa1_finalmarch132013_maps_plus_Responses.pdf. Accessed by AES Staff on September 30, 2013

SMC Library, Not Dated (n.d.). Belmont Library. Available online at: http://www.smcl.org/en/content/belmont. Accessed by AES Staff on September 12, 2013.

SMC Recycle Works, 2013. County of San Mateo Ordinance No. 04099 Available online at: http://www.recycleworks.org/con_dem/or_04099.html. Accessed by AES Staff November 19, 2013.

SMC Sheriff's Office (SMCSO), 2012. Operations Division. Available online at: http://www.smcsheriff.com/divisions/operations-division. Accessed by AES Staff on September 12, 2013.

San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), 2010. Hydromodification Management Requirements. Information for Developers, Builders and Project Applicants. Updated May 2010. Available online at: http://www.flowstobay.org/files/newdevelopment/hmregs/HMregsMay2010.pdf. Accessed by AES Staff on December 3, 2013.

SMCWPPP, 2013. New Development. Available online at: http://www.flowstobay.org/newdevelopment. Accessed by AES Staff on December 3, 2013.

San Mateo Union High School District (SMUHSD), 2013a. About the District. Available online at: http://www.smuhsd.org/cms/page_view?d=x&piid=&vpid=1324365621336. Accessed by AES Staff on September 20, 2013.

SMUHSD, 2013b. School Impact (Developer) Fees. Available online at: http://www.smuhsd.org/developerfees. Accessed by AES Staff on September 20, 2013.

Sawyer, J. O., T. Keeler-Wolf, J. M. Evens, 2009. *A Manual of California Vegetation, Second Edition*. California Native Plant Society. Sacramento, CA.

Shearer, Brigitte, 2013. Personal Communication with Brigette Shearer, General Manager, Highlands Recreational District via an email to AES Staff dated October 2, 2013.

South Bayside Waste Management Authority, Not Dated (n.d.). Shoreway Transfer Station. Available online at: http://www.rethinkwaste.org/uploads/media_items/fact-sheet.original.pdf. Accessed by AES Staff on September 19, 2013.

Terrasearch, Inc., 1980. Proposed Subdivision Northeast Corner of Ascension Drive and Bel Aire Road, San Mateo County, California: Project No. 4516-E. Letter report to Bartholomew Associates, 2p. April 29, 1980.

Transportation Research Board (TRB), 2000. Federal Highway Administration, Highway Capacity Manual, 2000. Washington D.C.

U.S. Fish and Wildlife Service (USFWS), 2008. Guidelines for Raptor Conservation in the Western United States. February 2008. Accessed by AES Staff on November 19, 2013.

USFWS, 2013a. National Wetlands Inventory. July 28, 2011. Available online at: http://www.fws.gov/wetlands/data/index.html.

USFWS, 2013b. Federal Endangered and Threatened Species that Occur In or may be Affected by Projects on the San Mateo USGS 7.5 Topographic Quadrangle. Last updated September 18, 2011. Available online at: http://www.fws.gov/. Accessed by AES Staff on November 18, 2013.

U.S. Geological Survey (USGS), 1980. San Mateo U.S. Geological Survey (USGS) 7.5-Minute Topographic Quadrangle.

USGS, 2009. 2009 Earthquake Probability Mapping. Available online at: https://geohazards.usgs.gov/eqprob/2009/index.php. Accessed by AES Staff on November 20, 2013.

USGS, 2013a. The Modified Mercalli Intensity Scale. Available online at: http://earthquake.usgs.gov/learn/topics/mercalli.php. Accessed by AES Staff on November 6, 2013.

USGS, 2013b. Magnitude/Intensity Comparison. Available online at: http://earthquake.usgs.gov/learn/topics/mag_vs_int.php. Accessed by AES Staff on November 6, 2013.

Von Aspern, Mark, 2008. Correspondence between CAJA Staff and Mark Von Aspern, Director, City of San Mateo, Wastewater Treatment Plant. September 25, 2008.

Western Regional Climate Center (WRCC), 2013. California Weather Database. Available online at: http://www.wrcc.dri.edu/summary/Climsmnca.html. Accessed by AES Staff December 2013.

Zammit, Cathi, 2013. Personal Communication with Cathi Zammit, City of San Mateo, Public Works, via an email to AES Staff dated November 18, 2013.

SECTION 9.0

ACRONYMS

9.0 ACRONYMS

This section presents a list of acronyms used throughout this document.

AB	Assembly Bill
ABAG	Association of Bay Area Governments
AERMET	AERMOD meteorological preprocessor
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
AES	Analytical Environmental Services
AFY	acre feet per year
ALUC	Airport Land Use Committee
AMR	American Medical Response
APN	assessor's parcel number
AQMD	Air Quality Management District
amsl	above mean sea level
BAAQMD	Bay Area Air Quality Management District
BAHM	Bay Area Hydrology Model
BART	Bay Area Rapid Transit
BAWSCA	Bay Area Water Supply and Conservation Agency
BMPs	Best Management Practices
BSD	Bayshore District
°C	Celsius
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	California Average Fuel Economy
CAJA	Christopher A. Joseph and Associates
CalARP	California Accidental Release Program
CalEEMod	California Emission Model 2013.2.2
CALGreen	California Green Building Standards Code
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Occupational Health and Safety Administration
Caltrans	California Department of Transportation
Cal Water	California Water Service Company
CALUCP	Comprehensive Airport Land Use Compatibility Plan
CAP	criteria air pollutants
CARB	California Air Resources Board
CAT	Climate Action Team
CBC	California Building Standards Code
CBRP	San Mateo County Comprehensive Bicycle Route Plan
CCAA	California Clean Air Act
CCAG	City/County Association of Governments
CCR	California Code of Regulations

CDF	California Department of Forestry
CDFW	California Department of Fish and Wildlife
CDPR	California Department of Parks and Recreation
CDS	Continuous Deflective Separation
CEPA	California Environmental Protection Agency
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFCs	Chlorofluorocarbons
CFR	Code of Federal Regulation
CGS	California Geological Survey
CH_4	methane
CHABA	Committee of Hearing Bio Acoustics and Bio Mechanics
CHP	California Highway Patrol
CIWMB	California Integrated Waste Management Board
CMA	Congestion Management Agency
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California National Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COG	Councils of Government
CSA	County Service Areas
CSCSD	Crystal Springs County Sanitation District
CTP	Countywide Transportation Plan
CTR	California Toxics Rule
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
cy	cubic yards
dB	decibel
dBA	A weighted decibel
DDT	dichlorodiphenyltrichloroethane
DOI	Department of the Interior
DPM	diesel particulate matter
Draft EIR	Draft Environmental Impact Report
DTSC	California Department of Toxic Substance Control
DWR	California Department of Water Resources
du	dwelling units
du/acre	dwelling units per acre
EIR	Environmental Impact Report
EMS	Emergency Medical Service

EO	Executive Order
ERT	Emergency Response Team
ESA	Endangered Species Act
°F	Fahrenheit
FAA	Federal Aviation Administration
Final EIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Act
FHWA	Federal Highway Administration
FICAN	Federal Interagency Committee on Aviation Noise
FIRM	Flood Insurance Rate Map
ft	feet
FTA	Federal Transit Administration
FTE	full time equivalent
g	gravity
GGNRA	Golden Gate National Recreation Area
GHG	green house gasses
GPP	Groundwater Protection Program
H&A	Harlan & Associates
HARP	Hotspots Analysis Reporting Program
HCD	California Department of Housing and Community Development
HCP	Habitat Conservation Plan
HDPE	high density polyethylene
HHW	Household Hazardous Waste Program
HI	hazard indexes
HMBP	Hazardous Materials Business Plan
HMI	Hazardous Material Inspection
HMP	Hydromodification Management Plan
HOA	Home Owners Association
HRA	Health Risk Assessment
HRD	Highlands Recreation District
HSPF	Hydrologic Simulation Program-Fortran
HVAC	heating, ventilation, and air conditioning
Hz	hertz
I-280	Interstate 280
I&I	Inflow and Infiltration
IPCC	Intergovernmental Panel on Climate Change
IRF	Intermediate Regional Flood
ISG	Individual Supply Guarantee
ITE	Institute of Transportation Engineers, 9th Edition Trip Generation Manual
LAFCO	Local Agency Formation Commission
Ldn	day/night average noise level

Leq	equivalent sound level
Lmax	maximum noise level
LRA	Local Responsibility Area
LOS	level of service
MACT	Maximum Achievable Control Technology
MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Level
MCVII	Manual of California Vegetation, Second Edition
mcy	million cubic yards
mgd	million gallons per day
MMI	Modified Mercalli Intensity Scale
MMRP	Mitigation Monitoring and Reporting Plan
mph	miles per hour
MSDSs	Materials Safety Data Sheets
MSW	municipal solid waste
MT	metric tons
NAAQS	National Ambient Air Quality Standards
NEHRP	National Earthquake Hazards Reduction Program
NEHRPA	National Earthquake Hazards Reduction Program Act
NEPA	National Environmental Policy Act
NHTSA	National Highway Traffic Safety Administration
NFIP	National Flood Insurance Program
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NOP	Notice of Preparation
NO_2	nitrogen dioxide
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	National Resource Conservation Service
O_3	ozone
OEHHA	California Office of Health Hazard Assessment
OES	Office of Emergency Services
OSHA	Occupational Safety and Health Act
PCBs	polychlorinated biphenyls
PCE	passenger car equivalence
PG&E	Pacific Gas and Electric Company
PM	particulate matter
ppm	parts per million
PPV	peak particle velocity

RCRA	Resource Conservation and Recovery Act
REL	Reference Exposure Level
RHNA	Regional Housing Need Allocation
RM	Resource Management
RMP	Risk Management Plan
ROG	reactive organic gas
RSMC	Recology San Mateo County
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SamTrans	San Mateo County Transit District
SB	Senate Bill
SCS	sustainable communities strategy
SDWA	Safe Drinking Water Act
SEL	single event levels
SFBAAB	San Francisco Bay Area Air Basin
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SFO	San Francisco International Airport
SFPUC	San Francisco Public Utilities Commission
SIP	State Implementation Plan
SMC	San Mateo County
SMCL	San Mateo County Library
SMCSO	San Mateo County Sherriff's Office
SMCWPPP	San Mateo Countywide Water Pollution Prevention Program
SMFCSD	San Mateo-Foster City School District
SMPL	San Mateo Public Library
SMUHSD	San Mateo Union High School District
SO_2	sulfur dioxide
sf	square feet
SR-92	State Route 92
STOPPP	San Mateo Countywide Stormwater Pollution Prevention Program
SWPPP	Storm Water Pollution Prevention Program
SWRCB	State Water Resources Control Board
TA	Transportation Authority
TAC	Toxic Air Contaminate
TCR	transportation concept reports
TEA	Transportation Equity Act
TIA	Traffic Impact Analysis
TIRE	Traffic Infusion on Residential Environment index
$\mu g/m^2$	micrograms per square meter
$\mu g/m^3$	micrograms per cubic meter
UBC	Uniform Building Code
U.P.	Unit of Pickup

URF	Unit Risk Factor
U.S.	United States
USA	Underground Service Alert
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Services
VdB	vibration velocity
VHFHSV	Very High Fire Hazard Severity Zone
VOC	volatile organic compounds
VPD	vehicles per day
V/C	Volume/Capacity ratio
WDRs	waste discharge requirements
WMP	Waste Management Plan
WRCC	Western Regional Climate Center
WSA	Water Supply Agreement
WWTP	Wastewater Treatment Plant

APPENDICES

APPENDIX A

NOP AND SCOPING COMMENTS

NOTICE OF PREPARATION (NOP)

Print Form

Appendix C

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH # 2013102009

Project Title: Ascension Heights Subdivision Project

Lead Agency: County of San Mateo — Contact Person: James Castañeda, AICP
Mailing Address: 455 County Center, 2nd Floor — Phone: (650) 363-4161
City: Redwood City — Zip: 94063 — County: San Mateo

Project Location: County: San Mateo — City/Nearest Community: Baywood Park Community
Cross Streets: Bel Aire Road and Ascension Drive — Zip Code:
Longitude/Latitude (degrees, minutes and seconds): 37 ° 31 ′ 49.1 ″ N / -122 ° 20 ′ 31.4 ″ W Total Acres: 13.32
Assessor's Parcel No.: 41-111-130,-160,-270,-280,-320,-360 Section: S6 Twp.: T5S Range: R4W Base: Mt Diablo
Within 2 Miles: State Hwy #: I-280; SR-92 Waterways: Crystal Spring Reservoir
Airports: none Railways: none Schools: College of San Mateo

Document Type:

CEQA: ☒ NOP ☐ Early Cons ☐ Neg Dec ☐ Mit Neg Dec
☐ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) ____ Other: ____

NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI
Other: ☐ Joint Document ☐ Final Document ☐ Other: ____

RECEIVED
OCT 04 2013
STATE CLEARINGHOUSE

Local Action Type:

☐ General Plan Update ☐ General Plan Amendment ☐ General Plan Element ☐ Community Plan
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Plan
☐ Rezone ☐ Prezone ☐ Use Permit ☒ Land Division (Subdivision, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☒ Other: County permits

Development Type:

☒ Residential: Units 19 Acres 13.32
☐ Office: Sq.ft. ____ Acres ____ Employees ____
☐ Commercial: Sq.ft. ____ Acres ____ Employees ____
☐ Industrial: Sq.ft. ____ Acres ____ Employees ____
☐ Educational: ____
☒ Recreational: 7.8 acres of open space
☐ Water Facilities: Type ____ MGD ____
☐ Transportation: Type ____
☐ Mining: Mineral ____
☐ Power: Type ____ MW ____
☐ Waste Treatment: Type ____ MGD ____
☐ Hazardous Waste: Type ____
☐ Other: ____

Project Issues Discussed in Document:

☒ Aesthetic/Visual
☒ Agricultural Land
☒ Air Quality
☒ Archeological/Historical
☒ Biological Resources
☒ Coastal Zone
☒ Drainage/Absorption
☐ Economic/Jobs
☐ Fiscal
☒ Flood Plain/Flooding
☒ Forest Land/Fire Hazard
☒ Geologic/Seismic
☒ Minerals
☒ Noise
☒ Population/Housing Balance
☒ Public Services/Facilities
☒ Recreation/Parks
☒ Schools/Universities
☐ Septic Systems
☒ Sewer Capacity
☒ Soil Erosion/Compaction/Grading
☒ Solid Waste
☒ Toxic/Hazardous
☒ Traffic/Circulation
☒ Vegetation
☒ Water Quality
☒ Water Supply/Groundwater
☒ Wetland/Riparian
☒ Growth Inducement
☒ Land Use
☒ Cumulative Effects
☐ Other: ____

Present Land Use/Zoning/General Plan Designation:

Designated Medium Low Density Residential; Zoned R-1/S-8

Project Description: *(please use a separate page if necessary)*

APNs 041-111-130, -160, -270, -280, -320, -360. The project would subdivide 6 parcels on 13.32 acres into 21 lots for 19 single-family residences with the remaining 2 lots (+/- 7.8 acres) maintained as a conservation area. Potable water would be provided by connection to the Mid-Peninsula Water District, and wastewater collection would be provided by the Crystal Springs Sanitation District with treatment at the City of San Mateo Wastewater Treatment Plant. The project is a re-design of a previous project, which proposed a subdivision of the project site into 27 parcels, 25 of which would have been developed; the previous project was denied by the San Mateo County Planning Commission in 2009. The applicant and County have since engaged the community in a discussion of the project and the revised project for reconsideration as a reduced intensity project.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "**X**".
If you have already sent your document to the agency please denote that with an "**S**".

X Air Resources Board
____ Boating & Waterways, Department of
____ California Emergency Management Agency
____ California Highway Patrol
X Caltrans District #4
____ Caltrans Division of Aeronautics
____ Caltrans Planning
____ Central Valley Flood Protection Board
____ Coachella Valley Mtns. Conservancy
____ Coastal Commission
____ Colorado River Board
____ Conservation, Department of
____ Corrections, Department of
____ Delta Protection Commission
____ Education, Department of
____ Energy Commission
X Fish & Game Region #3
____ Food & Agriculture, Department of
X Forestry and Fire Protection, Department of
____ General Services, Department of
____ Health Services, Department of
____ Housing & Community Development
____ Native American Heritage Commission

____ Office of Historic Preservation
____ Office of Public School Construction
____ Parks & Recreation, Department of
____ Pesticide Regulation, Department of
____ Public Utilities Commission
X Regional WQCB #2
____ Resources Agency
____ Resources Recycling and Recovery, Department of
____ S.F. Bay Conservation & Development Comm.
____ San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
____ San Joaquin River Conservancy
____ Santa Monica Mtns. Conservancy
____ State Lands Commission
____ SWRCB: Clean Water Grants
____ SWRCB: Water Quality
____ SWRCB: Water Rights
____ Tahoe Regional Planning Agency
____ Toxic Substances Control, Department of
____ Water Resources, Department of

____ Other: _____
____ Other: _____

Local Public Review Period (to be filled in by lead agency)

Starting Date October 4, 2013 Ending Date November 4, 2013

Lead Agency (Complete if applicable):

Consulting Firm: Analytical Environmental Services
Address: 1801 7th Street, Suite 100
City/State/Zip: Sacramento, CA 95811
Contact: Trent Wilson
Phone: 916-447-3479

Applicant: County of San Mateo
Address: 455 County Center, 2nd Floor
City/State/Zip: Redwood City, California 94063
Phone: (650) 363-4161

Signature of Lead Agency Representative: _____ **Date:** 10/4/13

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

County of San Mateo
Planning & Building Department
455 County Center, 2nd Floor
Redwood City, California 94063
650/363-4161 Fax: 650/363-4849
Mail Drop PLN122
plngbldg@smcgov.org
www.co.sanmateo.ca.us/planning

NOTICE OF EIR PREPARATION
NOTICE OF EIR SCOPING MEETING

To:	Responsible Agencies, Trustee Agencies, and Other Interested Parties
Subject:	**Notice of Preparation of a Draft Environmental Impact Report**
From:	County of San Mateo
Street Address:	455 County Center, 2nd Floor
City/State/Zip:	Redwood City, CA 94063
Contact:	James Castañeda, AICP

The County of San Mateo (County) is the Lead Agency and will prepare an Environmental Impact Report (EIR) for the proposed Ascension Heights Subdivision Project identified below in compliance with the California Environmental Quality Act (CEQA). The purpose of this Notice of Preparation (NOP) is to describe the Ascension Heights Subdivision Project and potential environmental effects in order to allow agencies and interested parties to provide input on the scope and content of the EIR.

Due to the time limits mandated by State Law, your response to this notice must be sent at the earliest possible date, but ***not later than November 4, 2013***.

Please send your response to:

The County of San Mateo
Attention: James Castañeda, AICP
Planning and Building Department
455 County Center, 2nd Floor
Redwood City, CA 94063

Please provide a contact name for your agency, if applicable, with your comments.

Project Title: Ascension Heights Subdivision Project

Project Applicant: County of San Mateo

Project Location: The project site is located in the Baywood Park area of unincorporated San Mateo County at the northeast corner of Bel Aire Road and Ascension Drive, east of Interstate 280 and west of State Route 92. The College of San Mateo is located approximately 0.25 miles to the northeast of the project site. The City of Redwood City is approximately 7 miles southeast of the project site, and the City of San Francisco is approximately 20 miles to the north.

Proposed Project: The Ascension Heights Subdivision Project (Proposed Project) entails a request by the project proponent for the County of San Mateo (County) to approve subdivision of 6 parcels on 13.32 acres into 21 lots for development of 19 single-family residences with the remaining 2 lots (approximately 7.81-acres) maintained as a conservation area. Potable water would be provided by connection to the Mid-Peninsula Water District, and wastewater collection would be provided by the Crystal Springs Sanitation District with treatment at the City of San Mateo Wastewater Treatment Plant. Development of the 19 subdivided lot into single-family residences would require 40,920 cubic yards of grading, of which 28,270 cubic yards would require exportation from the site. Accordingly, the project applicant also requires a grading permit from the County.

Project Background: The Proposed Project is a re-design of a previous project, which proposed a subdivision of the project site into 27 parcels, of which 25 would have been developed. A Draft Environmental Impact Report (Draft EIR) and Final Environmental Impact Report (Final EIR) were prepared for the previously proposed project. In 2009, the San Mateo County Planning Commission (Planning Commission) denied the applications for a Major Subdivision and Grading Permit and declined to certify the Final EIR. Based on an appeal and subsequent submission by the applicant of an alternative concept design plan to address the Planning Commission's concerns raised on the project, the County Board of Supervisors remanded the project back to the Planning Commission.

The applicant and County engaged the community in a discussion of the project and the revised project for reconsideration. County planning staff hosted a series of dialogs between the applicant and members of the community to discuss the topics of concern raised during the environmental review process of the previous project. The project as currently proposed was redesigned as a reduced intensity project limiting residential development to the northwestern portion of the project site, thereby reducing the subdivision request and associated number of proposed residential units.

Environmental Effects: The County has determined that an EIR is the appropriate environmental document for the project and that the EIR should address, at a minimum, the following issues:

Aesthetics – The EIR will address the potential impacts to the visual character of the project site and surrounding public view areas. Potential impacts to ambient lighting conditions will also be addressed.

Air Quality – The EIR will address the project's potential fugitive dust impacts, odor impacts, and regional air pollutant impacts, including greenhouse gas emissions. Potential impacts to sensitive receptors will also be addressed. The analysis will address both short-term impacts from construction and long-term impacts from operation. A preliminary health risk assessment for diesel particulate matter will be developed in support of the EIR.

Biological Resources – The EIR will analyze the project's short-term (construction) and long-term (operation) impacts on threatened and endangered species,

migratory birds, habitats, and other biological resources in light of applicable State and federal regulatory frameworks.

Geology and Soils – The EIR will assess the proposed project's potential for soil erosion during construction and the level of geologic and seismic risks. The level of risk to people and property will be determined based on analysis of the project site's soil properties and seismic hazard potential.

Greenhouse Gas Emissions – The EIR will assess the proposed project's potential for impacts to greenhouse gas emissions in relation to applicable and adopted plans, policies, and regulations.

Hazards – The EIR will evaluate potential impacts from the use of chemicals and practices common to construction of residential areas as well as address the increase is use of residential hazardous substances.

Hydrology and Water Quality – The EIR will analyze the project's impacts to surface and groundwater on a local and regional level. Potential impacts to surface water quality and changes in local hydrological conditions will be addressed.

Land Use, Planning, and Agriculture – The EIR will evaluate the consistency of the proposed project with the adopted plans and policies of County, including but not limited to the respective General Plans and Zoning Ordinances. The EIR will also analyze the proposed project's compatibility with surrounding land uses.

Noise/Vibration – The EIR will evaluate the potential impacts on ambient noise levels from construction-related and operation-related noise. Primary issues include short-term increase in noise and vibration that may impact sensitive receptors and the creation of land use conflicts regarding noise.

Public Services and Utility Systems – The EIR will evaluate the potential impact on public services and utility systems in the surrounding region. The EIR will determine if additional or expanded facilities or utilities are required to meet the needs of the residential units.

Traffic and Circulation – The EIR will address the potential impacts to surrounding roadways resulting from the increase in motor vehicle traffic along roadways during construction (short-term, temporary increase) and operations.

Growth-Inducing and Cumulative Effects – The EIR will analyze potential growth-inducing and cumulative impacts resulting from the proposed project pursuant to CEQA Guidelines 15126(d) and 15130, respectively.

Discussion of Alternatives:

CEQA Guideline 15126.6(a) requires that an EIR describe a range of reasonable alternatives for the project. The EIR will evaluate the comparative merits of the alternatives, including the No-Project alternative. The alternatives will be determined, in part, by public input received during the NOP comment period. To ensure that the EIR adequately addresses the full range of issues and

alternatives related to the proposed project and that all significant issues are identified, comments and suggestions are invited from all interested parties.

Notice of Scoping Meeting: Pursuant to CEQA Guidelines Section 15082 (Notice of Preparation and Determination of Scope of EIR), the County of San Mateo will conduct a scoping meeting for the purpose of soliciting views of adjacent cities, responsible agencies, agencies with jurisdiction by law, trustee agencies, and interested parties requesting notice, as to the appropriate scope and content of the EIR.

The scoping session will be conducted by the County of San Mateo on October 9, 2013 at 7:00 p.m. (doors will open at 6:15 p.m.) at:

The College of San Mateo Theatre
1700 West Hillsdale Boulevard
San Mateo, CA 94402
650/574-6161

Please contact James Castañeda, AICP, for further information.

James A. Castañeda, AICP

10/4/2013
Date

Telephone: 650/363-1853
FAX: 650/363-4819
E-mail: jcastaneda@co.sanmateo.ca.us

JAC:pac - JACX0677_WPP.DOC

COMMENT LETTERS RECEIVED DURING SCOPING

WRITTEN COMMENT CARD

SAN MATEO COUNTY – SCOPING MEETING
ASCENSION HEIGHTS SUBDIVISION PROJECT
ENVIRONMENTAL IMPACT REPORT

The College of San Mateo Theatre
1700 W. Hillsdale Blvd, San Mateo, CA 94402

Wednesday, October 9, 2013

If you would like to submit a written statement, please complete the following information and comment in the space provided below. Give to attendant or drop in the written comment box. Comments may also be submitted by mail to the address listed below.

(Please write legibly)

Name: Yasamin Ghochi Organization: —

Address: 1512 Ascension Dr.

Comment: Environmental impact on humans but mainly the animals. I have major asthma as it is and can't imagine how it will be impacting me + my family.

thank you

Please give to attendant;, drop in Written Comment Box; mail to The County of San Mateo, Attention: James Castañeda, Planning and Building Department, 455 County Center, 2nd Floor, Redwood City, California 94063; or email to jcastaneda@smcgov.org. Please include your name, return address, and the caption: Scoping Comments, Ascension Heights Subdivision Project.

WRITTEN COMMENT CARD

SAN MATEO COUNTY – SCOPING MEETING
ASCENSION HEIGHTS SUBDIVISION PROJECT
ENVIRONMENTAL IMPACT REPORT

The College of San Mateo Theatre
1700 W. Hillsdale Blvd, San Mateo, CA 94402

Wednesday, October 9, 2013

If you would like to submit a written statement, please complete the following information and comment in the space provided below. Give to attendant or drop in the written comment box. Comments may also be submitted by mail to the address listed below.

(Please write legibly)

Name: LUCAS OTTOBONI Organization: RESIDENCE OF NEIGHBORHOOD

Address: 1435 ENCHANTED WAY SAN MATEO, CA

Comment:

- Geology under the development & on downhill Slope to South & west is bedrock over lain w/ Surface Soil. Groundwater is known to travel down Slope along the Soil & rock interface. Water at this interface travels fast & in great quantity. How can you prevent this or at the very least address drainage, or mitigate the groundwater that will flow down Slope?
- Global Slope Stability, will it be addressed?... As all neighbors are down slope of the same Slope as the development

Please give to attendant;, drop in Written Comment Box; mail to The County of San Mateo, Attention: James Castañeda, Planning and Building Department, 455 County Center, 2nd Floor, Redwood City, California 94063; or email to jcastaneda@smcgov.org. Please include your name, return address, and the caption: Scoping Comments, Ascension Heights Subdivision Project.

WRITTEN COMMENT CARD

SAN MATEO COUNTY – SCOPING MEETING
ASCENSION HEIGHTS SUBDIVISION PROJECT
ENVIRONMENTAL IMPACT REPORT

The College of San Mateo Theatre
1700 W. Hillsdale Blvd, San Mateo, CA 94402

Wednesday, October 9, 2013

If you would like to submit a written statement, please complete the following information and comment in the space provided below. Give to attendant or drop in the written comment box. Comments may also be submitted by mail to the address listed below.

(Please write legibly)

Name: Inez Malardenio Organization: Caldwell Banker Broker Associate

Address: 28 Valley View Ct

Comment: The properties in this area built in the 60's were not properly compacted. There was not the technology we have to do. On Valley View Court # 80, 68, 64, 60 and 156 Have cell had movement. Needless to say this affects our property Values. 1406 Rainbow above the dolphins Retaining Wall needs a $400K repair. Built in 2000. This is an area of movement

Please give to attendant;, drop in Written Comment Box; mail to The County of San Mateo, Attention: James Castañeda, Planning and Building Department, 455 County Center, 2nd Floor, Redwood City, California 94063; or email to jcastaneda@smcgov.org. Please include your name, return address, and the caption: Scoping Comments – Ascension Heights Subdivision Project

WRITTEN COMMENT CARD

SAN MATEO COUNTY – SCOPING MEETING
ASCENSION HEIGHTS SUBDIVISION PROJECT
ENVIRONMENTAL IMPACT REPORT

The College of San Mateo Theatre
1700 W. Hillsdale Blvd, San Mateo, CA 94402

Wednesday, October 9, 2013

If you would like to submit a written statement, please complete the following information and comment in the space provided below. Give to attendant or drop in the written comment box. Comments may also be submitted by mail to the address listed below.

(Please write legibly)

Name: Suzanne Simms Organization: San Mateo Oaks

Address: 1879 Los Altos Dr San Mateo

Comment: Please explain how the county will handle the maintenance of the drainage ditches so that the land doesn't slip. Additionally how will you insure that what is done on Ascension Hill doesn't adversely affect the drainage & retaining walls for the San Mateo Oaks H.O assoc. We will not pay for problems →

Please give to attendant;, drop in Written Comment Box; mail to The County of San Mateo, Attention: James Castañeda, Planning and Building Department, 455 County Center, 2nd Floor, Redwood City, California 94063; or email to jcastaneda@smcgov.org. Please include your name, return address, and the caption: Scoping Comments, Ascension Heights Subdivision Project.

caused by changes in drainage resulting from new construction.

More importantly, the scheme of allowing the developer to pass on the responsibility and corresponding liability & cost of maintaining unstable land (that should never be built on) to unsuspecting and potentially first home owners through a HomeOwners Assoc. is not an honest way to do business. Is it even legal? Is the county responsible ultimately for approving unstable land to be built on?

WRITTEN COMMENT CARD

SAN MATEO COUNTY – SCOPING MEETING
ASCENSION HEIGHTS SUBDIVISION PROJECT
ENVIRONMENTAL IMPACT REPORT

The College of San Mateo Theatre
1700 W. Hillsdale Blvd, San Mateo, CA 94402

Wednesday, October 9, 2013

If you would like to submit a written statement, please complete the following information and comment in the space provided below. Give to attendant or drop in the written comment box. Comments may also be submitted by mail to the address listed below.

(Please write legibly)

Name: Linda Ottobone Organization: Homeowner

Address: 1435 Enchanted Way

Comment: I hope that you will reconsider your ~~need~~ building on this hill as the open space currently provided by that space allows people and animals to walk and enjoy the outdoors, as opposed to be endangered by being outdoors. This building project looks unreasonable for that number of units on that steep hill. You cannot easily walk down the side, yet alone on that steep side.

Please give to attendant;, drop in Written Comment Box; mail to The County of San Mateo, Attention: James Castañeda, Planning and Building Department, 455 County Center, 2nd Floor, Redwood City, California 94063; or email to jcastaneda@smcgov.org. Please include your

A second thought - will the homes that you are building be desirable when they are on top of other peoples home & looking into their bedrooms - are their any plans to sell these units prior to building to make sure the building does not result in empty residences

---

We live on Enchanted Way and were the victims of a slide that was the down from Bel Air in our back yard because a tree was removed above us. This is an example of the <u>instability</u> of the area, especially that steep hill - I walk it all the time and there is sliding on the existing hill without construction. Please build responsible as these are the homes of many people and outdoor animals.

WRITTEN COMMENT CARD

Scoping Comments — Ascension Hts.

SAN MATEO COUNTY – SCOPING MEETING
ASCENSION HEIGHTS SUBDIVISION PROJECT
ENVIRONMENTAL IMPACT REPORT

The College of San Mateo Theatre
1700 W. Hillsdale Blvd, San Mateo, CA 94402

Wednesday, October 9, 2013

If you would like to submit a written statement, please complete the following information and comment in the space provided below. Give to attendant or drop in the written comment box. Comments may also be submitted by mail to the address listed below.

(Please write legibly)

Name: Geraldine Landers Organization: Raywood Park H.O. Assn

Address: 1348 Enchanted Way, San Mateo 94402

Comment: Let's not repeat the mistakes of the 1983 landslide on Lakeshore Dr., where homes fell and the builder was long gone. Do not build on fill in the Water Tower Home's project. Better yet, do not build at all.

Also, the road plan has new buildings looking right at the Parrott Drive residents -- plus the numerous other flaws pointed out at the Oct 9, 2013 meeting

Please give to attendant;, drop in Written Comment Box; mail to The County of San Mateo, Attention: James Castañeda, Planning and Building Department, 455 County Center, 2nd Floor, Redwood City, California 94063; or email to jcastaneda@smcgov.org. Please include your name, return address, and the caption: Scoping Comments, Ascension Heights Subdivision Project.

RECEIVED

2013 OCT 15 A 11:57

SAN MATEO COUNTY
PLANNING AND BUILDING
DEPARTMENT

Geraldine Landers
1348 Enchanted Way
San Mateo, CA 94402-3620

SAN FRANCISCO CA 940
11 OCT 2013 PM 5 L

USA
Freedom
FOREVER
2012

County of San Mateo
Attn: James Castenedo
Planning and Building Dept.
455 County Center - 2nd floor
Redwood City
CA 94063

94063166355

DEPARTMENT OF TRANSPORTATION
DISTRICT 4
111 GRAND AVENUE
P.O. BOX 23660, MS-10
OAKLAND, CA 94623-0660
PHONE (510) 286-6053
FAX (510) 286-5559
TTY 711
www.dot.ca.gov

RECEIVED
2013 OCT 17 P 4: 26
SAN MATEO COUNTY
PLANNING AND BUILDING
DEPARTMENT

Flex your power!
Be energy efficient!

October 14, 2013

SM092150
SM-092-R9.38
SCH 2013102009

Mr. James Castaneda
County of San Mateo
Planning and Building Division
455 County Center
Redwood City, CA 94063

Dear Mr. Castaneda:

ASCENSION HEIGHTS SUBDIVISION – NOTICE OF PREPARATION

Thank you for including the California Department of Transportation (Caltrans) in the environmental review for the Ascension Heights Subdivision project. As the lead agency, the County of San Mateo (County) is responsible for all project mitigation, including any needed improvements to State highways. The project's fair share contribution, financing, scheduling, implementation responsibilities and lead agency monitoring should be fully discussed for all proposed mitigation measures. This information should also be presented in the Mitigation Monitoring and Reporting Plan of the environmental document. Required roadway improvements should be completed prior to issuance of the Certificate of Occupancy.

Traffic Impact Fees
Please identify traffic impact fees. Development plans should require traffic impact fees based on projected traffic and/or based on associated cost estimates for public transportation facilities necessitated by development. Please refer to the California Office of Planning and Research (OPR) *2003 General Plan Guidelines,* page 163, which can be accessed on-line at the following website: http://www.opr.ca.gov/index.php?a=planning/gpg.html

Scheduling and costs associated with planned improvements on the Caltrans ROW should be listed, in addition to identifying viable funding sources correlated to the pace of improvements for roadway improvements, if any. Please refer to the state OPR's *2003 General Plan Guidelines,* page 106.

Traffic Impact Study
Please evaluate the proposed project's impacts on state transportation facilities, specifically to State Route (SR) 92. The following criteria should be used in determining if a traffic analysis for these facilities is warranted:

1. The project would generate over 100 peak hour trips assigned to a state highway facility.

2. The project would generate 50 to 100 peak hour trips assigned to a state highway facility, and the affected highway facilities are experiencing noticeable delay; approaching unstable traffic flow (level of service (LOS) "C" or "D") conditions.

3. The project would generate 1 to 49 peak hour trips assigned to a state highway facility, and the affected highway facilities are experiencing significant delay; unstable or forced traffic flow (LOS "E" or "F") conditions.

We recommend using Caltrans' *"Guide for the Preparation of Traffic Impact Studies"* for determining which scenarios and methodologies to use in the analysis. The guide can be accessed from the following webpage:
http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tisguide.pdf

If the proposed project will not generate the amount of trips needed to meet Caltrans' trip generation thresholds, an explanation of how this conclusion was reached must be provided.

Highway Operations
Specific to this project, please include the following information in the Traffic Impact Study (TIS):
1. The TIS needs to detail whether the capacity for the arterials, collectors, and residential streets is for all lanes or per directional lane. Also, include posted or free-flow speed for each roadway facility.

2. The TIS should discuss the project impacts on SR 92 interchanges and ramps at Polhemus Road, De Anza Boulevard, and Hillsdale Boulevard. Accordingly, provide traffic intersection studies for the following intersections: Polhemus Road/Ascension Drive. Ascension Drive/Bel Aire Road, Parrot Drive/College of San Mateo Drive, Hillsdale Boulevard/College of San Mateo Drive, and De Anza Boulevard/Los Altos Drive.

3. Provide geometric plans showing traffic access to the project from Bel Aire Road and Ascension Drive. Plans should clearly show traffic turning movements, number of lanes, and volumes. Discuss traffic control, traffic conditions, and level of service (LOS) for these intersections.

4. The summarized traffic results shown in all the tables should be based on the LOS of the facilities in addition to the Volume/Capacity (V/C) ratio.

Please forward at least one hard copy and one CD of the environmental document, along with the TIS, including Technical Appendices as soon as they are available.

Please feel free to call or email Sandra Finegan at (510) 622-1644 or sandra_finegan@dot.ca.gov with any questions regarding this letter.

Sincerely,

ERIK ALM, AICP
District Branch Chief
Local Development – Intergovernmental Review

c: State Clearinghouse

November 4, 2013

James Castenada
County of San Mateo
455 County Center, 2nd floor
Redwood City, CA 94063

RE: Public Comments due Novemeber 4, 2013 for Ascension Heights proposal

Dear Mr. Castenada,

We are residents of 1538 Parrott Drive, and live in a home that abuts directly against the proposed development.

1. As a general statement, we believe the county decision making process would benefit from more comprehensive analyses of the various issues (rather than less comprehensive analysis). Given the steepness of the hillside and the various issues identified during the last DEIR process (culminating in the 2009 denial of the DEIR), we recommend that the DEIR process and resultant report err on the side of more data and more analysis rather than less.

2. We request that mitigations be described and mandated for any issues that are identified.

- This would be in contrast to last time (2009), when the DEIR stated for numerous issues that impacts, particularly but not limited to Parrott Drive neighbors adjacent to the site, were "... determined to be significant but unavoidable" and that several were not sufficiently mitigable to reduce impacts below recommended levels. We believe that mitigations may be put in place for nearly any issue or impact, and look forward to the process this time describing and mandating appropriate mitigations that would result in reducing the impact below recommended levels.
- Additionally, we request that mitigations be described with words like "must" rather than "should" or "could". The former (use of "must") defines prescribed mitigations upon which current residents in the neighborhood can depend, while the latter (use of "could") implies that the developer may do what he would like rather than follow through on the mitigation.

3. We request that Reduced Density Alternatives be created and considered thoughtfully. In meetings dating back to ~2008, the developer has repeatedly said that he has no interest in building anything less than ~25 homes on the site (now reduced to 19 homes in his latest proposal given the rejection of his previous proposal in 2009), and that he does not consider any Reduced Density Alternatives as feasible or of

interest to him. That said, the process leading the DEIR must include appropriate Reduced Density Alternatives for the County to consider thoughtfully.

4. Currently, the water tank on top of the hill has a large outlet pipe that runs straight down the hill to Parrott Drive, along an easement between 1538 Parrott (our home) and 1526 Parrott. The development plans for the propose to re-route this pipe between our property and the water tank, inserting four 90-degree turns into the pipe, and running within a few feet of our property line. We have two specific concerns about this planned re-routing of this water pipe.

- First, as context, we have three very large trees in our backyard adjacent to the property line. The diameters for these trees are ~47 inches, ~49 inches, and ~80 inches when measured ~two feet above ground level. Note that the trees spread out in trunk dimension, and so measuring diameters at the more typical "five feet above ground level" would significantly increase the measured diameters.

- We request that the plan be changed to comply with International Arborist standards which strongly recommends avoiding digging in the tree root zone that extends "1 to 1-1/2 feet away from the tree per inch of tree diameter". Given the 47-inch diameter of our smallest tree, the nearest edge of the excavation for the water pipe, or any development digging for that matter, would be 47 feet from that tree. Using the larger "1-1/2 feet per inch" recommendation, excavation should be no closer than 71 feet from this tree.

- Second, we are concerned about the possible impact from the proposed change in pipe design from a straight pipe which allows any water discharge to flow unencumbered through the pipe to the proposed design which incorporates four sharp turns (90 degrees). The increased pressure generated by these angles will lead to faster erosion inside the pipes. We are concerned and request a comparative analysis of the lifespan of the proposed design versus it's current design.

5.As mentioned above, we have three, very large and old trees. Arborists and original neighbors report the trees as being of, at least, 60, possibly 75, years old. As with most plants, over 70% of root activity occurs within the top few inches of soil. This is where the water, air and nutrition are primarily processed. *Architectural Graphic Standards* contains research by James Urban who determined that the critical factor in determining long-term tree health is the volume of root-supporting soil available. (Also mentioned in *Sustainable Landscape Construction* by J. William Thompson and Kim Sorvig.) The rule of thumb for area that must be untouched (to preserve tree health) is one and one-half times the area of the drip line. The International Arborist Society which certifies US arborists uses the guideline mentioned above in comment #1, bullet #2. By untouched, the guidelines specify no parking, storing materials, or changing the grade. Even 6 inches of additional soil against the trunk can cause disease and removing the top soil

will disproportionately hurt the trees' ability to thrive. Given these professional guidelines, **it is impossible to insure healthy mature trees <u>and</u> put housing or roads as close as they are proposed.**

While most of the proposed trees are not of the width as ours, it is essential that the same guidelines be used for those remaining trees as well.

6.The Developer has stated that all grading for the hill will be done at once and at the beginning of construction. We are very concerned about the potential for erosion and other damage if various precautions are not taken, including ones to conserve the health of the topsoil. The top soil is where growth happens. It also contains its own active ecology which is crucial for plant development. Ideally, the top soil should be removed and saved before grading the subsoil. Soils scientist, teacher at Harvard's School of Design and author of Urban Soils, Phil Craul, makes the following suggestions for keeping the soil as alive and healthy as possible – make several small piles, not one large; depth of piles should be no more than 4 feet for clay soils; keep the piles moderately damp; protect the soil from wind and water erosion by covering or planting; and handle the soil as little as possible. Caltrans has found that reapplication of the top soil works to improve the growth of post construction plantings. (Claasen, V.P. And R.J. Zaoski, "The Effect of Top Soil Reapplications on Vegetation Re-establishment", California Dept. Of Transportation, 1994.

We request that the same precautions be taken on any development on the hill.

7. The hammerhead turn-around points directly into our back yard and windows, specifically 2 of our children's bedrooms. Both of these could be mitigated, though that might require the developer to drop at least 1-2 lots.

8. The separation between the new development and Parrott homes (in 2002 CT referred to a ~25-foot gap between two separate fences, which is the bare minimum we wanted, along with mature trees in that separation) is vague and the developer is sending very mixed messages now. As one example, his plans don't show the trees or the gap between fences or even declare an easement the length of the deveolpment next to Parrott, but his artistic renderings from 2+ years ago show very mature pine trees in between "them" and "us". The "skinniest" pine trees I could find on the internet still have a branch spread of ~10-feet in radius, which means 20-feet in diameter, which requires more space than he is now showing; and most pine trees are broader than that. We request a definitive plan drawn and an analysis of the ability of any easement or buffer zone to effectively grow healthy trees, given visual and sound privacy, and not drop leaf/needle debris in an amount that would hurt plantings pools and other elements in the Parrott back yards.

9. Given the steep slope of the project and several areas of erosion, we are concerned that a qualified team of landscape architect, soils scientist and native horticulturalist have not been engaged to advise on the best choices for planting in the development. Some sample drawings have should lush grass on open spaces and standard street trees. This is an unlikely and expensive landscape with little chance for success and reminds us of the developer's ignorance of the site.

10. We request that AES survey the site and surrounding area at various times after rainfalls. Residents continue to manage foundation shifts and add drainage piping to their properties. Our yard regularly flooded until we added drainage trenches in three places, plus a catchement on our patio. Our outgoing sewage pipe was bent due to shift soil and our neightbors are currently going through the same process of having to replace the sewage outpipe.

11. Regarding the traffic on Parrott, between CSM and Laurie Drives, Laurel has personally seen 3 accidents where cars left the road and landed in yards. The third accident actually hit the house. In addition, we have lost 2 side mirrors on cars that were parked legally on the street. Finally, a student on the way to CSM claims she was blinded by the sunlight and rear-ended our minivan which was legally parked on the street. The insurance declared the car "totalled." Traffic speeds by regularly and safety is threatened. An analysis and recommendations for improved safety needs to be taken.

12. We have solar panels which provide for all of our annual electric needs. We request compensation for any dust or other blockages that prevent our panels from working to full capacity.

Thank you for your attention,
Laurel and Donald Nagle
1538 Parrott Drive
San Mateo, CA 94402

San Mateo County Planning Department

Baywood Park Homeowners Association Scoping Comments

Ascension Heights Subdivision
November 4, 2013

General Concerns

[Community Expectations for DEIR:

1. **<u>Reduced Density Alternative</u> (CEQA). "…. The assessment of project alternatives will be consistent with this requirement by presenting a sufficient amount of detail necessary to <u>afford decision makers with a reasoned choice</u>." Statement Of Work—AES**
   There are critical impacts of this project that would be substantially reduced and possibly minimized to "less than significant" by adoption of the Reduced Density Alternative. The Decision Makers cannot be afforded a "reasoned choice" without quantitative impact comparisons between the Proposed Project and the Reduced Density Alternative. We have indicated the impacts most sensitive to Density comparisons, which are essential for achievement of a "reasoned choice".
2. *Define who will be responsible for maintaining common areas, Conservation Areas, and subdivision systems (e.g., swales, rainwater control, fugitive dust management, erosion) and who, or what entity, will assume legal liability due to any failures. Specify in the DEIR all Covenants, Conditions and Restrictions (CC&Rs) required for the project and incorporate those CC&Rs in all analyses.*
3. *Describe in one location in the DEIR all impacts on the current homeowners on Parrott Drive adjacent to the proposed development.*
4. *Subdivided, single-family homes to be built are not described. This subdivision is the discretionary permit that would allow a conforming single-family home to be built on each new parcel. The DEIR should analyze the effects of these houses. If the developer is not able to provide information or assumptions of the size and number of stories for these homes, the DEIR should assume the maximum size that could be built on the lots, using the zoning setbacks and 3-story home heights.*
5. *Project Phasing: The initial rough grading of the site has been stated to last about 45 days, followed by a 6-month period to construct the private street. It estimates home build-out to be an additional 5-10 years. Until home construction is completed and replanting and landscaping is complete and survives, the site will undergo erosion of exposed sand stone, excess surface water drainage, and dust pollution. Despite the excessively prolonged construction phase, a stable project site must be ensured by the DEIR.*
6. *Hours of the day for construction and truck traffic as well as days of the week activities must be specified.*
7. *Assess how the Parrott homes will be affected during the construction from dirt, debris, and rocks being pushed down the slope onto the Parrott homes, e,g., fences and backyards. Include what will be done to prevent and to fix and clean up these intrusions as they occur.*

8. *Assess the degree of light pollution shining onto neighboring homes from the site at night, and describe how onsite night-time lighting will be shielded from neighboring homes. The construction activities will persist for 5-10 years and impart yet another significant annoyance. Mitigation should be managed through consultation with impacted residents.*
9. *Formally notify CSM of project proposal.]*

I. Aesthetics (CEQA)

"Would the project:
Have a substantial adverse effect on a scenic vista?
Substantially degrade the existing visual character or quality of the site <u>and its surroundings</u>?" –CEQA

[Community Expectations for DEIR:

1. *Assess impacts of proposed development on the vistas as seen from nearby homes on both sides of the streets (Parrott, Bel Aire, Ascension, CSM Drive), as well as character and quality of these surroundings.*
2. *Assess impacts of proposed development on the vistas as seen from further distances (e.g., from Polhemus, Bunker Hill), as well as character and quality of these surroundings.*
3. *Assess privacy intrusion on Parrott Drive homes and backyards both during construction and from the proposed development on an ongoing basis. Include the ongoing impact of car lights from the hammerhead turnarounds and the new road illuminating specific Parrott neighbors' yards and houses. Include the impact of car traffic and car lights from the new road adjacent to the Parrott home shown as "lot 4" (has a pool in its backyard) on the proposed plans given that the new street appears to come within a couple feet of that Parrott home's backyard.*
4. *In addition, assess the privacy intrusion on Parrott Drive homes given the proximity and slope of the proposed properties.*
5. *Assess effectiveness of visual separation provided by newly planted trees (describing appropriate factors including required tree numbers, sizes (heights and spreads), maturity at planting, time to adequate maturity) (a) in the easement between Parrott homes and the development and (b) on the other boundaries of the development*
6. *Evaluate effectiveness of easement proposed by Developer between Parrott and the proposed development to provide visual privacy and noise reduction for residents in each set of homes. Describe easement width and landscaping plan for providing that visual privacy and noise reduction. Describe location for backyard fences for the Ascension Heights properties on their side of the easement.*
7. *Assess landscape maintenance plan for the trees and foliage within the easement*

between Parrott and the proposed development, including the degree to which the width of the easement will be sufficient for healthy tree growth and maintenance.

8. *Evaluate the open space proposed by Developer, including the appropriateness of planned landscaping and re-grading and its contribution to the vistas in the area.*
9. *Include in the assessment Story Poles, which are essential to adequately assess backyard intrusions due to increased elevation and slope of final graded surface as well as current heavy tree and bush growth, which obscures views.*
10. *Provide detailed assessments for the Reduced Density Alternative]*

II. Agricultural Resources (CEQA)

[Community Expectations for DEIR:

1. *Evaluate "tree replacement" plan proposed by Developer, including numbers and species of trees removed versus numbers and species of trees planted, chance for healthy growth given the conditions on the hill, size (height and spread) and maturity of replacement trees, maintenance plan for continued tree health, and a multi-year plan and guarantee for tree health.*
2. *Evaluate the ecological contribution of proposed Open Space, including the diversity and use of native plants.*
3. *Incorporate the variable conditions on the hill (wind gusts, water, and soil health) on the likelihood of success of the landscape development plans, both during the multi-year build-out period and permanently.*
4. *Propose a specific solution to ensure 5-10 year longevity for all plantings and estimate cost of the plan.]*

III. Air Quality and Greenhouse Gases (CEQA)

[Community Expectations for DEIR:

1. *Identify all specific classes of 'sensitive receptors' including fetuses— reference new study of birth defects secondary to 1st trimester exposures.*
2. *Define assumptions, justifications and expertise used to build the most current URBEMIS model for predicting emission data (e.g., numbers of simultaneously operating equipment, age of diesel engines, type of fuel, exhaust catalyst, etc.) and detail peak and average TAC concentrations for each phase of construction. Include brake lining contaminants if trucks traverse down Laurie, Bel Aire, and Ascension.*
3. *BAAQMD adopted "thresholds of significance" for air quality for Construction-related activities in 2012. Include these thresholds for evaluating the significance of the project's air quality impacts.*
4. *Assess effectiveness in reducing concentrations of PM10 and PM2.5 particles by using new, cleaner diesel fuel and new engines for both 'off-road' and 'on-road' usage.*
5. *Include locally measured wind gusts from the site (measured at multiple times, and in particular late afternoons, during storms, and during seasonal transitional weather periods) in all air quality assessments.*

6. *Determine maximum site activity levels during "spare the air" days and any other conditions leading to unacceptably high TAC concentrations.*
7. *Assess effectiveness of CEQA phase 1 and 2 measures used to control fugitive dust.*
8. *Estimate dust volume deposited on houses and yards as function of distance from the construction site, off-site hauling routes and wind dispersion (possibly 40 – 50 mph).*
9. *Assess pollution impact (e.g., particulate matter, dust) from construction on nearby homes (Parrott Drive, CSM Drive, Bel Aire, and Ascension), as function of distance from the construction site, off-site hauling routs and wind dispersion). Include deposits specifically on solar energy panels (electricity and hot water), swimming pools, and outdoor plants.*
10. *Define necessary processes applicant will use to clean and remove dust from affected residences.*
11. *Since project is projected to last 5 -10 years, compute monthly fugitive dust for entire time hillside may be exposed due to non-planting of any area, estimated erosion rates for such areas, failure of plantings to survive the 10-year build-out, estimated erosion rates in those areas with failed plantings, and disruption of plants in Conservation Area.*
12. *Determine an effective, unbiased monitoring program for containment of all contaminants with power to halt operations when acceptable contaminant limits exceeded or other conditions warrant.*
13. *Include in the assessments impacts from trucks and equipment both on site and in use offsite (e.g., trucks that are idling on neighborhood streets awaiting entry onto the site).*
14. *Provide detailed, quantitative assessments for Air Quality Expectations 2,4,5,6,8 for the Reduced Density Alternative*
15. ***Conduct a comprehensive Health Risk Analysis.*** *Health risks of immediate, short-term (24 hours) exposure to air pollution are significant. The levels estimated in the 2009 Project of PM10 and PM2.5 emissions were sufficiently high to become a direct and immediate risk to the lives of people in the neighborhood and must be adequately evaluated and mitigated for the proposed plan as well as the Reduced Density Alternative. The preponderance of evidence demonstrating* ***immediate death, heart attack, stroke, asthma and COPD exacerbations increase immediately following short-term exposure (24 hours) of PM10 and PM2.5 contaminations.*** *This evidence has grown substantially with over 100 peer-reviewed, scientific studies demonstrating proximate (within 24-48hr) mortality and severe morbidities directly related to increased particle contamination, specifically PM10 and PM2.5. The adverse effects are cumulative and therefore proportional to both the concentration of contaminants and duration of exposure. The American Lung Association states (website, 2009): According to the findings from some of the latest studies,* ***short-term*** *increases in particle pollution have been linked to:*
    i. *Death from respiratory and cardiovascular causes, including strokes;*[21], [22], [23], [24]
    ii. *Increased mortality in infants and young children;*[25]

iii. *Increased numbers of heart attacks, especially among the elderly and in people with heart conditions;*[26]
iv. *Inflammation of lung tissue in young, healthy adults;*[27]
v. *Increased hospitalization for cardiovascular disease, including strokes and congestive heart failure;*[28], [29], [30]
vi. *Increased emergency room visits for patients suffering from acute respiratory ailments;*[31]
vii. *Increased hospitalization for asthma among children;* [32], [33], [34] *and*
viii. *Increased severity of asthma attacks in children.*[35]*]*

IV. Biological Resources (CEQA)

[Community Expectations for DEIR:

1. *The Mission Blue Butterfly question is key to determining the solution to the heavy, extensive erosion that has worsened substantially in the last six years since the 2007 assessment. A full assessment of the possible presence of the Butterfly does need be completed since the last assessment was indeterminate. The solution proposed in 2009 included no erosion remediation; thereby leaving the area "undisturbed and protected" is unacceptable.*
2. *If the new assessment does determine the probable presence of the Butterfly, acceptable erosion control methods must be explored and implemented as part of the mitigation. Appropriate planting might provide adequate erosion control without disturbing the Butterfly habitat.]*

V. Cultural Resources (CEQA)

VI. Geology and Soils (CEQA)

[Community Expectations for DEIR:

1. *The plan conveys many acres into a conservation area, which is steep and has experienced extensive, severe erosion and substantial slides above Bel Aire within the past two years. In 2009 and in subsequent discussions with the developer, there apparently is no intension to repair the erosion. This entire area will require a full assessment and recommendations for repairing and stabilizing the erosion by appropriate experts.*
2. *The time line for project completion is expected by the developer to be 5 – 10 years. Evaluate likelihood of increased and ongoing erosion during the build-out period. Erosion of lots and any unplanted areas awaiting construction completion will require assessment for mitigation solutions and continual monitoring of slope stability.*
3. *Many of the final lot slopes are very steep but don't appear to be determined since the house layouts are not finalized and potentially may be modified by new house owners prior to building. Final, or maximum, slopes of appropriate steepness must be included in the project plans. Describe specific steepness for each proposed lot, and compare with County and City of San Mateo guidelines and current practices.*
4. *Assess impact of the grading proposal and multi-year "build out" period on soil*

health on the hill. Include the "soil health" related credentials of the assessor.

5. *Present likely outcomes of the post-grading landscape plan (e.g., seed spraying) to stabilize the hill after grading and throughout years of the build-out period.*
6. *Use updated analysis and information to assess hill stabilization, including specifically the new slide at the East end of Rainbow Drive on the location of a recently repaired major slide (~2003).*
7. *Provide detailed assessments for the Reduced Density Alternative]*

VII. Hazards and Hazardous Materials (CEQA)

VIII. Hydrology and Water Quality (CEQA)

[Community Expectations for DEIR:

1. *Assess after construction how the Parrott homes will be affected from debris, dirt, and water coming down the slope into their backyards during the initial grading phase, the build-out period, and on an ongoing basis.*
2. *Use a 100-year storm model for all rainwater calculations given the numerous, recent large storms that have exceeded calculated 10 year maximums.*
3. *Describe effectiveness of swales on equally steep hillsides and catchment areas in other developments.*
4. *Assess potential for overflows from the swales onto Parrott Drive homes and down Bel Aire as a function of multiple rain falls over a short time time.*
5. *Calculate the storm water flows down Bel Aire for capacity of curb containment and propensity for overflows at Ascension storm drain and contamination/damage to houses on Ascension and Valley View--include in calculations failures of Ascension storm drain due to debris accumulations.*
6. *Multiple houses on Ascension and CSM Drives with property lines coincident with the project experience underground streams flowing under their houses often requiring sump pumps for water extraction. No assessments have been made to determine the location of these streams and the potential for disruption by the proposed construction. Assessments during the wet season prior to construction must be conducted and if flows increase after construction, necessary diversions constructed.*
7. *Determine responsible party for maintenance of storm water system and legal responsibility for failures of the system.*
8. *Provide detailed assessments for the Reduced Density Alternative]*

IX. Land Use and Planning (CEQA)

X. Noise (CEQA)

[Community Expectations for DEIR:

1. *Assessments of peak sound levels at nearby, off-site homes must be calculated*

with maximum and typical numbers of simultaneously operating engines (note that the noise levels produced by a single diesel engine exceeded thresholds and could not be mitigated according to the 2009 DEIR.). Assess the noise impacts during all phases of construction.

2. *Unacceptable sound levels must be defined with mitigation to include reducing the number of operating engines, improving mufflers, shutting off idling engines, etc.*
3. *Assess truck haul noise levels along residential streets.*
4. *Assess the noise impact from the trucks using compression braking if the route takes them down any steep slopes (e.g., Bel Aire to Ascension Drive).*
5. *Sound levels must be continuously monitored by an independent service with the ability to halt activities as necessary.*
6. *Provide detailed assessments for the Reduced Density Alternative.]*

XI. Population and Housing (CEQA)

XII. Public Services (CEQA)

[Community Expectations for DEIR:

1. *The conservation areas apparently are to remain untouched by the developer. Eight to twelve foot brush is prevalent on the conservation areas. A fire assessment should be made of the potential for this very dry brush to cause a fire.*
2. *The street layout includes two hammerhead turn-arounds and steep streets exceeding standard slopes that may impede access of fire trucks. The street layout needs to be re-assessed for fire safety.*
3. *The entire subdivision has very limited off-street parking capacity, which will result in extensive on-street parking. Assess and describe access for fire trucks in the scenario of maximum used on-street parking from home owners and visitors; compare against current practices considered safe and normal within County and City of San Mateo.*
4. *Describe the parking capacity for the proposed subdivision, to include on-street and off-street parking.*
5. *Provide detailed assessments for the Reduced Density Alternative.]*

XIII. Recreation (CEQA)

XIV. Utilities and Service Systems (CEQA)

XV. Transportation and Traffic (CEQA)

[Community Expectations for DEIR:

1. *Assess safety of large trucks traversing neighborhood streets for blind spots, tight turns, brake failures on hills, heavy traffic; specify carrying capacity and dimensions (length, width, height, empty weight, loaded weight) of the trucks used in all traffic*

assessments.

2. *Assess impact from permanent traffic increase due to the proposed development.*
3. *Specifically assess multiple times throughout the day and early evening, with specific intent to include CSM class-change periods and regular morning and afternoon commuter rush hours (due to the increased parking on CSM western parking lots by businesses located on Clearview and the shuttle buses that now run throughout the day from those parking lots, onto CSM Drive, up to Hillsdale, and then down to Clearview and back again) at the following intersections:*
    a. *– Hillsdale and 92;*
    b. *– Hillsdale and Clearview;*
    c. *– Hillsdale and CSM Drive;*
    d. *– CSM Drive and Parrott;*
    e. *– Parrott and Laurie;*
    f. *– Laurie and Bel Aire;*
    g. *– Bel Aire and the proposed exit from the development;*
    h. *– Bel Aire and Ascension;*
    i. *– Ascension and Polhemus;*
    j. *– Polhemus and DeAnza*
4. *Assess safety impact from construction traffic and permanent traffic on Parrott roughly four to five homes north of the CSM/Parrott intersection (there is a "limited sightline" due to the rapid grade change on Parrott).*
5. *Construction activities will disrupt traffic on Bel Aire, especially CSM student traffic, with impacts on Enchanted way, Rainbow and Starlite, among others. Assessment of these areas must include this additional, displaced traffic when identifying problematic areas such as blind spots and dangerous curves.*
6. *Include a live demonstration of the proposed route for large trucks during construction through all neighborhood intersections from Highway 92 to and from the site. Monitor the speed of the trucks to make sure they will not be slowing down traffic going through the turns. Also have 2 trucks driving by each other in opposite direction to make sure that they can both safely maneuver the roads including turns and parked cars and all intersections, to include but not limited to Hillsdale and CSM Drive. Video this test and notify neighbors and CSM officials so that they can be present during the testing.*
7. *Determine the number of trucks that will need to exit the site to offload the excavated material. Describe the calculation, including truck size (must be the same size used for the demonstration in #6 as well as all traffic assessments), soil aeration estimate (e.g., ¾ cubic yard becomes 1 cubic yard when dumped into a truck), total excavation volume and total return-soil-to-site volume, specific hours per day truck traffic will drive onto and off the site during excavation and grading, Convert the number of trucks into "a truck will enter or leave the site every x minutes during the soil excavation phase".*
8. *Describe where trucks will stand to await entry into the site; assess traffic impact and safety any such standing or slow moving trucks, including describing the temporarily narrowed road widths.*

9. *The exit route from the development entails traffic risks due to an elevation of Bel Aire north of the entrance to the subdivision resulting in a blind spot. A thorough traffic safety analysis must be competed providing acceptably safe solution during construction.*
10. *Traffic safety analysis must provide an acceptably safe solution for home owner traffic traversing this blind corner at the subdivision.*
11. *All street damage must be assessed before and after the majority of heavy truck traffic with cost of repairs for returning the surface back to its initial condition to be paid by developer.*
12. *Provide detailed assessments for the Reduced Density Alternative]*

From: Marie O'Rourke <marieorourke101@gmail.com>
To: <jcastaneda@smcgov.org>
Date: 11/03/2013 17:17
Subject: Fwd: water tank hill

>>
>> From: Marie and Tom O'Rourke To:County of San Mateo Planning and Building Department, James Castaneda
>> 124 CSM Drive jcastaneda@smcgov.ort
>> San Mateo, CA 94402
>> Subject Line: Scoping Comments, Ascension Heights Subdivision Project
>> Concerns needed addressing in the EIRs:
>>
>> In the past meetings, it was stated by the developer that the area would be graded by this developer for the proposed sites. His company would not be building the homes. Therefore, the sites would be 'abandoned' until sold and developed by individual contractors. Given the economy and the negative publicity surrounding this area, this 'abandonment' could last many years. This alone poses a safety problem as the ground will be moved, ground water/springs will find new paths/erosions, rock strata (varied in this area) will become more unstable and possibly cause slides etc.. When San Mateo Oaks was developed, the ground water was pumped out resulting in extensive damage to homes on Parrott Drive - at the time and later when the water table refilled. The 'bonding' for this damage was non existent and homeowners told me they had to pay for reconstruction out of pocket. Since this area to be developed is far more fragile, the bonding cost for future coverage should be in the millions given the amount of existing homes that could be affected. The homes on Parrott Dr. need to know how close these new homes will be to them, if this closeness and elevation will affect their access to natural light (there is a law on the books regarding this), if there is to be an easement, probably other factors.
>>
>> SPECIFICS need to be included in ALL levels of the EIRs.
>> *Limits on the steepness of the slopes spelled out. This IS a slide prone area. As a side observation, remember the water tank itself had a major event some years ago, sending forceful gushers of water down the slope, taking a southern turn and causing severe erosion between the lots that would become 124 &136 CSM Drive. We have been filling that ravine over the years with soil and plants to forestall any more erosion. If the tank ruptured again, imagine the damage because now there are homes, and you have to consider the lot/home placements if future sites are developed.
>> * Additionally, there are parts of this property that must be included that already have 'issues', of erosion and soil movement, with detailed remedies and maintenance - and WHO will be financially responsible.
>> *Which brings up the access roads and the erosion these may cause, and the visual 'barriers/retaining walls' to be erected to reinforce these roads. How long and under what conditions will these constructions remain intact. This would definitely change the rural, open space, natural environment that presently exists.
>>
>> *AIR QUALITY is of prime concern. We have many residents who are over 55 years old as well as the influx of younger families as the older families move to other homes. The statement that 'significant and unavoidable' limits for air quality is unacceptable. This is a matter of life and death (not an overstatement) for some of the present residents, and they should not have to leave and give up the homes they love to allow a developer to grade and possibly abandon the property near their homes. Many presenters at the various meetings have discussed the SPECIFICS of how many particles suspended in the air are deemed tolerable. Considering the enclosed (by homes) environment to be graded, it was presented that the dust and disturbed earth (which may contain asbestos rocks) would be WELL above the levels for health. This massive land moving may continue unabated for some time, increasing and prolonging the negative health issues.
>>
>> *NOISE IMPACT would be continuous from early morning until evening. Decimal limits

need to be addressed and adhered. Not only would it cause those who work from home (more are telecommuting as part of their career) a severe hardship, but people who work swing/night shifts, babies, retirees and those who enjoy a nap occasionally would now not have the freedom to enjoy their homes' quiet and peace. It has been proven in many scientific studies that noise has serious detrimental health affects on all living things, with prolonged noise causing damage to hearing, memory/focus, heart rhythms and general well-being. The noise continuously from the machinery on the hill and the heavy trucks traveling our streets causes noise coming at us from all sides of our homes.
>>
>> *TRAFFIC IMPACT on streets that are barely wide enough for 2 SUVs to pass each other in opposite directions would be down-right dangerous with huge earth moving trucks/trailers using these existing small, neighborhood streets. If even one of these pieces of equipment should tip, spill its load, hit another vehicle etc., can you imagine the cost, inconvenience and possible bodily injury that can be caused? Please remember that this is a family area that already shares the streets with incoming car/ bus traffic to the College of San Mateo. This college traffic starts before 7:00am and continues until 9:00pm. We also have the lower parking lot used by Solar City and Go Pro cars and shuttles that are in use all day. The study needs to factor in the specifics of all the times of day in use and all the weather conditions/seasons that this endeavor will span with specific restrictions on times of heavy traffic use already in existence.
>> *Has the developer/county determined WHO will shoulder the cost when this massive project develops serious problems ie. law suits?
>>
>> Thank you
>> Sincerely,
>> Marie and Tom O'Rourke
>>
>>
>>
>
>
> Marie
>
>
>

Marie

James Castaneda - EIR Input - 3 key concerns

From: Sheila Shea <sheelshea@yahoo.com>
To: "jcastaneda@smcgov.org" <jcastaneda@smcgov.org>
Date: 11/3/2013 10:37
Subject: EIR Input - 3 key concerns
CC: Sheila Shea <sheelshea@yahoo.com>

Nov 1, 2013

Dear Mr. Castaneda,

I am very concerned about the scope of this project and as a resident of Parrott Drive, my home and my family will be directly impacted by the new homes in this development project. I have many concerns but 3 main concerns I'd like the EIR to address are:

1. Potential of future landslides:
   There is a history of landslides and damaged homes in this area. Yet the present proposal describes slopes averaging 40% and high as 70%. Is it really necessary to have the slopes this steep AND what are the ramifications to neighboring homes below?
2. Traffic impact:
   Currently Parrott drive is a busy thoroughfare for residents and the many CSM students. It's estimated that 1 truck will go to and from the site once every 2 – 3 minutes over the course of 44 days. How will this project impact the local traffic and equally important safety of children coming and going to school, moms with strollers, joggers, and elderly? Many residents often use the street instead of sidewalks because many homes on Parrott simply don't have a sidewalk.
3. Finally I am very concerned about privacy issues given the steepness of the new homes and the close proximity to our backyards. With this development, many of us will have our new neighbors looking directly into backyards and into the back of our homes. Exactly how far will each of the new homes be from existing homes?

Thank you for your time.

Sheila Shea
Resident of Parrott Drive
San Mateo, CA

James Castaneda - Scoping Comments, Ascension Heights Subdivision Project

From: Gail Held <pgheld@aol.com>
To: <jcastaneda@smcgov.org>
Date: 11/3/2013 09:08
Subject: Scoping Comments, Ascension Heights Subdivision Project

Dear Mr. Castaneda,

I am opposed to the proposed development on "Watertank Hill" because I am concerned about future landslides in our neighborhood.

My husband and I have lived at 1417 Rainbow Dr. for almost 30 years and have witnessed numerous slides as a result of the instability of the hillsides in the area. We live across the street from the homes which were directly effected by the major slide in 1997 and unfortunately saw 2 homes red-tagged and one demolished. The impact on the families was devastating. The value of all the properties in the neighborhood has been negatively effected for the long term.

It makes no sense to destabilize a hillside which already shows signs of erosion so that a developer can profit.

Sincerely,

Gail Held
1417 Rainbow Dr.
San Mateo, CA 94402

James Castaneda - Fwd: Water Tank Hill,Subject Line: Scoping Comments, Ascension Heights Subdivision Project Concerns needed addressing in the EIRs:

From: Mikulic <mikulic@sbcglobal.net>
To: <jcastaneda@smcgov.org>
Date: 11/3/2013 06:17
Subject: Fwd: Water Tank Hill,Subject Line: Scoping Comments, Ascension Heights Subdivision Project Concerns needed addressing in the EIRs:

Sent from my iPhone

Begin forwarded message:

> **From:** Mikulic <mikulic@sbcglobal.net>
> **Date:** October 31, 2013 at 8:37:21 PM PDT
> **Cc:** Barbara Mikulic <mikulic@sbcglobal.net>
> **Subject: Fwd: Water Tank Hill,Subject Line: Scoping Comments, Ascension Heights Subdivision Project Concerns needed addressing in the EIRs:**
>
> Sent from my iPad
>
> Begin forwarded message:
>
> > **From:** Mikulic <mikulic@sbcglobal.net>
> > **Date:** October 31, 2013 at 8:34:22 PM PDT
> > **Cc:** Barbara Mikulic <mikulic@sbcglobal.net>
> > **Subject: Water Tank Hill**
> >
> > Subject Line: Scoping Comments, Ascension Heights Subdivision Project Concerns needed addressing in the EIRs:
> >
> > In the past meetings, it was stated by the developer that the area would be graded by this developer for the proposed sites. His company would not be building the homes. Therefore, the sites would be 'abandoned' until sold and developed by individual contractors. Given the economy and the negative publicity surrounding this area, this 'abandonment' could last many years. This alone poses a safety problem as the ground will be moved, ground water/springs will find new paths/erosions, rock strata (varied in this area) will become more unstable and possibly cause slides etc.. When San Mateo Oaks was developed, the ground water was pumped out resulting in extensive damage to homes on Parrott Drive - at the time and later when the water table refilled. The 'bonding' for this damage was non existent and homeowners told me they had to pay for reconstruction out of pocket. Since this area to be developed is far more fragile, the bonding cost for future coverage should be in the millions given the amount of existing homes that could be affected. The

homes on Parrott Dr. need to know how close these new homes will be to them, if this closeness and elevation will affect their access to natural light (there is a law on the books regarding this), if there is to be an easement, probably other factors.

SPECIFICS need to be included in ALL levels of the EIRs.
*Limits on the steepness of the slopes spelled out. This IS a slide prone area. As a side observation, remember the water tank itself had a major event some years ago, sending forceful gushers of water down the slope, taking a southern turn and causing severe erosion between the lots that would become 124 &136 CSM Drive. We have been filling that ravine over the years with soil and plants to forestall any more erosion. If the tank ruptured again, imagine the damage because now there are homes, and you have to consider the lot/home placements if future sites are developed.
* Additionally, there are parts of this property that must be included that already have 'issues', of erosion and soil movement, with detailed remedies and maintenance - and WHO will be financially responsible.
*Which brings up the access roads and the erosion these may cause, and the visual 'barriers/retaining walls' to be erected to reinforce these roads. How long and under what conditions will these constructions remain intact. This would definitely change the rural, open space, natural environment that presently exists.

*AIR QUALITY is of prime concern. We have many residents who are over 55 years old as well as the influx of younger families as the older families move to other homes. The statement that 'significant and unavoidable' limits for air quality is unacceptable. This is a matter of life and death (not an overstatement) for some of the present residents, and they should not have to leave and give up the homes they love to allow a developer to grade and possibly abandon the property near their homes. Many presenters at the various meetings have discussed the SPECIFICS of how many particles suspended in the air are deemed tolerable. Considering the enclosed (by homes) environment to be graded, it was presented that the dust and disturbed earth (which may contain asbestos rocks) would be WELL above the levels for health. This massive land moving may continue unabated for some time, increasing and prolonging the negative health issues.

*NOISE IMPACT would be continuous from early morning until evening. Not only would it cause those who work from home (more are telecommuting as part of their career) a severe hardship, but people who work swing/night shifts, babies, retirees and those who enjoy a nap occasionally would now not have the freedom to enjoy their homes' quiet and peace. It has been proven in many scientific studies that noise has serious detrimental health affects on all living things, with prolonged noise causing damage to hearing, memory/focus, heart rhythms and general well-being. The noise continuously from the machinery on the hill and the heavy trucks traveling our streets causes noise coming at us from all sides of our homes.

*TRAFFIC IMPACT on streets that are barely wide enough for 2 SUVs to pass each other in opposite directions would be down-right dangerous with huge earth moving trucks/trailers using these existing small, neighborhood

streets. If even one of these pieces of equipment should tip, spill its load, hit another vehicle etc., can you imagine the cost, inconvenience and possible bodily injury that can be caused? Please remember that this is a family area that already shares the streets with incoming car/ bus traffic to the College of San Mateo. This college traffic starts before 7:00am and continues until 9:00pm. We also have the lower parking lot used by Solar City and Go Pro cars and shuttles that are in use all day. The study needs to factor in the specifics of all the times of day in use and all the weather conditions/seasons that this endeavor will span.

*Has the developer/county determined WHO will shoulder the cost when this massive project develops serious problems ie. law suits?

Thanks for your consideration,

Dr. And Mrs. Stephen A. Mikulic
132 CSM Drive
650-533-2350

Sent from my iPad

James Castaneda - Scoping Comments, Ascension Heights Subdivision Project

From: Alissa Reindel <alissa_reindel@yahoo.com>
To: "jcastaneda@smcgov.org" <jcastaneda@smcgov.org>
Date: 10/28/2013 21:56
Subject: Scoping Comments, Ascension Heights Subdivision Project

Dear Mr. Castaneda,

Thank you in advance for reviewing the concerns our neighborhood has with the Ascension Heights Subdivision Project. I'm writing to share with you some issues that need to be addressed in the EIR for this proposed project.

1) Hillside stability/Landslides
Stricter limits are needed to prevent building on too steep of a slope. We've had multiple landslides in the area very close to the proposed development.
2) Air Quality
Previous DEIR language of "air quality limits are determined to be significant and unavoidable." Significant air quality impact is unacceptable to my family. I have a two-year old with severe allergies; it is challenging enough just managing his allergies from day to day without having to deal with significant adverse impacts to our local air quality. We are homeowners and don't feel our children's health should take a backseat to an irresponsible development project.
3) Traffic impact
It is estimated that one 20 cu yd truck will travel to or from the site once every 2-3 mins for 44 days. The EIR study needs to factor in all traffic sources including CSM students racing to class in the morning. We have had a number of serious accidents on Parrott Drive due to CSM students recklessly speeding up and down Parrott. Most recently we lost power last week for almost 24 hours when a student clipped a parked car and knocked down a telephone pole.
4) Noise impact
The noise impact was determined to be significant and unavoidable in the previous DEIR.
We will be surrounded by high noise sources from machinery on the hill as well as the trucks hauling away or bringing dirt to the site.
5) Inappropriate proximity
The proposed houses that would border Parrott Drive homes are too close and would pose an invasion of privacy to the families who live in the existing homes.
6) Unacceptably long project timeline
Is it true this project could take up to ten years to complete? That would significantly (and negatively) impact our ability to enjoy being outdoors in our neighborhood for an unacceptable length of time.

Thank you for your time considering this input, and for making sure the EIR addresses these important issues.

Best regards,

Alissa Reindel
1735 Parrott Drive
San Mateo, CA 94402

Topic Summary Report

A topic has closed on San Mateo County SpeakOut

Topic: Water Tank Hill Proposed Subdivision Environmental Concerns

What environmental issues should the environmental review cover regarding the proposed subdivision of Water Tank Hill?

The San Mateo County Planning and Building Department is beginning the environmental review process for the newly proposed 19-lot Ascension Heights subdivision project on Water Tank Hill (corner of Ascension Drive and Bel Aire Road). With the processing of a major subdivision application, there are two inherent parts. The first is review of the proposed subdivision to ensure compliance with County subdivision and zoning regulations. The second is environmental review in the form of an Environmental Impact Report, which to inform decision-makers of any significant environmental effects. These two parts are considered together by the Planning Commission. Community input and participation is both important and essential in these two parts. We need your help to determine what should be the focus of the environmental review. Below, please give us your feedback on what environmental specific topics should be covered environmental document. We've also listed some topics you can vote on and help think of concerns you think need to be examined and covered. For additional information, please visit the project's document page at: http://goo.gl/XUDqLC

Surveys Submitted	9	Comments	2

Survey Results

QUESTION 1

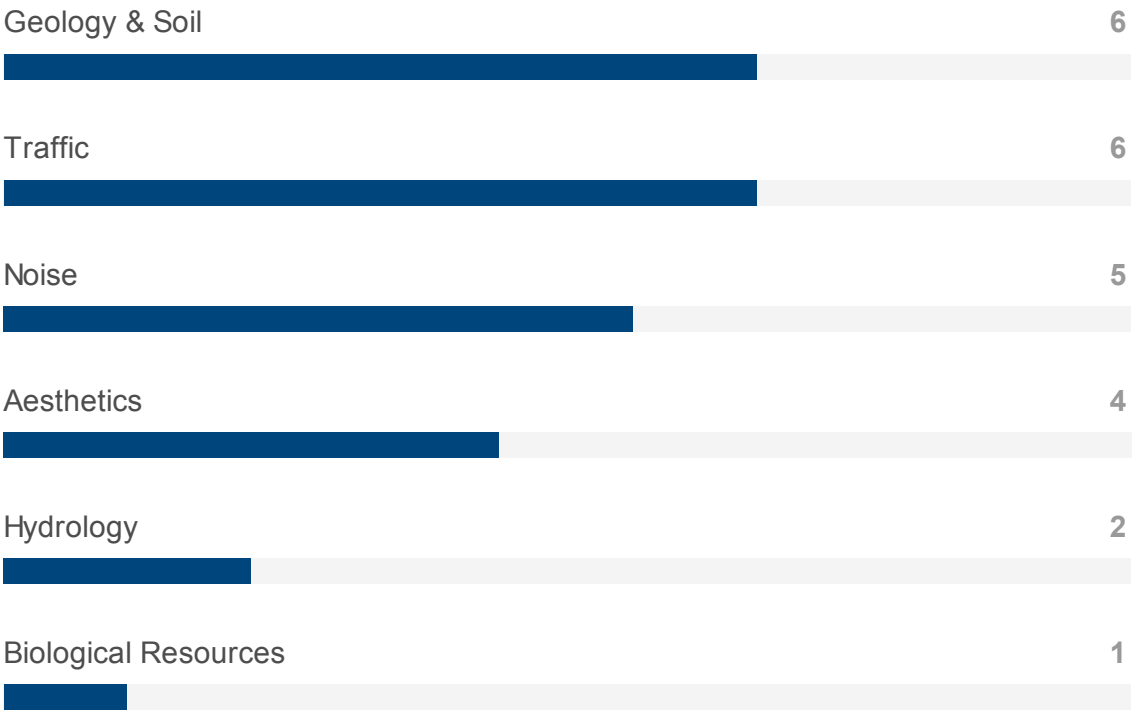
What are specific environmental topics of concern you think need to be covered? Please provide details below.

Open Ended Question **(Click to View Responses)** **9** Responses

QUESTION 2

Which environmental topics below are the most important to you?

Air Quality & Greenhouse Gases **7**



2% of people participated

(10 of 538 total participants)

64% Less than your average and **60% Less** than the MindMixer average

Gender Breakdown

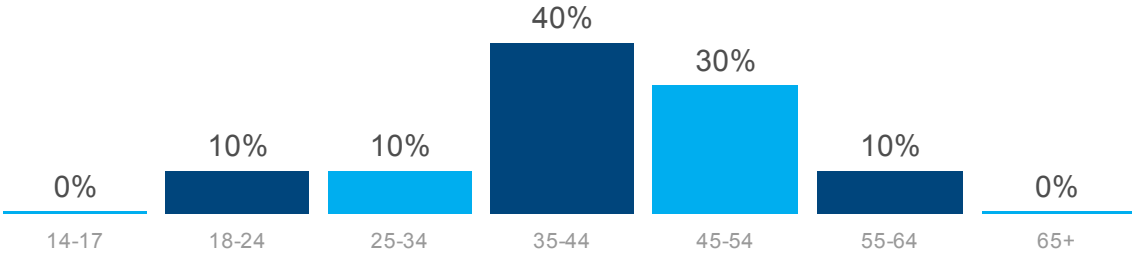
17%
(1 Female)

83%
(5 Males)

Top Postal Codes

94402
94019
94014

Age Breakdown



What's Next?

Add another Topic | Invite more Participants

Don’t forget to spread the news and share these results with your team!

MINDMIXER: We power an online platform to help communties with online engagement. Our mission is to build better communities by involving people in the things they care about.

ADDRESS: MindMixer · 1111 North 13th Street · Suite #101 · Omaha, Nebraska 68102

WHY: You’re receiving this email because you are an administrator of San Mateo County SpeakOut.

LINKS: **Visit San Mateo County SpeakOut**

Collaboration by MindMixer.

Survey: Water Tank Hill Proposed Subdivision Environmental Concerns

Question: What are specific environmental topics of concern you think need to be covered? Please provide details below.

1). Every previous time this sub-d project has been submitted, the unstable geologic nature of the hill has required massive soil stability mitigation measures; which has meant there will be drastic air quality impacts during construction.
2). Proposed intersection - a driver turning into the proposed sub-d from Westbound Bel Air Rd will obviously need to cross Eastbound Bel Air Rd traffic. However approaching traffic cannot be seen due to the current steep grade of Eastbound Bel Air.

Air quality during construction (in particular during grading) must meet standards set by the BAAQMD. Quantity of particulate matter estimated to be generated during construction must be provided to ensure that they would not be harmful to those who are most susceptible to health impacts (e.g. infants, elderly).

I have to question the wisdom, given plan bay area of what on its face appears to be wholly unsustainable development. Any development that doesn't provide adequate transit access, or walkability can not be considered to have an environmentally sound plan. Turn it into a park and upzone downtown for denser housing.

I'm most concerned about the stability of the hill. We have had mudslides very close to this area and the community has suffered for this.

Maintenance and sustainability of parks, hiking trails, and beaches
Preserving more of native wildlife and providing a healthy environment for native species
Safety concerns in regards to outdoor activities

The hillsides in this area are unstable and not understood by the county as evidenced by recent half a million dollar property loss at 1406 Rainbow where the county rebuilt the hillside and still the property slipped 5" in the last 5 years. Why? What was done wrong in the building of the hillside, construction and materials in the hillsides and the approval to build 1406 Rainbow even though it was not stable. 50 slope failures are documented in

this area. How can this project be better?

The land is eroding and has been known to be unstable. There are many underground springs in our neighborhood. What construction will occur on land adjacent to our homeowners in the San Mateo Oaks subdivision? How will you insure that the construction, new housing runoff, storm drains, etc., won't add to the instability and cause landslides that could spill over into the San Mateo Oaks adjoining properties?

traffic & aesthetics

Why dig up the hillside at all? We really need to keep that hillside an open space. How does that benefit anyone in the area? It will bring more cars in the area, noise, traffic and years of building. Do we really need more housing in this area? I move here because this is an establish neighborhood. I didn't move here because of the new housing development. We have students that are parking their cars on Parrott Drive now. Go take a look at City College of San Francisco and see how bad parking i

Question: Which environmental topics below are the most important to you?

Aesthetics : 4

Air Quality & Greenhouse Gases : 7

Geology & Soil : 6

Noise : 5

Traffic : 6

Biological Resources : 1

Hydrology : 2

Comments

Number of Comments 3

Comment 1: Building on a steep slope in an area with a history of landslides is not responsible. In case the County has forgotten, the 1996 Polhemus Rd. landslide resulted in lawsuits,

millions of dollars in repairs, and endangered the water supply to San Francisco and the Peninsula.

Furthermore, Baywood Park's already-inadequate sewer system will be further stressed, costing residents sewer fees that are even more insanely high.

Noise tends to reverberate in the hills which will reduce quality of life for hundreds, if not thousands, of residents in the area for years, which is not acceptable.

Aesthetically, this development will be a permanent blight on the natural beauty of the area, with trees being replaced with tacky McMansions. These houses will stick out like a sore thumb in the neighborhood.
| By Bryan K

Comment 2: 1) 50 documented hillside failures. Major failure resulting in complete house destruction. Other losses to property values. How do we know these properties will not have major problems.

2) This is one of the last open hillsides in the county and city. Do we really need to fill every square foot of land or is it better to have this part of a preserve.

3) The ambient sound level in this area is very low. The last EIR said the sound levels would be up to 50db SPL or considerably louder than the current ambient sound for 4-5 years for a distance of 1/2 mile from the construction site affection more than 1000 people and 360 homes who will have the ambient sound level jarring and higher for most of the day. NOT ACCEPTABLE.

4) Winds in this area are much higher than other areas. The EIR proposed watering the properties 2 times a day to reduce blowing dust and debris. This does not seem reasonable.

5) the density of this housing is too high
| By John M

Comment 3: Why dig up the hillside at all? We really need to keep that hillside an open space. How does that benefit anyone in the area? It will bring more cars in the area, noise, traffic and years of building. Do we really need more housing in this area? I move here because this is an establish neighborhood. I didn't move here because of the new housing development. We have students that are parking their cars on Parrott Drive now. Go take a look at City College of San Francisco and see how bad parking is. Parrott Drive is a main road, so I don't need more cars driving by my house everyday. Neighbor's didn't want the project in 2009 and we don't need it in 2013. | By marvin G

Must be rec'd by SMC ASAP & no later than Nov. 2, 2013

This should be a larger card.

WRITTEN COMMENT CARD

SAN MATEO COUNTY – SCOPING MEETING
ASCENSION HEIGHTS SUBDIVISION PROJECT
ENVIRONMENTAL IMPACT REPORT

The College of San Mateo Theatre
1700 W. Hillsdale Blvd, San Mateo, CA 94402

Wednesday, October 9, 2013

"Scoping Comments
Ascension Hgts. Subdivision Comments"

Over

If you would like to submit a written statement, please complete the following information and comment in the space provided below. Give to attendant or drop in the written comment box. Comments may also be submitted by mail to the address listed below.

(Please write legibly)

Name: Gerri (Geraldine) Roach Organization: Baywood Park Homeowners Assoc

Address: 1456 Bel Aire Rd. San Mateo, CA 94402

Comment: I agree the Builder secures a 30yr. Bond to cover all costs & reserve money for potential soil movement & drainage problems. Will this add to our expensive sewer costs? The plan for 19 residences vs. 25 is still far too many considering its a hilltop, limited access & added traffic with planned road off a dangerous area of Bel Aire Rd. It's reasonable to assume each will have 2 or 3 cars = 55 cars! Soil Analysis needs deep boring to assure all of us no slide or movement is possible. As a landslide survivor here in 1998-2003 I can attest it can ruin your life! Air quality studies need to project toxic contaminants for us. → cont'd

Please give to attendant;, drop in Written Comment Box; mail to The County of San Mateo, Attention: James Castañeda, Planning and Building Department, 455 County Center, 2nd Floor, Redwood City, California 94063; or email to jcastaneda@smcgov.org. Please include your name, return address, and the caption: Scoping Comments, Ascension Heights Subdivision Project.

There have been additional serious landslides in this area - Rainbow Drive when a house was demolished. When there was a disasterous slide. (Another on the Other end of Bel Aire Rd. as well.) County records should show those; in fact shortly after building this subdivision two homes were involved in a landslide (Edward & downhill neighbor on Enchanted way.)

Traffic on Bel Aire from Ascension to Parrott Drive is a concern due to heavy patterns with C.S.M. students using this road as a shortcut from Polhemus and either South 280 or North 280 and downtown San Mateo via Crystal Springs Rd. It has steadily increased as CSM has approx 11,000 students now. Building on this hill will only make it worse. I noticed either traffic monitor or speed monitor on Parrott Drive around Columbus Day (Oct 14th) a few days prior & then gone by ~ 10/16. CSM had a break on 10/14/13.

Please see my attached letter I reprinted to Planning & Building Dept on July 30, 2009 re draft DEIR for Ascension Heights plan that year. Many of the same concerns still exist. I'm asking that a thorough review of all aspects of the current plan be done. This can have a serious impact on our property values, quality of life and exposure to hazardous air. Thank you

July 30, 2009*
County of San Mateo, Planning & Building Department
Attn: James Castaneda, Project Planner
455 County Center, 2nd Floor
Redwood City, CA. 94063-1662

RECEIVED
2013 NOV -5 A 4:57
PLANNING AND BUILDING DEPARTMENT

RE: San Mateo Co. 6/25/09 Notice of Availability of Draft Environmental Impact Report: Ascension Heights plan for 25-lot subdivision.

Dear Mr. Castaneda,
I have lived on in the 1400 block of Bel Aire Rd since 1970. I'm writing about DEIR that addresses the Impact TRANS-6: Construction Impacts on Bel Aire Rd. traffic. An estimated 69 round trip heavy haul trucks (138 trips) daily for soil removal & grading Monday thru Friday during the non-rainy season. The 2008 estimated total truck trips is 3, 036 round trips to complete the project by ~2013. This is only one important item of many concerns.

As Bel Aire Road residents, we will face a "significant and unavoidable daily traffic impact" during the four year construction, and in 2013 an additional estimated 150 vehicles and 70 residents. Section IV.I Transportation /Traffic of the report mentions "this project can overlap with other projects" e.g., the Crystal Springs Bypass Tunnel and CSM improvements. "It is possible that heavy trucks required to import and /or export materials to the related project sites could use roads to be used by the soil haul trucks for the proposed projects." As I understand this, then all of the trucks for the Tunnel, Ascension project & CSM could use Bel Aire Road and Laurie Lane. **This would be a nightmare, and prevent us from driving out of our driveways or even being in our yards or opening windows with the constant dirt, noise, and air pollution: elevated lead & carbon monoxide.** What will happen during very warm days or heat waves/ spare the air days? This is a windy area year round and much worse in spring and winter. That hill is prone to erosion and slippage.
We'll be exposed to additional pollution, noise and grime. We won't be able to open our windows. Bel Aire Rd. will be an unhealthy dust bowl. We will be blocked from Polhemus Rd. and predictably, the alternate route, Parrott Dr. to Hwy.92 will be gridlocked.

I called Mr. James Castaneda @ SMC Planning & Building Dept SMC to verify that the **Traffic analysis for Bel Aire was limited to (Tuesday) 5/20/08 x 24 hours only**. This does not give an accurate data for the weekly traffic volume on this block of Bel Aire Rd.
Since 1970 Bel Aire is the main shortcut for CSM traffic to Parrott from north and south Hwy. 92 from Polhemus Rd. or DeAnza Blvd. On Monday, Wednesday, Thursday and Friday there is heavy CSM traffic including every morning, afternoon, weekend, and evening classes. **CSM now has 11.000 students registered each semester.** While some may attend on-line classes, the reality is that Bel Aire/CSM traffic significantly increases during CSM classes late August until the spring sessions end in June (and summer classes) and will only increase in volume each year.

We are asking and deserve an accurate, fair and more extensive traffic analysis from SMC for a five day period of 24 hours from Monday thru Friday during CSM's fall or winter class schedule, (omitting scheduled recess & holidays) The current draft analysis of actual traffic

volume data for Bel Aire is very limited and greatly minimizes the true impact on the 1400 block of Bel Aire Rd.

The planned access road to and from the Subdivision leads directly onto the 1400 block of Bel Aire Rd.; this will create even more hazardous traffic congestion at the blind curved and inclined section of Bel Aire Road. This will further impede current residents from safely entering/exiting our driveways. Currently, drivers speed and even pass cars on this block of Bel Aire, crossing over the center divide. This plan will adversely affect an already dangerous stretch of road for residents and drivers. It is far too many planned residences for this hilltop.

I appreciate your assurance on July 30 when I called that all written comments from affected residents will be carefully reviewed. Thanks for your work and time to consider my valid concerns for my home and immediate neighborhood. I recognize that this project has required much work by you and CSM staff.

Sincerely,

Geraldine Roach

Ms. Geraldine Roach
1456 Bel Aire Rd.
San Mateo, CA. 904402

Note my Parcel No. deleted)

*Resubmitting: Oct. 31, 2013: RE: "Scoping Comments Ascension Heights Subdivision Project"
James Castaneda
SMC Planning and Building Dept.
455 County Center
Redwood City, CA. 904063

>>> On 11/21/2013 at 09:19, "Elizabeth Cullinan" <ECullinan@HILLSBOROUGH.NET> wrote:

Hi James - it's my turn to apologize for providing you additional comments on the project and upcoming EIR. In any case, we have the following comments/items for consideration from our Police Chief and DPW Director/City Engineer:

The applicants of the project should contribute towards the I&I reduction as well as regional sewer improvements. This is a condition that should be asked by the District (County) as these additional 19 homes will add flows to the El Cerrito/Crystal Springs line which is scheduled for replacement.

Erosion and slope stability issues should be examined carefully.

Construction and haul routes should be analyzed for impacts to local Hillsborough and other streets.

Project and construction traffic should be analyzed in the Parrot Drive, Sugarhill and Belaire area. Our Police Chief, Mark O'Connor is happy to provide specific areas of potential concern that he would see value in studying.

Thank you again for the opportunity to comment and we appreciate your extended notification area.

Elizabeth S.R. Cullinan AICP
Director of Building and Planning
Town of Hillsborough
Phone: (650) 375-7416
Fax: (650) 375-7415
ecullinan@hillsborough.net
www.hillsborough.net

-----Original Message-----
From: James Castaneda [mailto:jcastaneda@smcgov.org]
Sent: Tuesday, November 19, 2013 9:24 AM
To: Elizabeth Cullinan
Cc: twilson@analyticalcorp.com
Subject: RE: Ascension Heights Subdivision

Good morning Elizabeth, I apologize my response wasn't received last time. For the scoping meeting held on October 9th, we did a 900-foot mailing notice. Property owners with parcels within 900-feet from the project's boundaries were included (addresses provided the County's tax assessor). Our establish notification requirements are 300-feet, in additional to interested parties and adjacent city planning departments.
Given the scope of the project, the director elected to use a 900-foot notification buffer.

That said, I'm not sure how much (if any) of this buffer reached Hillsborough's city limits. I'll have to check with our graphics department to identify any if you require additional information.

As for the Callan Subdivision, Ill pass this along to our Environmental consultants who are currently preparing the draft EIR. Ill keep this on my radar as we approach our hearings next year.

Regards,
JAMES

James A. Castañeda, AICP
Planner III, San Mateo County Planning & Building Department Program Coordinator, SFO Airport/Community Roundtable

455 County Center, 2nd Floor
Redwood City, CA 94063
650.363.1853 | 650.363.4819 FAX
smcplanning.org | sforoundtable.org
>>> "Elizabeth Cullinan" 11/18/13 4:25 PM >>>
Greetings James - Can you review the email below to see if Hillsborough residents were notified of the scoping meeting?

Also, I wanted to make you aware of the following project in
Hillsborough:

http://www.hillsborough.net/depts/building/planning/current_projects/callan_subdivision/default.asp

Thank you.

Elizabeth S.R. Cullinan AICP

Director of Building and Planning

Town of Hillsborough

Phone: (650) 375-7416

Fax: (650) 375-7415

ecullinan@hillsborough.net

www.hillsborough.net

From: Elizabeth Cullinan
Sent: Monday, September 16, 2013 11:09 AM
To: 'jcastaneda@smcgov.org'
Subject: Ascension Heights Subdivision

Greetings James - I hope this email finds you well.

Thank you for including us in your public notice. We will work to develop some possible scoping and comments through the process. I am attaching an old email on the previous subdivision proposal in the event this helps.

Also, I wondered if you have notified neighbors in Hillsborough abutting the proposal of the scoping session. Can you clarify for me?

Thank you.

Elizabeth S.R. Cullinan AICP

Director of Building and Planning

Town of Hillsborough

Phone: (650) 375-7416

Fax: (650) 375-7415

ecullinan@hillsborough.net

www.hillsborough.net

APPENDIX B

INITIAL STUDY

County of San Mateo
Planning and Building Department

INITIAL STUDY
ENVIRONMENTAL EVALUATION CHECKLIST

1. Project Title: Ascension Heights Subdivision Project

2. County File Number: PLN2002-00517

3. Lead Agency Name and Address:
San Mateo County
Planning and Building Department
455 County Center, 2nd Floor
Redwood City, CA 94063

4. Contact Person and Phone Number:
James A. Castaneda, Planner III
(650) 363-1853
jcastaneda@smcgov.org

5. Project Location:
The project site consists of approximately 13.32 acres located within the unincorporated community of San Mateo Highlands within San Mateo County (County), at the northeast corner of Bel Aire Road and Ascension Drive, east of Interstate 280 and northwest of State Route 92. The project site is located approximately 2.5 miles southwest of the City of San Mateo and approximately 17.5 miles south of the City of San Francisco. The project site is largely undeveloped, with the single exception of a paved access roadway that bisects the project site from the north corner to the southeastern edge, connecting Bel Aire Drive to a potable water tank owned by the California Water Service Company (Cal Water) and a cellular transmitter that are surrounded by but are not part of the project site. The project site is predominately situated on a hillside with slopes averaging 40 percent. The area was graded over 40 years ago, which consisted of excavating the sides of the hill for the construction of Ascension Drive and Bel Aire Road. Eight-foot wide benches at 30-foot intervals were created along Ascension Drive as a result. Surface runoff from these benches eroded the hillside over the years. The project site is predominately characterized by grassland, small brush, and trees such as oak, pine, and eucalyptus. A small grove of eucalyptus trees is located on the southeast side of the area, and pine trees have been planted around the water tank facility.

6. Assessor's Parcel Number and Size of Parcel:
The project site includes six Assessor's Parcel Numbers (APNs) (21.13 acres in total):

- APN 041-111-130
- APN 041-111-160
- APN 041-111-270
- APN 041-111-280
- APN 041-111-320
- APN 041-111-360

Note that APN 041-111-020 is within the project site but is not included in the Proposed Project.

7. **Project Sponsor's Name and Address:** San Mateo Real Estate, Inc.
Mr. Dennis Thomas
1777 Boreal Place, Suite 330
San Mateo, CA 94402
(650) 578-0330
info@smrehomes.com

8. **General Plan Designation:**
The general plan designation for the project site is Medium Low Density Residential (2.4 – 6.0 dwelling units/acre).

9. **Zoning:**
The zoning for the project site is R-1/S-8 (single-family residential/7,500 square foot minimum lot size).

10. **Description of the Project:**
The Proposed Project entails the subdivision of six parcels into 21 lots for development of 19 single-family residences and a new access roadway, with a development footprint of approximately 5.5 acres. The remaining 2 lots (approximately 7.8-acres) would be maintained as open space and would include an undisturbed and protected area as well as common areas with foot trails. The Proposed Project is a re-design of a previous project that was denied by the San Mateo County Planning Commission in 2009.

This Initial Study document has been prepared to evaluate compliance of the Proposed Project under the California Environmental Quality Act (CEQA). San Mateo County is the Lead Agency responsible for complying with the provisions of CEQA.

Potable water would be provided by connection to the Bayshore District of Cal Water and wastewater collection would be provided by the Crystal Springs County Sanitation District with treatment at the City of San Mateo Wastewater Treatment Plant. Development of the 19 subdivided lot into single-family residences would require 40,920 cubic yards of grading, of which 28,270 cubic yards would require exportation from the site. Accordingly,

the project applicant also requires a grading permit from the County. Based on the size of the development, a Water Supply Assessment is not required for the Proposed Project. One significant consideration is the Cease and Desist Order (CDO) issued by the San Francisco Bay Regional Water Quality Control Board to the City of San Mateo, town of Hillsborough, and Crystal Springs County Sanitation District. The CDO was issued as a result of high infiltration rates of non wastewater during wet weather into the wastewater conveyance system resulting in associated decreases in sewage conveyance capacity which lead to unregulated releases of wastewater to surface waters.

11. **Surrounding Land Uses and Setting:**
The project site is surrounded by single-family residences, including the Baywood Park neighborhood, located to the northeast; the Enchanted Hills neighborhood, located to the southeast and southwest; and the Starlite Heights neighborhood, located to the northwest. Land uses adjacent to the project site consist of single-family residential housing to the northeast and southeast, Ascension Drive to the southwest with single family residences across the street, and Bel Aire Road to the northwest with single family residences across the street. The College of San Mateo is located less than 0.25 miles northeast of the project site off Parrott Drive.

.

12. **Public Agencies Whose Approvals May Be Required:**

<u>County Of San Mateo</u>

- Approval of a Vesting Tentative Map to subdivide the project site into 19 single-family residences.
- Permitting associated with grading, structural development, tree removal, etc.
- Certification of the EIR for the Ascension Heights Subdivision Project under the requirements of the California Environmental Quality Act (CEQA), as amended.
- Adoption of a Mitigation Monitoring Plan for the Proposed Project that incorporates the mitigation measures identified in the EIR.

<u>California State Department of Fish and Wildlife (DFW)</u>

- Any impacts to state-listed species such as White-Tailed Kite or Cooper's Hawks will require permitting from DFW.

<u>San Francisco Bay Regional Water Quality Control Board (SFBRWQCB)</u>

- Construction and associated ground disturbance greater than one acre requires the applicant to file for coverage under the State Water Resources Control Board National Pollutant Discharge Elimination System (NPDES) Construction General Permit.

<u>U.S. Fish and Wildlife Service (USFWS)</u>

- Any impacts to federally-listed species such as the Mission Blue Butterfly will require permitting from DFG.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

X	Aesthetics	**X**	Climate Change	**X**	Population/Housing
	Agricultural and Forest Resources	**X**	Hazards and Hazardous Materials	**X**	Public Services
X	Air Quality	**X**	Hydrology/Water Quality	**X**	Recreation
X	Biological Resources	**X**	Land Use/Planning	**X**	Transportation/Traffic
	Cultural Resources		Mineral Resources	**X**	Utilities/Service Systems
X	Geology/Soils	**X**	Noise	**X**	Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)

On behalf of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in a earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to the earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Planner's Signature — April 25, 2014 Date

James A. Castañeda, AICP, Planner III — County of San Mateo
Printed name — For

EVALUATION OF ENVIRONMENTAL IMPACTS

Introduction

Pursuant to Section 15063 of the California Environmental Quality Act Guidelines, a brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the projects outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

Evaluation Terminology

The following terminology is used to describe the levels of significance for impacts identified for each resource area discussed in the checklist presented in **Section 4.6**.

- A conclusion of no impact is used when it is determined that the Proposed Project would not adversely impact the resource area under evaluation.
- A conclusion of less than significant impact is used when it is determined that the Proposed Project’s adverse impacts to a resource area would not exceed established thresholds of significance.
- A conclusion of less than significant impact with mitigation is used when it is determined that mitigation measures would be required to reduce the Proposed Project’s adverse impacts below established thresholds of significance.
- A conclusion of potentially significant is used when it is determined that the Proposed Project would cause a substantial, or potentially substantial, adverse impact on the resource area.

1. AESTHETICS. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Have a significant adverse effect on a scenic vista, views from existing residential areas, public lands, water bodies, or roads?		**X**		
Discussion: The project site is not located within the viewshed of a scenic vista, public lands, or water bodies. However, the project site is visible from existing residential areas and roads. The Proposed Project would convert undeveloped open space to single-family homes. This would alter the landscape, with mitigation it would not constitute a significant, adverse effect because all surrounding areas contain single-family homes, and the changes to the landscape would be consistent with the existing, surrounding landscapes. Impacts associated with aesthetics will be analyzed within the EIR. **Source**: San Mateo County, 1986a; San Mateo County, 2009b; Caltrans, 2011				
b. Significantly damage or destroy scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?		**X**		
Discussion: The project site is not located within viewshed of a scenic corridor of a state scenic highway. Trees and other natural habitat will be removed/altered during development of the Proposed Project. Impacts associated with aesthetics will be analyzed and mitigation measures will be identified within the EIR. **Source**: San Mateo County, 1986a; San Mateo County, 2009b; Caltrans, 2011				
c. Significantly degrade the existing visual character or quality of the site and its surroundings, including significant change in topography or ground surface relief features, and/or development on a ridgeline?		**X**		
Discussion: The Proposed Project would result in the development of 19 single-family residences on approximately 13.32 acres of currently undeveloped open space, which would significantly alter the visual character of the project site. Impacts associated with aesthetics will be analyzed and mitigation measures will be identified within the EIR.				
d. Create a new source of significant light or glare that would adversely affect day or nighttime views in the area?	**X**			

Discussion: The Proposed Project would create a new source of light and glare. Impacts associated with aesthetics will be analyzed within the EIR.				
e. Be adjacent to a designated Scenic Highway or within a State or County Scenic Corridor?		**X**		
Discussion: The project site is near to Highway 280 (Father Junipero Serra Freeway), which is a designated Scenic Highway. Impacts associated with aesthetics will be analyzed and mitigation measures will be identified within the EIR. **Source**: San Mateo County, 1986a; San Mateo County, 2009b; Caltrans, 2011				
f. If within a Design Review District, conflict with applicable General Plan or Zoning Ordinance provisions?				**X**
Discussion: The project site is now within a Design Review District. The project site is designated Medium Low Density Residential (2.4 – 6.0 dwelling units/acre) and is zoned R-1/S-8 (single-family residential/7,500 square foot minimum lot size). The Proposed Project would not conflict with these provisions. **Source**: San Mateo County, 1986a				
g. Visually intrude into an area having natural scenic qualities?				**X**
Discussion: The project site is surrounded by existing residential development and does not constitute an area having natural scenic qualities.				

2. AGRICULTURAL AND FOREST RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forestland, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. For lands outside the Coastal Zone, convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on				**X**

the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				
Discussion: The Proposed Project will not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use. Further analysis is not required. **Source**: California Department of Conservation, 2011				
b. Conflict with existing zoning for agricultural use, an existing Open Space Easement, or a Williamson Act contract?				**X**
Discussion: The Proposed Project does not conflict with zoning for agricultural use, existing Open Space Easement, or a Williamson Act contract. Further analysis is not required. **Source**: San Mateo County, 1986a; California Department of Conservation, 2012				
c. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forestland to non-forest use?				**X**
Discussion: The Proposed Project does not involve changes in the existing environment which could result in conversion of Farmland to non-agricultural use or conversion of forestland to non-forest use. Further analysis is not required. **Source**: California Department of Conservation, 2011; California Department of Conservation, 2012; USFS, 2013				
d. For lands within the Coastal Zone, convert or divide lands identified as Class I or Class II Agriculture Soils and Class III Soils rated good or very good for artichokes or Brussels sprouts?				**X**
Discussion: The project site is not within the Coastal Zone. Further analysis is not required. **Source**: San Mateo County, 1996				
e. Result in damage to soil capability or loss of agricultural land?				**X**
Discussion: The project site is not designated for agricultural use and would not result in loss of agricultural land. Further analysis is not required. **Source**: San Mateo County, 2009a				

f. Conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? *Note to reader: This question seeks to address the economic impact of converting forestland to a non-timber harvesting use.*				**X**
Discussion: There is no forestland on the project site, and the Proposed Project would therefore not conflict with existing zoning for, or cause of rezoning of, forestland, timberland, or timberland zoned Timberland Production. Further analysis is not required. **Source**: USFS, 2013				

3. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Conflict with or obstruct implementation of the applicable air quality plan?	**X**			
Discussion: Construction activities and increased vehicle use associated with the Proposed Project would result in air quality emissions that may obstruct the implementation of the applicable air quality plan. Impacts associated with air quality will be analyzed and mitigation measures will be identified within the EIR.				
b. Violate any air quality standard or contribute significantly to an existing or projected air quality violation?	**X**			
Discussion: Construction activities and increased vehicle use associated with the Proposed Project would result in air quality emissions that may violate an air quality standard or contribute significantly to an existing or projected air quality violation. Impacts associated with air quality will be analyzed and mitigation measures will be identified within the EIR.				

c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	**X**			
Discussion: Construction activities and increased vehicle use associated with the Proposed Project would result in air quality emissions that may constitute a cumulatively considerable net increase of a criteria pollutant for which the region is non-attainment under an applicable Federal or State ambient air quality standard. Impacts associated with air quality will be analyzed and mitigation measures will be identified within the EIR.				
d. Expose sensitive receptors to significant pollutant concentrations, as defined by BAAQMD?		**X**		
Discussion: Construction activities and increased vehicle use associated with the Proposed Project would result in air quality emissions that may impact sensitive receptors. Impacts associated with air quality will be analyzed and mitigation measures will be identified within the EIR.				
e. Create objectionable odors affecting a significant number of people?	**X**			
Discussion: Construction activities and increased vehicle use associated with the Proposed Project could result in air quality emissions that may create objectionable odors. Impacts associated with air quality will be analyzed within the EIR.				
f. Generate pollutants (hydrocarbon, thermal odor, dust or smoke particulates, radiation, etc.) that will violate existing standards of air quality on-site or in the surrounding area?		**X**		
Discussion: Construction activities and increased vehicle use associated with the Proposed Project would generate pollutants that may violate existing standards of air quality on-site or in the surrounding area. Impacts associated with air quality will be analyzed and mitigation measures will be identified within the EIR.				

4. BIOLOGICAL RESOURCES. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Have a significant adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	**X**			
Discussion: The Proposed Project would destroy natural habitat, which would have an adverse effect on plants and wildlife, including any candidate, sensitive, or special status species if the species inhabits the project site. Impacts associated with biological resources will be analyzed and mitigation measures will be identified within the EIR.				
b. Have a significant adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	**X**			
Discussion: The project site does not contain and is not adjacent to any riparian habitat. Sensitive natural communities may be present within the project site. Impacts associated with biological resources will be analyzed within the EIR.				
c. Have a significant adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				**X**
Discussion: The project site does not contain and is not adjacent to any wetlands. Further analysis is not required. **Source**: USFWS, 2013				
d. Interfere significantly with the movement of any native resident or migratory fish or wildlife species or with established native resident migratory wildlife corridors, or impede the use of			**X**	

native wildlife nursery sites?				
Discussion: The project site is isolated by surrounding urban and commercial areas, including a network of busy roadways, and likely does not provide linkages or migration corridors among habitat sites. Impacts associated with biological resources will be analyzed within the EIR.				
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (including the County Heritage and Significant Tree Ordinances)?		**X**		
Discussion: The Proposed Project would destroy natural habitat, which includes tree removal, which may conflict with local policies or ordinances protecting biological resources. Impacts associated with biological resources will be analyzed and mitigation measures will be identified within the EIR.				
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, other approved local, regional, or State habitat conservation plan?				**X**
Discussion: Neither a habitat conservation plan nor a natural community conservation plan exist within the vicinity of the Proposed Project Area. Further analysis is not required. **Source**: San Mateo County, 1986a				
g. Be located inside or within 200 feet of a marine or wildlife reserve?				**X**
Discussion: The project site is not located inside or within 200 feet of a marine or wildlife reserve. Further analysis is not required. **Source**: CDFW, 2010; USFWS, 2008				
h. Result in loss of oak woodlands or other non-timber woodlands?	**X**			
Discussion: The project site includes the removal of trees, some of which may belong to the coast woodland live oak plant community and would constitute removal of oak woodlands. Impacts associated with biological resources will be analyzed and mitigation measures will be identified within the EIR.				

5. CULTURAL RESOURCES. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Cause a significant adverse change in the significance of a historical resource as defined in CEQA Section 15064.5?				**X**
Discussion: There are no significant cultural resources on the project site. Further analysis is not required.				
b. Cause a significant adverse change in the significance of an archaeological resource pursuant to CEQA Section 15064.5?				**X**
Discussion: There are no significant archaeological resources on the project site. Further analysis is not required.				
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				**X**
Discussion: There are no significant paleontological resources or sites or unique geologic feature resources on the project site. Further analysis is not required.				
d. Disturb any human remains, including those interred outside of formal cemeteries?				**X**
Discussion: There are no human remains on the project site. Further analysis is not required.				

6. GEOLOGY AND SOILS. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Expose people or structures to potential significant adverse effects, including the risk of loss, injury, or death involving the following, or create a situation that results in:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake			**X**	

Fault Zoning Map issued by the State Geologist for the area or based on other significant evidence of a known fault? *Note: Refer to Division of Mines and Geology Special Publication 42 and the County Geotechnical Hazards Synthesis Map.*				
Discussion: The project site is not located within an Alquist-Priolo Fault Zone and is therefore not susceptible to surface fault rupture. **Source**: CGS, 2013				
ii. Strong seismic ground shaking?		**X**		
Discussion: The project site is located adjacent to the San Andreas Fault line. Potential impacts associated with geology and soils will be analyzed and mitigation measures will be identified within the EIR. **Source**: CGS, 2013				
iii. Seismic-related ground failure, including liquefaction and differential settling?				**X**
Discussion: The project site is located within an area mapped as very low liquefaction potential by the Association of Bay Area Governments. Further analysis is not required. **Source**: ABAG, 2010				
iv. Landslides?		**X**		
Discussion: The project site contains very dense sandstone bedrock with low potential for deep-seated landslides. However, the overlying colluviums are unconsolidated and deep, making shallow-seated landslides a hazard on the project site. Potential impacts associated with landslides will be analyzed and mitigation measures will be identified within the EIR. **Source**: Michelucci, 2002				
v. Coastal cliff/bluff instability or erosion? *Note to reader: This question is looking at instability under current conditions. Future, potential instability is looked at in Section 7 (Climate Change).*				**X**
Discussion: The project site is not located on or near a coastal cliff or bluff. Further analysis is not required.				
b. Result in significant soil erosion or the loss of topsoil?		**X**		
Discussion: The Proposed Project would require 40,920 cubic yards of grading, which could have the potential to cause significant soil erosion or loss of topsoil. Potential impacts				

associated with geology and soils will be analyzed and mitigation measures will be identified within the EIR.				
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, severe erosion, liquefaction or collapse?		**X**		
Discussion: The project site contains soils that have the potential to become unstable. Potential impacts associated with geology and soils will be analyzed and mitigation measures will be identified within the EIR. **Source**: NRCS, 2013				
d. Be located on expansive soil, as noted in the 2010 California Building Code, creating significant risks to life or property?				**X**
Discussion: The project site contains soils with moderate shrink-swell potential. Further analysis is not required. **Source**: NRCS, 2013				
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				**X**
Discussion: The Proposed Project does not include the use of septic tanks or alternative wastewater treatment systems. Further analysis is not required.				

7. CLIMATE CHANGE. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Generate greenhouse gas (GHG) emissions (including methane), either directly or indirectly, that may have a significant impact on the environment?		**X**		
Discussion: Construction activities and increased vehicle use associated with the Proposed Project would generate greenhouse gas (GHG) emission that could result in potentially				

significant impacts. Potential impacts associated with greenhouse gas emissions will be analyzed and mitigation measures will be identified within the EIR.				
b. Conflict with an applicable plan (including a local climate action plan), policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?		**X**		
Discussion: Construction activities and increased vehicle use associated with the Proposed Project would generate greenhouse gas (GHG) emission that could result in potentially significant impacts. Potential impacts associated with greenhouse gas emissions will be analyzed and mitigation measures will be identified within the EIR.				
c. Result in the loss of forestland or conversion of forestland to non-forest use, such that it would release significant amounts of GHG emissions, or significantly reduce GHG sequestering?				**X**
Discussion: Forestland is not present on the project site. Further analysis is not required. **Source**: USFS, 2013				
d. Expose new or existing structures and/or infrastructure (e.g., leach fields) to accelerated coastal cliff/bluff erosion due to rising sea levels?				**X**
Discussion: The project site is not located on or near a coastal cliff or bluff. Further analysis is not required.				
e. Expose people or structures to a significant risk of loss, injury or death involving sea level rise?				**X**
Discussion: Given the topography of the project site, the Proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving rising sea levels. Further analysis is not required.				
f. Place structures within an anticipated 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				**X**
Discussion: The Proposed Project would not place structures within an anticipated 100-year flood hazard area. Further analysis is not required.				

g. Place within an anticipated 100-year flood hazard area structures that would impede or redirect flood flows?				**X**
Discussion: The Proposed Project would not place structures within an anticipated 100-year flood hazard area that would impede or redirect flood flows. Further analysis is not required.				

8. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials (e.g., pesticides, herbicides, other toxic substances, or radioactive material)?		**X**		
Discussion: Construction, transportation, and operation activities associated with the Proposed Project could result in the transport, use, or disposal of hazardous materials. Potential impacts associated with hazards and hazardous materials will be addressed within the EIR.				
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?		**X**		
Discussion: The Proposed Project would have the potential to result in upset or accident conditions that may create a significant hazard to the public or environment. Potential impacts associated with hazards and hazardous materials will be analyzed and mitigation measures will be identified within the EIR.				
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?		**X**		
Discussion: Construction, transportation, and operation activities associated with the Proposed Project could result in the emission or handling of hazardous materials, substances, or waste, and the College of San Mateo is located within a quarter mile of the project site. Potential impacts associated with hazards and hazardous materials will be analyzed and mitigation measures will be identified within the EIR.				

d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				**X**
Discussion: The project site is not located on a site which is included on a list of hazardous materials sites. Further analysis is not required. **Source**: DTSC, 2007				
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area?				**X**
Discussion: The project site is not located within an airport land use plan or within two miles of a public airport. Further analysis is not required. **Source**: San Mateo County, 1986a				
f. For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area?				**X**
Discussion: The project site is not located within the vicinity of a private airstrip. Further analysis is not required. **Source**: San Mateo County, 1986a				
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				**X**
Discussion: The Proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Further analysis is not required. **Source**: San Mateo County, 2011				
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?		**X**		

Discussion: The Proposed Project is located near a very high fire hazard severity zone (VH FHHSZ). An analysis of impacts associated with hazards and hazardous materials will be analyzed and mitigation measures will be identified within the EIR. **Source**: Cal EMA, 2013				
i. Place housing within an existing 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				**X**
Discussion: The project site is not located within an existing 100-year flood hazard area. Further analysis is not required.				
j. Place within an existing 100-year flood hazard area structures that would impede or redirect flood flows?				**X**
Discussion: The Proposed Project would not place structures within an existing 100-year flood hazard area that would impede or redirect flood flows. Further analysis is not required.				
k. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				**X**
Discussion: The Proposed Project would not expose people or structures to a significant risk of loss, injury or death involving flooding. Further analysis is not required.				
l. Inundation by seiche, tsunami, or mudflow?				**X**
Discussion: The project site is not within is reasonable at risk for inundation by seiche, tsunami, or mudflow. Further analysis is not required. **Source**: Cal EMA, 2013				

9. HYDROLOGY AND WATER QUALITY. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Violate any water quality standards or waste discharge requirements (consider water quality parameters such as temperature, dissolved oxygen, turbidity and other typical stormwater		**X**		

pollutants (e.g., heavy metals, pathogens, petroleum derivatives, synthetic organics, sediment, nutrients, oxygen-demanding substances, and trash))?				
Discussion: The construction and operation activities associated with the Proposed Project would create the potential to impact water quality. Potential impacts associated with hydrology and water quality will be analyzed and mitigation measures will be identified within the EIR.				
b. Significantly deplete groundwater supplies or interfere significantly with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	**X**			
Discussion: Although implementation of the Proposed Project would introduce impervious surfaces that may interfere with groundwater recharge, the project site does not have substantial capacity for groundwater infiltration in its existing capacity, given the slopes and soil qualities on site. Therefore, it is unlikely that increased impervious surfaces as a result of the Proposed Project would substantially decrease groundwater infiltration from the current condition. Potential impacts associated with groundwater recharge will be analyzed within the EIR. **Source**: NRCS, 2013				
c. Significantly alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in significant erosion or siltation on- or off-site?		**X**		
Discussion: Implementation of the Proposed Project would alter the existing drainage pattern of the project site. Impacts associated with hydrology and water quality will be analyzed and mitigation measures will be identified within the EIR.				
d. Significantly alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or significantly increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?		**X**		

Discussion: Implementation of the Proposed Project would alter the existing drainage pattern of the project site. Potential impacts associated with hydrology and water quality will be analyzed and mitigation measures will be identified within the EIR.				
e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide significant additional sources of polluted runoff?		**X**		
Discussion: Implementation of the Proposed Project would contribute runoff water and create additional sources of polluted runoff. The project site is within the Crystal Springs County Sanitation District. The San Francisco Bay Regional Water Quality Control Board issued a CDO to the City of San Mateo, town of Hillsborough, and Crystal Springs County Sanitation District due to high infiltration rates of non wastewater during wet weather into the wastewater conveyance system resulting in associated decreases in sewage conveyance capacity which lead to unregulated releases of wastewater to surface waters. Potential impacts associated with hydrology and water quality in relation to stormwater drainage systems will be analyzed and mitigation measures will be identified within the EIR.				
f. Significantly degrade surface or groundwater water quality?		**X**		
Discussion: The construction and operation activities associated with the Proposed Project would create the potential to degrade surface and/or groundwater water quality. Potential impacts associated with hydrology and water quality will be analyzed and mitigation measures will be identified within the EIR.				
g. Result in increased impervious surfaces and associated increased runoff?		**X**		
Discussion: Implementation of the Proposed Project would introduce impervious surfaces which would result in increased runoff. Potential impacts associated with hydrology and water quality will be analyzed and mitigation measures will be identified within the EIR.				

10. LAND USE AND PLANNING. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Physically divide an established community?				**X**
Discussion: The Proposed Project would not divide an established community. Further analysis is not required. **Source**: San Mateo County, 1986a				

b. Conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				**X**
Discussion: The applicable land use plans include the San Mateo General Plan, which designates the land as Medium Low Density Residential (2.4 – 6.0 dwelling units/acre), and the San Mateo County Zoning Ordinance, which zones the land as R-1/S-8 (single-family residential/7,500 square foot minimum lot size). The Proposed Project would not conflict with these provisions. Consistencies with land use regulations were identified as an area of controversy during Scoping; therefore, a discussion of land use consistency will be incorporated into the EIR. **Source**: Proposed Project Development Plan; San Mateo County, 1986b; San Mateo County, 2009a				
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?				**X**
Discussion: Neither a habitat conservation plan nor a natural community conservation plan exist within the vicinity of the Proposed Project Area. Further analysis is not required. **Source**: San Mateo County, 1986a				
d. Result in the congregating of more than 50 people on a regular basis?				**X**
Discussion: The Proposed Project contains no provisions for public meeting places and would not result in the congregating of more than 50 people on a regular basis. Further analysis is not required. **Source**: Proposed Project Development Plan				
e. Result in the introduction of activities not currently found within the community?				**X**
Discussion: The Proposed Project would result in the development of 19 single-family residences, which is consistent with activities currently found within and designated for the community. Further analysis is not required. **Source**: Proposed Project Development Plan; San Mateo County, 1986b; San Mateo County, 2009a				
f. Serve to encourage off-site development of presently undeveloped areas or increase development				**X**

intensity of already developed areas (examples include the introduction of new or expanded public utilities, new industry, commercial facilities or recreation activities)?				
Discussion: The Proposed Project would result in the development of 19 single-family residences and would not encourage off-site development of presently undeveloped areas or increase development intensity of already developed areas. Further analysis is not required.				
g. Create a significant new demand for housing?				**X**
Discussion: The Proposed Project would result in the development of 19 single-family residences and would not create a significant new demand for housing. Further analysis is not required.				

11. MINERAL RESOURCES. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Result in the loss of availability of a known mineral resource that would be of value to the region or the residents of the State?				**X**
Discussion: No known mineral resources occur on the project site. The Proposed Project would not result in the loss of availability of mineral resource that would be of value to the region or State. Further analysis is not required. **Source**: San Mateo County, 1986a; USGS, 2012				
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				**X**
Discussion: No known mineral resources occur on the project site. The Proposed Project would not result in the loss of availability of mineral resource that would be of local value or importance. Further analysis is not required. **Source**: San Mateo County, 1986a; USGS, 2012				

12. NOISE. Would the project result in:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	**X**			
Discussion: Construction and operation activities of the Proposed Project may result in significant temporary and long-term increases in noise. Potential impacts associated with noise will be analyzed within the EIR.				
b. Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?	**X**			
Discussion: Construction and operation activities of the Proposed Project may result in significant temporary and long-term increases in noise. Potential impacts associated with noise will be analyzed within the EIR.				
c. A significant permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	**X**			
Discussion: Operation activities of the Proposed Project may result in significant long-term increases in noise. Potential impacts associated with noise will be analyzed within the EIR.				
d. A significant temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	**X**			
Discussion: Construction activities of the Proposed Project may result in significant temporary increases in noise. Potential impacts associated with noise will be analyzed within the EIR.				
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, exposure to people residing or working in the project area to excessive noise levels?				**X**

Discussion: The project site is not within an airport land use plan or within two miles of a public airport. The nearest airport is the San Carlos Airport, which is located five miles to the southeast. Further analysis is not required. **Source**: San Mateo County, 1986a				
f. For a project within the vicinity of a private airstrip, exposure to people residing or working in the project area to excessive noise levels?				**X**
Discussion: The project site is not within the vicinity of a private airstrip. Further analysis is not required. **Source**: San Mateo County, 1986a				

13. POPULATION AND HOUSING. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Induce significant population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	**X**			
Discussion: The Proposed Project would result in the development of 19 single-family residences, which could induce population growth. Potential impacts associated with population and housing will be analyzed within the EIR				
b. Displace existing housing **(including low- or moderate-income housing)**, in an area that is substantially deficient in housing, necessitating the construction of replacement housing elsewhere?				**X**
Discussion: The project site is currently undeveloped open space and thus would not displace existing housing. Further analysis is not required.				

14. PUBLIC SERVICES. Would the project result in significant adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Fire protection?	**X**			
b. Police protection?	**X**			
c. Schools?	**X**			
d. Parks?	**X**			
e. Other public facilities or utilities (e.g., hospitals, or electrical/natural gas supply systems)?	**X**			
Discussion: The Proposed Project would result in the development of 19 single-family residences on currently undeveloped open space, which could increase the demand for public services, including fire protection, police protection, schools, parks and other public faculties or utilities. Potential impacts associated with public services will be analyzed within the EIR.				

15. RECREATION. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Increase the use of existing neighborhood or regional parks or other recreational facilities such that significant physical deterioration of the facility would occur or be accelerated?	**X**			
Discussion: The Proposed Project would result in the development of 19 single-family residences on currently undeveloped open space, which could increase the use and accelerate the physical deterioration of existing parks and recreational facilities. Potential impacts associated with recreation will be analyzed within the EIR.				

b. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	**X**			
Discussion: The Proposed Project would include approximately 7.8 acres maintained as open space and could require the construction or expansion of recreational facilities given the potential for inducing population growth. Potential impacts associated with recreation will be analyzed within the EIR.				

16. TRANSPORTATION/TRAFFIC. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	**X**			
Discussion: The Proposed Project would increase the number of vehicle trips on local roadways as well as the number of potential non-motorized and mass transit travelers, which may result in a conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system. Potential impacts associated with transportation and traffic will be analyzed within the EIR.				
b. Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the County congestion management agency for designated roads or highways?	**X**			

Discussion: The Proposed Project would increase traffic both during construction and as a result of the construction of the single-family residences, which may result in conflicts with applicable congestion management programs. Potential impacts associated with transportation and traffic will be analyzed within the EIR.				
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in significant safety risks?				**X**
Discussion: The project site is not located near an airport and would not impact air traffic patterns. Further analysis is not required. **Source**: San Mateo County, 1986a				
d. Significantly increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	**X**			
Discussion: The Proposed Project would include development of a new roadway and connection of a new roadway to an existing roadway. Street design within the project site would be accomplished in accordance with State and local design standards, and potential impacts associated with transportation and traffic will be analyzed within the EIR.				
e. Result in inadequate emergency access?	**X**			
Discussion: The Proposed Project would include development of 19 single-family residences on currently undeveloped open space, and adequate emergency access to the residences would need to be developed as well. Emergency access will be developed in accordance with State and local design standards, and potential impacts associated with transportation and traffic will be analyzed within the EIR.				
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	**X**			
Discussion: The Proposed Project would increase traffic both during construction and operation, which may result in conflicts with or a decrease of the performance and/or safety of adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities. Potential impacts associated with transportation and traffic will be analyzed within the EIR.				
g. Cause noticeable increase in pedestrian traffic or a change in pedestrian patterns?	**X**			

Discussion: The Proposed Project includes development of 19 single-family residences on currently undeveloped open space which may increase pedestrian traffic or change pedestrian traffic patterns. Potential impacts associated with transportation and traffic will be analyzed within the EIR.				
h. Result in inadequate parking capacity?			**X**	
Discussion: The Proposed Project would include development of 19 single-family residences with parking on the residential lots provided per County guidelines for on-site parking requirements. The new roadway would be wide enough to allow parallel parking on either side. Although the finalized plan for parking on the project site is not available at this stage, the parking available on site will be designed to be adequate for anticipated needs. Potential impacts associated with transportation and traffic will be analyzed within the EIR.				

17. UTILITIES AND SERVICE SYSTEMS. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?		**X**		
Discussion: The Proposed Project has the potential to increase drainage, storm water runoff, and the demands on wastewater treatment. The project site is within the Crystal Springs County Sanitation District. The San Francisco Bay Regional Water Quality Control Board issued a CDO to the City of San Mateo, town of Hillsborough, and Crystal Springs County Sanitation District due to high infiltration rates of non wastewater during wet weather into the wastewater conveyance system resulting in associated decreases in sewage conveyance capacity which lead to unregulated releases of wastewater to surface waters. Potential impacts associated with utilities and service systems will be analyzed and mitigation measures will be identified within the EIR.				
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?		**X**		
Discussion: The Proposed Project would require increased water and wastewater treatment, which could require the construction of new or expansion of existing facilities. The project site will be connected to the Mid-Peninsula Water District and is within the Crystal Springs County Sanitation District. The San Francisco Bay Regional Water Quality Control Board issued a CDO to the City of San Mateo, town of Hillsborough, and Crystal Springs County Sanitation District due to high infiltration rates of non wastewater during wet weather into the wastewater conveyance system resulting in associated decreases in sewage conveyance capacity which lead to unregulated releases of wastewater to surface waters. Potential impacts associated with				

utilities and service systems will be analyzed and mitigation measures will be identified within the EIR.				
c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?		**X**		
Discussion: The Proposed Project would result in an increase in stormwater drainage, which could require the construction of new or expansion of existing facilities. The project site is within the Crystal Springs County Sanitation District. The San Francisco Bay Regional Water Quality Control Board issued a CDO to the City of San Mateo, town of Hillsborough, and Crystal Springs County Sanitation District due to high infiltration rates of non wastewater during wet weather into the wastewater conveyance system resulting in associated decreases in sewage conveyance capacity which lead to unregulated releases of wastewater to surface waters. Potential impacts associated with utilities and service systems will be analyzed and mitigation measures will be identified within the EIR.				
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	**X**			
Discussion: The Proposed Project would require increased water supplies, which may require new or expanded entitlements. Potential impacts associated with utilities and service systems will be analyzed within the EIR.				
e. Result in a determination by the waste-water treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?		**X**		
Discussion: The wastewater produced by the Proposed Project may not exceed the capacity of the existing wastewater treatment provider. Potential impacts associated with utilities and service systems will be analyzed and mitigation measures will be identified within the EIR.				
f. Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs?	**X**			

Discussion: The development of 19 single-family residences as a part of the Proposed Project will generate wastes associated with construction and operational activities, including approximately 28,270 cubic yards of grading that will be exported off-site. Potential impacts associated with utilities and service systems, including landfill services, will be analyzed within the EIR.				
g. Comply with Federal, State, and local statutes and regulations related to solid waste?	**X**			
Discussion: Construction and operation of the Proposed Project will generate solid waste. Potential impacts associated with utilities and service systems, including solid waste, will be analyzed within the EIR.				
h. Be sited, oriented, and/or designed to minimize energy consumption, including transportation energy; incorporate water conservation and solid waste reduction measures; and incorporate solar or other alternative energy sources?	**X**			
Discussion: The Proposed Project will incorporate sustainable practices where reasonably feasible. Potential impacts associated with utilities and service systems will be analyzed within the EIR.				
i. Generate any demands that will cause a public facility or utility to reach or exceed its capacity?		**X**		
Discussion: The Proposed Project would result in an increase of demands on public facilities and utilities, which may result in a public facility or utility reaching or exceeding its capacity (i.e. wastewater service). Potential impacts associated with utilities and service systems will be analyzed and mitigation measures will be identified within the EIR.				

18. MANDATORY FINDINGS OF SIGNIFICANCE.				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
a. Does the project have the potential to degrade the quality of the environment, significantly reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a	**X**			

rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?				
Discussion: The Proposed Project has the potential to significantly impact air quality and biological resources. Impacts to air quality and biological resources will be analyzed and mitigation measures will be identified within the EIR.				
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	**X**			
Discussion: The impacts generated by the Proposed Project may be cumulatively considerable. Cumulative impacts will be analyzed in the EIR.				
c. Does the project have environmental effects which will cause significant adverse effects on human beings, either directly or indirectly?	**X**			
Discussion: The Proposed Project has the potential to have a substantial effect on human beings. Impacts to human beings will be analyzed in the EIR.				

RESPONSIBLE AGENCIES. Check what agency has permit authority or other approval for the project.

AGENCY	YES	NO	TYPE OF APPROVAL
U.S. Army Corps of Engineers (CE)		**X**	
State Water Resources Control Board		**X**	
Regional Water Quality Control Board	**X**		
State Department of Public Health		**X**	
San Francisco Bay Conservation and Development Commission (BCDC)		**X**	
U.S. Environmental Protection Agency (EPA)		**X**	
County Airport Land Use Commission (ALUC)		**X**	

AGENCY	YES	NO	TYPE OF APPROVAL
CalTrans		X	
Bay Area Air Quality Management District		X	
U.S. Fish and Wildlife Service	X		
Coastal Commission		X	
City		X	
Sewer/Water District: California Water Service Company (Cal Water) Bayshore District (BSD) and Crystal Springs County Sanitation District (CSCSD)	X		
Other:		X	

MITIGATION MEASURES		
	Yes	No
Mitigation measures have been proposed in project application.	X	
Other mitigation measures are needed.	X	
The following measures are included in the project plans or proposals pursuant to Section 15070(b)(1) of the State CEQA Guidelines:		

References

Association of Bay Area Governments (ABAG), 2010. Seismic Hazards Mapping. Interactive GIS maps. Available online at: http://gis.abag.ca.gov/website/liquefactionsusceptibility/index.html. Accessed November 20, 2013.

California Geologic Survey (CGS), 2013. Alquist-Priolo Earthquake Fault Zone Maps. Available online at: http://www.quake.ca.gov/gmaps/WH/regulatorymaps.htm. Accessed May 24, 2013.

California Department of Conservation, Division of Land Resource Protection, Conservation Program Support, 2012. San Mateo County Williamson Act FY 2006/2007 (Map). Available online at: ftp://ftp.consrv.ca.gov/pub/dlrp/wa/sanmateo_06_07_WA.pdf. Accessed May 28, 2013.

California Department of Conservation, Division of Land Resource Protection, Farmland Monitoring and Mapping Program (FMMP), 2011. San Mateo County Important Farmland 2010. Available online at: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2010/smt10.pdf. Accessed May 28, 2013.

California Department of Fish and Wildlife (CDFW), 2010. North Central Coast Adopted Marine Protected Areas (Map). Available online at: http://www.dfg.ca.gov/marine/pdfs/mpamaps/nccmpas_south.pdf. Accessed May 30, 2013.

California Department of Toxic Substances Control (DTSC), 2007. Hazardous Wastes and Substances Site List. Available online at: http://www.envirostor.dtsc.ca.gov/public/search.asp?page=10&cmd=search&business_name=&main_street_name=&city=&zip=&county=&status=ACT%2CBKLG%2CCOM&branch=&site_type=CSITES%2COPEN%2CFUDS%2CCLOSE&npl=&funding=&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST&reporttype=CORTESE&federal_superfund=&state_response=&voluntary_cleanup=&school_cleanup=&operating=&post_closure=&non_operating=&corrective_action=&tiered_permit=&evaluation=&spec_prog=&national_priority_list=&senate=&congress=&assembly=&critical_pol=&business_type=&case_type=&searchtype=&hwmp_site_type=&cleanup_type=&ocieerp=False&hwmp=False&permitted=&pc_permitted=&orderby=county. Accessed May 28, 2013.

California Department of Transportation (Caltrans), 2011. California Scenic Highway Mapping System. Available online at: http://www.dot.ca.gov/hq/LandArch/scenic_highways/. Accessed May 24, 2013.

California Emergency Management Agency (CalEMA), 2013. Hazards Mitigation Portal: My Hazards. Available online at: http://myhazards.calema.ca.gov/. Accessed May 28, 2013.

Michelucci & Associates (Michelucci), 2002. Geotechnical and Engineering Geologic Investigation, Proposed Ascension Heights Subdivision, San Mateo County, California. Prepared by Michelucci & Associates, Inc. December 16, 2002.

Natural Resource Conservation Service (NRCS), 2013. Custom Soil Survey Report for San Mateo County, California: Ascension Heights Subdivision Project. WebSoil Survey available online at: http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm. Accessed November 20, 2013.

San Mateo County, 1986a. General Plan. Available online at: http://www.co.sanmateo.ca.us/planning/genplan/. Accessed May 24, 2013.

San Mateo County, 1986b. Index to Map Book 41 in General Plan. Available online at: http://www.co.sanmateo.ca.us/planning/zonemap/pdf/zonedocs/zoning%20books/zoning%20bk%2041%20(urban).pdf. Accessed May 24, 2013.

San Mateo County, 1996. San Mateo County Unincorporated Land and Water Resources Map. Available online at: www.co.sanmateo.ca.us/vgn/images/portal/cit.../9721922smc-wtr2.pdf. Accessed June 4, 2013.

San Mateo County, 2009a. San Mateo County General Plan Land Use (Map). Available online at: http://www.co.sanmateo.ca.us/Attachments/planning/PDFs/Maps/SMC_Landuse_07-24-09.pdf. Accessed May 24, 2013.

San Mateo County, 2009b. San Mateo County General Plan Scenic Corridors (Map). Available online at: http://www.co.sanmateo.ca.us/Attachments/planning/PDFs/Maps/GP%20Scenic%20Corridor%20(08-05-09).pdf. Accessed May 24, 2013.

San Mateo County, 2011. San Mateo County “Operational Area” Emergency Operations Plan. Available online at: http://www.smcsheriff.com/sites/default/files/downloads/EOP_2011_Final.pdf. Accessed May 29, 2013.

United States Fish and Wildlife Service (USFWS), 2008. National Wildlife Refuge System (Map). Available online at: http://www.fws.gov/refuges/pdfs/refugeMap0930_2008.pdf. Accessed May 30, 2013.

United States Fish and Wildlife Service (USFWS), 2013. Wetlands Mapper. Available online at: http://www.fws.gov/wetlands/Wetlands-Mapper.html. Accessed May 30, 2013.

United States Forestry Service (USFS), 2013. National Forest Locator Map. Available online at: http://www.fs.fed.us/locatormap/. Accessed May 29, 2013.

United States Geological Survey (USGS), 2012. Mineral Resources Data System. Available online at: http://tin.er.usgs.gov/mrds/. Accessed May 28, 2013.

APPENDIX C

AIR QUALITY MODELING OUTPUT FILES

CALEEMOD OUTPUT FILES

Asencian Heights

San Mateo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	19.00	Dwelling Unit	6.17	34,200.00	54

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - There will be no demolition needed. It is anticipated that site grading would take 45 days (refer to Section 3 of the EIR). Paving would occur directly after grading and last approximately 6 months (refer to Section 3 of the EIR).

Off-road Equipment - Architectural coating may occur at more than one residential project.

Off-road Equipment - Single family homes would not require a crane.

Off-road Equipment - Grading would occur over 45 days all pieces of equipment would not operate at the same time.

Off-road Equipment - All paving equipment would not operate at the same time.

Off-road Equipment - Site prepartion would occur on individual lots at different times, therefore, it is anticipated that only 50 percent of the normal equipment would operate at once.

Trips and VMT - it is conservitively estimated that trip lenght would be 18 miles.

Vehicle Trips - Trip generation rate is an average based on the Traffic Impact Study provide in the EIR Appendices.

Land Use Change -

Sequestration -

Construction Off-road Equipment Mitigation - The project proponet shall sweep Bel Aire Road three times per day to reduce fugitive PM emissions (refer to Section 5 of the EIR).

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation -

Grading - Total land use is 13.32 acres.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	250.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	250.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	10
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2

tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	20.00	361.00
tblConstructionPhase	NumDays	230.00	393.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	20.00	131.00
tblConstructionPhase	NumDays	20.00	41.00
tblConstructionPhase	NumDays	10.00	63.00
tblConstructionPhase	PhaseEndDate	2/19/2018	10/31/2016
tblConstructionPhase	PhaseEndDate	9/29/2016	9/30/2016
tblConstructionPhase	PhaseEndDate	7/2/2014	12/1/2014
tblConstructionPhase	PhaseEndDate	5/26/2015	3/30/2015
tblConstructionPhase	PhaseEndDate	2/26/2015	3/30/2015
tblConstructionPhase	PhaseStartDate	10/1/2016	6/15/2015
tblConstructionPhase	PhaseStartDate	3/31/2015	4/1/2015
tblConstructionPhase	PhaseStartDate	1/1/2014	6/1/2014
tblConstructionPhase	PhaseStartDate	3/31/2015	2/1/2015
tblConstructionPhase	PhaseStartDate	12/2/2014	1/1/2015
tblGrading	AcresOfGrading	81.88	13.32
tblGrading	MaterialExported	0.00	40,000.00
tblGrading	MaterialSiltContent	6.90	4.30
tblGrading	MeanVehicleSpeed	7.10	40.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	OperationalYear	2014	2019
tblTripsAndVMT	HaulingTripNumber	5,000.00	4,680.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblTripsAndVMT	VendorTripNumber	2.00	8.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblVehicleTrips	ST_TR	10.08	11.99
tblVehicleTrips	SU_TR	8.77	11.99

tblVehicleTrips	WD_TR	9.57	11.99

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	5.8976	44.3380	32.7746	0.0492	6.1381	1.9353	8.0734	2.2804	1.7804	4.0608	0.0000	5,088.2590	5,088.2590	0.6830	0.0000	5,102.6025
2015	7.2017	55.2918	42.1118	0.0451	13.9593	3.0449	17.0043	7.5572	2.8013	10.3585	0.0000	4,659.3875	4,659.3875	1.2664	0.0000	4,685.9809
2016	6.8576	26.7205	21.5246	0.0312	0.1690	2.0357	2.2047	0.0460	1.9427	1.9887	0.0000	3,039.5408	3,039.5408	0.5809	0.0000	3,051.7396
Total	**19.9569**	**126.3503**	**96.4111**	**0.1256**	**20.2664**	**7.0159**	**27.2823**	**9.8836**	**6.5244**	**16.4080**	**0.0000**	**12,787.1873**	**12,787.1873**	**2.5303**	**0.0000**	**12,840.3230**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2014	3.7891	32.7119	28.6287	0.0492	64.6208	0.5118	65.1326	16.2215	0.4923	16.7139	0.0000	5,086.2547	5,086.2547	0.6824	0.0000	5,100.5858
2015	4.5625	35.0503	28.3522	0.0451	6.5070	0.5314	7.0384	3.4608	0.5306	3.9913	0.0000	4,655.5638	4,655.5638	1.2652	0.0000	4,682.1332
2016	4.5280	24.8817	20.6953	0.0312	0.1690	0.5147	0.6837	0.0460	0.5136	0.5596	0.0000	3,037.0460	3,037.0460	0.5804	0.0000	3,049.2338
Total	**12.8797**	**92.6439**	**77.6761**	**0.1255**	**71.2968**	**1.5579**	**72.8547**	**19.7283**	**1.5365**	**21.2648**	**0.0000**	**12,778.8645**	**12,778.8645**	**2.5280**	**0.0000**	**12,831.9528**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**35.46**	**26.68**	**19.43**	**0.06**	**-251.80**	**77.79**	**-167.04**	**-99.61**	**76.45**	**-29.60**	**0.00**	**0.07**	**0.07**	**0.09**	**0.00**	**0.07**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	35.0907	0.4684	42.8330	0.0139		5.7871	5.7871		5.7869	5.7869	600.3590	260.9990	861.3580	0.4852	0.0487	886.6429
Energy	0.0286	0.2448	0.1042	1.5600e-003		0.0198	0.0198		0.0198	0.0198		312.4513	312.4513	5.9900e-003	5.7300e-003	314.3528
Mobile	1.4814	0.9885	5.4072	0.0144	2.0002	0.0154	2.0155	0.5145	0.0142	0.5286		1,135.6950	1,135.6950	0.0439		1,136.6177
Total	**36.6007**	**1.7017**	**48.3444**	**0.0299**	**2.0002**	**5.8222**	**7.8224**	**0.5145**	**5.8209**	**6.3353**	**600.3590**	**1,709.1452**	**2,309.5043**	**0.5352**	**0.0544**	**2,337.6134**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	35.0907	0.4684	42.8330	0.0139		5.7871	5.7871		5.7869	5.7869	600.3590	260.9990	861.3580	0.4852	0.0487	886.6429
Energy	0.0286	0.2448	0.1042	1.5600e-003		0.0198	0.0198		0.0198	0.0198		312.4513	312.4513	5.9900e-003	5.7300e-003	314.3528
Mobile	1.4814	0.9885	5.4072	0.0144	2.0002	0.0154	2.0155	0.5145	0.0142	0.5286		1,135.6950	1,135.6950	0.0439		1,136.6177
Total	**36.6007**	**1.7017**	**48.3444**	**0.0299**	**2.0002**	**5.8222**	**7.8224**	**0.5145**	**5.8209**	**6.3353**	**600.3590**	**1,709.1452**	**2,309.5043**	**0.5352**	**0.0544**	**2,337.6134**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2014	12/31/2013	5	0	
2	Grading	Grading	6/1/2014	12/1/2014	5	131	
3	Site Preparation	Site Preparation	1/1/2015	3/30/2015	5	63	
4	Paving	Paving	2/1/2015	3/30/2015	5	41	
5	Building Construction	Building Construction	4/1/2015	9/30/2016	5	393	
6	Architectural Coating	Architectural Coating	6/15/2015	10/31/2016	5	361	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 13.32

Acres of Paving: 0

Residential Indoor: 69,255; Residential Outdoor: 23,085; Non-Residential Indoor: 0; Non-Residential Outdoor: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Grading	Excavators	1	5.00	162	0.38
Grading	Graders	2	5.00	174	0.41
Grading	Rubber Tired Dozers	1	5.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	5.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	6.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	6.00	97	0.37
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	6.00	130	0.36
Paving	Rollers	2	6.00	80	0.38
Building Construction	Cranes	0	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	2	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	1.00	4,680.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	1.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	10.00	3.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	7.00	8.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	1.00	1.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.3 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3087	0.0000	5.3087	2.0553	0.0000	2.0553			0.0000			0.0000
Off-Road	2.8525	30.3226	18.3139	0.0206		1.6928	1.6928		1.5574	1.5574		2,184.6835	2,184.6835	0.6456		2,198.2411
Total	**2.8525**	**30.3226**	**18.3139**	**0.0206**	**5.3087**	**1.6928**	**7.0015**	**2.0553**	**1.5574**	**3.6127**		**2,184.6835**	**2,184.6835**	**0.6456**		**2,198.2411**

3.3 Grading - 2014

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.6301	13.7579	12.8736	0.0260	0.6175	0.2383	0.8558	0.1688	0.2192	0.3880		2,660.1311	2,660.1311	0.0247		2,660.6494
Vendor	0.0267	0.1297	0.1602	2.3000e-004	6.6100e-003	2.4600e-003	9.0700e-003	1.8800e-003	2.2600e-003	4.1400e-003		23.8664	23.8664	2.5000e-004		23.8716
Worker	0.3882	0.1278	1.4269	2.4300e-003	0.2053	1.7600e-003	0.2070	0.0544	1.6000e-003	0.0560		219.5780	219.5780	0.0125		219.8405
Total	**3.0451**	**14.0154**	**14.4607**	**0.0286**	**0.8294**	**0.2426**	**1.0719**	**0.2251**	**0.2231**	**0.4482**		**2,903.5755**	**2,903.5755**	**0.0374**		**2,904.3615**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.3889	0.0000	2.3889	0.9249	0.0000	0.9249			0.0000			0.0000
Off-Road	0.7440	18.6965	14.1679	0.0206		0.2693	0.2693		0.2693	0.2693	0.0000	2,182.6792	2,182.6792	0.6450		2,196.2243
Total	**0.7440**	**18.6965**	**14.1679**	**0.0206**	**2.3889**	**0.2693**	**2.6582**	**0.9249**	**0.2693**	**1.1942**	**0.0000**	**2,182.6792**	**2,182.6792**	**0.6450**		**2,196.2243**

3.3 Grading - 2014

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.6301	13.7579	12.8736	0.0260	62.0200	0.2383	62.2583	15.2403	0.2192	15.4595		2,660.1311	2,660.1311	0.0247		2,660.6494
Vendor	0.0267	0.1297	0.1602	2.3000e-004	6.6100e-003	2.4600e-003	9.0700e-003	1.8800e-003	2.2600e-003	4.1400e-003		23.8664	23.8664	2.5000e-004		23.8716
Worker	0.3882	0.1278	1.4269	2.4300e-003	0.2053	1.7600e-003	0.2070	0.0544	1.6000e-003	0.0560		219.5780	219.5780	0.0125		219.8405
Total	**3.0451**	**14.0154**	**14.4607**	**0.0286**	**62.2319**	**0.2426**	**62.4744**	**15.2966**	**0.2231**	**15.5197**		**2,903.5755**	**2,903.5755**	**0.0374**		**2,904.3615**

3.4 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					13.5497	0.0000	13.5497	7.4480	0.0000	7.4480			0.0000			0.0000
Off-Road	3.9457	42.6673	31.9738	0.0293		2.3162	2.3162		2.1309	2.1309		3,083.8083	3,083.8083	0.9207		3,103.1418
Total	**3.9457**	**42.6673**	**31.9738**	**0.0293**	**13.5497**	**2.3162**	**15.8659**	**7.4480**	**2.1309**	**9.5789**		**3,083.8083**	**3,083.8083**	**0.9207**		**3,103.1418**

3.4 Site Preparation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0248	0.1120	0.1497	2.3000e-004	6.6200e-003	1.7900e-003	8.4100e-003	1.8900e-003	1.6500e-003	3.5300e-003		23.6400	23.6400	2.1000e-004		23.6443
Worker	0.4317	0.1375	1.5370	2.9100e-003	0.2463	1.9500e-003	0.2483	0.0653	1.7900e-003	0.0671		255.2562	255.2562	0.0137		255.5433
Total	**0.4565**	**0.2494**	**1.6867**	**3.1400e-003**	**0.2529**	**3.7400e-003**	**0.2567**	**0.0672**	**3.4400e-003**	**0.0706**		**278.8961**	**278.8961**	**0.0139**		**279.1876**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0974	0.0000	6.0974	3.3516	0.0000	3.3516			0.0000			0.0000
Off-Road	0.9216	24.3385	17.5341	0.0293		0.3601	0.3601		0.3601	0.3601	0.0000	3,080.9791	3,080.9791	0.9198		3,100.2949
Total	**0.9216**	**24.3385**	**17.5341**	**0.0293**	**6.0974**	**0.3601**	**6.4574**	**3.3516**	**0.3601**	**3.7117**	**0.0000**	**3,080.9791**	**3,080.9791**	**0.9198**		**3,100.2949**

3.4 Site Preparation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0248	0.1120	0.1497	2.3000e-004	6.6200e-003	1.7900e-003	8.4100e-003	1.8900e-003	1.6500e-003	3.5300e-003		23.6400	23.6400	2.1000e-004		23.6443
Worker	0.4317	0.1375	1.5370	2.9100e-003	0.2463	1.9500e-003	0.2483	0.0653	1.7900e-003	0.0671		255.2562	255.2562	0.0137		255.5433
Total	**0.4565**	**0.2494**	**1.6867**	**3.1400e-003**	**0.2529**	**3.7400e-003**	**0.2567**	**0.0672**	**3.4400e-003**	**0.0706**		**278.8961**	**278.8961**	**0.0139**		**279.1876**

3.5 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1437	11.9629	7.1484	0.0103		0.7185	0.7185		0.6610	0.6610		1,083.9542	1,083.9542	0.3236		1,090.7499
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1437**	**11.9629**	**7.1484**	**0.0103**		**0.7185**	**0.7185**		**0.6610**	**0.6610**		**1,083.9542**	**1,083.9542**	**0.3236**		**1,090.7499**

3.5 Paving - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0744	0.3359	0.4490	7.0000e-004	0.0199	5.3800e-003	0.0252	5.6600e-003	4.9500e-003	0.0106		70.9199	70.9199	6.2000e-004		70.9330
Worker	0.2398	0.0764	0.8539	1.6200e-003	0.1369	1.0900e-003	0.1379	0.0363	9.9000e-004	0.0373		141.8090	141.8090	7.6000e-003		141.9685
Total	**0.3142**	**0.4123**	**1.3029**	**2.3200e-003**	**0.1567**	**6.4700e-003**	**0.1632**	**0.0420**	**5.9400e-003**	**0.0479**		**212.7289**	**212.7289**	**8.2200e-003**		**212.9015**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4342	10.0501	7.8285	0.0103		0.1611	0.1611		0.1611	0.1611	0.0000	1,082.9597	1,082.9597	0.3233		1,089.7492
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4342**	**10.0501**	**7.8285**	**0.0103**		**0.1611**	**0.1611**		**0.1611**	**0.1611**	**0.0000**	**1,082.9597**	**1,082.9597**	**0.3233**		**1,089.7492**

3.5 Paving - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0744	0.3359	0.4490	7.0000e-004	0.0199	5.3800e-003	0.0252	5.6600e-003	4.9500e-003	0.0106		70.9199	70.9199	6.2000e-004		70.9330
Worker	0.2398	0.0764	0.8539	1.6200e-003	0.1369	1.0900e-003	0.1379	0.0363	9.9000e-004	0.0373		141.8090	141.8090	7.6000e-003		141.9685
Total	**0.3142**	**0.4123**	**1.3029**	**2.3200e-003**	**0.1567**	**6.4700e-003**	**0.1632**	**0.0420**	**5.9400e-003**	**0.0479**		**212.7289**	**212.7289**	**8.2200e-003**		**212.9015**

3.6 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.0095	22.3212	16.0609	0.0219		1.7648	1.7648		1.6666	1.6666		2,171.2679	2,171.2679	0.5201		2,182.1896
Total	**3.0095**	**22.3212**	**16.0609**	**0.0219**		**1.7648**	**1.7648**		**1.6666**	**1.6666**		**2,171.2679**	**2,171.2679**	**0.5201**		**2,182.1896**

3.6 Building Construction - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1984	0.8957	1.1973	1.8700e-003	0.0529	0.0144	0.0673	0.0151	0.0132	0.0283		189.1198	189.1198	1.6600e-003		189.1547
Worker	0.1679	0.0535	0.5977	1.1300e-003	0.0958	7.6000e-004	0.0966	0.0254	6.9000e-004	0.0261		99.2663	99.2663	5.3200e-003		99.3780
Total	**0.3663**	**0.9492**	**1.7950**	**3.0000e-003**	**0.1487**	**0.0151**	**0.1638**	**0.0405**	**0.0139**	**0.0544**		**288.3861**	**288.3861**	**6.9800e-003**		**288.5326**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9559	19.2464	15.1719	0.0219		0.4059	0.4059		0.4059	0.4059	0.0000	2,169.2759	2,169.2759	0.5196		2,180.1876
Total	**0.9559**	**19.2464**	**15.1719**	**0.0219**		**0.4059**	**0.4059**		**0.4059**	**0.4059**	**0.0000**	**2,169.2759**	**2,169.2759**	**0.5196**		**2,180.1876**

3.6 Building Construction - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1984	0.8957	1.1973	1.8700e-003	0.0529	0.0144	0.0673	0.0151	0.0132	0.0283		189.1198	189.1198	1.6600e-003		189.1547
Worker	0.1679	0.0535	0.5977	1.1300e-003	0.0958	7.6000e-004	0.0966	0.0254	6.9000e-004	0.0261		99.2663	99.2663	5.3200e-003		99.3780
Total	**0.3663**	**0.9492**	**1.7950**	**3.0000e-003**	**0.1487**	**0.0151**	**0.1638**	**0.0405**	**0.0139**	**0.0544**		**288.3861**	**288.3861**	**6.9800e-003**		**288.5326**

3.6 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.7762	21.0412	15.8949	0.0219		1.6287	1.6287		1.5368	1.5368		2,156.3310	2,156.3310	0.5073		2,166.9844
Total	**2.7762**	**21.0412**	**15.8949**	**0.0219**		**1.6287**	**1.6287**		**1.5368**	**1.5368**		**2,156.3310**	**2,156.3310**	**0.5073**		**2,166.9844**

3.6 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1794	0.7820	1.1067	1.8700e-003	0.0529	0.0115	0.0645	0.0151	0.0106	0.0257		187.1666	187.1666	1.4700e-003		187.1975
Worker	0.1563	0.0482	0.5397	1.1300e-003	0.0958	7.2000e-004	0.0965	0.0254	6.6000e-004	0.0261		96.0323	96.0323	4.8800e-003		96.1348
Total	**0.3358**	**0.8302**	**1.6464**	**3.0000e-003**	**0.1487**	**0.0122**	**0.1610**	**0.0405**	**0.0113**	**0.0518**		**283.1990**	**283.1990**	**6.3500e-003**		**283.3323**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9559	19.2464	15.1719	0.0219		0.4059	0.4059		0.4059	0.4059	0.0000	2,154.3527	2,154.3527	0.5068		2,164.9963
Total	**0.9559**	**19.2464**	**15.1719**	**0.0219**		**0.4059**	**0.4059**		**0.4059**	**0.4059**	**0.0000**	**2,154.3527**	**2,154.3527**	**0.5068**		**2,164.9963**

3.6 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1794	0.7820	1.1067	1.8700e-003	0.0529	0.0115	0.0645	0.0151	0.0106	0.0257		187.1666	187.1666	1.4700e-003		187.1975
Worker	0.1563	0.0482	0.5397	1.1300e-003	0.0958	7.2000e-004	0.0965	0.0254	6.6000e-004	0.0261		96.0323	96.0323	4.8800e-003		96.1348
Total	**0.3358**	**0.8302**	**1.6464**	**3.0000e-003**	**0.1487**	**0.0122**	**0.1610**	**0.0405**	**0.0113**	**0.0518**		**283.1990**	**283.1990**	**6.3500e-003**		**283.3323**

3.7 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.9640					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.8132	5.1407	3.8035	5.9400e-003		0.4418	0.4418		0.4418	0.4418		562.8961	562.8961	0.0733		564.4353
Total	**3.7772**	**5.1407**	**3.8035**	**5.9400e-003**		**0.4418**	**0.4418**		**0.4418**	**0.4418**		**562.8961**	**562.8961**	**0.0733**		**564.4353**

3.7 Architectural Coating - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0248	0.1120	0.1497	2.3000e-004	6.6200e-003	1.7900e-003	8.4100e-003	1.8900e-003	1.6500e-003	3.5300e-003		23.6400	23.6400	2.1000e-004		23.6443
Worker	0.0240	7.6400e-003	0.0854	1.6000e-004	0.0137	1.1000e-004	0.0138	3.6300e-003	1.0000e-004	3.7300e-003		14.1809	14.1809	7.6000e-004		14.1969
Total	**0.0488**	**0.1196**	**0.2351**	**3.9000e-004**	**0.0203**	**1.9000e-003**	**0.0222**	**5.5200e-003**	**1.7500e-003**	**7.2600e-003**		**37.8209**	**37.8209**	**9.7000e-004**		**37.8412**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.9640					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2276	4.7005	3.6615	5.9400e-003		0.0950	0.0950		0.0950	0.0950	0.0000	562.3797	562.3797	0.0732		563.9175
Total	**3.1916**	**4.7005**	**3.6615**	**5.9400e-003**		**0.0950**	**0.0950**		**0.0950**	**0.0950**	**0.0000**	**562.3797**	**562.3797**	**0.0732**		**563.9175**

3.7 Architectural Coating - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0248	0.1120	0.1497	2.3000e-004	6.6200e-003	1.7900e-003	8.4100e-003	1.8900e-003	1.6500e-003	3.5300e-003		23.6400	23.6400	2.1000e-004		23.6443
Worker	0.0240	7.6400e-003	0.0854	1.6000e-004	0.0137	1.1000e-004	0.0138	3.6300e-003	1.0000e-004	3.7300e-003		14.1809	14.1809	7.6000e-004		14.1969
Total	**0.0488**	**0.1196**	**0.2351**	**3.9000e-004**	**0.0203**	**1.9000e-003**	**0.0222**	**5.5200e-003**	**1.7500e-003**	**7.2600e-003**		**37.8209**	**37.8209**	**9.7000e-004**		**37.8412**

3.7 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.9640					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.7369	4.7445	3.7678	5.9400e-003		0.3932	0.3932		0.3932	0.3932		562.8961	562.8961	0.0664		564.2897
Total	**3.7009**	**4.7445**	**3.7678**	**5.9400e-003**		**0.3932**	**0.3932**		**0.3932**	**0.3932**		**562.8961**	**562.8961**	**0.0664**		**564.2897**

3.7 Architectural Coating - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0224	0.0978	0.1383	2.3000e-004	6.6200e-003	1.4400e-003	8.0600e-003	1.8900e-003	1.3200e-003	3.2100e-003		23.3958	23.3958	1.8000e-004		23.3997
Worker	0.0223	6.8800e-003	0.0771	1.6000e-004	0.0137	1.0000e-004	0.0138	3.6300e-003	9.0000e-005	3.7200e-003		13.7189	13.7189	7.0000e-004		13.7335
Total	**0.0448**	**0.1046**	**0.2155**	**3.9000e-004**	**0.0203**	**1.5400e-003**	**0.0219**	**5.5200e-003**	**1.4100e-003**	**6.9300e-003**		**37.1147**	**37.1147**	**8.8000e-004**		**37.1332**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.9640					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2276	4.7005	3.6615	5.9400e-003		0.0950	0.0950		0.0950	0.0950	0.0000	562.3797	562.3797	0.0663		563.7720
Total	**3.1916**	**4.7005**	**3.6615**	**5.9400e-003**		**0.0950**	**0.0950**		**0.0950**	**0.0950**	**0.0000**	**562.3797**	**562.3797**	**0.0663**		**563.7720**

3.7 Architectural Coating - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0224	0.0978	0.1383	2.3000e-004	6.6200e-003	1.4400e-003	8.0600e-003	1.8900e-003	1.3200e-003	3.2100e-003		23.3958	23.3958	1.8000e-004		23.3997
Worker	0.0223	6.8800e-003	0.0771	1.6000e-004	0.0137	1.0000e-004	0.0138	3.6300e-003	9.0000e-005	3.7200e-003		13.7189	13.7189	7.0000e-004		13.7335
Total	**0.0448**	**0.1046**	**0.2155**	**3.9000e-004**	**0.0203**	**1.5400e-003**	**0.0219**	**5.5200e-003**	**1.4100e-003**	**6.9300e-003**		**37.1147**	**37.1147**	**8.8000e-004**		**37.1332**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.4814	0.9885	5.4072	0.0144	2.0002	0.0154	2.0155	0.5145	0.0142	0.5286		1,135.6950	1,135.6950	0.0439		1,136.6177
Unmitigated	1.4814	0.9885	5.4072	0.0144	2.0002	0.0154	2.0155	0.5145	0.0142	0.5286		1,135.6950	1,135.6950	0.0439		1,136.6177

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	227.81	227.81	227.81	508,555	508,555
Total	227.81	227.81	227.81	508,555	508,555

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.579581	0.062616	0.176505	0.113545	0.029546	0.004152	0.015698	0.004192	0.002652	0.003672	0.006635	0.000224	0.000983

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0286	0.2448	0.1042	1.5600e-003		0.0198	0.0198		0.0198	0.0198		312.4513	312.4513	5.9900e-003	5.7300e-003	314.3528
NaturalGas Unmitigated	0.0286	0.2448	0.1042	1.5600e-003		0.0198	0.0198		0.0198	0.0198		312.4513	312.4513	5.9900e-003	5.7300e-003	314.3528

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	2655.84	0.0286	0.2448	0.1042	1.5600e-003		0.0198	0.0198		0.0198	0.0198		312.4513	312.4513	5.9900e-003	5.7300e-003	314.3528
Total		**0.0286**	**0.2448**	**0.1042**	**1.5600e-003**		**0.0198**	**0.0198**		**0.0198**	**0.0198**		**312.4513**	**312.4513**	**5.9900e-003**	**5.7300e-003**	**314.3528**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	2.65584	0.0286	0.2448	0.1042	1.5600e-003		0.0198	0.0198		0.0198	0.0198		312.4513	312.4513	5.9900e-003	5.7300e-003	314.3528
Total		**0.0286**	**0.2448**	**0.1042**	**1.5600e-003**		**0.0198**	**0.0198**		**0.0198**	**0.0198**		**312.4513**	**312.4513**	**5.9900e-003**	**5.7300e-003**	**314.3528**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	35.0907	0.4684	42.8330	0.0139		5.7871	5.7871		5.7869	5.7869	600.3590	260.9990	861.3580	0.4852	0.0487	886.6429
Unmitigated	35.0907	0.4684	42.8330	0.0139		5.7871	5.7871		5.7869	5.7869	600.3590	260.9990	861.3580	0.4852	0.0487	886.6429

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2638					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	34.0468	0.4502	41.2578	0.0138		5.7784	5.7784		5.7783	5.7783	600.3590	258.1765	858.5355	0.4825	0.0487	883.7622
Landscaping	0.0482	0.0183	1.5753	8.0000e-005		8.6300e-003	8.6300e-003		8.6300e-003	8.6300e-003		2.8225	2.8225	2.7700e-003		2.8807
Total	**35.0907**	**0.4684**	**42.8331**	**0.0139**		**5.7871**	**5.7871**		**5.7869**	**5.7869**	**600.3590**	**260.9990**	**861.3580**	**0.4852**	**0.0487**	**886.6429**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2638					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	34.0468	0.4502	41.2578	0.0138		5.7784	5.7784		5.7783	5.7783	600.3590	258.1765	858.5355	0.4825	0.0487	883.7622
Landscaping	0.0482	0.0183	1.5753	8.0000e-005		8.6300e-003	8.6300e-003		8.6300e-003	8.6300e-003		2.8225	2.8225	2.7700e-003		2.8807
Total	**35.0907**	**0.4684**	**42.8331**	**0.0139**		**5.7871**	**5.7871**		**5.7869**	**5.7869**	**600.3590**	**260.9990**	**861.3580**	**0.4852**	**0.0487**	**886.6429**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Asencian Heights

San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	19.00	Dwelling Unit	6.17	34,200.00	54

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - There will be no demolition needed. It is anticipated that site grading would take 45 days (refer to Section 3 of the EIR). Paving would occur directly after grading and last approximately 6 months (refer to Section 3 of the EIR).

Off-road Equipment - Architectural coating may occur at more than one residential project.

Off-road Equipment - Single family homes would not require a crane.

Off-road Equipment - Grading would occur over 45 days all pieces of equipment would not operate at the same time.

Off-road Equipment - All paving equipment would not operate at the same time.

Off-road Equipment - Site prepartion would occur on individual lots at different times, therefore, it is anticipated that only 50 percent of the normal equipment would operate at once.

Trips and VMT - it is conservitively estimated that trip lenght would be 18 miles.

Vehicle Trips - Trip generation rate is an average based on the Traffic Impact Study provide in the EIR Appendices.

Land Use Change -

Sequestration -

Construction Off-road Equipment Mitigation - The project proponet shall sweep Bel Aire Road three times per day to reduce fugitive PM emissions (refer to Section 5 of the EIR).

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation -

Grading - Total land use is 13.32 acres.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	250.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	250.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	10
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2

tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	20.00	361.00
tblConstructionPhase	NumDays	230.00	393.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	20.00	131.00
tblConstructionPhase	NumDays	20.00	41.00
tblConstructionPhase	NumDays	10.00	63.00
tblConstructionPhase	PhaseEndDate	2/19/2018	10/31/2016
tblConstructionPhase	PhaseEndDate	9/29/2016	9/30/2016
tblConstructionPhase	PhaseEndDate	7/2/2014	12/1/2014
tblConstructionPhase	PhaseEndDate	5/26/2015	3/30/2015
tblConstructionPhase	PhaseEndDate	2/26/2015	3/30/2015
tblConstructionPhase	PhaseStartDate	10/1/2016	6/15/2015
tblConstructionPhase	PhaseStartDate	3/31/2015	4/1/2015
tblConstructionPhase	PhaseStartDate	1/1/2014	6/1/2014
tblConstructionPhase	PhaseStartDate	3/31/2015	2/1/2015
tblConstructionPhase	PhaseStartDate	12/2/2014	1/1/2015
tblGrading	AcresOfGrading	81.88	13.32
tblGrading	MaterialExported	0.00	40,000.00
tblGrading	MaterialSiltContent	6.90	4.30
tblGrading	MeanVehicleSpeed	7.10	40.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblProjectCharacteristics	OperationalYear	2014	2019
tblTripsAndVMT	HaulingTripNumber	5,000.00	4,680.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblTripsAndVMT	VendorTripNumber	2.00	8.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblTripsAndVMT	WorkerTripLength	12.40	18.00
tblVehicleTrips	ST_TR	10.08	11.99
tblVehicleTrips	SU_TR	8.77	11.99

tblVehicleTrips	WD_TR	9.57	11.99

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.3971	2.9427	2.2620	3.2100e-003	0.4000	0.1268	0.5268	0.1489	0.1166	0.2655	0.0000	301.4418	301.4418	0.0406	0.0000	302.2943
2015	0.7814	4.2820	3.3111	4.1800e-003	0.4530	0.2952	0.7482	0.2417	0.2784	0.5201	0.0000	378.0471	378.0471	0.0848	0.0000	379.8284
2016	0.7144	2.6735	2.1795	3.1200e-003	0.0161	0.2037	0.2198	4.4100e-003	0.1945	0.1989	0.0000	275.3188	275.3188	0.0523	0.0000	276.4168
Total	**1.8929**	**9.8982**	**7.7525**	**0.0105**	**0.8691**	**0.6257**	**1.4948**	**0.3950**	**0.5896**	**0.9845**	**0.0000**	**954.8077**	**954.8077**	**0.1777**	**0.0000**	**958.5395**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2014	0.2590	2.1809	1.9902	3.2100e-003	4.0378	0.0336	4.0713	1.0147	0.0323	1.0469	0.0000	301.2874	301.2874	0.0406	0.0000	302.1389
2015	0.4271	3.3300	2.7717	4.1700e-003	0.2183	0.0633	0.2816	0.1127	0.0632	0.1759	0.0000	377.6437	377.6437	0.0847	0.0000	379.4230
2016	0.4807	2.4922	2.0966	3.1200e-003	0.0161	0.0515	0.0676	4.4100e-003	0.0513	0.0557	0.0000	275.0248	275.0248	0.0522	0.0000	276.1216
Total	**1.1668**	**8.0031**	**6.8584**	**0.0105**	**4.2722**	**0.1483**	**4.4205**	**1.1318**	**0.1468**	**1.2785**	**0.0000**	**953.9560**	**953.9560**	**0.1775**	**0.0000**	**957.6834**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**38.36**	**19.15**	**11.53**	**0.10**	**-391.55**	**76.29**	**-195.73**	**-186.53**	**75.10**	**-29.86**	**0.00**	**0.09**	**0.09**	**0.12**	**0.00**	**0.09**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2978	3.7500e-003	0.3139	1.9000e-004		0.0259	0.0259		0.0259	0.0259	2.6372	0.9671	3.6043	5.9200e-003	1.4000e-004	3.7718
Energy	5.2300e-003	0.0447	0.0190	2.9000e-004		3.6100e-003	3.6100e-003		3.6100e-003	3.6100e-003	0.0000	90.1666	90.1666	2.7300e-003	1.3100e-003	90.6294
Mobile	0.2832	0.1942	1.0154	2.4900e-003	0.3479	2.8000e-003	0.3507	0.0897	2.5800e-003	0.0923	0.0000	178.5287	178.5287	7.2500e-003	0.0000	178.6809
Waste						0.0000	0.0000		0.0000	0.0000	4.6038	0.0000	4.6038	0.2721	0.0000	10.3175
Water						0.0000	0.0000		0.0000	0.0000	0.7855	5.4866	6.2720	0.0809	1.9600e-003	8.5779
Total	**0.5862**	**0.2426**	**1.3483**	**2.9700e-003**	**0.3479**	**0.0323**	**0.3802**	**0.0897**	**0.0320**	**0.1217**	**8.0266**	**275.1489**	**283.1755**	**0.3689**	**3.4100e-003**	**291.9774**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2978	3.7500e-003	0.3139	1.9000e-004		0.0259	0.0259		0.0259	0.0259	2.6372	0.9671	3.6043	5.9200e-003	1.4000e-004	3.7718
Energy	5.2300e-003	0.0447	0.0190	2.9000e-004		3.6100e-003	3.6100e-003		3.6100e-003	3.6100e-003	0.0000	90.1666	90.1666	2.7300e-003	1.3100e-003	90.6294
Mobile	0.2832	0.1942	1.0154	2.4900e-003	0.3479	2.8000e-003	0.3507	0.0897	2.5800e-003	0.0923	0.0000	178.5287	178.5287	7.2500e-003	0.0000	178.6809
Waste						0.0000	0.0000		0.0000	0.0000	4.6038	0.0000	4.6038	0.2721	0.0000	10.3175
Water						0.0000	0.0000		0.0000	0.0000	0.7855	5.4866	6.2720	0.0809	1.9500e-003	8.5766
Total	**0.5862**	**0.2426**	**1.3483**	**2.9700e-003**	**0.3479**	**0.0323**	**0.3802**	**0.0897**	**0.0320**	**0.1217**	**8.0266**	**275.1489**	**283.1755**	**0.3689**	**3.4000e-003**	**291.9762**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.29**	**0.00**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	0.0000
Vegetation Land Change	-35.5200
Total	**-35.5200**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2014	12/31/2013	5	0	
2	Grading	Grading	6/1/2014	12/1/2014	5	131	
3	Site Preparation	Site Preparation	1/1/2015	3/30/2015	5	63	
4	Paving	Paving	2/1/2015	3/30/2015	5	41	
5	Building Construction	Building Construction	4/1/2015	9/30/2016	5	393	
6	Architectural Coating	Architectural Coating	6/15/2015	10/31/2016	5	361	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 13.32

Acres of Paving: 0

Residential Indoor: 69,255; Residential Outdoor: 23,085; Non-Residential Indoor: 0; Non-Residential Outdoor: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Grading	Excavators	1	5.00	162	0.38
Grading	Graders	2	5.00	174	0.41
Grading	Rubber Tired Dozers	1	5.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	5.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	6.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	6.00	97	0.37
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	6.00	130	0.36
Paving	Rollers	2	6.00	80	0.38
Building Construction	Cranes	0	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	2	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	1.00	4,680.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	1.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	10.00	3.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	7.00	8.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	1.00	1.00	0.00	18.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.3 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3477	0.0000	0.3477	0.1346	0.0000	0.1346	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1868	1.9861	1.1996	1.3500e-003		0.1109	0.1109		0.1020	0.1020	0.0000	129.8152	129.8152	0.0384	0.0000	130.6208
Total	**0.1868**	**1.9861**	**1.1996**	**1.3500e-003**	**0.3477**	**0.1109**	**0.4586**	**0.1346**	**0.1020**	**0.2366**	**0.0000**	**129.8152**	**129.8152**	**0.0384**	**0.0000**	**130.6208**

3.3 Grading - 2014

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.1810	0.9383	0.9601	1.7000e-003	0.0390	0.0156	0.0546	0.0107	0.0144	0.0251	0.0000	157.9063	157.9063	1.4700e-003	0.0000	157.9373
Vendor	1.8900e-003	8.8100e-003	0.0129	2.0000e-005	4.2000e-004	1.6000e-004	5.8000e-004	1.2000e-004	1.5000e-004	2.7000e-004	0.0000	1.4136	1.4136	1.0000e-005	0.0000	1.4139
Worker	0.0274	9.5200e-003	0.0895	1.5000e-004	0.0129	1.2000e-004	0.0130	3.4300e-003	1.1000e-004	3.5300e-003	0.0000	12.3068	12.3068	7.4000e-004	0.0000	12.3224
Total	**0.2103**	**0.9566**	**1.0625**	**1.8700e-003**	**0.0523**	**0.0159**	**0.0682**	**0.0142**	**0.0146**	**0.0289**	**0.0000**	**171.6266**	**171.6266**	**2.2200e-003**	**0.0000**	**171.6735**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1565	0.0000	0.1565	0.0606	0.0000	0.0606	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0487	1.2243	0.9278	1.3500e-003		0.0176	0.0176		0.0176	0.0176	0.0000	129.6608	129.6608	0.0383	0.0000	130.4654
Total	**0.0487**	**1.2243**	**0.9278**	**1.3500e-003**	**0.1565**	**0.0176**	**0.1741**	**0.0606**	**0.0176**	**0.0782**	**0.0000**	**129.6608**	**129.6608**	**0.0383**	**0.0000**	**130.4654**

3.3 Grading - 2014

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.1810	0.9383	0.9601	1.7000e-003	3.8680	0.0156	3.8836	0.9505	0.0144	0.9649	0.0000	157.9063	157.9063	1.4700e-003	0.0000	157.9373
Vendor	1.8900e-003	8.8100e-003	0.0129	2.0000e-005	4.2000e-004	1.6000e-004	5.8000e-004	1.2000e-004	1.5000e-004	2.7000e-004	0.0000	1.4136	1.4136	1.0000e-005	0.0000	1.4139
Worker	0.0274	9.5200e-003	0.0895	1.5000e-004	0.0129	1.2000e-004	0.0130	3.4300e-003	1.1000e-004	3.5300e-003	0.0000	12.3068	12.3068	7.4000e-004	0.0000	12.3224
Total	**0.2103**	**0.9566**	**1.0625**	**1.8700e-003**	**3.8813**	**0.0159**	**3.8972**	**0.9541**	**0.0146**	**0.9687**	**0.0000**	**171.6266**	**171.6266**	**2.2200e-003**	**0.0000**	**171.6735**

3.4 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4268	0.0000	0.4268	0.2346	0.0000	0.2346	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1243	1.3440	1.0072	9.2000e-004		0.0730	0.0730		0.0671	0.0671	0.0000	88.1239	88.1239	0.0263	0.0000	88.6764
Total	**0.1243**	**1.3440**	**1.0072**	**9.2000e-004**	**0.4268**	**0.0730**	**0.4998**	**0.2346**	**0.0671**	**0.3017**	**0.0000**	**88.1239**	**88.1239**	**0.0263**	**0.0000**	**88.6764**

3.4 Site Preparation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.4000e-004	3.6600e-003	5.8400e-003	1.0000e-005	2.0000e-004	6.0000e-005	2.6000e-004	6.0000e-005	5.0000e-005	1.1000e-004	0.0000	0.6733	0.6733	1.0000e-005	0.0000	0.6735
Worker	0.0147	4.9300e-003	0.0461	9.0000e-005	7.4400e-003	6.0000e-005	7.5000e-003	1.9800e-003	6.0000e-005	2.0300e-003	0.0000	6.8799	6.8799	3.9000e-004	0.0000	6.8881
Total	**0.0155**	**8.5900e-003**	**0.0520**	**1.0000e-004**	**7.6400e-003**	**1.2000e-004**	**7.7600e-003**	**2.0400e-003**	**1.1000e-004**	**2.1400e-003**	**0.0000**	**7.5532**	**7.5532**	**4.0000e-004**	**0.0000**	**7.5615**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1921	0.0000	0.1921	0.1056	0.0000	0.1056	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0290	0.7665	0.5522	9.2000e-004		0.0113	0.0113		0.0113	0.0113	0.0000	88.0191	88.0191	0.0263	0.0000	88.5709
Total	**0.0290**	**0.7665**	**0.5522**	**9.2000e-004**	**0.1921**	**0.0113**	**0.2034**	**0.1056**	**0.0113**	**0.1169**	**0.0000**	**88.0191**	**88.0191**	**0.0263**	**0.0000**	**88.5709**

3.4 Site Preparation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.4000e-004	3.6600e-003	5.8400e-003	1.0000e-005	2.0000e-004	6.0000e-005	2.6000e-004	6.0000e-005	5.0000e-005	1.1000e-004	0.0000	0.6733	0.6733	1.0000e-005	0.0000	0.6735
Worker	0.0147	4.9300e-003	0.0461	9.0000e-005	7.4400e-003	6.0000e-005	7.5000e-003	1.9800e-003	6.0000e-005	2.0300e-003	0.0000	6.8799	6.8799	3.9000e-004	0.0000	6.8881
Total	**0.0155**	**8.5900e-003**	**0.0520**	**1.0000e-004**	**7.6400e-003**	**1.2000e-004**	**7.7600e-003**	**2.0400e-003**	**1.1000e-004**	**2.1400e-003**	**0.0000**	**7.5532**	**7.5532**	**4.0000e-004**	**0.0000**	**7.5615**

3.5 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0235	0.2452	0.1465	2.1000e-004		0.0147	0.0147		0.0136	0.0136	0.0000	20.1586	20.1586	6.0200e-003	0.0000	20.2850
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0235**	**0.2452**	**0.1465**	**2.1000e-004**		**0.0147**	**0.0147**		**0.0136**	**0.0136**	**0.0000**	**20.1586**	**20.1586**	**6.0200e-003**	**0.0000**	**20.2850**

3.5 Paving - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6500e-003	7.1400e-003	0.0114	1.0000e-005	3.9000e-004	1.1000e-004	5.0000e-004	1.1000e-004	1.0000e-004	2.1000e-004	0.0000	1.3146	1.3146	1.0000e-005	0.0000	1.3149
Worker	5.3000e-003	1.7800e-003	0.0167	3.0000e-005	2.6900e-003	2.0000e-005	2.7100e-003	7.2000e-004	2.0000e-005	7.4000e-004	0.0000	2.4874	2.4874	1.4000e-004	0.0000	2.4904
Total	**6.9500e-003**	**8.9200e-003**	**0.0281**	**4.0000e-005**	**3.0800e-003**	**1.3000e-004**	**3.2100e-003**	**8.3000e-004**	**1.2000e-004**	**9.5000e-004**	**0.0000**	**3.8020**	**3.8020**	**1.5000e-004**	**0.0000**	**3.8052**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.9000e-003	0.2060	0.1604	2.1000e-004		3.3000e-003	3.3000e-003		3.3000e-003	3.3000e-003	0.0000	20.1346	20.1346	6.0100e-003	0.0000	20.2609
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.9000e-003**	**0.2060**	**0.1604**	**2.1000e-004**		**3.3000e-003**	**3.3000e-003**		**3.3000e-003**	**3.3000e-003**	**0.0000**	**20.1346**	**20.1346**	**6.0100e-003**	**0.0000**	**20.2609**

3.5 Paving - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6500e-003	7.1400e-003	0.0114	1.0000e-005	3.9000e-004	1.1000e-004	5.0000e-004	1.1000e-004	1.0000e-004	2.1000e-004	0.0000	1.3146	1.3146	1.0000e-005	0.0000	1.3149
Worker	5.3000e-003	1.7800e-003	0.0167	3.0000e-005	2.6900e-003	2.0000e-005	2.7100e-003	7.2000e-004	2.0000e-005	7.4000e-004	0.0000	2.4874	2.4874	1.4000e-004	0.0000	2.4904
Total	**6.9500e-003**	**8.9200e-003**	**0.0281**	**4.0000e-005**	**3.0800e-003**	**1.3000e-004**	**3.2100e-003**	**8.3000e-004**	**1.2000e-004**	**9.5000e-004**	**0.0000**	**3.8020**	**3.8020**	**1.5000e-004**	**0.0000**	**3.8052**

3.6 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2964	2.1986	1.5820	2.1600e-003		0.1738	0.1738		0.1642	0.1642	0.0000	194.0195	194.0195	0.0465	0.0000	194.9954
Total	**0.2964**	**2.1986**	**1.5820**	**2.1600e-003**		**0.1738**	**0.1738**		**0.1642**	**0.1642**	**0.0000**	**194.0195**	**194.0195**	**0.0465**	**0.0000**	**194.9954**

3.6 Building Construction - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0211	0.0915	0.1461	1.8000e-004	5.0300e-003	1.4200e-003	6.4500e-003	1.4400e-003	1.3100e-003	2.7500e-003	0.0000	16.8441	16.8441	1.5000e-004	0.0000	16.8472
Worker	0.0178	5.9900e-003	0.0561	1.1000e-004	9.0400e-003	7.0000e-005	9.1200e-003	2.4100e-003	7.0000e-005	2.4700e-003	0.0000	8.3663	8.3663	4.8000e-004	0.0000	8.3762
Total	**0.0390**	**0.0975**	**0.2022**	**2.9000e-004**	**0.0141**	**1.4900e-003**	**0.0156**	**3.8500e-003**	**1.3800e-003**	**5.2200e-003**	**0.0000**	**25.2103**	**25.2103**	**6.3000e-004**	**0.0000**	**25.2234**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0941	1.8953	1.4940	2.1500e-003		0.0400	0.0400		0.0400	0.0400	0.0000	193.7887	193.7887	0.0464	0.0000	194.7635
Total	**0.0941**	**1.8953**	**1.4940**	**2.1500e-003**		**0.0400**	**0.0400**		**0.0400**	**0.0400**	**0.0000**	**193.7887**	**193.7887**	**0.0464**	**0.0000**	**194.7635**

3.6 Building Construction - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0211	0.0915	0.1461	1.8000e-004	5.0300e-003	1.4200e-003	6.4500e-003	1.4400e-003	1.3100e-003	2.7500e-003	0.0000	16.8441	16.8441	1.5000e-004	0.0000	16.8472
Worker	0.0178	5.9900e-003	0.0561	1.1000e-004	9.0400e-003	7.0000e-005	9.1200e-003	2.4100e-003	7.0000e-005	2.4700e-003	0.0000	8.3663	8.3663	4.8000e-004	0.0000	8.3762
Total	**0.0390**	**0.0975**	**0.2022**	**2.9000e-004**	**0.0141**	**1.4900e-003**	**0.0156**	**3.8500e-003**	**1.3800e-003**	**5.2200e-003**	**0.0000**	**25.2103**	**25.2103**	**6.3000e-004**	**0.0000**	**25.2234**

3.6 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2721	2.0620	1.5577	2.1400e-003		0.1596	0.1596		0.1506	0.1506	0.0000	191.7067	191.7067	0.0451	0.0000	192.6538
Total	**0.2721**	**2.0620**	**1.5577**	**2.1400e-003**		**0.1596**	**0.1596**		**0.1506**	**0.1506**	**0.0000**	**191.7067**	**191.7067**	**0.0451**	**0.0000**	**192.6538**

3.6 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0190	0.0795	0.1360	1.8000e-004	5.0100e-003	1.1300e-003	6.1400e-003	1.4300e-003	1.0400e-003	2.4800e-003	0.0000	16.5853	16.5853	1.3000e-004	0.0000	16.5880
Worker	0.0165	5.3800e-003	0.0502	1.0000e-004	9.0000e-003	7.0000e-005	9.0700e-003	2.3900e-003	6.0000e-005	2.4600e-003	0.0000	8.0524	8.0524	4.3000e-004	0.0000	8.0615
Total	**0.0356**	**0.0848**	**0.1862**	**2.8000e-004**	**0.0140**	**1.2000e-003**	**0.0152**	**3.8200e-003**	**1.1000e-003**	**4.9400e-003**	**0.0000**	**24.6376**	**24.6376**	**5.6000e-004**	**0.0000**	**24.6495**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0937	1.8856	1.4864	2.1400e-003		0.0398	0.0398		0.0398	0.0398	0.0000	191.4786	191.4786	0.0451	0.0000	192.4246
Total	**0.0937**	**1.8856**	**1.4864**	**2.1400e-003**		**0.0398**	**0.0398**		**0.0398**	**0.0398**	**0.0000**	**191.4786**	**191.4786**	**0.0451**	**0.0000**	**192.4246**

3.6 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0190	0.0795	0.1360	1.8000e-004	5.0100e-003	1.1300e-003	6.1400e-003	1.4300e-003	1.0400e-003	2.4800e-003	0.0000	16.5853	16.5853	1.3000e-004	0.0000	16.5880
Worker	0.0165	5.3800e-003	0.0502	1.0000e-004	9.0000e-003	7.0000e-005	9.0700e-003	2.3900e-003	6.0000e-005	2.4600e-003	0.0000	8.0524	8.0524	4.3000e-004	0.0000	8.0615
Total	**0.0356**	**0.0848**	**0.1862**	**2.8000e-004**	**0.0140**	**1.2000e-003**	**0.0152**	**3.8200e-003**	**1.1000e-003**	**4.9400e-003**	**0.0000**	**24.6376**	**24.6376**	**5.6000e-004**	**0.0000**	**24.6495**

3.7 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2134					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0586	0.3701	0.2739	4.3000e-004		0.0318	0.0318		0.0318	0.0318	0.0000	36.7669	36.7669	4.7900e-003	0.0000	36.8674
Total	**0.2720**	**0.3701**	**0.2739**	**4.3000e-004**		**0.0318**	**0.0318**		**0.0318**	**0.0318**	**0.0000**	**36.7669**	**36.7669**	**4.7900e-003**	**0.0000**	**36.8674**

3.7 Architectural Coating - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9300e-003	8.3600e-003	0.0134	2.0000e-005	4.6000e-004	1.3000e-004	5.9000e-004	1.3000e-004	1.2000e-004	2.5000e-004	0.0000	1.5391	1.5391	1.0000e-005	0.0000	1.5393
Worker	1.8600e-003	6.3000e-004	5.8600e-003	1.0000e-005	9.4000e-004	1.0000e-005	9.5000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8736	0.8736	5.0000e-005	0.0000	0.8747
Total	**3.7900e-003**	**8.9900e-003**	**0.0192**	**3.0000e-005**	**1.4000e-003**	**1.4000e-004**	**1.5400e-003**	**3.8000e-004**	**1.3000e-004**	**5.1000e-004**	**0.0000**	**2.4127**	**2.4127**	**6.0000e-005**	**0.0000**	**2.4140**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2134					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0164	0.3384	0.2636	4.3000e-004		6.8400e-003	6.8400e-003		6.8400e-003	6.8400e-003	0.0000	36.7231	36.7231	4.7800e-003	0.0000	36.8235
Total	**0.2298**	**0.3384**	**0.2636**	**4.3000e-004**		**6.8400e-003**	**6.8400e-003**		**6.8400e-003**	**6.8400e-003**	**0.0000**	**36.7231**	**36.7231**	**4.7800e-003**	**0.0000**	**36.8235**

3.7 Architectural Coating - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9300e-003	8.3600e-003	0.0134	2.0000e-005	4.6000e-004	1.3000e-004	5.9000e-004	1.3000e-004	1.2000e-004	2.5000e-004	0.0000	1.5391	1.5391	1.0000e-005	0.0000	1.5393
Worker	1.8600e-003	6.3000e-004	5.8600e-003	1.0000e-005	9.4000e-004	1.0000e-005	9.5000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8736	0.8736	5.0000e-005	0.0000	0.8747
Total	**3.7900e-003**	**8.9900e-003**	**0.0192**	**3.0000e-005**	**1.4000e-003**	**1.4000e-004**	**1.5400e-003**	**3.8000e-004**	**1.3000e-004**	**5.1000e-004**	**0.0000**	**2.4127**	**2.4127**	**6.0000e-005**	**0.0000**	**2.4140**

3.7 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3216					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0800	0.5148	0.4088	6.4000e-004		0.0427	0.0427		0.0427	0.0427	0.0000	55.4056	55.4056	6.5300e-003	0.0000	55.5428
Total	**0.4016**	**0.5148**	**0.4088**	**6.4000e-004**		**0.0427**	**0.0427**		**0.0427**	**0.0427**	**0.0000**	**55.4056**	**55.4056**	**6.5300e-003**	**0.0000**	**55.5428**

3.7 Architectural Coating - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.6300e-003	0.0110	0.0188	3.0000e-005	6.9000e-004	1.6000e-004	8.5000e-004	2.0000e-004	1.4000e-004	3.4000e-004	0.0000	2.2953	2.2953	2.0000e-005	0.0000	2.2957
Worker	2.6100e-003	8.5000e-004	7.9400e-003	2.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2736	1.2736	7.0000e-005	0.0000	1.2750
Total	**5.2400e-003**	**0.0118**	**0.0268**	**5.0000e-005**	**2.1100e-003**	**1.7000e-004**	**2.2800e-003**	**5.8000e-004**	**1.5000e-004**	**7.3000e-004**	**0.0000**	**3.5689**	**3.5689**	**9.0000e-005**	**0.0000**	**3.5707**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3216					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0247	0.5099	0.3972	6.4000e-004		0.0103	0.0103		0.0103	0.0103	0.0000	55.3397	55.3397	6.5200e-003	0.0000	55.4767
Total	**0.3463**	**0.5099**	**0.3972**	**6.4000e-004**		**0.0103**	**0.0103**		**0.0103**	**0.0103**	**0.0000**	**55.3397**	**55.3397**	**6.5200e-003**	**0.0000**	**55.4767**

3.7 Architectural Coating - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.6300e-003	0.0110	0.0188	3.0000e-005	6.9000e-004	1.6000e-004	8.5000e-004	2.0000e-004	1.4000e-004	3.4000e-004	0.0000	2.2953	2.2953	2.0000e-005	0.0000	2.2957
Worker	2.6100e-003	8.5000e-004	7.9400e-003	2.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2736	1.2736	7.0000e-005	0.0000	1.2750
Total	**5.2400e-003**	**0.0118**	**0.0268**	**5.0000e-005**	**2.1100e-003**	**1.7000e-004**	**2.2800e-003**	**5.8000e-004**	**1.5000e-004**	**7.3000e-004**	**0.0000**	**3.5689**	**3.5689**	**9.0000e-005**	**0.0000**	**3.5707**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2832	0.1942	1.0154	2.4900e-003	0.3479	2.8000e-003	0.3507	0.0897	2.5800e-003	0.0923	0.0000	178.5287	178.5287	7.2500e-003	0.0000	178.6809
Unmitigated	0.2832	0.1942	1.0154	2.4900e-003	0.3479	2.8000e-003	0.3507	0.0897	2.5800e-003	0.0923	0.0000	178.5287	178.5287	7.2500e-003	0.0000	178.6809

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	227.81	227.81	227.81	508,555	508,555
Total	227.81	227.81	227.81	508,555	508,555

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.579581	0.062616	0.176505	0.113545	0.029546	0.004152	0.015698	0.004192	0.002652	0.003672	0.006635	0.000224	0.000983

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	38.4368	38.4368	1.7400e-003	3.6000e-004	38.5848
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	38.4368	38.4368	1.7400e-003	3.6000e-004	38.5848
NaturalGas Mitigated	5.2300e-003	0.0447	0.0190	2.9000e-004		3.6100e-003	3.6100e-003		3.6100e-003	3.6100e-003	0.0000	51.7298	51.7298	9.9000e-004	9.5000e-004	52.0446
NaturalGas Unmitigated	5.2300e-003	0.0447	0.0190	2.9000e-004		3.6100e-003	3.6100e-003		3.6100e-003	3.6100e-003	0.0000	51.7298	51.7298	9.9000e-004	9.5000e-004	52.0446

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	969380	5.2300e-003	0.0447	0.0190	2.9000e-004		3.6100e-003	3.6100e-003		3.6100e-003	3.6100e-003	0.0000	51.7298	51.7298	9.9000e-004	9.5000e-004	52.0446
Total		**5.2300e-003**	**0.0447**	**0.0190**	**2.9000e-004**		**3.6100e-003**	**3.6100e-003**		**3.6100e-003**	**3.6100e-003**	**0.0000**	**51.7298**	**51.7298**	**9.9000e-004**	**9.5000e-004**	**52.0446**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	969380	5.2300e-003	0.0447	0.0190	2.9000e-004		3.6100e-003	3.6100e-003		3.6100e-003	3.6100e-003	0.0000	51.7298	51.7298	9.9000e-004	9.5000e-004	52.0446
Total		**5.2300e-003**	**0.0447**	**0.0190**	**2.9000e-004**		**3.6100e-003**	**3.6100e-003**		**3.6100e-003**	**3.6100e-003**	**0.0000**	**51.7298**	**51.7298**	**9.9000e-004**	**9.5000e-004**	**52.0446**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	132125	38.4368	1.7400e-003	3.6000e-004	38.5848
Total		**38.4368**	**1.7400e-003**	**3.6000e-004**	**38.5848**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	132125	38.4368	1.7400e-003	3.6000e-004	38.5848
Total		**38.4368**	**1.7400e-003**	**3.6000e-004**	**38.5848**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2978	3.7500e-003	0.3139	1.9000e-004		0.0259	0.0259		0.0259	0.0259	2.6372	0.9671	3.6043	5.9200e-003	1.4000e-004	3.7718
Unmitigated	0.2978	3.7500e-003	0.3139	1.9000e-004		0.0259	0.0259		0.0259	0.0259	2.6372	0.9671	3.6043	5.9200e-003	1.4000e-004	3.7718

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0482					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1336					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1117	2.1100e-003	0.1721	1.8000e-004		0.0251	0.0251		0.0251	0.0251	2.6372	0.7366	3.3738	5.7000e-003	1.4000e-004	3.5366
Landscaping	4.3400e-003	1.6400e-003	0.1418	1.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	0.2305	0.2305	2.3000e-004	0.0000	0.2352
Total	**0.2978**	**3.7500e-003**	**0.3139**	**1.9000e-004**		**0.0259**	**0.0259**		**0.0259**	**0.0259**	**2.6372**	**0.9671**	**3.6043**	**5.9300e-003**	**1.4000e-004**	**3.7718**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0482					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1336					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1117	2.1100e-003	0.1721	1.8000e-004		0.0251	0.0251		0.0251	0.0251	2.6372	0.7366	3.3738	5.7000e-003	1.4000e-004	3.5366
Landscaping	4.3400e-003	1.6400e-003	0.1418	1.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	0.2305	0.2305	2.3000e-004	0.0000	0.2352
Total	**0.2978**	**3.7500e-003**	**0.3139**	**1.9000e-004**		**0.0259**	**0.0259**		**0.0259**	**0.0259**	**2.6372**	**0.9671**	**3.6043**	**5.9300e-003**	**1.4000e-004**	**3.7718**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.2720	0.0809	1.9500e-003	8.5766
Unmitigated	6.2720	0.0809	1.9600e-003	8.5779

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.23793 / 0.780432	6.2720	0.0809	1.9600e-003	8.5779
Total		**6.2720**	**0.0809**	**1.9600e-003**	**8.5779**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.23793 / 0.780432	6.2720	0.0809	1.9500e-003	8.5766
Total		**6.2720**	**0.0809**	**1.9500e-003**	**8.5766**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.6038	0.2721	0.0000	10.3175
Unmitigated	4.6038	0.2721	0.0000	10.3175

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	22.68	4.6038	0.2721	0.0000	10.3175
Total		**4.6038**	**0.2721**	**0.0000**	**10.3175**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	22.68	4.6038	0.2721	0.0000	10.3175
Total		**4.6038**	**0.2721**	**0.0000**	**10.3175**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	-35.5200	0.0000	0.0000	-35.5200

10.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Trees	13.32 / 13	-35.5200	0.0000	0.0000	-35.5200
Total		**-35.5200**	**0.0000**	**0.0000**	**-35.5200**

10.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Mixed Hardwood	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

DISPERSION MODEL OUTPUT FILES

FILE: c:\HARP\projects\demo\Rep_PMI.txt

EXCEPTION REPORT
(there have been no changes or exceptions)

RECEPTORS WITH HIGHEST CANCER RISK

REC	TYPE	CANCER	CHRONIC	ACUTE	UTME	UTMN	ZONE
192	GRID	1.53E-07	7.37E-05	0.00E+00	558347	4153857	10
193	GRID	8.49E-08	4.10E-05	0.00E+00	558447	4153857	10
191	GRID	8.40E-08	4.05E-05	0.00E+00	558247	4153857	10
212	GRID	6.87E-08	3.31E-05	0.00E+00	558347	4153957	10
210	GRID	6.12E-08	2.95E-05	0.00E+00	558147	4153957	10
211	GRID	5.99E-08	2.89E-05	0.00E+00	558247	4153957	10
194	GRID	5.27E-08	2.54E-05	0.00E+00	558547	4153857	10
190	GRID	5.16E-08	2.49E-05	0.00E+00	558147	4153857	10
213	GRID	4.49E-08	2.17E-05	0.00E+00	558447	4153957	10
195	GRID	3.67E-08	1.77E-05	0.00E+00	558647	4153857	10
174	GRID	3.40E-08	1.64E-05	0.00E+00	558547	4153757	10
214	GRID	3.13E-08	1.51E-05	0.00E+00	558547	4153957	10
175	GRID	3.09E-08	1.49E-05	0.00E+00	558647	4153757	10
173	GRID	3.07E-08	1.48E-05	0.00E+00	558447	4153757	10
196	GRID	2.76E-08	1.33E-05	0.00E+00	558747	4153857	10
176	GRID	2.65E-08	1.28E-05	0.00E+00	558747	4153757	10
215	GRID	2.38E-08	1.15E-05	0.00E+00	558647	4153957	10
177	GRID	2.24E-08	1.08E-05	0.00E+00	558847	4153757	10
197	GRID	2.18E-08	1.05E-05	0.00E+00	558847	4153857	10
230	GRID	2.05E-08	9.89E-06	0.00E+00	558147	4154057	10
170	GRID	1.95E-08	9.41E-06	0.00E+00	558147	4153757	10
231	GRID	1.92E-08	9.25E-06	0.00E+00	558247	4154057	10
216	GRID	1.92E-08	9.26E-06	0.00E+00	558747	4153957	10
178	GRID	1.91E-08	9.19E-06	0.00E+00	558947	4153757	10
198	GRID	1.79E-08	8.63E-06	0.00E+00	558947	4153857	10
232	GRID	1.64E-08	7.91E-06	0.00E+00	558347	4154057	10
229	GRID	1.63E-08	7.89E-06	0.00E+00	558047	4154057	10
179	GRID	1.63E-08	7.87E-06	0.00E+00	559047	4153757	10
157	GRID	1.60E-08	7.71E-06	0.00E+00	558847	4153657	10
156	GRID	1.60E-08	7.72E-06	0.00E+00	558747	4153657	10
217	GRID	1.60E-08	7.72E-06	0.00E+00	558847	4153957	10
172	GRID	1.57E-08	7.57E-06	0.00E+00	558347	4153757	10
189	GRID	1.56E-08	7.52E-06	0.00E+00	558047	4153857	10
209	GRID	1.56E-08	7.52E-06	0.00E+00	558047	4153957	10
158	GRID	1.52E-08	7.33E-06	0.00E+00	558947	4153657	10
199	GRID	1.50E-08	7.26E-06	0.00E+00	559047	4153857	10
233	GRID	1.50E-08	7.23E-06	0.00E+00	558447	4154057	10
155	GRID	1.46E-08	7.03E-06	0.00E+00	558647	4153657	10
180	GRID	1.41E-08	6.80E-06	0.00E+00	559147	4153757	10
159	GRID	1.41E-08	6.79E-06	0.00E+00	559047	4153657	10
234	GRID	1.40E-08	6.76E-06	0.00E+00	558547	4154057	10
218	GRID	1.37E-08	6.59E-06	0.00E+00	558947	4153957	10
171	GRID	1.33E-08	6.43E-06	0.00E+00	558247	4153757	10
235	GRID	1.30E-08	6.27E-06	0.00E+00	558647	4154057	10
160	GRID	1.29E-08	6.20E-06	0.00E+00	559147	4153657	10
200	GRID	1.29E-08	6.23E-06	0.00E+00	559147	4153857	10
219	GRID	1.19E-08	5.73E-06	0.00E+00	559047	4153957	10
236	GRID	1.19E-08	5.75E-06	0.00E+00	558747	4154057	10
169	GRID	1.18E-08	5.67E-06	0.00E+00	558047	4153757	10
154	GRID	1.11E-08	5.36E-06	0.00E+00	558547	4153657	10
237	GRID	1.09E-08	5.24E-06	0.00E+00	558847	4154057	10
250	GRID	1.06E-08	5.12E-06	0.00E+00	558147	4154157	10
220	GRID	1.05E-08	5.05E-06	0.00E+00	559147	4153957	10
249	GRID	1.02E-08	4.90E-06	0.00E+00	558047	4154157	10
251	GRID	1.01E-08	4.88E-06	0.00E+00	558247	4154157	10
139	GRID	9.99E-09	4.82E-06	0.00E+00	559047	4153557	10
140	GRID	9.86E-09	4.76E-06	0.00E+00	559147	4153557	10
238	GRID	9.86E-09	4.76E-06	0.00E+00	558947	4154057	10
138	GRID	9.75E-09	4.71E-06	0.00E+00	558947	4153557	10
252	GRID	9.30E-09	4.49E-06	0.00E+00	558347	4154157	10
137	GRID	9.02E-09	4.35E-06	0.00E+00	558847	4153557	10
150	GRID	9.00E-09	4.34E-06	0.00E+00	558147	4153657	10
239	GRID	8.96E-09	4.32E-06	0.00E+00	559047	4154057	10
253	GRID	8.46E-09	4.08E-06	0.00E+00	558447	4154157	10
228	GRID	8.34E-09	4.02E-06	0.00E+00	557947	4154057	10
240	GRID	8.16E-09	3.94E-06	0.00E+00	559147	4154057	10
248	GRID	8.05E-09	3.89E-06	0.00E+00	557947	4154157	10
254	GRID	7.81E-09	3.77E-06	0.00E+00	558547	4154157	10
136	GRID	7.71E-09	3.72E-06	0.00E+00	558747	4153557	10
255	GRID	7.57E-09	3.65E-06	0.00E+00	558647	4154157	10
256	GRID	7.42E-09	3.58E-06	0.00E+00	558747	4154157	10
149	GRID	7.36E-09	3.55E-06	0.00E+00	558047	4153657	10
257	GRID	7.27E-09	3.51E-06	0.00E+00	558847	4154157	10
270	GRID	7.08E-09	3.42E-06	0.00E+00	558147	4154257	10
269	GRID	7.08E-09	3.42E-06	0.00E+00	558047	4154257	10

258	GRID	7.05E-09	3.40E-06	0.00E+00	558947	4154157	10
188	GRID	7.02E-09	3.39E-06	0.00E+00	557947	4153857	10
271	GRID	6.80E-09	3.28E-06	0.00E+00	558247	4154257	10
151	GRID	6.80E-09	3.28E-06	0.00E+00	558247	4153657	10
259	GRID	6.78E-09	3.27E-06	0.00E+00	559047	4154157	10
120	GRID	6.75E-09	3.26E-06	0.00E+00	559147	4153457	10
208	GRID	6.72E-09	3.24E-06	0.00E+00	557947	4153957	10
153	GRID	6.52E-09	3.14E-06	0.00E+00	558447	4153657	10
272	GRID	6.47E-09	3.12E-06	0.00E+00	558347	4154257	10
260	GRID	6.46E-09	3.12E-06	0.00E+00	559147	4154157	10
268	GRID	6.43E-09	3.10E-06	0.00E+00	557947	4154257	10
119	GRID	6.32E-09	3.05E-06	0.00E+00	559047	4153457	10
168	GRID	6.24E-09	3.01E-06	0.00E+00	557947	4153757	10
273	GRID	6.20E-09	2.99E-06	0.00E+00	558447	4154257	10
274	GRID	5.90E-09	2.84E-06	0.00E+00	558547	4154257	10
135	GRID	5.75E-09	2.77E-06	0.00E+00	558647	4153557	10
118	GRID	5.68E-09	2.74E-06	0.00E+00	558947	4153457	10
289	GRID	5.61E-09	2.71E-06	0.00E+00	558047	4154357	10
275	GRID	5.55E-09	2.68E-06	0.00E+00	558647	4154257	10
290	GRID	5.52E-09	2.66E-06	0.00E+00	558147	4154357	10
276	GRID	5.42E-09	2.61E-06	0.00E+00	558747	4154257	10
247	GRID	5.37E-09	2.59E-06	0.00E+00	557847	4154157	10
288	GRID	5.36E-09	2.59E-06	0.00E+00	557947	4154357	10
291	GRID	5.36E-09	2.59E-06	0.00E+00	558247	4154357	10
277	GRID	5.34E-09	2.57E-06	0.00E+00	558847	4154257	10

RECEPTORS WITH HIGHEST CHRONIC HI

REC	TYPE	CANCER	CHRONIC	ACUTE	UTME	UTMN	ZONE
192	GRID	1.53E-07	7.37E-05	0.00E+00	558347	4153857	10
193	GRID	8.49E-08	4.10E-05	0.00E+00	558447	4153857	10
191	GRID	8.40E-08	4.05E-05	0.00E+00	558247	4153857	10
212	GRID	6.87E-08	3.31E-05	0.00E+00	558347	4153957	10
210	GRID	6.12E-08	2.95E-05	0.00E+00	558147	4153957	10
211	GRID	5.99E-08	2.89E-05	0.00E+00	558247	4153957	10
194	GRID	5.27E-08	2.54E-05	0.00E+00	558547	4153857	10
190	GRID	5.16E-08	2.49E-05	0.00E+00	558147	4153857	10
213	GRID	4.49E-08	2.17E-05	0.00E+00	558447	4153957	10
195	GRID	3.67E-08	1.77E-05	0.00E+00	558647	4153857	10
174	GRID	3.40E-08	1.64E-05	0.00E+00	558547	4153757	10
214	GRID	3.13E-08	1.51E-05	0.00E+00	558547	4153957	10
175	GRID	3.09E-08	1.49E-05	0.00E+00	558647	4153757	10
173	GRID	3.07E-08	1.48E-05	0.00E+00	558447	4153757	10
196	GRID	2.76E-08	1.33E-05	0.00E+00	558747	4153857	10
176	GRID	2.65E-08	1.28E-05	0.00E+00	558747	4153757	10
215	GRID	2.38E-08	1.15E-05	0.00E+00	558647	4153957	10
177	GRID	2.24E-08	1.08E-05	0.00E+00	558847	4153757	10
197	GRID	2.18E-08	1.05E-05	0.00E+00	558847	4153857	10
230	GRID	2.05E-08	9.89E-06	0.00E+00	558147	4154057	10
170	GRID	1.95E-08	9.41E-06	0.00E+00	558147	4153757	10
216	GRID	1.92E-08	9.26E-06	0.00E+00	558747	4153957	10
231	GRID	1.92E-08	9.25E-06	0.00E+00	558247	4154057	10
178	GRID	1.91E-08	9.19E-06	0.00E+00	558947	4153757	10
198	GRID	1.79E-08	8.63E-06	0.00E+00	558947	4153857	10
232	GRID	1.64E-08	7.91E-06	0.00E+00	558347	4154057	10
229	GRID	1.63E-08	7.89E-06	0.00E+00	558047	4154057	10
179	GRID	1.63E-08	7.87E-06	0.00E+00	559047	4153757	10
217	GRID	1.60E-08	7.72E-06	0.00E+00	558847	4153957	10
156	GRID	1.60E-08	7.72E-06	0.00E+00	558747	4153657	10
157	GRID	1.60E-08	7.71E-06	0.00E+00	558847	4153657	10
172	GRID	1.57E-08	7.57E-06	0.00E+00	558347	4153757	10
209	GRID	1.56E-08	7.52E-06	0.00E+00	558047	4153957	10
189	GRID	1.56E-08	7.52E-06	0.00E+00	558047	4153857	10
158	GRID	1.52E-08	7.33E-06	0.00E+00	558947	4153657	10
199	GRID	1.50E-08	7.26E-06	0.00E+00	559047	4153857	10
233	GRID	1.50E-08	7.23E-06	0.00E+00	558447	4154057	10
155	GRID	1.46E-08	7.03E-06	0.00E+00	558647	4153657	10
180	GRID	1.41E-08	6.80E-06	0.00E+00	559147	4153757	10
159	GRID	1.41E-08	6.79E-06	0.00E+00	559047	4153657	10
234	GRID	1.40E-08	6.76E-06	0.00E+00	558547	4154057	10
218	GRID	1.37E-08	6.59E-06	0.00E+00	558947	4153957	10
171	GRID	1.33E-08	6.43E-06	0.00E+00	558247	4153757	10
235	GRID	1.30E-08	6.27E-06	0.00E+00	558647	4154057	10
200	GRID	1.29E-08	6.23E-06	0.00E+00	559147	4153857	10
160	GRID	1.29E-08	6.20E-06	0.00E+00	559147	4153657	10
236	GRID	1.19E-08	5.75E-06	0.00E+00	558747	4154057	10
219	GRID	1.19E-08	5.73E-06	0.00E+00	559047	4153957	10
169	GRID	1.18E-08	5.67E-06	0.00E+00	558047	4153757	10
154	GRID	1.11E-08	5.36E-06	0.00E+00	558547	4153657	10
237	GRID	1.09E-08	5.24E-06	0.00E+00	558847	4154057	10
250	GRID	1.06E-08	5.12E-06	0.00E+00	558147	4154157	10
220	GRID	1.05E-08	5.05E-06	0.00E+00	559147	4153957	10
249	GRID	1.02E-08	4.90E-06	0.00E+00	558047	4154157	10
251	GRID	1.01E-08	4.88E-06	0.00E+00	558247	4154157	10

139	GRID	9.99E-09	4.82E-06	0.00E+00	559047	4153557	10
140	GRID	9.86E-09	4.76E-06	0.00E+00	559147	4153557	10
238	GRID	9.86E-09	4.76E-06	0.00E+00	558947	4154057	10
138	GRID	9.75E-09	4.71E-06	0.00E+00	558947	4153557	10
252	GRID	9.30E-09	4.49E-06	0.00E+00	558347	4154157	10
137	GRID	9.02E-09	4.35E-06	0.00E+00	558847	4153557	10
150	GRID	9.00E-09	4.34E-06	0.00E+00	558147	4153657	10
239	GRID	8.96E-09	4.32E-06	0.00E+00	559047	4154057	10
253	GRID	8.46E-09	4.08E-06	0.00E+00	558447	4154157	10
228	GRID	8.34E-09	4.02E-06	0.00E+00	557947	4154057	10
240	GRID	8.16E-09	3.94E-06	0.00E+00	559147	4154057	10
248	GRID	8.05E-09	3.89E-06	0.00E+00	557947	4154157	10
254	GRID	7.81E-09	3.77E-06	0.00E+00	558547	4154157	10
136	GRID	7.71E-09	3.72E-06	0.00E+00	558747	4153557	10
255	GRID	7.57E-09	3.65E-06	0.00E+00	558647	4154157	10
256	GRID	7.42E-09	3.58E-06	0.00E+00	558747	4154157	10
149	GRID	7.36E-09	3.55E-06	0.00E+00	558047	4153657	10
257	GRID	7.27E-09	3.51E-06	0.00E+00	558847	4154157	10
269	GRID	7.08E-09	3.42E-06	0.00E+00	558047	4154257	10
270	GRID	7.08E-09	3.42E-06	0.00E+00	558147	4154257	10
258	GRID	7.05E-09	3.40E-06	0.00E+00	558947	4154157	10
188	GRID	7.02E-09	3.39E-06	0.00E+00	557947	4153857	10
271	GRID	6.80E-09	3.28E-06	0.00E+00	558247	4154257	10
151	GRID	6.80E-09	3.28E-06	0.00E+00	558247	4153657	10
259	GRID	6.78E-09	3.27E-06	0.00E+00	559047	4154157	10
120	GRID	6.75E-09	3.26E-06	0.00E+00	559147	4153457	10
208	GRID	6.72E-09	3.24E-06	0.00E+00	557947	4153957	10
153	GRID	6.52E-09	3.14E-06	0.00E+00	558447	4153657	10
272	GRID	6.47E-09	3.12E-06	0.00E+00	558347	4154257	10
260	GRID	6.46E-09	3.12E-06	0.00E+00	559147	4154157	10
268	GRID	6.43E-09	3.10E-06	0.00E+00	557947	4154257	10
119	GRID	6.32E-09	3.05E-06	0.00E+00	559047	4153457	10
168	GRID	6.24E-09	3.01E-06	0.00E+00	557947	4153757	10
273	GRID	6.20E-09	2.99E-06	0.00E+00	558447	4154257	10
274	GRID	5.90E-09	2.84E-06	0.00E+00	558547	4154257	10
135	GRID	5.75E-09	2.77E-06	0.00E+00	558647	4153557	10
118	GRID	5.68E-09	2.74E-06	0.00E+00	558947	4153457	10
289	GRID	5.61E-09	2.71E-06	0.00E+00	558047	4154357	10
275	GRID	5.55E-09	2.68E-06	0.00E+00	558647	4154257	10
290	GRID	5.52E-09	2.66E-06	0.00E+00	558147	4154357	10
276	GRID	5.42E-09	2.61E-06	0.00E+00	558747	4154257	10
291	GRID	5.36E-09	2.59E-06	0.00E+00	558247	4154357	10
288	GRID	5.36E-09	2.59E-06	0.00E+00	557947	4154357	10
247	GRID	5.37E-09	2.59E-06	0.00E+00	557847	4154157	10
277	GRID	5.34E-09	2.57E-06	0.00E+00	558847	4154257	10

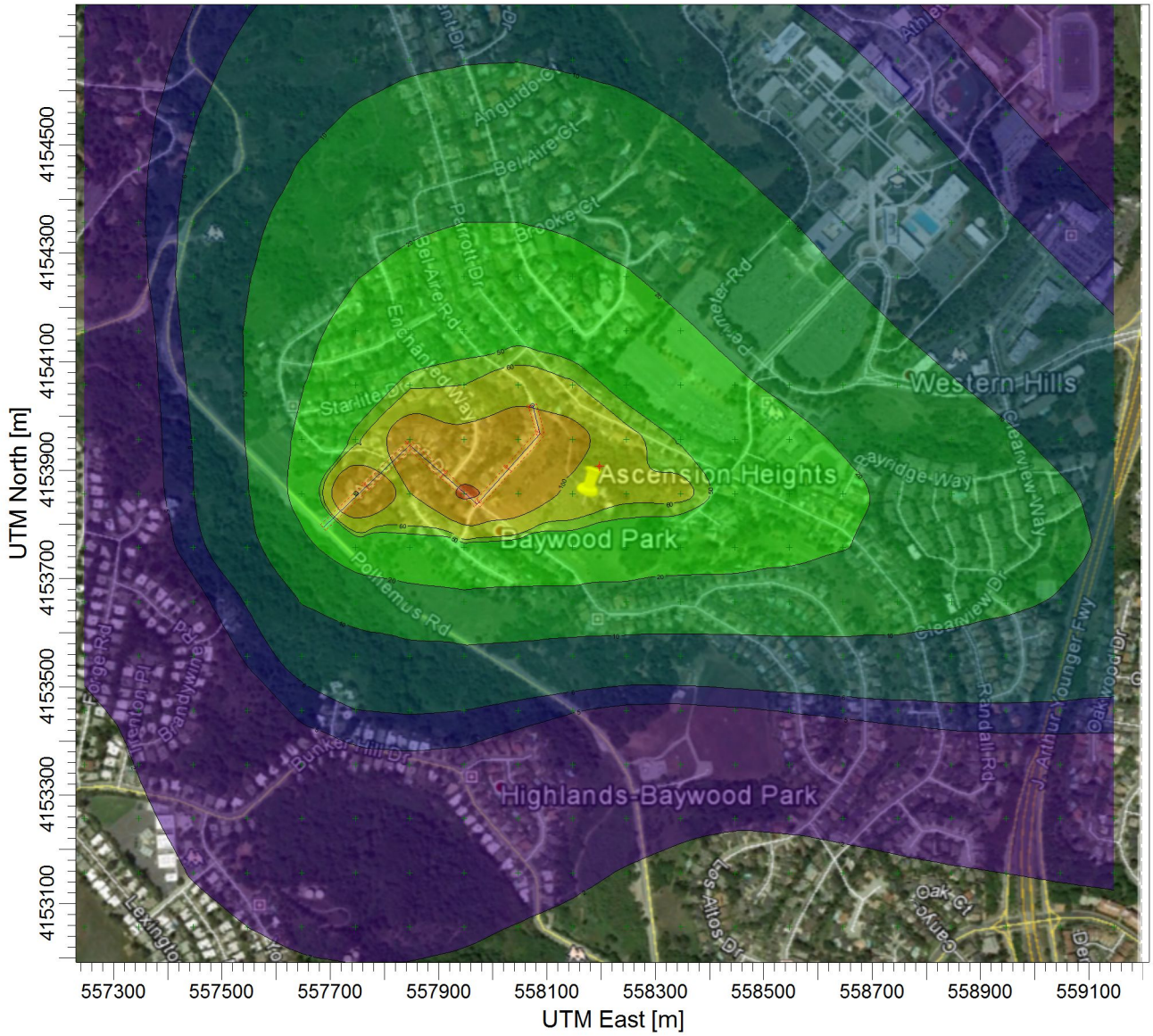
RECEPTORS WITH HIGHEST ACUTE HI

REC	TYPE	CANCER	CHRONIC	ACUTE	UTME	UTMN	ZONE
192	GRID	1.53E-07	7.37E-05	0.00E+00	558347	4153857	10
193	GRID	8.49E-08	4.10E-05	0.00E+00	558447	4153857	10
191	GRID	8.40E-08	4.05E-05	0.00E+00	558247	4153857	10
212	GRID	6.87E-08	3.31E-05	0.00E+00	558347	4153957	10
210	GRID	6.12E-08	2.95E-05	0.00E+00	558147	4153957	10
211	GRID	5.99E-08	2.89E-05	0.00E+00	558247	4153957	10
194	GRID	5.27E-08	2.54E-05	0.00E+00	558547	4153857	10
190	GRID	5.16E-08	2.49E-05	0.00E+00	558147	4153857	10
213	GRID	4.49E-08	2.17E-05	0.00E+00	558447	4153957	10
195	GRID	3.67E-08	1.77E-05	0.00E+00	558647	4153857	10
174	GRID	3.40E-08	1.64E-05	0.00E+00	558547	4153757	10
214	GRID	3.13E-08	1.51E-05	0.00E+00	558547	4153957	10
175	GRID	3.09E-08	1.49E-05	0.00E+00	558647	4153757	10
173	GRID	3.07E-08	1.48E-05	0.00E+00	558447	4153757	10
196	GRID	2.76E-08	1.33E-05	0.00E+00	558747	4153857	10
176	GRID	2.65E-08	1.28E-05	0.00E+00	558747	4153757	10
215	GRID	2.38E-08	1.15E-05	0.00E+00	558647	4153957	10
177	GRID	2.24E-08	1.08E-05	0.00E+00	558847	4153757	10
197	GRID	2.18E-08	1.05E-05	0.00E+00	558847	4153857	10
230	GRID	2.05E-08	9.89E-06	0.00E+00	558147	4154057	10
170	GRID	1.95E-08	9.41E-06	0.00E+00	558147	4153757	10
216	GRID	1.92E-08	9.26E-06	0.00E+00	558747	4153957	10
231	GRID	1.92E-08	9.25E-06	0.00E+00	558247	4154057	10
178	GRID	1.91E-08	9.19E-06	0.00E+00	558947	4153757	10
198	GRID	1.79E-08	8.63E-06	0.00E+00	558947	4153857	10
232	GRID	1.64E-08	7.91E-06	0.00E+00	558347	4154057	10
229	GRID	1.63E-08	7.89E-06	0.00E+00	558047	4154057	10
179	GRID	1.63E-08	7.87E-06	0.00E+00	559047	4153757	10
217	GRID	1.60E-08	7.72E-06	0.00E+00	558847	4153957	10
156	GRID	1.60E-08	7.72E-06	0.00E+00	558747	4153657	10
157	GRID	1.60E-08	7.71E-06	0.00E+00	558847	4153657	10
172	GRID	1.57E-08	7.57E-06	0.00E+00	558347	4153757	10
209	GRID	1.56E-08	7.52E-06	0.00E+00	558047	4153957	10
189	GRID	1.56E-08	7.52E-06	0.00E+00	558047	4153857	10
158	GRID	1.52E-08	7.33E-06	0.00E+00	558947	4153657	10

199	GRID	1.50E-08	7.26E-06	0.00E+00	559047	4153857	10
233	GRID	1.50E-08	7.23E-06	0.00E+00	558447	4154057	10
155	GRID	1.46E-08	7.03E-06	0.00E+00	558647	4153657	10
180	GRID	1.41E-08	6.80E-06	0.00E+00	559147	4153757	10
159	GRID	1.41E-08	6.79E-06	0.00E+00	559047	4153657	10
234	GRID	1.40E-08	6.76E-06	0.00E+00	558547	4154057	10
218	GRID	1.37E-08	6.59E-06	0.00E+00	558947	4153957	10
171	GRID	1.33E-08	6.43E-06	0.00E+00	558247	4153757	10
235	GRID	1.30E-08	6.27E-06	0.00E+00	558647	4154057	10
200	GRID	1.29E-08	6.23E-06	0.00E+00	559147	4153857	10
160	GRID	1.29E-08	6.20E-06	0.00E+00	559147	4153657	10
236	GRID	1.19E-08	5.75E-06	0.00E+00	558747	4154057	10
219	GRID	1.19E-08	5.73E-06	0.00E+00	559047	4153957	10
169	GRID	1.18E-08	5.67E-06	0.00E+00	558047	4153757	10
154	GRID	1.11E-08	5.36E-06	0.00E+00	558547	4153657	10
237	GRID	1.09E-08	5.24E-06	0.00E+00	558847	4154057	10
250	GRID	1.06E-08	5.12E-06	0.00E+00	558147	4154157	10
220	GRID	1.05E-08	5.05E-06	0.00E+00	559147	4153957	10
249	GRID	1.02E-08	4.90E-06	0.00E+00	558047	4154157	10
251	GRID	1.01E-08	4.88E-06	0.00E+00	558247	4154157	10
139	GRID	9.99E-09	4.82E-06	0.00E+00	559047	4153557	10
140	GRID	9.86E-09	4.76E-06	0.00E+00	559147	4153557	10
238	GRID	9.86E-09	4.76E-06	0.00E+00	558947	4154057	10
138	GRID	9.75E-09	4.71E-06	0.00E+00	558947	4153557	10
252	GRID	9.30E-09	4.49E-06	0.00E+00	558347	4154157	10
137	GRID	9.02E-09	4.35E-06	0.00E+00	558847	4153557	10
150	GRID	9.00E-09	4.34E-06	0.00E+00	558147	4153657	10
239	GRID	8.96E-09	4.32E-06	0.00E+00	559047	4154057	10
253	GRID	8.46E-09	4.08E-06	0.00E+00	558447	4154157	10
228	GRID	8.34E-09	4.02E-06	0.00E+00	557947	4154057	10
240	GRID	8.16E-09	3.94E-06	0.00E+00	559147	4154057	10
248	GRID	8.05E-09	3.89E-06	0.00E+00	557947	4154157	10
254	GRID	7.81E-09	3.77E-06	0.00E+00	558547	4154157	10
136	GRID	7.71E-09	3.72E-06	0.00E+00	558747	4153557	10
255	GRID	7.57E-09	3.65E-06	0.00E+00	558647	4154157	10
256	GRID	7.42E-09	3.58E-06	0.00E+00	558747	4154157	10
149	GRID	7.36E-09	3.55E-06	0.00E+00	558047	4153657	10
257	GRID	7.27E-09	3.51E-06	0.00E+00	558847	4154157	10
269	GRID	7.08E-09	3.42E-06	0.00E+00	558047	4154257	10
270	GRID	7.08E-09	3.42E-06	0.00E+00	558147	4154257	10
258	GRID	7.05E-09	3.40E-06	0.00E+00	558947	4154157	10
188	GRID	7.02E-09	3.39E-06	0.00E+00	557947	4153857	10
271	GRID	6.80E-09	3.28E-06	0.00E+00	558247	4154257	10
151	GRID	6.80E-09	3.28E-06	0.00E+00	558247	4153657	10
259	GRID	6.78E-09	3.27E-06	0.00E+00	559047	4154157	10
120	GRID	6.75E-09	3.26E-06	0.00E+00	559147	4153457	10
208	GRID	6.72E-09	3.24E-06	0.00E+00	557947	4153957	10
153	GRID	6.52E-09	3.14E-06	0.00E+00	558447	4153657	10
272	GRID	6.47E-09	3.12E-06	0.00E+00	558347	4154257	10
260	GRID	6.46E-09	3.12E-06	0.00E+00	559147	4154157	10
268	GRID	6.43E-09	3.10E-06	0.00E+00	557947	4154257	10
119	GRID	6.32E-09	3.05E-06	0.00E+00	559047	4153457	10
168	GRID	6.24E-09	3.01E-06	0.00E+00	557947	4153757	10
273	GRID	6.20E-09	2.99E-06	0.00E+00	558447	4154257	10
274	GRID	5.90E-09	2.84E-06	0.00E+00	558547	4154257	10
135	GRID	5.75E-09	2.77E-06	0.00E+00	558647	4153557	10
118	GRID	5.68E-09	2.74E-06	0.00E+00	558947	4153457	10
289	GRID	5.61E-09	2.71E-06	0.00E+00	558047	4154357	10
275	GRID	5.55E-09	2.68E-06	0.00E+00	558647	4154257	10
290	GRID	5.52E-09	2.66E-06	0.00E+00	558147	4154357	10
276	GRID	5.42E-09	2.61E-06	0.00E+00	558747	4154257	10
291	GRID	5.36E-09	2.59E-06	0.00E+00	558247	4154357	10
288	GRID	5.36E-09	2.59E-06	0.00E+00	557947	4154357	10
247	GRID	5.37E-09	2.59E-06	0.00E+00	557847	4154157	10
277	GRID	5.34E-09	2.57E-06	0.00E+00	558847	4154257	10

PROJECT TITLE:

C:\Lakes\AERMOD View\Ascension Height - SFO\Ascension Height - SFO.i



PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL

ug/m^3

2 5 6 10 20 50 60 100 200 225

COMMENTS:	SOURCES: **2**	COMPANY NAME:	
	RECEPTORS: **400**	MODELER:	
	OUTPUT TYPE: **Concentration**	SCALE: 1:12,460 0 0.4 km	
	MAX: **224.96063 ug/m^3**	DATE: **12/20/2013**	PROJECT NO.:

APPENDIX D

BIOLOGICAL RESOURCES: SPECIAL STATUS SPECIES LISTS

APPENDIX D
REGIONALLY OCCURRING FEDERAL, STATE, AND CNPS LISTED SPECIAL-STATUS SPECIES

PROJECT ELEVATION: 410-610 FEET (124-185 METERS)

HABITAT: COAST OAK WOODLAND, COYOTE BRUSH SCRUB, KNOBCONE PINE FOREST, EUCALYPTUS GROVE, RUDERAL DISTURBED, RUDERAL GRASSLAND

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
PLANTS					
Acanthomintha duttonii San Mateo thorn-mint	FE/CE/1B	Known only to occur in San Mateo County. Known from only two extant natural occurrences and one introduced population (CNPS, 2013).	Found in serpentine soils within chaparral and valley and foothill grassland from 50-300 meters elevation (CNPS, 2013).	April-June	No. Serpentine soils are not found on the project site.
Allium peninsulare var. *franciscanum* Franciscan onion	--/--/1B	Known to occur in Mendocino, Santa Clara, San Mateo, and Sonoma Counties (CNPS, 2013).	Perennial bulbiferous herb found in volcanic, often serpentinite soils of cismontane woodland and valley and foothill grassland/clay from 52-300 meters elevation (CNPS, 2013).	May-July	No. Serpentine soils are not found on the project site.
Amsinckia lunaris Bent-flowered fiddleneck	--/--/1B	Known to occur in Alameda, Contra Costa, Colusa, Lake, Marin, Napa, San Benito, Santa Clara, Santa Cruz, San Mateo, and Yolo Counties (CNPS, 2013).	Annual herb found in coastal bluff scrub, cismontane woodland, and valley and foothill grassland from 3-500 meters elevation (CNPS, 2013).	March-June	Yes. Refer to text.
Arctostaphylos andersonii Santa Cruz manzanita	--/--/1B	Known to occur in Santa Clara, Santa Cruz, and San Mateo Counties. Often confused with other species that have merged with it as varieties (CNPS, 2013).	Perennial evergreen shrub found in openings and edges in broad-leafed upland forest, chaparral, and north coast coniferous forest from 60-730 meters elevation (CNPS, 2013).	November-April	Manzanita species are perennial evergreen shrubs that are identifiable throughout the year. No manzanita was observed within the project site. This species does not have the potential to occur within the project site.
Arctostaphylos montaraensis Montara manzanita	--/--/1B	Known to occur in San Mateo County (CNPS, 2013).	Perennial evergreen shrub found in chaparral (maritime) and coastal scrub from 150-500 meters elevation (CNPS, 2013).	January-March	Manzanita species are perennial evergreen shrubs that are identifiable throughout the year. No manzanita species were observed within the project site. This species does not have the potential to occur within the project site.
Arctostaphylos regismontana Kings Mountain manzanita	--/--/1B	Known to occur in Santa Clara, Santa Cruz and, San Mateo Counties (CNPS, 2013).	Perennial evergreen shrub found on granitic or sandstone soils in broad-leafed upland forest, chaparral, and north coast coniferous forest	January-April	Manzanita species are perennial evergreen shrubs that are identifiable

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
			from 305-730 meters elevation (CNPS, 2013).		throughout the year. No manzanita species were observed within the project site. This species does not have the potential to occur within the project site.
Astragalus pycnostachyus var *pycnostachyus* coastal marsh milk-vetch	--/--/1B	Known to occur in Humboldt, Mendocino, Marin, and San Mateo Counties (CNPS, 2013).	Found in mesic coastal dunes, coastal scrub, and in streamsides and coastal salt marshes and swamps from 0-30 meters elevation (CNPS, 2013).	April-October	No. The project site occurs above the known elevation range for this species
Centromadia parryi ssp. *parryi* pappose tarplant	--/--/1B	Known to occur in Butte, Colusa, Glenn, Lake, Napa, San Mateo, Solano, and Sonoma Counties (CNPS, 2013).	Found in chaparral, coastal prairie, meadows and seeps, marshes and swamps (coastal salt), and valley and foothill grassland (vernally mesic)/often alkaline from 2-420 meters elevation (CNPS, 2013).	May-November	The nonnative grassland provides habitat for this species, however, this species was not observed during the July 25, 2013 botanical survey, which was conducted within the evident and identifiable blooming period. This species does not occur within the project site.
Chloropyron maritimum ssp. *palustre* Point Reyes bird's beak	--/--/1B	Known to occur in Alameda, Humboldt, Marin, Santa Clara, San Francisco, San Mateo, and Sonoma Counties (CNPS, 2013).	Found in marshes and swamps (coastal salt) from 0-10 meters elevation (CNPS, 2013).	June-October	No. The project site occurs above the known elevation range for this species
Chorizanthe cuspidata var. *cuspidata* San Francisco Bay spineflower	--/--/1B	Known to occur in Alameda (though may be extirpated), Marin, San Francisco, San Mateo, and Sonoma (uncertain) Counties (CNPS, 2013).	Found in coastal bluff scrub, coastal dunes, coastal prairie, and coastal scrub/sandy from 3-215 meters elevation (CNPS, 2013).	April-August	No. The project site does not contain suitable habitat for this species.
Cirsium andrewsii Franciscan thistle	--/--/1B	Known to occur in Contra Costa, Marin, San Francisco, San Mateo, and Sonoma (though may be extirpated/uncertain) Counties (CNPS, 2013).	Found in broadleafed upland forest, coastal scrub, coastal prairie, and coastal scrub/mesic, sometimes serpentinite, from 0-150 meters elevation (CNPS, 2013).	March-July	No. The project site does not contain habitat to support this species.
Cirsium fontinale var. *fontinale* Crystal Springs fountain thistle	--/--/1B	Known to occur in San Mateo County (CNPS, 2013).	Found in serpentinite seeps of chaparral (openings), cismontane woodland, and valley and foothill grassland from 45-175 meters elevation (CNPS, 2013).	May-October	No. Serpentine soils are not found on the project site.
Collinsia multicolor San Francisco collinsia	--/--/1B	Known to occur in Monterey, Santa Clara, Santa Cruz, San Francisco, and San Mateo	Found in closed-cone coniferous forest and coastal scrub/sometimes serpentinite from 30-	March-May	Yes. Refer to text.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
		Counties (CNPS, 2013).	250 meters elevation (CNPS, 2013).		
Dirca occidentalis western leatherwood	--/--/1B	Known to occur in Alameda, Contra Costa, Marin, Santa Clara, San Mateo, and Sonoma Counties (CNPS, 2013).	Found in broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and riparian woodland/mesic from 50-395 meters elevation (CNPS, 2013).	January-April	Yes. However, presence is unlikely because the nearest occurrence is located more than 5 miles from the project site.
Eriophyllum latilobum San Mateo wooly sunflower	FE/CE/1B	Known to occur in San Mateo County. Known from only two extant occurrences (CNPS, 2013).	Found in cismontane woodland, often in serpentine soil on roadcuts, from 45-150 meters elevation (CNPS, 2013).	May-June	Yes. Although, presence is unlikely due to elevation constraints.
Fritillaria biflora var. ineziana Hillsborough chocolate lily	--/--/1B	Known to occur in Alameda, Monterey, San Benito, Santa Clara, and Stanislaus Counties (CNPS, 2013).	Found in cismontane woodland and valley and foothill grassland (serpentinite) and has been documented at 300 and 525 meters in elevation (CNPS, 2013).	March-April	No. The project site occurs outside of the known geographic range for this species, nor does the project site provide serpentine soils to support this species.
Fritillaria lanceolata var. *tristulis* Marin checker lily	--/--/1B	Known only to occur in Marin and San Mateo Counties (CNPS, 2013).	Found in coastal bluff scrub, coastal prairie, and coastal scrub from 15-150 meters elevation (CNPS, 2013).	February-May	No. The project site occurs above the known elevation for this species.
Fritillaria liliacea Fragrant fritillary	--/--/1B	Known to occur in Alameda, Contra Costa, Monterey, Marin, San Benito, Santa Clara, San Francisco, San Mateo, Solano, and Sonoma Counties (CNPS, 2013).	Found in cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grasslands/often serpentinite from 3-410 meters elevation (CNPS, 2013).	February-April	Yes. Refer to text.
Hesperevax sparsiflora var. brevifolia Short-leaved evax	--/--/1B	Known to occur in Del Norte, Humboldt, Mendocino, Marin, Santa Cruz, San Francisco*, San Mateo, and Sonoma Counties in California and Oregon state (CNPS, 2013).	Found in coastal bluff scrub (sandy) and coastal dunes from 0-215 meters elevation (CNPS, 2013).	March-June	No. Habitat to support this species does not occur on the project site.
Hesperolinon congestum Marin western flax	FT/CT/1B	Known to occur in Marin, San Francisco, and San Mateo Counties (CNPS, 2013).	Found in chaparral and valley and foothill grassland/serpentinite from 5-370 meters elevation (CNPS, 2013).	April-July	No. Serpentine soils are not found on the project site.
Horkelia cuneata ssp. *sericea* Kellogg's horkelia	--/--/1B	Known to occur in Alameda (though may be extirpated), Monterey, Marin (though may be extirpated), Santa Barbara, Santa Cruz, San Francisco (though may be extirpated), San Luis Obispo, and San Mateo Counties (CNPS, 2013).	Found in closed-cone coniferous forest, chaparral (maritime), coastal dunes, coastal scrub/sandy or gravelly, openings from 10-200 meters elevation (CNPS, 2013).	April-September	No. Habitat to support this species does not occur on the project site.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
Horkelia marinensis Point Reyes horkelia	--/--/1B	Known to occur in Mendocino, Marin, Santa Cruz, San Mateo, and Sonoma Counties. Known from fewer than twenty occurrences (CNPS, 2013).	Found in sandy areas of coastal dunes, coastal prairie, and coastal scrub from 5-350 meters elevation (CNPS, 2013).	May-September	No. Habitat to support this species does not occur on the project site.
Leptosiphon croceus coast yellow leptosiphon	--/--/1B	Known to occur in Monterey, Marin, and San Mateo Counties. Now known only from one occurrence near Moss Beach (CNPS, 2013).	Found in coastal bluff scrub and coastal prairie from 10-150 meters elevation (CNPS, 2013).	April-May	No. Habitat to support this species does not occur on the project site.
Leptosiphon rosaceus rose leptosiphon	--/--/1B	Known to occur in Marin, San Francisco (though may be extirpated), San Mateo, and Sonoma (though may be extirpated) Counties (CNPS, 2013).	Found in coastal bluff scrub from 0-100 meters elevation (CNPS, 2013).	April-July	No. The project site occurs above the known elevation range for this species
Lessingia arachnoidea Crystal Springs lessingia	--/--/1B	Known to occur in San Mateo and Sonoma counties (CNPS, 2013).	Found in cismontane woodland, coastal scrub, and valley and foothill grassland, in serpentine soils, often roadsides, from 60-200 meters elevation (CNPS, 2013).	July-October	No. Serpentine soils do not occur on the subject property.
Lilium maritimum Coast lily	--/--/1B	Known to occur in Del Norte and Humboldt Counties in California, and in Oregon (CNPS, 2013).	Found in broadleafed upland forest, closed-cone coniferous forest, coastal prairie, coastal scrub, marshes and swamps, north coast coniferous forest, sometimes roadsides, from 5-475 meters elevation (CNPS, 2013).	May-August	No. The project site occurs outside of the known geographic range for this species. The project site does not provide habitat for this species.
Malacothamnus aboriginum Indian Valley bush mallow	--/--/1B	Known to occur in Fresno, Monterey, San Benito, and San Mateo Counties. Geographical range is limited to the Inner South Coast Range and Peninsular Range regions of the California Floristic Province (CNPS, 2013).	Found in chaparral and cismontane woodland on rocky, granitic soils (often in burned areas from 150-1,700 meters elevation (CNPS, 2013).	April-October	Yes. The chaparral and oak woodland provide habitat for this species, however, this species was not observed during the July 25, 2013 botanical survey, which was conducted within the evident and identifiable blooming period.
Malacothamnus arcuatus Arcuate bush mallow	--/--/1B	Known to occur in Santa Clara, Santa Cruz, and San Mateo Counties (CNPS, 2013).	Found in chaparral and cismontane woodland from 15-355 meters elevation (CNPS, 2013).	April-September	Yes. Woodland present on the subject site provides habitat for this species.
Malacothamnus davidsonii Davidson's bush-mallow	--/--/1B	Known to occur in Los Angeles, Monterey, Santa Clara, San Luis Obispo, and San Mateo Counties (CNPS, 2013).	Found in chaparral, cismontane woodland, coastal scrub, and riparian woodland from 185–855 meters elevation (CNPS, 2013).	June-January	Yes. The project site occurs just below the known elevation range for this species. Although unlikely this species may

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
					occur within the project site.
Malacothamnus hallii Hall's bush-mallow	--/--/1B	Known to occur in Contra Costa, Lake, Mendocino, Merced, Santa Clara, San Mateo and Stanislaus Counties.	Found in chaparral and coastal scrub from 10-760 meters elevation (CNPS, 2013).	May-October	No. The project site does not provide habitat for this species.
Monolopia gracilens Woodland woolythreads	--/--/1B	Known to occur in Alameda, Contra Costa, Monterey, Santa Clara, Santa Cruz, San Luis Obispo, and San Mateo Counties.	Found in serpentine soils of broadleafed upland forest openings, chaparral openings, cismontane woodland, North Coast coniferous forest openings and valley and foothill grassland from 100-1200 meters elevation (CNPS, 2013).	March-July	No. The project site does not provide serpentine habitat for this species.
Navarretia myersii ssp. myersii pincushion navarretia	--/--/1B	Known from Amador, Calaveras, Merced, Placer, and Sacramento Counties (CNPS, 2013).	Found in vernal pools from 20-330 meters elevation (CNPS, 2013).	April-May	No. The project site occurs outside of the known geographic range for this species.
Pedicularis dudleyi Dudley's lousewort	--/CR/1B	Known to occur in Monterey, Santa Cruz*, San Luis Obispo, and San Mateo Counties.	Found in chaparral, cismontane woodland, North Coast coniferous forests, and valley and foothill grasslands from 60-900 meters (CNPS, 2013).	April-June	Yes. Refer to text.
Pentachaeta bellidiflora white-rayed pentachaeta	FE/CE/1B	Known to occur in Marin (though may be extirpated), Santa Cruz (though may be extirpated), and San Mateo Counties (CNPS, 2013).	Found in cismontane woodland and valley and foothill grassland (often serpentinite), from 35-620 meters elevation (CNPS, 2013).	March-May	Yes. Refer to text.
Plagiobothrys chorisianus var. *chorisianus* Choris' popcorn-flower	--/--/1B	Known to occur in Alameda (though may be extirpated/uncertain), Santa Cruz, San Francisco, and San Mateo Counties (CNPS, 2013).	Found in chaparral, coastal prairie, and coastal scrub/mesic from 15-160 meters elevation (CNPS, 2013).	March-June	No. The project site does not provide habitat for this species.
Polemonium carneum Oregon polemonium	--/--/2	Known to occur in Alameda, Del Norte, Humboldt, Marin, San Francisco, Siskiyou, San Mateo, and Sonoma Counties in California and Oregon and Washington states (CNPS, 2013).	Found in coastal prairie, coastal scrub, and lower montane coniferous forest from 0-1,830 meters elevation (CNPS, 2013).	April-September	No. The project site does not provide habitat for this species.
Potentilla hickmanii Hickman's cinquefoil	FE/CE/1B	Known to occur in Monterey, San Mateo, and Sonoma Counties (CNPS, 2013).	Found in coastal bluff scrub, closed-cone coniferous forest, vernally mesic meadows and seeps, and freshwater marshes and swamps from 10-149 meters elevation (CNPS, 2013).	April-August	No. The project site does not provide habitat for this species.
Silene verecunda ssp. *verecunda* San Francisco campion	--/--/1B	Known to occur in Santa Cruz, San Francisco, San Mateo, and Sutter Counties (CNPS, 2013).	Found in coastal bluff scrub, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland/sandy from 30-645 meters elevation	March- August	Yes. The nonnative grassland and oak woodland provide habitat

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
			(CNPS, 2013).		for this species, however, this species was not observed during the July 25, 2013 botanical survey, which was conducted within the evident and identifiable blooming period.
Trifolium hydrophilum Saline clover	--/--/1B	Known to occur in Alameda, Colusa (uncertain about distribution or identity), Monterey, Napa, San Benito, Santa Clara, Santa Cruz, San Luis Obispo, San Mateo, Solano, and Sonoma Counties (CNPS, 2013).	Found in marshes and swamps, valley and foothill grassland (mesic, alkaline), and vernal pools from 0-300 meters elevation (CNPS, 2013).	April-June	No. The project site does not provide habitat to support this species.
Triphysaria floribunda San Francisco owl's clover	--/--/1B	Known to occur in Marin, San Francisco, and San Mateo Counties (CNPS, 2013).	Found in coastal prairie, coastal scrub, and valley and foothill grassland/usually serpentinite from 10-160 meters elevation (CNPS, 2013).	April-June	No. Serpentine soils are not found on the project site.
Triquetrella californica coastal triquetrella	--/--/1B	Known to occur in Contra Costa, Del Norte, Mendocino, Marin, San Diego, San Francisco, San Mateo, and Sonoma Counties. Also occurs in Oregon (CNPS, 2013).	Found in coastal bluff scrub and coastal scrub/soil from 10-100 meters elevation (CNPS, 2013).	N/A	No. The project site occurs above the known elevation range for this species.
INVERTEBRATES					
Branchinect lynchi Vernal Pool Fairy Shrimp	FT/--/--	Known to occur in many California counties including Monterey and San Luis Obispo Counties (NatureServe, 2013).	Inhabits vernal pools and similar ephemeral wetlands. Common in grass- or mud-bottomed pools and rock outcrop pools (NatureServe, 2013).	Early December-May	No. The project site does not provide habitat for this species.
Callophrys mossii bayensis San Bruno elfin butterfly	FE/--/--	Known to occur in the coastal mountains of the San Francisco Bay. Counties include Contra Costa, Marin, and San Mateo.	Found in coastal mountains within the fog-belt of steep north facing slopes that receive little direct sunlight. Larval food plant is stonecrop (*Sedum spathulifolium*). This low growing succulent food plant occurs in rocky outcrops within 275-330 meters elevation. Adult food plants also include Montara Mountain manzanita (*Arctostaphylos montaraensis*) and huckleberry (*Vaccinium ovatum*).	February-April (mating flight) Wet Season (larvae)	No. The project site does not provide habitat for this species. The project site is below the elevation range of this species.
Euphydryas editha bayensis bay checkerspot butterfly	FT/--/--	Known exclusively to five regions; one on the San Francisco peninsula, one in San	Found in habitats on serpentine soils. Larval host plant is dwarf plantain (*Plantago erecta*).	February-May (mating flight)	No. The project site does not provide habitat for this

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
		Mateo County, and four in Santa Clara County.	If dwarf plantain is unavailable, larvae may also use purple owl's clover (*Castilleja densiflora* or *C. exserta*).	Wet Season (larvae)	species. Serpentine soils are absent from the project site.
Haliotis cracherodii Black abalone	FE/--/--	Known to occur in Santa Barbara and Ventura Counties (NatureServe, 2013).	This marine species occurs from the high intertidal zone to 6 meters in depth on a variety of surfaces with cracks and crevices crucial to development (NatureServe, 2013).	Consult Agency.	No. The project site does not provide habitat for this species.
Haliotis sorenseni White abaline	FE/--/--	Known to occur in the Pacific Ocean along the California coastline.	This marine species occurs at depths greater than 26 meters along rocky crevices with kelp.	Consult Agency.	No. The project site does not provide habitat for this species.
Plebejus icarioides missionensis (icaricia Mission blue butterfly	FE/--/--	Known only from a few small populations located at Twin Peaks in San Francisco County, Fort Baker in Marin County, and San Bruno Mountain in San Mateo County.	Found in coastal chaparral and coastal prairie communities, typically within the fog-belt of the coastal range. Larval food plant is lupine (*Lupinus albifrons, L. formosus, and L. variicolor*). Adults feed on lupine, hairy golden aster (*Heterotheca villosa*), blue dicks (*Dichelostemma capitatum*), and buckwheat (*Eriogonum latifolium*). Elevation: 210-360 meters.	March-July (mating flight) Wet Season (larvae)	Yes. Although the project site occurs below the known elevation range of this species, potential host plants have been identified in association with the project site.
Speyeria zerene myrtleae Myrtle's silverspot butterfly	FE/--/--	Current distribution is limited. Known to occur at the Estero de San Antonia in Marin County, south to Bodega Bay in Sonoma County.	Found in coastal dunes, coastal bluff scrub, non-native annual grassland, and coastal prairie habitats. Larval food plant is western dog violet (*Viola adunca*). Adults also feed on gumplant (*Grindelia* sp.), yellow sand verbena (*Abronia latifolia*), monardella (*Monardella* sp.), bull thistle (*Cirsium vulgare*), and seaside daisy (*Erigeron glaucus*). Prefers areas that are protected from onshore winds with ample winter rainfall and frequent fog. Elevations range from 0 to 300 meters. Habitat must be within 3 miles of the coast.	June-September (mating flight) Wet Season (larvae)	No. The project site occurs outside of the known geographic range for this species.
FISH					
Acipenser medirostris green sturgeon	FT/--/--	Adults are known to occur in coastal waters from Mexico to Alaska and have been observed along the west coast of North America. Spawning occurs within the Rogue and Illinois Rivers in Oregon, the Klamath River Basin, the Sacramento River, the Feather River, the Pit River, and	Utilizes both freshwater and saltwater habitats. Spawning occurs in deep pools or holes in large, turbulent, freshwater river mainstems. Eggs are cast over large cobble, clean sand, or bedrock substrates. Cold, clean water is required for development. Adults live in oceanic waters, bays, and estuaries.	Consult Agency	No. The project site does not provide habitat for this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
		the McCloud River. Spawning is suspected within the Trinity River, South Fork Trinity, and the Eel River. counties include Butte, Colusa, Glenn, Humboldt, Mendocino, Nevada, Placer, Sacramento, Shasta, Sierra, Siskiyou, Solano, Sutter, Tehama, Trinity, Yolo, and Yuba.			
Eucyclogobius newberryi tidewater goby	FE/CSC/--	Known to occur in coastal lagoons throughout California from Del Norte County to San Diego County.	Generally found in brackish to freshwater shallow lagoons and slow moving lower stream reaches. Habitat is fairly still, but not stagnant and they will avoid open areas with strong currents and/or wave action. Marshy habitats where they can avoid backwater flood flows.	Consult Agency	No. The project site does not provide habitat for this species.
Hypomesus transpacificus Delta smelt	FT/CT/--	Known to occur almost exclusively in the Sacramento-San Joaquin estuary, from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano, and Yolo counties. May also occur in the San Francisco Bay.	Found in estuarine waters. Majority of life span is spent within the freshwater outskirts of the mixing zone (saltwater-freshwater interface) within the Delta.	Consult Agency	No. The project site does not provide habitat for this species.
Mylopharodon conocephalus Hardhead	--/CSC/--	Range is restricted to California, and includes the Sacramento -San Joaquin and Russian River drainages.	Requires deep, rocky and sandy pools of small to large rivers.	Consult Agency	No. The project site does not provide habitat for this species.
Oncorhynchus kisutch Coho salmon Central California Coast ESU	FE/CE/--	Known to occur throughout the major rivers and tributaries from the Noyo River, south of Fort Bragg, to the San Lorenzo River, east of Santa Cruz. The distribution includes Marin, Mendocino, San Francisco, San Mateo, Santa Cruz, and Sonoma counties.	Spawning: streams with pool and riffle complexes. For successful breeding, require cold water and gravelly streambeds.	November-February	No. The project site does not provide habitat for this species.
Oncorhynchus mykiss steelhead Central Valley steelhead	FT/--/--	Spawn in the Sacramento and San Joaquin rivers and tributaries before migrating to the Delta and Bay Area.	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. Spawning: streams with pool and riffle complexes. For successful breeding, require cold water and gravelly streambed.	Consult Agency	No. The project site does not provide habitat for this species.
Oncorhynchus mykiss irideus steelhead Central California Coast	FT/--/--	Spawn in drainages from the Russian River basin, Sonoma and Mendocino counties, to Soquel Creek, Santa Cruz County	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging	Consult Agency	No. The project site does not provide habitat for this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
ESU		(including the San Francisco Bay basin, but not the Sacramento and San Joaquin Rivers or their tributaries).	banks. Spawning: streams with pool and riffle complexes. For successful breeding, require cold water and gravelly streambed.		
Oncorhynchus tshawytscha Chinook salmon Central Valley spring-run	FT/CT/--	Spawn in the Sacramento river and some of its tributaries. Juveniles migrate from spawning grounds to the Pacific Ocean.	Spawning occurs in large deep pools in tributaries with moderate velocities and a large bubble curtain at the head.	Consult Agency	No. The project site does not provide habitat for this species.
Oncorhynchus tshawytscha Chinook salmon winter-run, Sacramento River	FE/CE/--	Spawn in the upper Sacramento River. Juveniles migrate from spawning grounds to the Pacific Ocean.	Returns to the Upper Sacramento River in the winter but delay spawning until spring and summer. Juveniles spend 5-9 months in the river and estuary before entering the ocean.	Consult Agency	No. The project site does not provide habitat for this species.
Spirinchus thaleichthys Longfin smelt	--/CT/--	Known to occur along the Pacific Coast of North America (NatureServe, 2013).	Occurs in a wide range of salinity conditions in oceans, bays, estuaries, and rivers (Moyle, 2002). Daily migration from deep to shallow water. Swims at depths of at least 150 meters in the ocean (NatureServe, 2013).	Consult Agency	No. The project site does not provide habitat for this species.
AMPHIBIANS AND REPTILES					
Ambystoma californiense California tiger salamander	FT/--/--	Known to occur in Alameda, Butte, Contra Costa, Fresno, Glenn, Kern, Madera, Merced, Monterey, Sacramento, San Benito, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Solano, Sonoma, Stanislaus, Tulare, and Yolo counties.	Found in vernal pools, ephemeral wetlands, and seasonal ponds, including constructed stockponds, in grassland and oak savannah plant communities; Elevation 3-1054 meters.	November-February (adults) March 15-May15 (larvae)	No. The project site does not provide habitat for this species.
Caretta caretta loggerhead turtle	FT/--/--	Circumglobal species. Occurs throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian Oceans. In the eastern Pacific range extends north to Alaska and South to Chile. Occasional sightings occur along the coast of Oregon and Washington. Most juvenile sightings are reported along the California coast. The west coast of Mexico and the Baja Peninsula are critical juvenile habitats.	Nests on ocean beaches. Prefers high-energy, narrow, and steeply sloped coarse-grained beaches. Juveniles develop within the oceanic zone until 7-12 years of age, then migrate to nearshore coastal areas within the neritic zone.	Consult Agency	No. The project site does not provide habitat for this species.
Chelonia mydas green turtle	FT/--/--	Globally distributed and generally found in tropical and subtropical waters along continental coasts and islands between 30° North and 30° South. In the eastern North Pacific, occurs from Baja California to	Nests on oceanic beaches, feeds in benthic grounds in coastal areas, and frequents convergence zones in the open ocean.	Consult Agency	No. The project site does not provide habitat for this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
		southern Alaska.			
Dermochelys coriacea leatherback turtle	FE/--/--	Nesting grounds occur globally. Sightings have occurred along the entire continental coast of the United States.	Mainly a pelagic species, but will also forage in coastal waters. Tolerant of colder water temperatures. Mating occurs in waters adjacent to nesting beaches and along migratory corridors.	Consult Agency	No. The project site does not provide habitat for this species.
Emys marmorata Western pond turtle	--/CSC/--	Known to occur from the west coast of North America from southern Washington, USA to northern Baja California, Mexico. Many populations have been extirpated and others continue to decline throughout the range, especially in southern California.	Requires aquatic habitats with suitable basking sites. Nest sites most often characterized as having gentle slopes (<15%) with little vegetation or sandy banks.	All year	No. The project site does not provide habitat for this species.
Lepidochelys olivaceae olive ridley sea turtle	FT/--/--	Globally distributed in the tropical regions of the South Atlantic, Pacific, and Indian Oceans. In the Eastern Pacific, they occur from Southern California to Northern Chile	Mainly a pelagic turtle, but has been known to inhabit coastal areas, including bays and estuaries. Migrate annually from pelagic areas to coastal breeding and nesting grounds.	Consult Agency	No. The project site does not provide habitat for this species.
Masticophis (Coluber) lateralis euryxanthus Alameda whipsnake (striped racer)	FT/--/--	Occurs in inner coast range in Contra Costa, Santa Clara, San Joaquin, Stanislaus, and Alameda Counties. Five known populations, none in vicinity of proposed project (NatureServe, 2013).	Occurs in riparian and terrestrial habitats, including grassland, chaparral, mixed or hardwood woodland, and rocky canyons (NatureServe, 2013).	March-November	No. The project site is outside the known range for this species.
Rana draytonii California red-legged frog	FT/CSC/--	Known to occur in Alameda, San Francisco, Placer, Riverside, Santa Barbara, San Luis Obispo, San Mateo, Santa Cruz, Santa Clara, Marin, Sonoma, and Contra Costa counties.	Found in lowlands and foothills in or near permanent sources of deep water with dense shrubby or emergent riparian vegetation.	November-March (breeding) June-August (non-breeding)	No. The project site does not provide habitat for this species.
Thamnophis gigas giant garter snake	FT/CT/--	Endemic to the San Joaquin and Sacramento Valley floors. counties include Butte, Colusa, Contra Costa, Fresno, Glenn, Kern, Madera, Merced, Sacramento, San Joaquin, Solano, Sutter, Yolo, and Yuba.	Inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands. Requires adequate water during its active season (early spring through mid-fall) to provide food and cover, emergent, herbaceous wetland vegetation for foraging and cover, grassy banks and openings in waterside vegetation for basking, and higher elevation uplands for cover and refuge from flood waters during its dormant season (winter).	March-October	No. The project site does not provide habitat for this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
			Inhabits small mammal burrows and other soil crevices with sunny exposure along south and west facing slopes, above prevailing flood elevations when dormant.		
BIRDS					
Asio flammeus short-eared owl	--/CSC/--	Known to breed sparsely in northeast (Klamanth Basin, Modoc Plateau, Great Basin) south to s. Lassen Co.; Uncommon and irregular breeder in s. Sacramento Valley, around San Francisco Bay, and south in interior and coastal valleys to Monterey Co. Some concentration in Solano Co., just north and east of San Francisco. Scarce, local, and possibly extirpated as breeder in s. California	Usually found in open areas with few trees, such as annual and perennial grasslands, prairies, dunes, meadows, irrigated lands, and saline and fresh emergent wetlands. Nests usually located on dry sites with enough vegetation to conceal incubating female.	All Year	No. The project site does not provide habitat for this species.
Athene cunicularia burrowing owl	--/CSC/--	Formerly common within the described habitats throughout the state except the northwest coastal forests and high mountains.	Yearlong resident of open, dry grassland and desert habitats, as well as in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats.	All Year	Yes. Refer to text.
Brachyramphus marmoratus marbled murrelet	FT/CE/--	Known to occur year-round in marine subtidal and pelagic habitats from the Oregon border to Point Sal, Santa Barbara County. Breeding individuals in California largely concentrated on coastal waters off Del Norte and Humboldt cos. (about 75% of the population), and in lesser numbers off San Mateo and Santa Cruz counties (about 14%).	Partial to coastlines with stands of mature redwood and Douglas fir; uses these trees for nesting and probably roosting. In summer, forages close to shore (within 500 meters) in shallow water, usually less than 30 meters deep. In nonbreeding season, often forages farther from shore.	All Year	No. The project site does not provide habitat for this species.
Charadrius alexandrinus nivosus western snowy plover	FT/CSC/--	Known to occur along the California coast and inland near the Salton Sea, Mono Lake, and alkali lakes.	Most breeding occurs on dune-backed beaches, barrier beaches, and salt-evaporation ponds; can inhabit inland salt ponds and lakes. Require sandy, gravely, or friable soil substrates for nesting. Winter habitat is primarily coastal: beaches, tidal flats, lagoon margins, and salt-evaporation ponds. Inland some birds regularly winter at agricultural waste-water ponds in San Joaquin Valley, and at desert saline lakes (particularly Salton Sea) in southern California	All year	No. The project site does not provide habitat for this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
Circus cyaneus northern harrier	--/CSC/--	Permanent residents of the northeastern plateau and coastal areas; less common resident of the Central Valley.	Found in coastal scrub, Great Basin grassland, marsh and swamp (coastal and fresh water), riparian scrubs, valley and foothill grassland, and wetlands. Nests on the ground, usually in tall, dense clumps of vegetation, either alone or in loose colonies. Occurs from annual grassland up to lodgepole pine and alpine meadow habitats, as high as 3000 meters.	All Year	Yes. The project site provides foraging habitat for this species.
Diomedea albatrus Short-tailed albatross		Occurs globally with extensive oceanic migration. Nesting occurs near Japan and Taiwan. Known in Alaska, California, Hawaii, and Washington state (NatureServe, 2013).	Pelagic bird known to occur in regions of high productivity. Ground level nests on small oceanic islands. Feeds at the water's surface (NatureServe, 2013).	Consult Agency	No. The project site does not provide habitat for this species.
Elanus leucurus white-tailed kite	--/CFP/--	Permanent resident of coastal and valley lowlands.	Habitats include savanna, open woodland, marshes, partially cleared lands and cultivated fields, mostly in lowland situations. Nesting occurs in trees.	All Year	Yes. The oak woodland provides nesting habitat for this species.
Falco columbarius Merlin	--/CSC/--	Known to occur throughout North America with the exception of most southern states. Known to occur in San Mateo and San Luis Obispo Counties (NatureServe, 2013).	Known to occur in herbaceous wetland and tidal flat/shore. Nests in trees and cliff ledges.	Consult Agency.	No. The project site does not provide habitat for this species.
Falco peregrinus anatum American peregrine falcon	FD/CE/--	Active nesting sites known along the coast north of Santa Barbara and other mountains in northern California.	Breeds mostly in woodland, forest, and coastal habitats near water on high cliffs or banks. Will nest on man-made structures and in the hollows of old trees or open tops of cypress, sycamore or cottonwood trees 50-90 feet above the ground.	All Year (some migrate)	No. The project site does not provide habitat for this species.
Geothlypis trichas sinnosa Saltmarsh common yellowthroat	--/CSC/--	Known to occur in freshwater marshes and riparian thickets around the San Francisco Bay Area.	Nests in freshwater marshes and riparian thickets.		No. The project site does not provide habitat for this species.
Laterallus jamaicensis coturniculus California black rail	--/CT/--	In coastal California during breeding season, presently found at Bodega Bay, Tomales Bay, Bolinas Lagoon, San Francisco Bay estuary, and Morro Bay. Overwhelming majority of birds in North San Francisco Bay (San Pablo Bay) at relatively few sites. Occurs irregularly south to Baja California. Inland in small numbers in Salton Trough and on lower	Nests in high portions of salt marshes, shallow freshwater marshes, wet meadows, and flooded grassy vegetation. Uses sites with shallower water than other North American rails. Most breeding areas vegetated by fine-stemmed emergent plants, rushes, grasses, or sedges. Sites used in coastal California characterized by taller vegetation, greater coverage and height of alkali heath (*Frankenia*	All Year	No. The project site does not provide habitat for this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
		Colorado River from Bill Williams River (historically) to Laguna Dam.	*grandifolia*).		
Melospiza melodia pusillula Alameda song sparrow	--/CSC/--	Known to occur in areas bordering southern and eastern fringes of San Francisco bay.	Commonly found in saltmarsh, brackish marsh, and fringe areas, where marsh vegetation is limited to edges of dikes, land fills, or other margins of high ground bordering salt or brackish water areas.	All Year	No. The project site does not provide habitat for this species.
Pelecanus occidentalis californicus California brown pelican	FE/CE/--	Known to occur in estuarine, marine subtidal, and marine pelagic waters along the California coast.	Nests on coastal islands of small to moderate size, which afford immunity from, attack by ground dwelling predators. Usually rests on water or inaccessible rocks (either offshore or on mainland), but also uses mudflats, sandy beaches, wharfs, and jetties	All Year	No. The project site does not provide habitat for this species.
Phalacrocorax auritus double-crested cormorant	--/CSC/--	A yearlong resident along the entire coast of California and on inland lakes, in fresh, salt and estuarine waters.	Colonial nester on coastal cliffs, offshore islands and along lake margins in the interior of the state. Prefers water less than 9 meters deep with rocky or gravel bottom. Roosts beside water on offshore rocks, islands, steep cliffs, dead branches of trees, wharfs, jetties, or transmission lines. Perching sites must be barren of vegetation.	All Year	No. The project site does not provide habitat for this species.
Rallus longirostris obsoletus California clapper rail	FE/CE/--	Locally common yearlong in coastal wetlands and brackish areas around San Francisco Bay.	Found in saline emergent wetlands, nests mostly in lower zones, where cordgrass is abundant and tidal sloughs are nearby. Builds a platform concealed by a canopy of woven cordgrass stems or pickleweed and gumweed. Also uses dead drift vegetation as platform. In fresh or brackish water, builds nest in dense cattail or bulrush. Forages in higher marsh vegetation, along vegetation and mudflat interface, and along tidal creeks	All year	No. The project site does not provide habitat for this species.
Sternula antillarum browni California least tern	FE/CE/--	Breeding colonies are located along the coast from southern California to San Francisco Bay.	Found along marine and estuarine shores where small fish are abundant. Nest in loose colonies on the ground relatively free of human or predatory disturbance.	April-May	No. The project site does not provide habitat for this species.
MAMMALS					

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
Antrozous pallidus pallid bat	--/CSC/SC	Locally common species at low elevations. It occurs throughout California except for the high Sierra Nevada from Shasta to Kern cos., and the northwestern corner of the state from Del Norte and western Siskiyou cos. to northern Mendocino Co.	Found in grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests, generally below 2,000 meters. The species is most common in open, dry habitats with rocky areas for roosting. Roosts also include cliffs, abandoned buildings, bird boxes, and under bridges.	All Year	No. The project site does not provide habitat for this species.
Eumetopias jubatus Stellar sea-lion	FT/--/--	Known to occur throughout the North Pacific Rim from Japan to central California. Breeding occurs along the North Pacific Rim from Ano Nuevo Island in central California to the Kuril Islands North of Japan, with the greatest concentration of rookeries in the Gulf of Alaska and Aleutian Islands.	Tend to remain off shore or haul out in unpopulated areas. Rookeries and haul out sites are typically located on rocky shoreline and wave-cut platforms, occasionally on gravel shore. Rookeries are almost exclusively located on offshore islands and reefs. Can be seen near shore and out to the edge of the continental shelf and beyond.	All Year	No. The project site does not provide habitat for this species.
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	--/CSC/--	Known to occur historically in San Mateo County and the San Francisco Bay watershed.	Found in riparian areas along streams and rivers. Requires areas with a mix of brush and trees.	Year Round	No. The project site does not provide habitat for this species.
Nyctinomops macrotis big free-tailed bat	--/CSC/--	Rare in California. Records of the species are from urban areas of San Diego Co., and vagrants found in fall and winter. A probable vagrant was collected in Alameda Co., but this record is suspect.	Big free-tailed bats in other areas prefer rugged, rocky terrain. Found to 2500 m (8000 ft) in New Mexico, southern Arizona, and Texas. Roosts in buildings, caves, and occasionally in holes in trees. Also roosts in crevices in high cliffs or rock outcrop. Probably does not breed in California.	May-September	No. The project site does not provide habitat for this species.
Reithrodontomys raviventris salt marsh harvest mouse	FE/CE/--	Known only to occur in the saline emergent wetlands of San Francisco Bay and its tributaries.	Critically dependent on dense cover and their preferred habitat is pickleweed (Salicornia virginica). Seldom found in cordgrass or alkali bulrush. In marshes with an upper zone of peripheral halophytes (salt-tolerant plants), mice use this vegetation to escape the higher tides, and may even spend a considerable portion of their lives there. Mice also move into the adjoining grasslands during the highest winter tides.	All Year	No. The project site does not provide habitat for this species.
Sorex vagrans halicoetes salt-marsh wandering shrew	--/CSC/--	Known to occur in salt marshes of the south arm of San Francisco bay.	This species prefer a low, dense cover of salicornia.	All Year	No. The project site does not provide habitat for this species.

SCIENTIFIC NAME COMMON NAME	FEDERAL/ STATE/CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION	POTENTIAL TO OCCUR ON-SITE
Taxidea taxus American badger	--/CSC/--	Known to occur throughout most of California in suitable habitat.	Suitable habitat occurs in the drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Badgers are generally associated with undisturbed treeless regions, prairies, parklands, and cold desert areas. Cultivated lands have been reported to provide little usable habitat for this species.	All Year	No. The project site does not provide habitat for this species.

FEDERAL: United States Fish and Wildlife Service
FE Federally Endangered
FT Federally Threatened
FC Federal Candidate for Listing

STATE: California Department of Fish and Game
CE California Listed Endangered
CR California Listed Rare
CT California Listed Threatened
CSC California Species of Special Concern
CFP California Fully-Protected

CNPS: California Native Plant Society
List 1A Plants Presumed Extinct in California
List 1B Plants Rare, Threatened, or Endangered in California and Elsewhere
List 2 Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

REFERENCES

All About Birds. The Cornell Lab of Ornithology. 2013. Bird Guide. Can be found online at: http://www.allaboutbirds.org/guide/Black_Skimmer/lifehistory. Accessed on July 11, 2013.

California Native Plant Society (CNPS). 2011, 2013. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society. Sacramento, CA.

NatureServe. 2013. Can be found online at: http://www.natureserve.org. Accessed on November 18-19, 2013.

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 131118032433

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Euphydryas editha bayensis
bay checkerspot butterfly (T)
Critical habitat, bay checkerspot butterfly (X)

Haliotes cracherodii
black abalone (E) (NMFS)

Haliotes sorenseni
white abalone (E) (NMFS)

Icaricia icarioides missionensis
mission blue butterfly (E)

Speyeria zerene myrtleae
Myrtle's silverspot butterfly (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Eucyclogobius newberryi
tidewater goby (E)

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus kisutch
coho salmon - central CA coast (E) (NMFS)
Critical habitat, coho salmon - central CA coast (X) (NMFS)

Oncorhynchus mykiss
Central California Coastal steelhead (T) (NMFS)
Central Valley steelhead (T) (NMFS)
Critical habitat, Central California coastal steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana draytonii
California red-legged frog (T)
Critical habitat, California red-legged frog (X)

Reptiles

Caretta caretta
loggerhead turtle (T) (NMFS)

Chelonia mydas (incl. agassizi)
green turtle (T) (NMFS)

Dermochelys coriacea
leatherback turtle (E) (NMFS)

Lepidochelys olivacea
olive (=Pacific) ridley sea turtle (T) (NMFS)

Masticophis lateralis euryxanthus
Alameda whipsnake [=striped racer] (T)

Thamnophis sirtalis tetrataenia
San Francisco garter snake (E)

Birds

Brachyramphus marmoratus
Critical habitat, marbled murrelet (X)
marbled murrelet (T)

Charadrius alexandrinus nivosus
Critical habitat, western snowy plover (X)
western snowy plover (T)

Diomedea albatrus
short-tailed albatross (E)

Pelecanus occidentalis californicus
California brown pelican (E)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Mammals

Arctocephalus townsendi
Guadalupe fur seal (T) (NMFS)

Balaenoptera borealis
sei whale (E) (NMFS)

Balaenoptera musculus
blue whale (E) (NMFS)

Balaenoptera physalus
finback (=fin) whale (E) (NMFS)

Enhydra lutris nereis
southern sea otter (T)

Eubalaena (=Balaena) glacialis
right whale (E) (NMFS)

Eumetopias jubatus
Steller (=northern) sea-lion (T) (NMFS)

Physeter catodon (=macrocephalus)
sperm whale (E) (NMFS)

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Plants

Acanthomintha duttonii
San Mateo thornmint (E)

Cirsium fontinale var. fontinale
fountain thistle (E)

Eriophyllum latilobum

San Mateo woolly sunflower (E)

Hesperolinon congestum
Marin dwarf-flax (=western flax) (T)

Pentachaeta bellidiflora
white-rayed pentachaeta (E)

Potentilla hickmanii
Hickman's potentilla (=cinquefoil) (E)

Quads Containing Listed, Proposed or Candidate Species:

WOODSIDE (429A)

HALF MOON BAY (429B)

REDWOOD POINT (447C)

MONTARA MOUNTAIN (448C)

SAN MATEO (448D)

County Lists

San Mateo County

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Euphydryas editha bayensis
bay checkerspot butterfly (T)
Critical habitat, bay checkerspot butterfly (X)

Haliotes cracherodii
black abalone (E) (NMFS)

Haliotes sorenseni
white abalone (E) (NMFS)

Icaricia icarioides missionensis
mission blue butterfly (E)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Speyeria callippe callippe
callippe silverspot butterfly (E)

Speyeria zerene myrtleae
Myrtle's silverspot butterfly (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Eucyclogobius newberryi
critical habitat, tidewater goby (X)
tidewater goby (E)

tidewater goby (E)

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus kisutch
coho salmon - central CA coast (E) (NMFS)
Critical habitat, coho salmon - central CA coast (X) (NMFS)

Oncorhynchus mykiss
Central California Coastal steelhead (T) (NMFS)
Central Valley steelhead (T) (NMFS)
Critical habitat, Central California coastal steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana draytonii
California red-legged frog (T)
Critical habitat, California red-legged frog (X)

Reptiles

Caretta caretta
loggerhead turtle (T) (NMFS)

Chelonia mydas (incl. agassizi)
green turtle (T) (NMFS)

Dermochelys coriacea
leatherback turtle (E) (NMFS)

Lepidochelys olivacea
olive (=Pacific) ridley sea turtle (T) (NMFS)

Masticophis lateralis euryxanthus
Alameda whipsnake [=striped racer] (T)
Critical habitat, Alameda whipsnake (X)

Thamnophis sirtalis tetrataenia
San Francisco garter snake (E)

Birds

Brachyramphus marmoratus
Critical habitat, marbled murrelet (X)
marbled murrelet (T)

Charadrius alexandrinus nivosus
Critical habitat, western snowy plover (X)

Critical habitat, western snowy plover (X)
western snowy plover (T)

Diomedea albatrus
short-tailed albatross (E)

Pelecanus occidentalis californicus
California brown pelican (E)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Mammals

Arctocephalus townsendi
Guadalupe fur seal (T) (NMFS)

Balaenoptera borealis
sei whale (E) (NMFS)

Balaenoptera musculus
blue whale (E) (NMFS)

Balaenoptera physalus
finback (=fin) whale (E) (NMFS)

Enhydra lutris nereis
southern sea otter (T)

Eubalaena (=Balaena) glacialis
right whale (E) (NMFS)

Eumetopias jubatus
Steller (=northern) sea-lion (T) (NMFS)

Physeter catodon (=macrocephalus)
sperm whale (E) (NMFS)

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Plants

Acanthomintha duttonii
San Mateo thornmint (E)

Arctostaphylos hookeri ssp. ravenii
Presidio (=Raven's) manzanita (E)

Chorizanthe robusta var. robusta
robust spineflower (E)

robust spineflower (E)

Cirsium fontinale var. fontinale
fountain thistle (E)

Cupressus abramsiana
Santa Cruz cypress (E)

Eriophyllum latilobum
San Mateo woolly sunflower (E)

Hesperolinon congestum
Marin dwarf-flax (=western flax) (T)

Lasthenia conjugens
Contra Costa goldfields (E)

Layia carnosa
beach layia (E)

Lessingia germanorum
San Francisco lessingia (E)

Pentachaeta bellidiflora
white-rayed pentachaeta (E)

Potentilla hickmanii
Hickman's potentilla (=cinquefoil) (E)

Suaeda californica
California sea blite (E)

Trifolium amoenum
showy Indian clover (E)

Proposed Species

Plants

Arctostaphylos Franciscana
Critical Habitat, Franciscan Manzanita (X)

Key:

(E) *Endangered* - Listed as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service.

Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be February 16, 2014.

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad is (Montara Mountain (3712254) or San Mateo (3712253) or Redwood Point (3712252) or Woodside (3712243) or Half Moon Bay (3712244))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Acanthomintha duttonii San Mateo thorn-mint	PDLAM01040	Endangered	Endangered	G1	S1	1B.1
Allium peninsulare var. franciscanum Franciscan onion	PMLIL021R1	None	None	G5T2	S2.2	1B.2
Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SSC
Amsinckia lunaris bent-flowered fiddleneck	PDBOR01070	None	None	G2?	S2?	1B.2
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Arctostaphylos andersonii Anderson's manzanita	PDERI04030	None	None	G2	S2?	1B.2
Arctostaphylos montaraensis Montara manzanita	PDERI042W0	None	None	G2	S2.2	1B.2
Arctostaphylos regismontana Kings Mountain manzanita	PDERI041C0	None	None	G2	S2.2	1B.2
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Asio flammeus short-eared owl	ABNSB13040	None	None	G5	S3	SSC
Astragalus pycnostachyus var. pycnostachyus coastal marsh milk-vetch	PDFAB0F7B2	None	None	G2T2	S2.2	1B.2
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S2	SSC
Calicina minor Edgewood blind harvestman	ILARA13020	None	None	G1	S1	
Callophrys mossii bayensis San Bruno elfin butterfly	IILEPE2202	Endangered	None	G4T1	S1	
Centromadia parryi ssp. parryi pappose tarplant	PDAST4R0P2	None	None	G3T1	S1	1B.2
Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2	SSC
Chloropyron maritimum ssp. palustre Point Reyes bird's-beak	PDSCR0J0C3	None	None	G4?T2	S2	1B.2
Chorizanthe cuspidata var. cuspidata San Francisco Bay spineflower	PDPGN04081	None	None	G2T2	S2.2	1B.2
Circus cyaneus northern harrier	ABNKC11010	None	None	G5	S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Cirsium andrewsii Franciscan thistle	PDAST2E050	None	None	G2	S2.2	1B.2
Cirsium fontinale var. fontinale fountain thistle	PDAST2E161	Endangered	Endangered	G2T1	S1	1B.1
Collinsia multicolor San Francisco collinsia	PDSCR0H0B0	None	None	G2	S2.2	1B.2
Danaus plexippus monarch butterfly	IILEPP2010	None	None	G5	S3	
Dipodomys venustus venustus Santa Cruz kangaroo rat	AMAFD03042	None	None	G4T1	S1	
Dirca occidentalis western leatherwood	PDTHY03010	None	None	G2G3	S2S3	1B.2
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3	FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eriophyllum latilobum San Mateo woolly sunflower	PDAST3N060	Endangered	Endangered	G1	S1	1B.1
Euphydryas editha bayensis Bay checkerspot butterfly	IILEPK4055	Threatened	None	G5T1	S1	
Falco columbarius merlin	ABNKD06030	None	None	G5	S3	WL
Falco peregrinus anatum American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S2	FP
Fritillaria biflora var. ineziana Hillsborough chocolate lily	PMLIL0V031	None	None	G1QT1Q	S1	1B.1
Fritillaria liliacea fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
Geothlypis trichas sinuosa saltmarsh common yellowthroat	ABPBX1201A	None	None	G5T2	S2	SSC
Grindelia hirsutula var. maritima San Francisco gumplant	PDAST470D3	None	None	G5T1Q	S1	3.2
Hesperevax sparsiflora var. brevifolia short-leaved evax	PDASTE5011	None	None	G4T2T3	S2S3	1B.2
Hesperolinon congestum Marin western flax	PDLIN01060	Threatened	Threatened	G2	S2	1B.1
Horkelia cuneata var. sericea Kellogg's horkelia	PDROS0W043	None	None	G4T2	S2?	1B.1
Horkelia marinensis Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2.2	1B.2
Hydrochara ricksecker Ricksecker's water scavenger beetle	IICOL5V010	None	None	G1G2	S1S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Ischnura gemina San Francisco forktail damselfly	IIODO72010	None	None	G2	S2	
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4?	
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G4T1	S1	FP
Leptosiphon croceus coast yellow leptosiphon	PDPLM09170	None	None	G1	S1	1B.1
Leptosiphon rosaceus rose leptosiphon	PDPLM09180	None	None	G1	S1	1B.1
Lessingia arachnoidea Crystal Springs lessingia	PDAST5S0C0	None	None	G1	S1	1B.2
Lichnanthe ursina bumblebee scarab beetle	IICOL67020	None	None	G2	S2	
Malacothamnus aboriginum Indian Valley bush-mallow	PDMAL0Q020	None	None	G2	S2	1B.2
Malacothamnus arcuatus arcuate bush-mallow	PDMAL0Q0E0	None	None	G2Q	S2.2	1B.2
Malacothamnus davidsonii Davidson's bush-mallow	PDMAL0Q040	None	None	G2	S2	1B.2
Malacothamnus hallii Hall's bush-mallow	PDMAL0Q0F0	None	None	G2Q	S2	1B.2
Melospiza melodia pusillula Alameda song sparrow	ABPBXA301S	None	None	G5T2?	S2?	SSC
Microcina edgewoodensis Edgewood Park micro-blind harvestman	ILARA47010	None	None	G1	S1	
Monolopia gracilens woodland woollythreads	PDAST6G010	None	None	G2G3	S2S3	1B.2
Myotis thysanodes fringed myotis	AMACC01090	None	None	G4	S4	
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	AMAFF08082	None	None	G5T2T3	S2S3	SSC
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
Northern Maritime Chaparral Northern Maritime Chaparral	CTT37C10CA	None	None	G1	S1.2	
Nycticorax nycticorax black-crowned night heron	ABNGA11010	None	None	G5	S3	
Nyctinomops macrotis big free-tailed bat	AMACD04020	None	None	G5	S2	SSC
Oncorhynchus mykiss irideus steelhead - central California coast DPS	AFCHA0209G	Threatened	None	G5T2Q	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Pentachaeta bellidiflora white-rayed pentachaeta	PDAST6X030	Endangered	Endangered	G1	S1	1B.1
Phalacrocorax auritus double-crested cormorant	ABNFD01020	None	None	G5	S3	WL
Plagiobothrys chorisianus var. chorisianus Choris' popcornflower	PDBOR0V061	None	None	G3T2Q	S2.2	1B.2
Plebejus icarioides missionensis Mission blue butterfly	IILEPG801A	Endangered	None	G5T1	S1	
Polemonium carneum Oregon polemonium	PDPLM0E050	None	None	G4	S1	2B.2
Potentilla hickmanii Hickman's cinquefoil	PDROS1B0U0	Endangered	Endangered	G1	S1	1B.1
Rallus longirostris obsoletus California clapper rail	ABNME05016	Endangered	Endangered	G5T1	S1	FP
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Reithrodontomys raviventris salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2	FP
Serpentine Bunchgrass Serpentine Bunchgrass	CTT42130CA	None	None	G2	S2.2	
Silene verecunda ssp. verecunda San Francisco campion	PDCAR0U213	None	None	G5T2	S2.2	1B.2
Sorex vagrans halicoetes salt-marsh wandering shrew	AMABA01071	None	None	G5T1	S1	SSC
Speyeria zerene myrtleae Myrtle's silverspot butterfly	IILEPJ608C	Endangered	None	G5T1	S1	
Spirinchus thaleichthys longfin smelt	AFCHB03010	None	Threatened	G5	S1	SSC
Sternula antillarum browni California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2S3	FP
Taxidea taxus American badger	AMAJF04010	None	None	G5	S4	SSC
Thamnophis sirtalis tetrataenia San Francisco garter snake	ARADB3613B	Endangered	Endangered	G5T2	S2	FP
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Triphysaria floribunda San Francisco owl's-clover	PDSCR2T010	None	None	G2	S2.2	1B.2
Triquetrella californica coastal triquetrella	NBMUS7S010	None	None	G1	S1	1B.2
Usnea longissima long-beard lichen	NLLEC5P420	None	None	G4	S4.2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	
Valley Needlegrass Grassland						

Record Count: 83

CNPS California Native Plant Society Rare and Endangered Plant Inventory

Plant List

5 matches found. *Click on scientific name for details*

Search Criteria

Found in Quad 37122D4

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	Fabaceae	perennial herb	1B.2	S2.2	G2T2
Horkelia cuneata var. sericea	Kellogg's horkelia	Rosaceae	perennial herb	1B.1	S2?	G4T2
Lupinus arboreus var. eximius	San Mateo tree lupine	Fabaceae	perennial evergreen shrub	3.2	S2.2	G2Q
Plagiobothrys chorisianus var. chorisianus	Choris' popcorn-flower	Boraginaceae	annual herb	1B.2	S2.2	G3T2Q
Polemonium carneum	Oregon polemonium	Polemoniaceae	perennial herb	2B.2	S1	G4

Suggested Citation

California Native Plant Society (CNPS). 2013. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society. Sacramento, CA. Accessed on Monday, November 18, 2013.

Search the Inventory

Simple Search
Advanced Search
Glossary

Information

About the Inventory
About the Rare Plant Program
CNPS Home Page
About CNPS
Join CNPS

Contributors

The Calflora Database

© Copyright 2010 California Native Plant Society. All rights reserved.

CNPS California Native Plant Soc Rare and Endangered Plant Inventory

Plant List

42 matches found. *Click on scientific name for details*

Search Criteria

Found in Quad 37122E4

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Allium peninsulare var. franciscanum	Franciscan onion	Alliaceae	perennial bulbiferous herb	1B.2	S2.2	G5T2
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	1B.2	S2?	G2?
Arabis blepharophylla	coast rockcress	Brassicaceae	perennial herb	4.3	S3.3?	G3
Arctostaphylos andersonii	Anderson's manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2?	G2
Arctostaphylos montaraensis	Montara manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2.2	G2
Arctostaphylos regismontana	Kings Mountain manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2.2	G2
Astragalus nuttallii var. nuttallii	ocean bluff milk-vetch	Fabaceae	perennial herb	4.2	S3.2	G3T3
Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	Fabaceae	perennial herb	1B.2	S2.2	G2T2
Castilleja ambigua var. ambigua	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	4.2	S3	G4T3T4
Centromadia parryi ssp. parryi	pappose tarplant	Asteraceae	annual herb	1B.2	S1	G3T1
Chorizanthe cuspidata var. cuspidata	San Francisco Bay spineflower	Polygonaceae	annual herb	1B.2	S2.2	G2T2
Cirsium andrewsii	Franciscan thistle	Asteraceae	perennial herb	1B.2	S2.2	G2
Collinsia multicolor	San Francisco collinsia	Plantaginaceae	annual herb	1B.2	S2.2	G2
Cypripedium fasciculatum	clustered lady's-slipper	Orchidaceae	perennial rhizomatous herb	4.2	S3.2	G4
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	1B.2	S2S3	G2G3
Elymus californicus	California bottle-brush grass	Poaceae	perennial herb	4.3	S3.3	G3
Eriophyllum latilobum	San Mateo woolly sunflower	Asteraceae	perennial herb	1B.1	S1	G1
Erysimum franciscanum	San Francisco wallflower	Brassicaceae	perennial herb	4.2	S3.2	G3

Fritillaria biflora var. ineziana	Hillsborough chocolate lily	Liliaceae	perennial bulbiferous herb	1B.1	S1	G1QT1Q
Fritillaria lanceolata var. tristulis	Marin checker lily	Liliaceae	perennial bulbiferous herb	1B.1	S2	G5T2
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	1B.2	S2	G2
Grindelia hirsutula var. maritima	San Francisco gumplant	Asteraceae	perennial herb	3.2	S1	G5T1Q
Hesperevax sparsiflora var. brevifolia	short-leaved evax	Asteraceae	annual herb	1B.2	S2S3	G4T2T3
Horkelia marinensis	Point Reyes horkelia	Rosaceae	perennial herb	1B.2	S2.2	G2
Iris longipetala	coast iris	Iridaceae	perennial rhizomatous herb	4.2	S3.2	G3
Leptosiphon croceus	coast yellow leptosiphon	Polemoniaceae	annual herb	1B.1	S1	G1
Leptosiphon rosaceus	rose leptosiphon	Polemoniaceae	annual herb	1B.1	S1	G1
Lessingia arachnoidea	Crystal Springs lessingia	Asteraceae	annual herb	1B.2	S1	G1
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	3	S3	G3
Lupinus arboreus var. eximius	San Mateo tree lupine	Fabaceae	perennial evergreen shrub	3.2	S2.2	G2Q
Malacothamnus aboriginum	Indian Valley bush-mallow	Malvaceae	perennial deciduous shrub	1B.2	S2	G2
Malacothamnus arcuatus	arcuate bush-mallow	Malvaceae	perennial evergreen shrub	1B.2	S2.2	G2Q
Malacothamnus davidsonii	Davidson's bush-mallow	Malvaceae	perennial deciduous shrub	1B.2	S2	G2
Malacothamnus hallii	Hall's bush-mallow	Malvaceae	perennial evergreen shrub	1B.2	S2	G2Q
Monolopia gracilens	woodland woolythreads	Asteraceae	annual herb	1B.2	S2S3	G2G3
Pentachaeta bellidiflora	white-rayed pentachaeta	Asteraceae	annual herb	1B.1	S1	G1
Plagiobothrys chorisianus var. chorisianus	Choris' popcorn-flower	Boraginaceae	annual herb	1B.2	S2.2	G3T2Q
Polemonium carneum	Oregon polemonium	Polemoniaceae	perennial herb	2B.2	S1	G4
Potentilla hickmanii	Hickman's cinquefoil	Rosaceae	perennial herb	1B.1	S1	G1
Silene verecunda ssp. verecunda	San Francisco campion	Caryophyllaceae	perennial herb	1B.2	S2.2	G5T2
Triphysaria floribunda	San Francisco owl's-clover	Orobanchaceae	annual herb	1B.2	S2.2	G2
Triquetrella californica	coastal triquetrella	Pottiaceae	moss	1B.2	S1	G1

Suggested Citation

California Native Plant Society (CNPS). 2013. Inventory of Rare and Endangered Plants (online edition, v8-

02). California Native Plant Society. Sacramento, CA. Accessed on Monday, November 18, 2013.

Search the Inventory

Simple Search

Advanced Search

Glossary

Information

About the Inventory

About the Rare Plant Program

CNPS Home Page

About CNPS

Join CNPS

Contributors

The Calflora Database

© Copyright 2010 California Native Plant Society. All rights reserved.

CNPS California Native Plant Society Rare and Endangered Plant Inventory

Plant List

2 matches found. *Click on scientific name for details*

Search Criteria

Found in Quad 37122E2

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Chloropyron maritimum ssp. palustre	Point Reyes bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.2	S2	G4?T2
Navarretia myersii ssp. myersii	pincushion navarretia	Polemoniaceae	annual herb	1B.1	S1	G1T1

Suggested Citation

California Native Plant Society (CNPS). 2013. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society. Sacramento, CA. Accessed on Monday, November 18, 2013.

Search the Inventory

Simple Search
Advanced Search
Glossary

Information

About the Inventory
About the Rare Plant Program
CNPS Home Page
About CNPS
Join CNPS

Contributors

The Calflora Database

© Copyright 2010 California Native Plant Society. All rights reserved.

CNPS California Native Plant Soc Rare and Endangered Plant Inventory

Plant List

32 matches found. *Click on scientific name for details*

Search Criteria

Found in Quad 37122E3

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Acanthomintha duttonii	San Mateo thorn-mint	Lamiaceae	annual herb	1B.1	S1	G1
Allium peninsulare var. franciscanum	Franciscan onion	Alliaceae	perennial bulbiferous herb	1B.2	S2.2	G5T2
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	1B.2	S2?	G2?
Arctostaphylos andersonii	Anderson's manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2?	G2
Arctostaphylos montaraensis	Montara manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2.2	G2
Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	Fabaceae	perennial herb	1B.2	S2.2	G2T2
Calochortus umbellatus	Oakland star-tulip	Liliaceae	perennial bulbiferous herb	4.2	S3.2	G3
Castilleja ambigua var. ambigua	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	4.2	S3	G4T3T4
Chloropyron maritimum ssp. palustre	Point Reyes bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.2	S2	G4?T2
Chorizanthe cuspidata var. cuspidata	San Francisco Bay spineflower	Polygonaceae	annual herb	1B.2	S2.2	G2T2
Cirsium fontinale var. fontinale	Crystal Springs fountain thistle	Asteraceae	perennial herb	1B.1	S1	G2T1
Collinsia multicolor	San Francisco collinsia	Plantaginaceae	annual herb	1B.2	S2.2	G2
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	1B.2	S2S3	G2G3
Elymus californicus	California bottle-brush grass	Poaceae	perennial herb	4.3	S3.3	G3
Eriophyllum latilobum	San Mateo woolly sunflower	Asteraceae	perennial herb	1B.1	S1	G1
Erysimum franciscanum	San Francisco wallflower	Brassicaceae	perennial herb	4.2	S3.2	G3
Fritillaria biflora var. ineziana	Hillsborough chocolate lily	Liliaceae	perennial bulbiferous herb	1B.1	S1	G1QT1Q

Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	1B.2	S2	G2
Hesperevax sparsiflora var. brevifolia	short-leaved evax	Asteraceae	annual herb	1B.2	S2S3	G4T2T3
Hesperolinon congestum	Marin western flax	Linaceae	annual herb	1B.1	S2	G2
Lessingia arachnoidea	Crystal Springs lessingia	Asteraceae	annual herb	1B.2	S1	G1
Lilium maritimum	coast lily	Liliaceae	perennial bulbiferous herb	1B.1	S2	G2
Lupinus arboreus var. eximius	San Mateo tree lupine	Fabaceae	perennial evergreen shrub	3.2	S2.2	G2Q
Malacothamnus arcuatus	arcuate bush-mallow	Malvaceae	perennial evergreen shrub	1B.2	S2.2	G2Q
Malacothamnus davidsonii	Davidson's bush-mallow	Malvaceae	perennial deciduous shrub	1B.2	S2	G2
Malacothamnus hallii	Hall's bush-mallow	Malvaceae	perennial evergreen shrub	1B.2	S2	G2Q
Monolopia gracilens	woodland woolythreads	Asteraceae	annual herb	1B.2	S2S3	G2G3
Pentachaeta bellidiflora	white-rayed pentachaeta	Asteraceae	annual herb	1B.1	S1	G1
Polemonium carneum	Oregon polemonium	Polemoniaceae	perennial herb	2B.2	S1	G4
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb	4.2	S3.2	G4
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	1B.2	S2	G2
Triphysaria floribunda	San Francisco owl's-clover	Orobanchaceae	annual herb	1B.2	S2.2	G2

Suggested Citation

California Native Plant Society (CNPS). 2013. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society. Sacramento, CA. Accessed on Monday, November 18, 2013.

Search the Inventory

Simple Search
Advanced Search
Glossary

Information

About the Inventory
About the Rare Plant Program
CNPS Home Page
About CNPS
Join CNPS

Contributors

The Calflora Database

© Copyright 2010 California Native Plant Society. All rights reserved.

CNPS California Native Plant Soc Rare and Endangered Plant Inventory

Plant List

27 matches found. *Click on scientific name for details*

Search Criteria

Found in Quad 37122D3

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Acanthomintha duttonii	San Mateo thorn-mint	Lamiaceae	annual herb	1B.1	S1	G1
Allium peninsulare var. franciscanum	Franciscan onion	Alliaceae	perennial bulbiferous herb	1B.2	S2.2	G5T2
Arctostaphylos andersonii	Anderson's manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2?	G2
Arctostaphylos regismontana	Kings Mountain manzanita	Ericaceae	perennial evergreen shrub	1B.2	S2.2	G2
Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	Fabaceae	perennial herb	1B.2	S2.2	G2T2
Calandrinia breweri	Brewer's calandrinia	Montiaceae	annual herb	4.2	S3.2?	G4
Calochortus umbellatus	Oakland star-tulip	Liliaceae	perennial bulbiferous herb	4.2	S3.2	G3
Cirsium fontinale var. fontinale	Crystal Springs fountain thistle	Asteraceae	perennial herb	1B.1	S1	G2T1
Collinsia multicolor	San Francisco collinsia	Plantaginaceae	annual herb	1B.2	S2.2	G2
Cypripedium fasciculatum	clustered lady's-slipper	Orchidaceae	perennial rhizomatous herb	4.2	S3.2	G4
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	1B.2	S2S3	G2G3
Elymus californicus	California bottle-brush grass	Poaceae	perennial herb	4.3	S3.3	G3
Erysimum franciscanum	San Francisco wallflower	Brassicaceae	perennial herb	4.2	S3.2	G3
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	1B.2	S2	G2
Hesperolinon congestum	Marin western flax	Linaceae	annual herb	1B.1	S2	G2
Leptosiphon ambiguus	serpentine leptosiphon	Polemoniaceae	annual herb	4.2	S3.2	G3
Lessingia arachnoidea	Crystal Springs lessingia	Asteraceae	annual herb	1B.2	S1	G1
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	3	S3	G3

Lupinus arboreus var. eximius	San Mateo tree lupine	Fabaceae	perennial evergreen shrub	3.2	S2.2	G2Q
Malacothamnus arcuatus	arcuate bush-mallow	Malvaceae	perennial evergreen shrub	1B.2	S2.2	G2Q
Malacothamnus davidsonii	Davidson's bush-mallow	Malvaceae	perennial deciduous shrub	1B.2	S2	G2
Monolopia gracilens	woodland woolythreads	Asteraceae	annual herb	1B.2	S2S3	G2G3
Pedicularis dudleyi	Dudley's lousewort	Orobanchaceae	perennial herb	1B.2	S2	G2
Pentachaeta bellidiflora	white-rayed pentachaeta	Asteraceae	annual herb	1B.1	S1	G1
Plagiobothrys chorisianus var. chorisianus	Choris' popcorn-flower	Boraginaceae	annual herb	1B.2	S2.2	G3T2Q
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb	4.2	S3.2	G4
Silene verecunda ssp. verecunda	San Francisco campion	Caryophyllaceae	perennial herb	1B.2	S2.2	G5T2

Suggested Citation

California Native Plant Society (CNPS). 2013. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society. Sacramento, CA. Accessed on Monday, November 18, 2013.

Search the Inventory

Simple Search

Advanced Search

Glossary

Information

About the Inventory

About the Rare Plant Program

CNPS Home Page

About CNPS

Join CNPS

Contributors

The Calflora Database

© Copyright 2010 California Native Plant Society. All rights reserved.

COAST RIDGE ECOLOGY

BIOLOGICAL SURVEYS • MONITORING • PERMITTING • RESEARCH

April 11, 2015

Dennis Thomas
San Mateo Real Estate, Inc.
1777 Borel Place, Suite 330
San Mateo, CA 94402

RE: ***Results of 2015 Rare Plant Surveys and Update on Mission Blue / Pardalis Blue Butterfly Habitat and Nesting Raptor Surveys on the Ascension Heights Subdivision Project Site in San Mateo County, California.***

Dear Mr. Thomas,

Per you request, we conducted rare plant surveys, nesting raptor surveys and assessed Mission blue /Pardalis blue butterfly habitat on the proposed Ascension Heights Subdivision Project in San Mateo County, California. The results are provided herein.

2015 RARE PLANT SURVEYS

These surveys were timed to coincide with the periods when these plants would be the most visible and detectable by botanical surveyors. The approximately 13.3 acre project site is located within the unincorporated community of San Mateo Highlands at the northeast corner of Bel Aire Road and Ascension Drive. The project site is largely undeveloped except for a paved road that runs from the north corner at Bel Aire Drive to near the south eastern edge of the site. The paved road provides access to a water tank and a cellular transmitter tower that are surrounded by, but not a part of the project site. Single family residential neighborhoods are the primary land use bounding the project site. Elevations on the site range from approximately 450 feet at the southern corner of the project site to approximately 620 feet at the water tank.

The *Final Environmental Impact Report San Mateo County Ascension Heights Subdivision Project Volume II – Revised Draft EIR* (2014) identified a list of eleven special-status plant species with the potential to occur on the Ascension Heights Subdivision Project site. Four of the species identified - Indian Valley bush-mallow (*Malacothamnus aboriginum*), Arcuate bush mallow (*M. arcuatus*), Davidson's bush-mallow(*M. davidsonii*) and San Francisco campion (*Silene verecunda ssp. verecunda*) - were eliminated from the potential to occur list based on a botanical survey conducted on the site on July 25, 2013 by Analytical Environmental Services. Because the 2013 survey was conducted outside of the time period when the remaining seven species would be evident and identifiable, additional focused botanical surveys were recommended in order to determine potential project impacts to these species. The seven plant species recommended for additional surveys include bent-flowered fiddleneck (*Amsinckia lunaris*), San Francisco collinsia (*Collinsia multicolor*), western leatherwood (*Dirca occidentalis*), San Mateo woolly sunflower (*Eriophyllum latilobum*), fragrant frillary

(*Fritillaria liliacea*), Dudley's lousewort (*Pedicularis dudleyi*) and white-rayed pentachaeta (*Pentachaeta bellidiflora*).

SURVEY METHODS

Botanical surveys were conducted by botanist Neal Kramer of Kramer Botanical and Patrick Kobernus of Coast Ridge Ecology in spring 2015. Neal Kramer has over 20 years experience conducted botanical and rare plant surveys in the San Francisco Bay Area, and Patrick Kobernus has over 20 years experience conducting rare plant and wildlife surveys within the San Francisco Bay Area. Both Mr. Kramer and Mr. Kobernus have conducted extensive survey work within San Mateo County.

In early March 2015, reference site visits in the vicinity of the proposed project confirmed that western leatherwood, fragrant fritillary and white-rayed pentacheata were evident and identifiable. As a result, a focused survey for these target species was conducted on the project site on March 3, 2015.

In late March 2015, reference site visits within 2 miles of the project site confirmed that bent-flowered fiddleneck, San Francisco collinsia and San Mateo woolly sunflower were evident and identifiable. Although no reference site for Dudley's lousewort was readily accessible in the project vicinity, the closely related warrior's plume (*Pedicularis densiflora*) with similar phenology was observed in full bloom in late March within 3 miles of the project site. Therefore, a second focused survey was conducted on the project site for these four target species on March 27, 2015.

During the March 3rd and March 27th surveys, Kramer Botanical botanist Neal Kramer and Coast Ridge Ecology biologist Patrick Kobernus walked the entire project site looking for the target special-status plant species. Walking transects were chosen to ensure 100% visual coverage of the entire project area. Although target species were a special focus, the surveys were floristic in nature and all plant species identifiable during the surveys were recorded in a field notebook. A complete list of plant species observed on the Ascension Heights Subdivision project site is included at the end of this report.

RESULTS

No rare plants, including western leatherwood, fragrant fritillary, white-rayed pentachaeta, bent-flowered fiddleneck, San Francisco collinsia, San Mateo woolly sunflower or Dudley's lousewort were found on the project site during the two March 2015 rare plant surveys. Based on these results, we conclude that the proposed development project will not adversely impact any of these special-status plant species.

2015 UPDATE ON MISSION BLUE BUTTERFLY HABITAT

Because the rare plant survey also included a floristic survey of the property to document all plant species encountered, locations of the Mission blue/ Pardalis blue butterfly host plant summer lupine (*Lupinus formosus*) were noted. The patches of this plant species were observed to be consistent with host plant locations observed during the mission blue surveys conducted on the property in 2005, 2008 and 2012 by Coast Ridge Ecology.

During the course of our 2015 rare plant surveys of the property we did not detect any summer lupine within the development envelope of the proposed Ascension Heights subdivision project.

It should be noted that the DEIR for the project misquoted the Mission blue/ Pardalis surveys that were conducted by Coast Ridge Ecology on the project site. The DEIR states (on page 4.3-14) that "***Three*** *biological surveys for the Mission blue butterfly have occurred on the project site in the spring and summer months of 2005, 2008, and 2012, during which 12 adult butterflies were observed*". In actuality, ***twenty-four*** biological surveys were done over the course of three separate years (2005, 2008 and 2012), including host plant mapping. Within each of these years, multiple surveys were done for Mission blue/ Pardalis blue butterflies on the site, with a total of 24 Mission blue/ Pardalis blue surveys conducted overall. During the course of those surveys, no Mission blue/ Pardalis blue butterflies, or their host plants, were detected within the proposed development envelope of the Ascension Heights project site.

2015 NESTING RAPTOR SURVEYS

The property was walked and surveyed for nesting raptors on March 5, 2015 and April 10, 2015 by biologist Patrick Kobernus. Tree groves on adjacent properties were also searched for any potential raptor nests or nesting activity. The surveys were conducted during the raptor breeding season which is typically from February 15 through August 31. The surveys were conducted from approximately 7:30 AM to 10:00 AM during appropriate weather (clear skies, no wind and air temperatures in the low 50's to upper 60's. The site was walked inspected for any raptor nesting activity (e.g. calling, pair bonding behaviors, nest material carries), as well as any raptor nests. No raptor nests or raptor nesting activity was observed on the property.

Most of the trees on site (mostly *Pinus sp.*) do not provide suitable raptor nesting habitat due to wind exposure and lack of large supportive branches that could support raptor nests. The only raptor activity observed on site was one red-tailed hawk that was observed roosting in the top of a pine tree for approximately 30 minutes during the April 10 survey. During botanical surveys of the site during March and April 2015, a few turkey vultures and red-tailed hawks were observed flying over the site.

The eucalyptus grove on the south side of the property (which is outside the proposed building envelope) provides some potential as nesting habitat for raptors such as red-tailed hawk, red-shouldered hawk and great-horned owl. Within this grove, a few crows were observed within a broken top Eucalyptus tree on the April 10 survey, and they may be building a nest in this location. No raptor activity was observed in this grove of trees.

No special status raptors such as burrowing owls, northern harriers or white tailed kites were observed and it is highly unlikely these species would nest on site due to a lack of suitable nesting habitat.

- Burrowing owls nest on the ground within ground squirrel burrows, or manmade holes/ culverts for nesting. No ground squirrel burrows or suitable habitat to support burrowing owls was observed on site.

- Northern harriers nest on the ground, mostly within patches of dense, often tall, vegetation in undisturbed areas (MacWhirter and Bildstein 1996). The property is comprised of primarily open grassland and trees, and does not provide the type of dense cover that would support northern harriers.

- White-tailed kites nest within lowland grasslands, agriculture, wetlands, oak-woodland and savannah habitats, and riparian areas associated with open areas. They typically do not nest on steep hillsides, which is the primary topography on the property.

If you have questions regarding this survey report, please don't hesitate to contact us.

Sincerely,

Patrick Kobernus
Principal and Senior Biologist
Coast Ridge Ecology

Neal Kramer, M.S.
Botanist/Ecologist, Certified arborist
Kramer Botanical

References

Kobernus, Patrick, 2014. RE: 2012 Mission Blue Butterfly Surveys at Ascension Heights Project Area, San Mateo, California. Letter from Patrick Kobernus of Coast Ridge Ecology to Mr. Dennis Thomas on February 6, 2014.

Kobernus, Patrick, 2008. Results of 2008 Mission Blue Butterfly Surveys at Ascension Property San Mateo County, California, Prepared for: San Mateo Real Estate and Construction, Inc., September 12, 2008.

MacWhirter, R. B., and Bildstein, K. L. 1996. Northern Harrier (*Circus cyaneus*), in The Birds of North America (A. Poole and F. Gill, eds.), no. 210. Acad. Nat. Sci., Philadelphia.

San Mateo County, 2014. Draft EIR for the Ascension Heights Subdivision Project, San Mateo, California. San Mateo County Planning and Building Department. Prepared by Analytical Environmental Services, April 2014. https://planning.smcgov.org/sites/planning.smcgov.org/files/PLN2002-00517_FEIR-Vol2_DEIR_0.pdf

Plant Species List for Ascension Heights Subdivision Project Site

The plant species listed below were observed on the project site during surveys conducted by Kramer Botanical botanist Neal Kramer and Coast Ridge Ecology biologist Patrick Kobernus on March 3 and March 27, 2015. Scientific nomenclature follows *The Jepson Manual (*Baldwin 2012).

* Indicates introduced non-native species.

Scientific Name	Common Name
AGAVACEAE - Agave Family	
Chlorogalum pomeridianum	soap plant, amole
AMARYLLIDACEAE - Amaryllis Family	
*Amaryllis belladonna**	naked lady
*Narcissus pseudonarcissus**	daffodil
ANACARDIACEAE - Sumac or Cashew Family	
Toxicodendron diversilobum	poison oak
APIACEAE - Carrot Family	
*Foeniculum vulgare**	sweet fennel
Sanicula bipinnatifida	purple sanicula, shoe buttons
Sanicula crassicaulis	Pacifica sanicula
*Scandix pecten-veneris**	shepherd's needle
ARALIACEAE - Ginseng Family	
*Hedera helix**	English ivy
ASTERACEAE - Sunflower Family	
Achillea millefolium	yarrow
Baccharis pilularis	coyote brush
*Carduus pycnocephalus**	Italian thistle
*Cirsium vulgare**	bull thistle
*Crepis vesicaria ssp. taraxacifolia**	Weedy hawksbeard
Erigeron canadensis	horseweed
Erigeron foliosus var. foliosus	leafy fleabane
Gnaphalium californicum	California cudweed
*Helminthotheca echioides**	bristly ox-tounge
Heterotheca sessiliflora	golden aster
*Hypochaeris glabra**	smooth cat's ear
*Hypochaeris radicata**	rough cat's-ear
*Logfia gallica**	narrow leaved filago
*Pseudognaphalium luteoalbum**	weedy cudweed
*Silybum marianum**	milk thistle
Solidago velutina ssp. californica	California goldenrod
*Soliva sessilis**	common soliva
*Sonchus asper ssp. asper**	prickly sow thistle
*Sonchus oleraceus**	common sow thistle
Symphyotrichum chilense	Pacific aster
*Taraxacum officinale**	dandelion
Wyethia angustifolia	narrow-leaved mules ears

BRASSICACEAE - Mustard Family	
Cardamine oligosperma	bitter cress
*Hirschfeldia incana**	summer mustard
CAPRIFOLIACEAE - Honeysuckle Family	
Symphoricarpos mollis	creeping snowberry
CARYOPHYLLACEAE - Pink Family	
*Cerastium glomeratum**	mouse-eared chickweed
*Silene gallica**	common catchfly, windmill pink
CELASTRACEAE - Staff-Tree Family	
*Maytenus boaria**	mayten
CISTACEAE - Rock-Rose Family	
*Cistus incanus**	rock-rose
CONVOLVULACEAE - Morning-Glory or Bindweed Family	
Calystegia subacaulis	stemless/hill morning-glory
CUCURBITACEAE - Gourd Family	
Marah fabaceus	California man-root
CUPRESSACEAE - Cypress Family	
*Hesperocyparis macrocrapa**	Monterey cypress
Sequoia sempervirens	coast redwood
CYPERACEAE - Sedge Family	
Carex spp.	sedge
DIPSACACEAE - Teasel Family	
*Dipsacus sp.**	teasel
DRYOPTERIDACEAE - Wood Fern Family	
Dryopteris arguta	coastal wood fern
EUPHORBIACEAE - Spurge Family	
*Euphorbia peplus**	petty spurge
FABACEAE - Legume Family	
*Acacia longifolia**	Sydney golden wattle
*Acacia dealbata**	silver wattle
Acmispon wrangelianus	calf lotus
*Genista monspessulana**	French broom
*Lotus corniculatus**	bird's foot trefoil
Lupinus bicolor	miniature lupine, Lindley's annual lupine
Lupinus formosus var. formosus	summer lupine
Lupinus succulentus	arroyo lupine
*Medicago polymorpha**	burclover
*Trifolium campestre**	hop clover
*Trifolium subterraneum**	subterraneum clover
Vicia americana var. americana	American vetch
*Vicia sativa**	common vetch
*Vicia villosa**	hairy/winter vetch
FAGACEAE - Oak Family	
Quercus agrifolia	coast live oak
GERANIACEAE - Geranium Family	
*Erodium cicutarium**	red-stemmed filaree
*Erodium botrys**	broad-leaved filaree
*Geranium dissectum**	cut-leaved geranium
IRIDACEAE - Iris Family	
*Freesia refracta**	freesia
Sisyrinchium bellum	blue-eyed-grass

JUNCACEAE - Rush Family	
Juncus occidentalis	Western rush
Juncus patens	common/spreading rush
Luzula comosa	wood rush
LAMIACEAE - Mint Family	
Clinopodium douglasii	yerba buena
*Lavendula sp.**	lavender
*Rosmarinus officinalis**	rosemary
Stachys sp.	hedge nettle
LAURACEAE - Laurel Family	
Umbellularia californica	California bay
LINACEAE - Flax Family	
*Linum bienne**	Narrowleaf flax
MALVACEAE - Mallow Family	
Sidalcea malviflora ssp. laciniata	checker bloom
MONTIACEAE - Miner's Lettuce Family	
Claytonia perfoliata ssp. perfoliata	miner's lettuce
MYRTACEAE - Myrtle Family	
*Eucalyptus globulus**	blue gum
*Eucalyptus polyanthemos**	silver dollar gum
*Eucalyptus sideroxylon**	red ironbark
ONAGRACEAE - Evening primrose Family	
Taraxia ovata	sun cup
OROBANCHACEAE - Broom-Rape Family	
*Bellardia trixago**	bellardia
OXALIDACEAE - Oxalis Family	
*Oxalis pes-caprae**	Bermuda buttercup
PAPAVERACEAE - Poppy Family	
Eschscholzia californica	California poppy
PINACEAE - Pine Family	
*Pinus halepensis**	Aleppo pine
*Pinus pinea**	Italian stone pine
*Pinus radiata**	Monterey pine
PLANTAGINACEAE - Plantain Family	
*Plantago lanceolata**	English plantain
POACEAE - Grass Family	
*Aira caryophyllea**	silver hair grass
*Avena barbata**	slender wild oat
*Brachypodium distachyon**	Annual false brome
*Briza minor**	little quaking grass
Bromus carinatus var. carinatus	California brome
*Bromus diandrus**	ripgut brome
*Bromus hordeaceus**	soft chess
Bromus laevipes	woodland brome
*Cenchrus echinatus**	southern sandbur
*Cortaderia jubata**	pampas grass
Danthonia californica var. californica	California oatgrass
*Ehrharta erecta**	upright veldtgrass
Elymus glaucus	blue wildrye
*Festuca bromoides**	six-week fescue
*Festuca perennis**	rye grass
*Hordeum marinum ssp. gussoneanum**	Mediterranean barley

*Hordeum murinum ssp. leporinum**	barnyard foxtail, foxtail barley
*Phalaris aquatica**	Harding grass
*Poa annua**	annual bluegrass
Stipa pulchra	purple needlegrass
POLYGONACEAE - Buckwheat Family	
Eriogonum nudum	naked buckwheat
*Rumex acetosella**	sheep sorrel
*Rumex crispus**	curly dock
*Rumex pulcher**	fiddle dock
PROTEACEAE - Protea Family	
*Grevillea rosmarinifolia**	rosemary grevillea
PTERIDACEAE - Brake Family	
Pentagramma triangularis ssp. triangularis	goldback fern
RANUNCULACEAE - Buttercup Family	
Ranunculus californicus	California buttercup
ROSACEAE - Rose Family	
*Chaenomeles sp.**	quince
*Cotoneaster lacteus**	Parney's cotoneaster
*Cotoneaster pannosus**	silverleaf cotoneaster
Heteromeles arbutifolia	toyon, Christmas berry
Horkelia californica	horkelia
*Pyracantha angustifolia**	pyracantha
*Prunus cerasifera**	cherry plum
*Rosa multiflora**	multiflora rose
Rubus ursinus	California blackberry
RUBIACEAE - Madder Family	
Galium aparine	goose grass, bedstraw
*Sherardia arvensis**	field madder
THEMIDACEAE - Brodiaea Family	
Dichelostemma capitatum ssp. capitatum	blue dicks

APPENDIX E

GEOTECHNICAL REPORT

Michelucci & Associates, Inc.
Geotechnical Consultants

Joseph Michelucci, G.E.
joe@michelucci.com

Richard Quarry
rich@michelucci.com

December 5, 2013
Job No. 13-4309

Trenton Wilson
Analytical Environmental Services
1801 7th Street Suite 100
Sacramento, CA 95811

Re: Supplemental Geotechnical Investigation
Proposed Ascension Heights Subdivision
San Mateo County, California

Dear Mr. Wilson:

As authorized, we have completed a supplemental geotechnical investigation at the site of the planned Ascension Heights Subdivision located in San Mateo County, California. During 2002 our firm completed a study for a then planned larger project, the results of which were included in a comprehensive geotechnical report dated December 16, 2002. We have combined many of our findings/recommendations from the 2002 report with this supplemental report.

The purposes of our current study were to further evaluate the current conditions of the property and to determine if the site conditions have changed since the issuance of our 2002 report. As part of this report, we have also provided updated geotechnical recommendations and design criteria for specific items such as changes to the seismic building code.

The accompanying report summarizes our current opinions regarding the site soil and bedrock conditions and provides updated recommendations, as needed.

It is a pleasure working with you on this project. Please contact us with any questions or comments.

Very truly yours,
MICHELUCCI & ASSOCIATES, INC.

Joseph Michelucci
Geotechnical Engineer #593
(Expires 3/31/2015)

REGISTERED PROFESSIONAL ENGINEER
JOSEPH M. MICHELUCCI
No. GE 000593
Exp. 3 31 15
GEOTECHNICAL
STATE OF CALIFORNIA

SUPPLEMENTAL GEOTECHNICAL INVESTIGATION

Proposed Ascension Heights Subdivision
San Mateo County
California

Prepared for:

Analytical Environmental Services
Attn: Trenton Wilson

December 5, 2013

TABLE OF CONTENTS

SUPPLEMENTAL GEOTECHNICAL INVESTIGATION
PROPOSED ASCENSION HEIGHTS SUBDIVISION
SAN MATEO COUNTY, CALIFORNIA

INTRODUCTION

Our firm completed a comprehensive "Geotechnical and Engineering Geologic Investigation" of the site and issued a report dated December 16, 2002. The findings and recommendations, the test boring and test pit logs and the other figures of the 2002 report are included in this updated report, and where necessary, modifications have been made to the recommendations and figures (i.e., the Site Plan, Figure 3) to ensure that the most relevant and up to date information is shown as it relates to the currently proposed development.

The purpose of our 2002 study was to evaluate the soil and bedrock conditions that occur at the site, and to provide recommendations and design criteria pertaining to building foundations, site grading, retaining walls, drainage, erosion repair, and other items that relate to the site soil and geologic conditions.

DISCUSSION

This report covers our supplemental investigation of the soil and bedrock conditions that occur at the site of the proposed 13.32 acre residential development located adjacent to Ascension Drive and Bel Aire Road, near San Mateo, in unincorporated San Mateo County, California. The location of the site is shown on the Site Vicinity Map, included as Figure 1. The regional geologic setting is illustrated on Figure 2. An overview of the currently planned development, which includes the locations of test borings and exploration test pits associated with our 2002 study, is depicted on the attached Site Plan/Engineering Geology Map, Figure 3.

DESCRIPTION OF PROJECT

The hillside project site is located along the sides of a knoll and is currently unimproved with the exception of a large cylindrical water tank, which is owned by the California Water Service and a paved road that services the tank. We understand that future plans will call for the development of 19 building lots that will eventually be improved with single-family dwellings. Access to the subdivision will be from Bel Aire Road, as shown on Figure 3. The roadway currently leading to the water tank is to be abandoned, and access to the 0.52 acre Water Service property at the top of the hill will be from a new driveway just west of one of two private streets that are to be constructed, also as shown on Figure 3.

Current plans call for excavating on the order of 46,500 cubic yards of soil and bedrock and the placement of about 20,000 cubic yards of engineered fill. Thus, on the order of 26,500 cubic yards of material will be removed from the site. The project will also feature improvement of site drainage (several retention systems are to allow water to eventually be disposed of in the public storm drains) and the repair of previous erosional features along existing cut slopes associated with the original development of Ascension Drive and Bel Aire Road, between 1955 and 1961.

SCOPE OF SERVICES

Our supplemental study included:

1. A site inspection by members of our staff to evaluate if conditions have changed since our 2002 study;

2. A review of our file that led to our December 16, 2002 study, which included a previous soil investigation of the subject property prepared in 1979 by Terrasearch, Inc., that included the logs of 8 test borings which are appended to the end of this report and a 1981 geotechnical feasibility investigation (with no additional subsurface information) by R. C. Harlan and Associates;

3. A review of information in our files generated after our 2002 study, including notes made during public meetings and hearings regarding the project and a revised environmental impact report prepared by Analytical Environmental Services, title, "County of San Mateo, Ascension Heights Subdivision Project, Revised Environmental Impact Report," dated September 27, 2012;

4. The review of a "Vesting Tentative Subdivision Map" (sheets C-1 through C-7), prepared by Lea & Sung Engineering, Inc., dated July 1, 2013;

5. Discussions with Jim Toby of Lea & Sung Engineering;

6. Review of the current building code requirements regarding seismic recommendations;

7. The performance of geotechnical engineering analysis utilizing the above items; and,

8. The preparation of this report.

FIELD INVESTIGATION AND LABORATORY TESTS

In order to evaluate the geotechnical engineering characteristics of the soil and bedrock layers which underlie the site, 19 borings were drilled in late 2002 at the approximate locations indicated on the attached Site Plan/Engineering Geology Map, Figure 3. The borings were drilled under the supervision of our staff geologist and geotechnical engineer during November and December 2002, with track-mounted, portable "Minuteman", and hand augering equipment. Relatively undisturbed samples were recovered from the borings at selected intervals with free-falling, 70- to 140-pound hammers (with 30-inch drops) and a hydraulic hammer advancing modified California drive and standard penetration samplers 18 inches into the subsurface soil and rock layers.

As the borings were excavated, logs of the materials encountered were prepared based upon an inspection of the recovered samples and auger cuttings. The final Boring Logs, as presented on the attached Figures 4 through 22, are based upon the field logs with occasional modifications made upon further laboratory examinations of the recovered samples and laboratory test results.

Laboratory tests performed in 2002 included the determinations of moisture content, dry density and unconfined compressive strength of selected samples. The results of these tests, along with the resistance to penetration of the sampler, are listed opposite the corresponding sample location on the final Boring Logs, Figures 4 through 22.

We also logged the excavation of 16 test pits in 2002 that were made with a backhoe. Logs of the test pits are included on the attached Figures 23 through 38. The approximate locations of the test pits are also included on Figure 3. We have also included the approximate locations of the 8 test borings excavated by Terrasearch, Inc., as part of their 1979 report on Figure 3 (7 of the 8 the Terrasearch logs have been appended to the end of this report).

In addition, we performed a plasticity index test upon a representative sample of the near surface soils. The results of this test, which are useful in evaluating the shrink-swell characteristics of the material tested, are included on the attached Figure 39.

SITE CONDITIONS

Our recent site visit suggests that the conditions at the property are virtually identical at the present time to what they were in 2002.

The hillside property is located along an elongated knoll; the primary axis of the knoll is in a southeast/northwest direction. A water tank is located at the top of the knoll, and the lands around the tank are owned by the California Water Service, and are not a part of the proposed subdivision.

The topography in the areas to be developed slopes generally downward from the water tank pad at an average inclination that is on the order of 2 horizontal to 1 vertical. The upper portions of the site are more gently sloping than the downhill areas, especially along the existing benched cut slopes along Ascension Drive and Bel Aire Road, which slope at an average of 1.9 horizontal to 1 vertical above Ascension Drive and 1.6 horizontal to 1 vertical above Bel Aire Road.

The maximum site elevation is approximately 714 feet, at the base of the water tank. The lowest elevation is approximately 502 feet, at the intersection of Ascension Drive and Bel Aire Road.

The property is covered with a growth of seasonal grass and bushes, along with scattered pines and a prominent grove of eucalyptus trees. An access road leading to the water tank from Bel Aire Road is paved with asphalt, and a few unpaved roadways and trails exist along the uphill portion of the property. The water tank access road reportedly overlies one of two buried water lines feeding or leading from the tank. The other line is located along a utility easement on the northeast-facing slope of the knoll.

Extensive soil erosion has occurred on portions of the site well away form areas where development is proposed. There are four primary areas where erosion has affected the existing cut/benched slopes above Ascension Drive and Bel Aire Road. These areas are shown on Figure 3. These areas are almost entirely located within the areas of previously excavated cuts, or originate along abandoned bulldozer tracks located at higher elevations. Areas of erosion occur broadly along the excavated slope cuts, and below or along surface drainage channels.

One relatively small, additional, area of erosion is located along the southeastern slope, below the water tank. This area appears to be a natural slope. The erosion reportedly occurred following a sudden large volume release from the water tank in the 1960s. It is not apparent on the 1961 aerial photos, but appears fresh on 1969 photos (see discussion of air photos in subsequent section of this report).

A small abandoned rock quarry is located southeast of the water tank. A few cubic yards of rock was removed from this location at some time in the past. Our recent observations at the site suggest that there has been very little change to the erosion areas during the past 11 years.

SOIL AND BEDROCK CONDITIONS

Our field investigation and testing program was completed in 2002, and as noted, our recent site visit suggests that the site conditions are virtually identical at the present time.

During our 2002 evaluation the surface soil conditions encountered at the site consisted generally of a thin layer of brown to tan brown sandy to silty clay (colluvium/residual soil). This material was commonly less than 3 feet thick, and tested very low in expansion potential (Figure 39).

The surface soil was primarily underlain by dense to very dense tan to yellow brown sandstone bedrock. It should be noted that the sandstone encountered in our exploratory borings and pits generally became less weathered and thus stronger and more cemented with depth. It should also be noted that none of the borings or test pits encountered shale or sheared rocks, which have been mapped elsewhere in the area. (As will be discussed in the "geology" section of this report, it is our opinion that the site is primarily underlain by Franciscan sandstone bedrock).

The sandstone was commonly fractured at shallow depths. Fracture orientations were variable, with no prominent out of slope fracturing. The fractures were observed at the ground surface within the slope cuts, and within test pits, although decreasing in number with depth. We did not observe indications of bedding within test pits or surficial rock exposures.

Groundwater was not encountered in any of the borings at the time of drilling. Groundwater levels, however, tend to fluctuate seasonally, and could rise to the depths explored in the future. Shallow, seasonal "perched" groundwater sometimes occurs in the topsoil layer when the soil is underlain by dense, less pervious, bedrock. We observed groundwater seepage in 2002 from the base of weathered rock and above the less pervious rock along Ascension Drive.

For a more complete description of the soil and bedrock layers encountered in the borings and test pits, refer to the final Boring and final Test Pit Logs, included as Figures 4 through 38.

REGIONAL GEOLOGIC SETTING

The site is located within the central region of the Coast Ranges Geomorphic Province, which extends from the Oregon border south to the Transverse Ranges. The general topography is characterized by subparallel, northwest trending mountain ranges and intervening valleys. The region has undergone a complex geologic history of sedimentation, volcanic activity, folding, faulting, uplift and erosion. The relatively flat-lying, alluviated San Francisco Bay Plain is situated to the east of the site; the uplifted Santa Cruz Mountains are located to the west of the site.

Based on Pampeyan (1981, 1994), the general site vicinity is mapped to be underlain by Cretaceous age Franciscan Complex bedrock (Figure 2, Regional Geology Map). The bedrock in the site vicinity consists of primarily shale, chert, sandstone and greenstone. These rocks are commonly sheared and distorted by past tectonic activity. Based on the geologic references, the site is underlain by the Franciscan "Sheared Rock" unit (often referred to as Franciscan "Melange"), and is described as predominantly sheared shale, siltstone and graywacke sandstone, containing various inclusions of other Franciscan rock types. The bedrock is overlain by younger unconsolidated residual and colluvial soil deposits. The unit commonly erodes to a "badlands-type" topography.

Pampeyan does not identify definitive bedding, shears, faults or landslides in the immediate vicinity.

SITE GEOLOGY

The site has been mapped to be underlain by Franciscan Complex "Sheared Rocks", which on a regional basis primarily consists of sheared shale, siltstone and sandstone. Based on our geologic mapping and the numerous test borings and test pits, the site is primarily underlain by dense to very dense sandstone bedrock.

There are no indications of extensive shearing, although two shear zones are noted by R.C. Harlan and Associates (1981). The locations are not identified within the Harlan report, although they are possibly shown on a site plan, which was absent from the report copy supplied to our office.

There are no indications of deep-seated soil or bedrock landsliding at the site. Shallow soil slumps appear on pre-development air photos, but are of limited extent, and were largely removed by the late 1950s site grading. A relatively broad, shallow bowl-shaped area occurs on the southwest slope (see Figure 3). We placed test pits and exploratory borings within this area, and observed shallow bedrock within a few feet of the ground surface, and no indications of landsliding.

There are no indications on the air photos or during our geologic mapping of debris flow scars or deposits.

The soil on the northeast-facing slope is relatively richer in clay and silt than elsewhere on the property. This has resulted in a thicker soil horizon and increased water content within the soil.

Extensive soil erosion and gullying has occurred above Ascension Drive and Bel Aire Road. Gullies approach 10 feet in depth, although most erosion is on the order of 2 to 3 feet deep. The erosion has occurred in residual soil and in highly weathered sandstone. The deepest gullies are primarily located within former bulldozer tracks and where benches and v-ditches discharge. Some areas of erosion, particularly along the eastern area of the southeast slope above Ascension Drive, appear to have developed in conjunction with shallow soil slumping on the order of one to two feet in depth.

There are no surface features that are indicative of active faulting at the site. The site does not lie within a State of California Earthquake Fault Zone (CDMG, 1974). The closest mapped active fault to the site is the San Andreas located approximately 1.1 miles (1.75 kilometers) to the southwest. The San Andreas, and numerous other active and potentially active Bay Area faults, are capable of producing moderate to major earthquakes that could cause severe ground shaking at the subject site in the future. This hazard is shared in some degree by all land and structures in the San Francisco Bay Area.

In 2002, we conducted a portion of our field investigation shortly following a rainfall period of approximately 2 days with precipitation on the order to 2 to 3 inches. At that time, we observed active seepage of water from the toe of the cut slope adjacent to Ascension Drive and from the base of the weathered rock horizon (overlying less weathered rock) 1 to 2 feet below the ground surface. It appears that the erosion occurs primarily within this zone, and that groundwater, except possibly as relatively slow seepage, does not penetrate to greater depth.

AIR PHOTO INTERPRETATION

As part of our 2002 study, we interpreted 9 sets of air photo stereo pairs, taken from 1946 through 2000. The specific photo pairs are listed in the References section of this report, which includes specific dates and scales. The photos provided a clear indication of the pre- and post-grading conditions of the site.

1946

The 1946 images pre-date grading in the vicinity. Although few of the existing cultural features, including the water tank, are present, the site location is easily discerned. Polhemus Road is the only road in the site vicinity. Random cattle paths and jeep tracks are located across the site and surrounding area. The site is a prominent isolated hill with a steep slope to the southwest and northwest, and lesser slopes in the other directions.

The slope is relatively uniform from the top of the hill to the current Ascension Drive location. The lower half of this slope exhibits apparent shallow soil slumping. The overall appearance of the site is of relatively shallow soil, with indications of near-surface bedrock. There is a broad swale from near the crest of the hill down towards Ascension Drive (see Figure 3). There are no indications of deep-seated landsliding or soil movement within this area or on other portions of the site. However, slopes below Ascension Drive (southwest of the site) are hummocky and have the appearance of landslides (landslides have occurred on these off-site slopes in recent years).

1955

The 1955 images pre-date the extensive subsequent grading in the site vicinity. Parrott Drive and adjacent residences have been constructed. There are erosion gullies on the slopes below Ascension Drive, off-site, but none on the site. This suggests a thicker soil profile downslope of the site.

1961

Ascension Drive and Bel Aire Road have been constructed, in conjunction with grading of the on-site slopes above the roads. Narrow benches have been constructed on the cuts, with v-ditches along the benches. Several ditches and equipment tracks are visible; these subsequently are the locations of soil erosion gullies.

1969

Extensive soil rill erosion is apparent on much of the cut faces. Current (2013), deep erosion gullies are located within or immediately below the dozer trails noted in the 1961 imagery. There is no significant erosion on natural (ungraded) slopes within the site, with the exception of one area southeast of the tank. This is the area of the reported earlier water release from the tank, although there is no apparent continuation of the erosion upslope to the tank in the 1969 images.

1975-2000

The site is effectively unchanged during this 25-year period. Vegetation matures over the years, but there are no indications of landsliding or additional significant erosion areas. The previously noted erosion continues to be evident and on-going, with some areas remaining barren of vegetation."

CONCLUSIONS

In our opinion, the site conditions remain essentially unchanged since our December 16, 2002 geotechnical investigation. Therefore, the recommendations provided in our 2002 report remain applicable and are repeated in the follow sections of this report (with appropriate revisions and supplemental recommendations to support the current building code).

It should be noted that the bedrock that underlies most of the site is extremely dense. Therefore, it is essential that grading equipment capable of excavating very dense rock be used. It will also be necessary to break down the rock if and when it is used as engineered fill.

RECOMMENDATIONS

The following recommendations are contingent upon our firm being retained to review the development plans and to observe the geotechnical aspects of construction.

A. Seismic Criteria Per 2010 CBC

As of January 1, 2011, the 2010 CBC is being utilized for projects in California. This new code is based upon the 2009 International Building Code.

It is our opinion that the subject site can be classified as Site Class "B" (a Rock profile) for the purpose of structural engineering calculations as defined in Section 1613 of the 2010 CBC.

B. Grading

All grading should be performed under the observation of a representative from our firm and in accordance with the attached "Guide Specifications for Engineered Fill". Prior to the commencement of grading, the areas to be graded should be stripped to remove all grass, weeds, and other deleterious materials.

In addition, brush and trees should be removed, along with their root systems. In areas to receive fill where trees are removed, it will be necessary to carefully backfill the stump excavations with engineered fill.

After the site has been stripped to our satisfaction, a key should be excavated at the toe of any planned fill slope. Actual key widths should be determined when grading commences, as it will vary slightly depending upon the width of the compaction equipment used. Generally, a 12 to 15 foot wide key will accommodate most compaction equipment. Fill can then be brought into the key in thin lifts, moistened or aerated as required, mixed, and compacted. All fills should be compacted to a minimum degree of compaction of 95 percent based upon ASTM D1557, latest revision.

As the level of the fill rises, horizontal benches should be excavated into the hillside, so that a strong bond is maintained between the newly placed engineered fill and strong rock.

The downhill side of the key excavation should have a minimum depth of 18 inches into strong bedrock. This will probably require that the keyways have overall depths on the order of 2 to 3 feet measured at the downslope edge of the key. All horizontal benches should remove the surface soil and extend into strong residual soil or dense bedrock as approved by our representative. The maximum finished fill slope inclination should not exceed 2 horizontal to 1 vertical (with the exception of areas where geogrid slope reinforcing material is used. In these areas steeper slopes may be considered).

All fill slopes should be somewhat overbuilt and then trimmed to expose strong compacted soil. Any cut slopes should also not exceed 1-1/2 horizontal to 1 vertical in bedrock, and the upper portion of cuts where any soil is exposed should be trimmed to 2 horizontal to 1 vertical in the upper 2 feet. All cut slopes should be inspected by our engineering geologist. If any unfavorable bedding or joint planes are encountered in the exposed bedrock, additional recommendations may be necessary.

It may be necessary to place subdrainage beneath fills that have a thickness greater than 4 feet, or in areas where seepages are encountered. All subsurface drainage should be constructed in accordance with the attached "Guide Specifications for Subsurface Drains".

The dense nature of the sandstone bedrock will require heavy grading equipment to allow successfully excavation. As noted, the density and cementation of the bedrock was found to increase with depth.

The above recommendations are illustrated in profile view on the attached Figure 40.

C. Repair of Erosional Features

As noted, several areas of erosion have occurred on the existing steep cut slopes above Bel Aire and Ascension Drive. There are a number of options that may be considered to stabilize these erosion features. The borings that we excavated in these areas encountered very strong, resistant sandstone bedrock at relatively shallow depths and this rock may be used as a "foundation" for various repair options.

One option would involve excavation and removal of the material affected by erosion (in areas where the topography allows a cut to "daylight" at acceptable inclinations). This option could be considered in the prominent gully above the Bel Aire/Ascension intersection.

Another option would involve excavation of a "keyway" at the base of the slope in the erosion areas (or in some cases where resistant rock is exposed at the base of the erosion area). The slope could then be rebuilt with compacted and drained engineered fill with a geogrid to allow slope reconstruction at a steep inclination (The manufacturer's specifications could be used to design grid type and grid spacing for various finished slope inclinations). We have included a typical detail for slope reconstruction utilizing geogrid on the attached Figure 41.

A third option would involve construction of structural retaining walls or terrace walls in the erosion areas. Consideration could be given to constructing a wall at the top of the eroded area and then trimming the erosional features away from below the wall.

Whatever options are chosen, it is essential that the finished slopes be planted with erosion resistant vegetation (and lined with a jute type mesh). Improvement of surface drainage above the repair areas and subsurface drainage (if regrading takes place) is important.

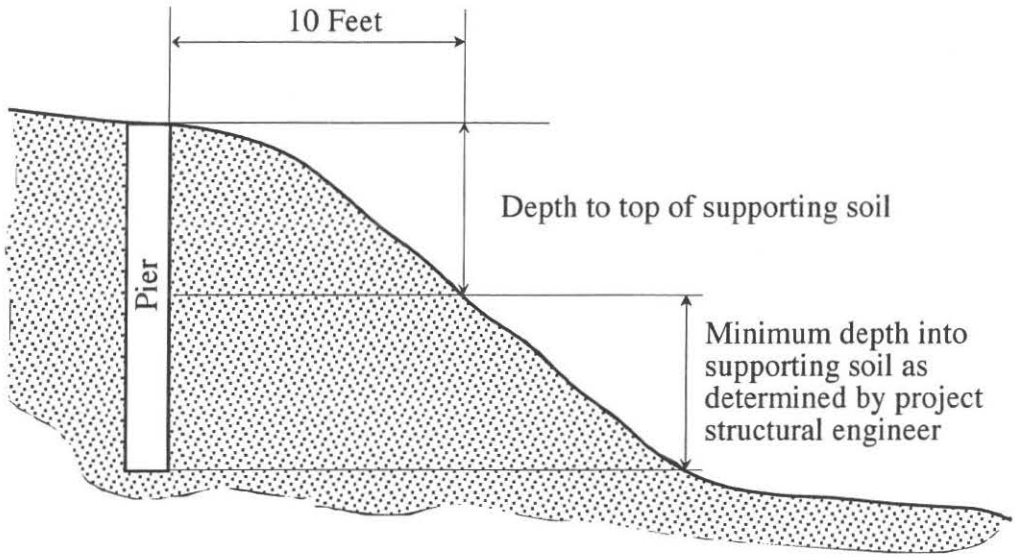
D. Foundations

In our opinion, the proposed residences may be constructed upon drilled, cast-in-place, reinforced concrete pier and grade beam foundations, or spread footings, whichever proves appropriate for the minimum depth criteria presented below. The chosen foundation system should anchor the proposed structures into strong bedrock.

D1. Drilled Piers

The bedrock at the site is very dense and drilling equipment capable of drilling through hard rock should be used. Drilled piers should be designed on the basis of a skin friction value of 500 psf beginning at the top of supporting material. In this case, the top of supporting material should be assumed to begin at a depth of 2 feet, 1 foot below the top of bedrock, or as defined by the "Rule of Ten" criteria illustrated below, whichever is deeper. The depth may be modified by our representative during construction, especially if very dense bedrock areas are encountered.

DRILLED PIER FOUNDATIONS



Pier depths should be based upon actual design loads at each pier location. However, as a minimum, the piers should extend 6 feet below the top of supporting material. Therefore, it is anticipated that average pier depths will be on the order of 8 to 11 feet below existing grades.

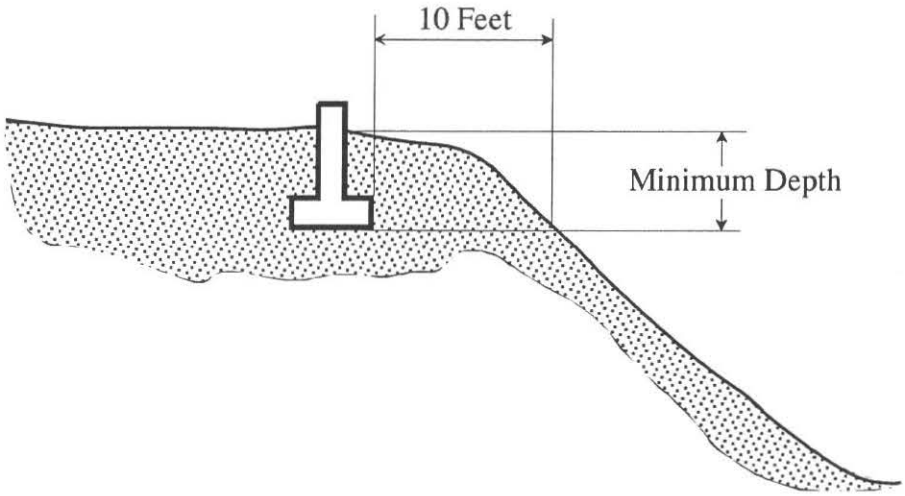
In addition to vertical loading, the piers should be designed to resist a horizontal "creep" load equal to a fluid weighing 50 pounds per cubic foot, which should be projected over 2 1/2 pier diameters. This lateral load should be designed to extend to a depth of 2 feet below finished grade. The piers can resist the lateral load through a passive resistance of 350 pounds per cubic foot, projected over 2 pier diameters. The passive value begins at the top of supporting material, as defined above. The creep load will not apply in areas that the upper few feet of soil has been excavated, or in areas that piers are to extend through engineered fill, as any weak surface soil will have been removed. It is suggested that the structural engineer contact us during the design phase, so that a specific lateral load criteria can be developed for each pier location.

Reinforcing for the piers should be determined by the structural engineer based upon anticipated loading.

D2. Spread Footings

Spread footings may be used if the footings extend to a minimum depth of 18 inches, 12 inches into strong bedrock, or as illustrated by the "Rule of Ten" criteria presented below, whichever is deeper. The "Rule of Ten" takes into account the reduction in bearing capacity that shallow foundations experience when located on or near sloping terrain.

SPREAD FOOTING FOUNDATIONS



At the recommended minimum depth the footings can be designed for an allowable bearing pressure of 3000 psf for dead loads and 3250 for dead plus live loads. This value may be increased by 33 per cent to account for all loads, including wind and seismic.

E. Retaining Walls

Retaining walls should be constructed upon foundations designed in accordance with Section D, above. All retaining walls should be designed to resist the active equivalent fluid pressures tabulated below.

WALL BACKSLOPE INCLINATION (H:V)	EQUIVALENT FLUID PRESSURE (pcf)
Level	35
4h: 1v	40
3h: 1v	45
2h: 1v	50

When walls are to be rigidly restrained from rotation, a uniform surcharge pressure of 75 psf should be added to the design values. Interpolation can be used to determine pressures for intermediate inclinations. In addition to static soil earth pressure as outlined above, retaining walls should be designed to resist short-term seismic loading. The retaining walls should be designed for a seismic loading increment (in pounds per foot) equal to 14 times the height of the wall (in feet) squared. The seismic component, as defined above, should be considered as a line load acting at a point 0.33 times H above the base of the retaining wall, where H is the wall height. It is noted that the seismic component should be added to the static earth pressure loading.

In our opinion, it is acceptable to use a factor of safety of 1.1 for overturning and sliding when considering the combined effect of static and seismic loading.

Passive resistance can begin at the top of supporting material, and can be taken as a value of 350 pcf. If drilled piers are used to support the wall this value can be projected over 2 pier diameters. In areas where spread footings are appropriate, a friction factor of 0.35 can be incorporated into the design.

It is important that adequate subdrainage be constructed behind retaining walls in accordance with the specifications shown on the attached Figure 42.

F. Slab-On-Grade Construction

It is anticipated that the only slab-on-grade construction will be for the garage floors. The slabs should be reinforced with steel bars and cast upon firm natural soil, rock, or engineered fill. It is recommended that some type of moisture retardant be provided beneath the slabs. We have included a minimum, but commonly used treatment on the attached Figure 43.

We also recommend that a network of "finger drains" be constructed in areas to receive slabs to mitigate the potential of water affecting the slabs. Finger drains should be constructed in accordance with Figure 44.

G. Surface Drainage

We recommend that the site be fine-graded to direct surface water to flow away from the building foundations. As a general requirement, storm water should not be allowed to pond or flow in concentrated streams or channels on the site. Such ponding or flows and the resulting saturation can weaken the soils and perhaps cause some minor site erosion.

It is further recommended that all roof downspouts be led into tightline disposal pipes that deposit water well away from building foundations and into a suitable disposal area. Rigid PVC pipe should be used. In no case should corrugated flex type pipe be used.

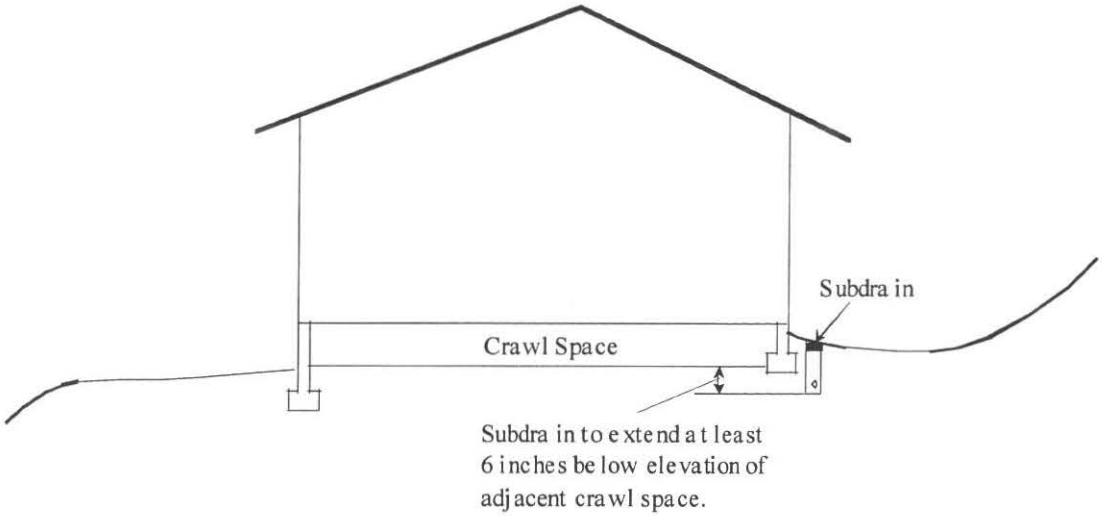
It will also be necessary to construct concrete "v" ditches at strategic locations to protect slopes. The civil engineer should locate such drains and provisions to maintain the drains will be important. Failure of "v" ditches is a common problem at similar sites. Therefore, due to the steep slopes and history of erosion, it is recommended that the design be particularly conservative.

H. Subdrainage

All subdrainage should be constructed in accordance with the attached "Guide Specifications for Subsurface Drains". As noted, subdrainage should be constructed behind retaining walls as illustrated on Figure 42. Subdrains should also be placed beneath engineered fills that have depths greater than 4 feet and in areas where any seepage zones (or potential seepage zones) are encountered.

In order to reduce the potential for water to seep into the building "crawl areas", it is also important that a foundation drain be constructed along the uphill and sidehill sides of the structures as is illustrated below. If the uphill foundation wall is a retaining wall, the wall subdrain will serve this purpose.

FOUNDATION SUBDRAIN AT UPHILL SIDES OF STRUCTURE



The above subdrain should be constructed in accordance with the specifications for retaining wall subdrainage included on Figure 42. In our opinion, it would also be prudent to construct an "outlet" through the footing or grade beam at a low point within the crawl space. Such an outlet would allow any moisture that entered the subfloor area to be dissipated. The crawl space soil or rock surface should be graded to slope to the outlet, with no isolated low areas that could trap water.

I. Pavements

Final pavement design will be dependent upon the anticipated traffic and the materials exposed at the subgrade levels. For preliminary design purposes, a pavement section of 3 inches of asphaltic concrete underlain by 8 inches of Class 2 aggregate base material can be anticipated for the roadways. When traffic indexes (T.I.) become available, we will be able to provide additional input regarding pavements.

J. Review of Plans and Construction Observations

It is recommended that all of the plans related to our recommendations be submitted to our office for review. The purpose of our review will be to verify that our recommendations are understood and reflected on the plans, and to allow us to provide supplemental recommendations, if necessary.

It is important that we be retained to provide observation and testing services during construction. Our observations and tests will allow us to verify that the materials encountered are consistent with those found during our study, and will allow us to provide supplemental, on-site recommendations, as necessary.

LIMITATIONS

The conclusions and opinions expressed in this report are based upon the exploratory borings and trenches that were excavated on the site in 2002 along with our current observations. While in our opinion these borings and trenches adequately disclose the soil conditions across the site, the possibility exists that abnormalities or changes in the soil conditions, which were not discovered by this investigation, could occur between borings.

This study was not intended to disclose the locations of any existing utilities, septic tanks, leaching fields, hazardous wastes, or other buried structures. The contractor or other people should locate these items, if necessary.

The passage of time may result in significant changes in technology, economic conditions, or site variations that could render this report inaccurate. Accordingly, neither Analytical Environmental Services nor any other party shall rely on the information or conclusions contained in this report after 12 months from its date of issuance without the express written consent of Michelucci & Associates, Inc. Reliance on this report after such period of time shall be at the user's sole risk. Should Michelucci & Associates, Inc. be required to review the report after 12 months from its date of issuance, Michelucci & Associates, Inc. shall be entitled to additional compensation at then-existing rates or such other terms as may be agreed upon between Michelucci & Associates, Inc. and Analytical Environmental Services.

This report was prepared to provide engineering opinions and recommendations only. It should not be construed to be any type of guarantee or insurance.

REFERENCES

Aerial Photographs

Pacific Aerial Surveys (PAS) black and white stereo pairs:

Film I.D.	Scale	Date
PAS-AV-9-16-7/8/9	1:23,600	7/29/46*
PAS-AV-170-10-10/11	1:10,000	5/10/55*
PAS-AV-432-10-17/08	1:12,000	6/20/61*
PAS-AV-933-10-06/07	1:12,000	6/30/69*
PAS-AV-1188-08-14/15	1:12,000	5/12/75
PAS-AV-2265-09-06/07	1:12,000	6/6/83
PAS-AV-2670-9-7/8	1:12,000	10/15/85
PAS-AV-4916-309-9/10	1:12,000	9/7/95
PAS-AV-6600-10-7/8	1:12,000	8/16/00*

* These photos were most utilized in interpreting the site geologic conditions.

Plans

Lea & Braze Engineering, Inc. 2013, "Vesting Tentative Subdivision Map, Ascension Heights Subdivision, San Mateo, California (Unincorporated)", Sheets C-1 through C-7, July 1, 2013, Scale 1" = 40'.

Publications

Brabb, E.E, and Pampeyan, E.H, 1972, Preliminary Map of Landslide Deposits in San Mateo County, California: USGS Miscellaneous Field Studies Map MF-344, scale 1:62,500.

California Division of Mines and Geology, 1974, San Mateo 7.5' Quadrangle, Special Studies Zones, Official Map, July 1, 1974; Scale 1:24,000.

International Conference of Building Officials, June 2010, 2010 California Building Code, Volume 2 Structural Engineering Design Provisions.

Leighton and Associates, 1976, Geotechnical Hazard Synthesis Map of San Mateo County, California: geotechnical consultant's December maps to the County of San Mateo Planning Department, Sheet 2, scale 1:24,000.

Pampeyan, Earl H., 1981, "Geology and Former Shoreline Features of the San Mateo 7.5-Minute Quadrangle, San Mateo County, California", USGS Open file Report81-839,Scale1:12,000.

....., 1994, "Geologic Map of the Montara Mountain and San Mateo 7-1/2' Quadrangles, San Mateo County, California", USGS Miscellaneous Investigations Series Map I-2390, Scale 1:24,000.

Unpublished Maps and Reports

Analytical Environmental Services, 2012, "County of San Mateo, Ascension Heights Subdivision Project, Revised Environmental Impact Report", report dated September 27, 2012.

(R.C.) Harlan and Associates, 1981, "Feasibility Geotechnical Investigation, Ascension/Bel Aire P.U.D, San Mateo, California", report dated July 8, 1981.

Terrasearch, Inc, 1979, "Soil Investigation on Proposed Subdivision, Northeast Corner of Ascension Drive and Bel Aire Road, San Mateo County, California", report dated November 12, 1979 revised February 15, 1980.

GUIDE SPECIFICATIONS
FOR ENGINEERED FILL

Job No. 13-4309

A. GENERAL

A1. Definition of Terms

FILL...is all soil or soil/rock materials placed to raise the grade of the site or to backfill excavations.

ON-SITE MATERIAL...is that which is obtained from the required excavations on the site.

IMPORT MATERIAL...is that hauled in from off-site areas.

SELECT MATERIAL...is a soil material meeting the requirements set forth in "C(2)" below.

ENGINEERED FILL...is a fill upon which the Geotechnical Engineer has made sufficient tests and observations to enable him to issue a written statement that in his opinion the fill has been placed and compacted in accordance with the specification requirements.

AASHTO SPECIFICATIONS...are the Standard Specifications of the American Association of State Highway Officials, latest revision.

ASTM SPECIFICATIONS...are the Annual Book of ASTM Standards (Part 19), American Society for Testing and Materials, latest revision.

MAXIMUM LABORATORY DENSITY...is the maximum density for a given fill material that can be produced in the laboratory by the Standard procedure ASTM D1557, "Moisture-Density Relations of Soils Using a 10-Pound (4.5 kg) Hammer and an 18-Inch (457 mm) Drop" (AASHTO Test T-180, "Moisture-Density Relations of Soils Using a 10-Pound Hammer and an 18-Inch Drop").

OPTIMUM MOISTURE CONTENT...is the moisture content at which the maximum laboratory density is achieved using the standard compaction procedure ASTM Test Designation D1557 (AASHTO Test T-180).

DEGREE OF COMPACTION... is the ratio, expressed as a percentage, of the dry density of the fill material as compacted in the field to the maximum laboratory dry density for the same material.

A2. Responsibility of the Geotechnical Engineer

The Geotechnical Engineer shall be the Owner's representative to observe the grading operations, both during preparation of the site and compaction of any engineered fill. He shall make enough visits to the site to familiarize himself generally with the progress and quality of the work. He shall make a sufficient number of field observations and tests to enable him to form an opinion regarding the adequacy of the site preparation, the acceptability of the fill material, and the extent to which the degree of compaction meets the specification requirements. Any fill where the site preparation, type of material, or compaction is not approved by the Geotechnical Engineer shall be removed and/or recompacted until the requirements are satisfied.

A3. Soil Conditions

A soil investigation has been performed for the site by Michelucci & Associates, and a report has been prepared. The Contractor shall familiarize himself with the soil conditions on the site, whether covered in the report or not, and shall thoroughly understand all recommendations associated with the grading.

B. SITE PREPARATION

B1. Stripping

Prior to any cutting or filling, the site shall be stripped to a sufficient depth to remove all grass, weeds, roots, and other vegetation. The minimum stripping depth shall be 3 inches. The site shall be stripped to such greater depth as the Geotechnical Engineer in the field may consider necessary to remove materials that in his opinion are unsatisfactory. The stripped material shall either be removed from the site or stockpiled for reuse later as topsoil, but none of this stripped material may be used for engineered fill.

B2. Preparation for Filling

After stripping, the weak soils in areas to be filled shall be overexcavated to the minimum depth called for on the plans or that is required by the Soil Engineer in the field. The overexcavated soils that are clean and free from organic material can be used later as general engineered fill.

After stripping the surface vegetation and overexcavating the weak soils to the required depths, horizontal keyways and benches shall be excavated at least 24 inches below the ground surface or 18 inches into strong bedrock, whichever is deeper. When the required depth has been achieved, the exposed surface shall be scarified to a minimum depth of 6 inches, watered or aerated as necessary to bring the soil to a moisture content that will permit proper compaction, and recompacted to the requirement of engineered fill as specified in "D" below. Prior to placing fill, the Contractor shall obtain the Geotechnical Engineer's approval of the site preparation in the area to be filled. The requirements of this section may be omitted only when approved in writing by the Geotechnical Engineer.

C. MATERIAL USED FOR FILL

C1. Requirements for General Engineered Fill

All fill material must be approved by the Geotechnical Engineer. The material shall be a soil or soil/rock mixture that is free from organic matter or other deleterious substances. The fill material shall not contain rocks or lumps over 6 inches in greatest dimension, and not more that 15% by dry weight. Gravels or rock materials in the soil shall not be larger than 2 1/2 inches in greatest dimension. A portion of or all soils from the site, except the surface strippings, may be suitable for use as fill if they are broken down to size requirements.

C2. Requirements for Select Fill Material

In addition to the requirements of "C(1)" above, select material, when called for on the plans and for use under floor slabs, must conform to the following minimum requirements:

Maximum Plasticity Index 10

In addition to the requirements of "C(1)" above, the select material shall be non-plastic and shall have an "R" value of at least 25. Select material shall be approved by the Geotechnical Engineer.

D. PLACING AND COMPACTING FILL MATERIAL

All fill material shall be compacted as specified below or by other methods, if approved by the Geotechnical Engineer, so as to produce a minimum degree of compaction of 95% (ASTM D1557). Fill material shall be spread in uniform lifts not exceeding 6 inches in thickness. Before compaction begins, the fill shall be brought to a water content that will permit proper compaction by either aerating the material if it is too wet or spraying the material with water if it is too dry. Each lift shall be thoroughly mixed before compaction to ensure a uniform distribution of water content. If any cohesive soils are used within 3 feet of the finished ground surface, they shall be placed and compacted at a moisture content that is 1% to 3% above optimum.

E. EXCAVATION

All excavations shall be carefully made true to the grades and elevations shown on the plans. The excavated surfaces shall be properly graded to provide good drainage during construction and to prevent ponding of water.

F. TREATMENT AFTER COMPLETION OF GRADING

After grading is completed and the Geotechnical Engineer has finished his observation of the work, no further excavation or filling shall be done except with the approval of and under the observation of the Geotechnical Engineer.

It shall be the responsibility of the Grading Contractor to prevent erosion of freshly-graded areas during construction and until such time as permanent drainage and erosion control measures have been installed.

GUIDE SPECIFICATIONS
FOR SUBSURFACE DRAINS

Job No. 13-4309

A. DESCRIPTION

Subsurface drains are pipes installed beneath the ground surface and which collect and convey subsurface drainrock and water. Unless otherwise directed by the Soil Engineer in the field, the conduit shall be placed in a trench and the trench shall be backfilled with pervious material. The conduit and pervious material shall meet the requirements for the materials given in these specifications. The materials for the subsurface drain and the size of the trench shall be as shown on the plans or as determined by the Soil Engineer in the field.

B. MATERIALS

B1. Subdrain Pipe

Subdrain pipe shall be manufactured in accordance with the following requirements:

a. Perforated corrugated metal pipe shall conform to the specifications of AASHTO Designation M-36. Corrugated steel sheet used in the fabrication of the pipe shall have a protective coating of zinc (galvanizing), aluminum, or aluminum-zinc alloy conforming to ASTM Designation A760.

b. Acrylontrile-Butadiene-Styrene (ABS) plastic pipe shall conform to the specifications for ABS plastic pipe given in ASTM Designation D2282 and ASTM Designation D2751. ABS pipe shall have a minimum pipe stiffness of 45 psi at 5% deflection when measured in accordance with ASTM Method D2412.

c. Polyvinyl chloride (PVC) pipe shall conform to AASHTO Designation M278. PVC pipe shall have a minimum pipe stiffness of 50 psi at 5% deflection when measured in accordance with ASTM Method D2412. Schedule 40 PVC pipe shall be suitable.

B2. Pervious Backfill Material

Pervious materials for use in backfilling trenches shall conform to the requirements of Paragraph C1 of the specifications. Pervious material conforming to the requirements of Paragraph C2 may be used, provided that the backfill is wrapped in a suitable geotextile ("filter fabric") meeting the requirements given in Section D.

C. BACKFILL MATERIAL

C1. Filter Material

Filter material for use in backfilling trenches around and over subdrains pipes and behind retaining walls shall consist of clean coarse sand and gravel or crushed stone conforming to the following requirements:

Sieve Size	% Passing Sieve
2"	100
3/4"	70-100
3/8"	40-100
#4	25-50
#8	15-45
#30	5-25
#50	0-20
#200	0-3

Class 2 "permeable material" conforming to the State of California Department of Transportation Standard Specifications, latest edition, Section 68-1.025 shall be suitable.

C2. Gravel

Gravel for use in pervious blankets and in backfilling trenches or wrapped in filter fabric meeting the requirements of Section D of these specifications shall consist of clean fresh stone conforming to the following grading requirements:

Sieve Size	% Passing Sieve
1"	100
1/2"	50-100
#4	40-100
#8	0-40
#30	0-40
#50	0-5
#200	0-3

Class 1 "permeable material" conforming to the State of California Department of Transportation Standard Specifications Section 68-1.025 shall be suitable.

D. GEOTEXTILE

Geotextiles for use in subdrains or as directed by the Soil Engineer shall be of non woven needle punched construction and consist of long chain polymeric fibers composed of polypropylene, polyethylene, or polyamide. The fibers shall be oriented into a multi-directional stable network. The geotextile shall conform to the physical property requirements listed below:

Physical Property	Test Method	Acceptable Typical Test Results
Tensile Strength, wet, lbs..	ASTM D-1682	90 (minimum)
Elongation, wet, %	ASTM D-1682	40 (minimum)
Coefficient of Water Permeability, cm/sec	Constant Head	0.10 (minimum)
Pore size--EOS, U.S. Corps of Engineers Standard Sieve	CW-02215	40 (maximum)

The geotextile shall be furnished in a protective wrapping which shall protect the fabric from ultraviolet radiation and from abrasion due to shipping and handling.

E. LAYING AND PLACEMENT

The drainpipe and filter material shall be placed as shown on the plans or as determined by the Soil Engineer in the field. Unless otherwise directed by the Soil Engineer, perforated pipe shall be laid with the perforations at the bottom. Corrugated metal pipe sections shall be joined with couplers.

Subsurface drains shall be placed to the depths, lines, and grades shown on the plans and as directed by the Soil Engineer in the field. Subsurface drains shall discharge to a suitable outlet as defined in the field by the Soil Engineer or as shown on the plans.

After excavating the subsurface drain trench but before placing the drainpipe, a minimum of 6 inches of filter material shall be placed on the trench bottom. The filter material shall be rounded to conform to the curvature of the pipe so that the pipe is carefully bedded. The trench shall then be backfilled to the top of the pipe, and the backfill should be tamped or hand-wedged into place to provide firm support at the sides of the pipe. In general, the installation shall follow the guidelines of ASTM Designation D2774, except that compaction of the filter material in the trench shall not be required.

The contractor shall, at his expense, replace pipes damaged during the installation or subsurface drains not placed at the lines and grades called for on the plans or as determined by the Soil Engineer in the field.

The geotextile shall be placed in the manner and at the locations shown on the plans. The surface to receive the fabric and/or the trench into which the fabric is to be placed shall be prepared to a smooth condition free of obstructions and debris.

The geotextile shall be covered with a permeable material within two weeks of its placement. Should the fabric be damaged during the construction, the torn or punctured section shall be repaired by placing a piece of fabric that is large enough to cover the damaged area and to meet the overlap requirement. Adjacent borders of the geotextile shall be overlapped a minimum of twelve (12) inches or sewn. The preceding roll shall overlap the following roll in the direction the material is being placed.

F. CLEANOUTS

At the direction of the Soil Engineer, cleanouts shall be provided at the ends of pipes and at junctions and connections of pipelines. Junction angles should be no steeper than 45 degrees where cleanout pipes connect to the subdrain pipes. Cleanouts should be provided with caps.

APPENDIX F

NOISE MEASUREMENT OUTPUT FILES

Noise Measurement Site 1

10/28/2013

Information Panel

Name	S240_BGH060008_28102013_112543
Start Time	10/23/2013 11:50:03 AM
Stop Time	10/24/2013 12:25:05 PM
Device Name	BGH060008
Model Type	SoundPro DL
Device Firmware Rev	R.12L
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	44.6 dB	Lmin	1	22.3 dB
Lmax	1	79.3 dB	LDN	1	47 dB
CNEL	1	47.7 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW			

Logged Data Chart

S240_BGH060008_28102013_112543: Logged Data Chart

Noise Measurement Site 2

10/28/2013

Information Panel

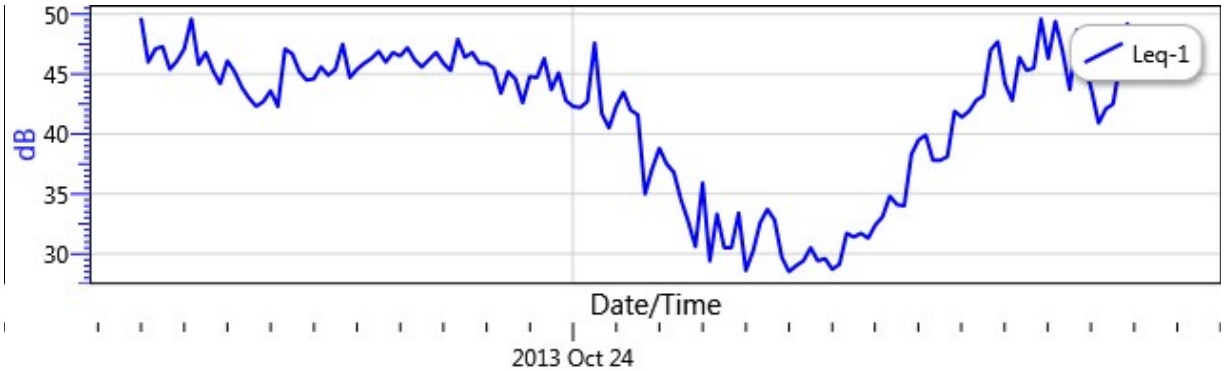
Name	S201_BGH060007_28102013_112032
Start Time	10/23/2013 1:50:08 PM
Stop Time	10/24/2013 1:53:41 PM
Device Name	BGH060007
Model Type	SoundPro DL
Device Firmware Rev	R.13D
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	44.8 dB	Lmax	1	85 dB
Lmin	1	27.6 dB	LDN	1	48.2 dB
CNEL	1	48.9 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW			

Logged Data Chart

S201_BGH060007_28102013_112032: Logged Data Chart



Noise Measurement Site 3

10/28/2013

Information Panel

Name	S141_BGH060008_28102013_124735
Start Time	10/23/2013 12:06:17 PM
Stop Time	10/24/2013 12:07:18 PM
Device Name	BGH060009
Model Type	SoundPro DL
Device Firmware Rev	R.12L
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	50 dB	Lmin	1	25.8 dB
Lmax	1	77 dB	LDN	1	51.7 dB
CNEL	1	52.2 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW			

Logged Data Chart

S141_BGH060008_28102013_124735: Logged Data Chart

Noise Measurement Site A

10/28/2013

Information Panel

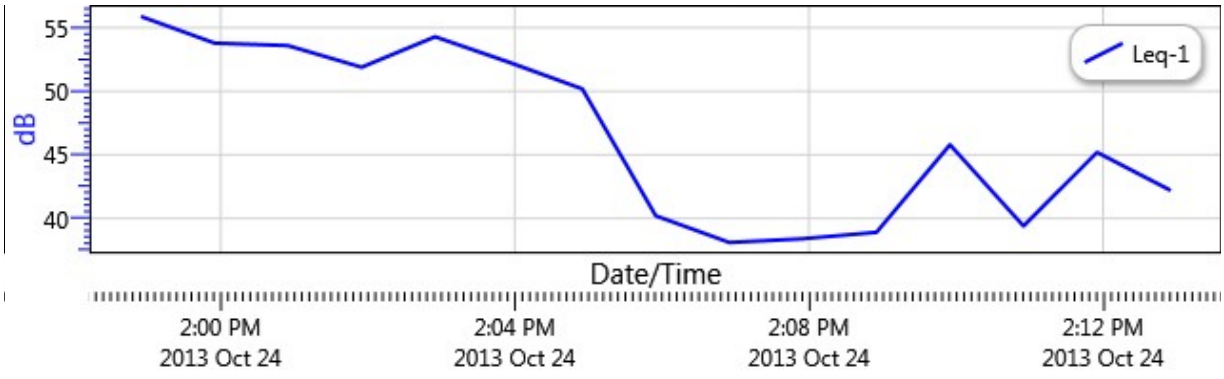
Name	S202_BGH060007_28102013_112031
Start Time	10/24/2013 1:57:55 PM
Stop Time	10/24/2013 2:13:49 PM
Device Name	BGH060007
Model Type	SoundPro DL
Device Firmware Rev	R.13D
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	51 dB	Lmin	1	36.5 dB
Lmax	1	68.2 dB	LDN	1	51 dB
CNEL	1	51 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW			

Logged Data Chart

S202_BGH060007_28102013_112031: Logged Data Chart



Noise Measurement Site B

10/28/2013

Information Panel

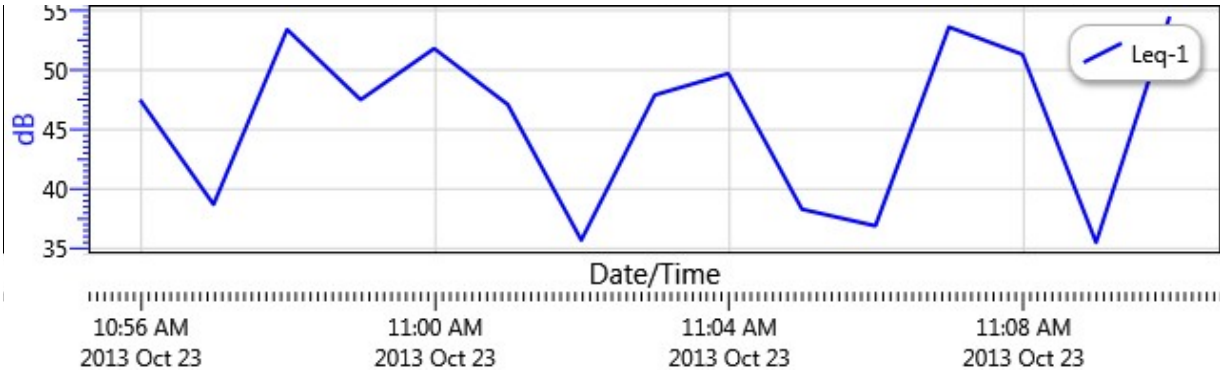
Name	S238_BGH060008_28102013_112544
Start Time	10/23/2013 10:54:59 AM
Stop Time	10/23/2013 11:10:03 AM
Device Name	BGH060008
Model Type	SoundPro DL
Device Firmware Rev	R.12L
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	49.5 dB	LDN	1	49.5 dB
Lmax	1	65.7 dB	Lmin	1	33.7 dB
CNEL	1	49.5 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW			

Logged Data Chart

S238_BGH060008_28102013_112544: Logged Data Chart



Noise Measurement Site C

10/28/2013

Information Panel

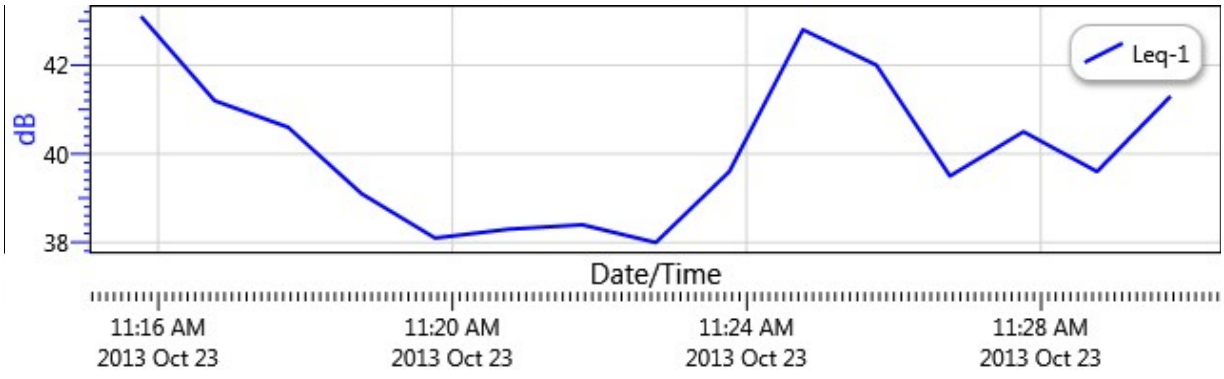
Name	S239_BGH060008_28102013_112543
Start Time	10/23/2013 11:14:46 AM
Stop Time	10/23/2013 11:29:48 AM
Device Name	BGH060008
Model Type	SoundPro DL
Device Firmware Rev	R.12L
Comments	

Summary Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	40.4 dB	Lmax	1	53.3 dB
Lmin	1	36.7 dB	LDN	1	40.4 dB
CNEL	1	40.4 dB			
Exchange Rate	1	3 dB	Weighting	1	A
Response	1	SLOW			

Logged Data Chart

S239_BGH060008_28102013_112543: Logged Data Chart

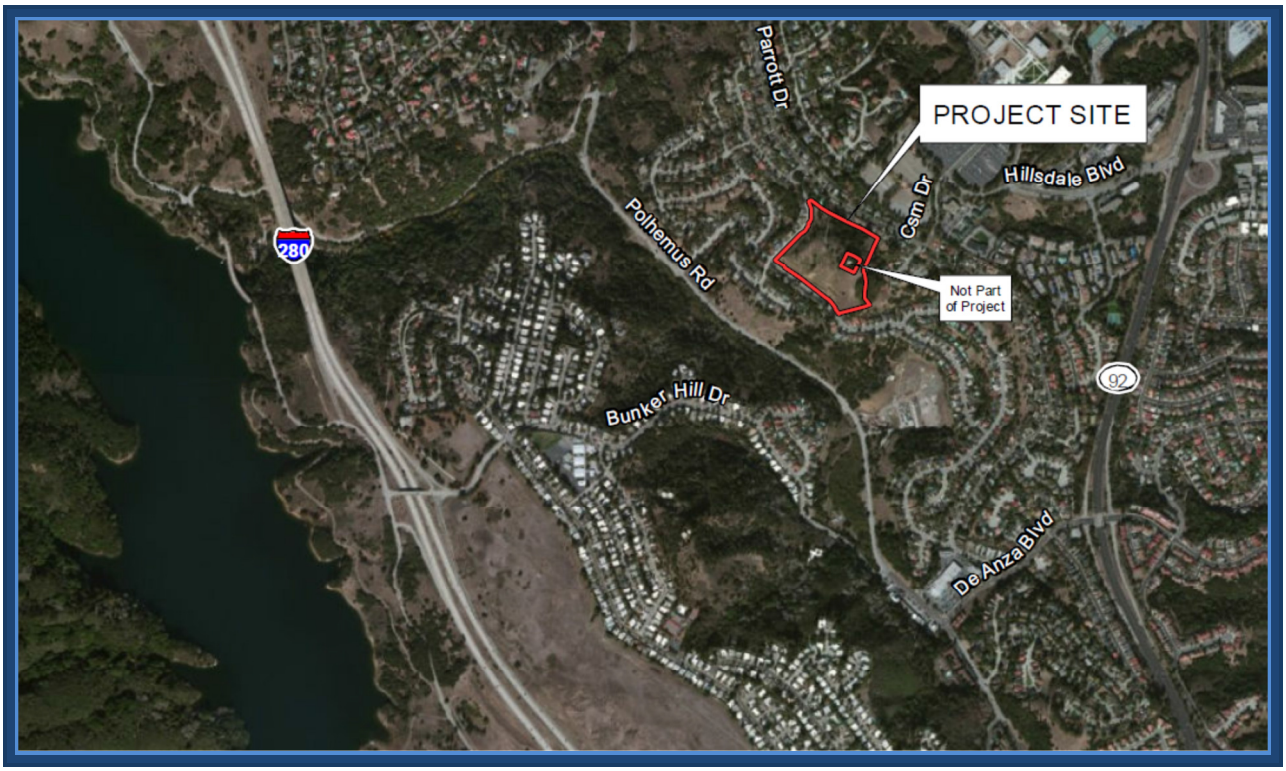


APPENDIX G

ANALYSIS OF WATER AND SEWER UTILITIES

ASCENSION HEIGHTS SUBDIVISION PROJECT
ANAYLYSIS OF WATER AND SEWER UTILITIES

TECHNICAL MEMORANDUM



DRAFT

DECEMBER 2013

NV5

BEYOND ENGINEERING

ASCENSION HEIGHTS SUBDIVISION PROJECT
ANALYSIS OF WATER AND SEWER UTILITIES

TECHNICAL MEMORANDUM

DRAFT

DECEMBER 2013

Submitted to:

Analytical Environmental Services
1801 7th Street, Suite 100
Sacramento, CA 95811

Prepared by:

NV5, Inc..
2495 Natomas Park Drive, Fourth Floor
Sacramento, CA 95833
(916) 641-9100 ▪ (916) 641-9222 (Fax)

CONTENTS

ASCENSION HEIGHTS SUBDIVISION PROJECT
ANALYSIS OF WATER AND SEWER UTILITIES

TECHNICAL MEMORANDUM
DRAFT

December 2013

1.0 BACKGROUND

The Ascension Heights Subdivision Project (Project) is a proposed residential development located in the unincorporated San Mateo Highlands area of San Mateo County. The proposed development includes 19 single-family residences. In 2009, the same Project was analyzed but it included a total of 25 residential dwelling units. The Environmental Impact Report (EIR) for that Project was declined in 2009 by the San Mateo Planning Commission. The proposed reduction in dwelling units for this Project along with other changes require a re-application and EIR analysis. This technical memorandum (TM) provides a summary of the water and sewer infrastructure analyses and results of the impacts for the Project.

Part of the analysis included reviewing a series a documents relating to the history of this Project. The following documents were reviewed as part of this analysis:

1. Draft Environmental Impact Report, Ascension Heights Subdivision Project, June 2009
2. Vesting Tentative Subdivision Map, Ascension Heights Subdivision, San Mateo, California (Unincorporated), July 2013
3. Cease and Desist Order No. R2-2009-0020, Requiring the City of San Mateo, Town of Hillsborough, Crystal Springs County Sanitation District in San Mateo County to Cease and Desist Discharging Waste from Their Respective Sanitary Sewer Systems in Violation of Requirements in Regional Water Board Order Nos. 01-071 and R2-2007-0075 (NPDES Permit No. CA 0037541), Water Quality Control Plan for the San Francisco Bay Basin, and/or State Water Board Order No. 2009-0003 DWQ, March 2009
4. County of San Mateo, Crystal Springs County Sanitation District, Sewer Master Plan, August 1999
5. California Water Service Company, 2010 Urban Water Management Plan, Mid-Peninsula District, June 2011

2.0 SEWER

The proposed Project is located in the Crystal Springs County Sanitation District (CSCSD) service area, which is administered by the San Mateo County Department of Public Works. The CSCSD collection system consists of approximately 19 miles of 6-inch to 15-inch diameter sewer pipe and serves a population of approximately 5,600 people [1]. The main trunk sewer in CSCSD is a 10-inch to 15-inch trunk sewer located in Polhemus Road. Wastewater generated in the proposed development will be conveyed in new sewer mains to the existing CSCSD sewer main located on Bel Aire Road. Sewage from CSCSD's collection system flows through the Town of Hillsborough's collection system via the Crystal Springs/El Cerrito Trunk Sewer.

Wastewater in this trunk sewer flows to the San Mateo Wastewater Treatment Plant (SMWTP), where it is treated and disposed per the Sanitary Sewer Agreement with the City of San Mateo [1].

Project Sewer Facilities

The sewer system facilities for the proposed development include: sanitary sewer gravity mains, manholes, and pumps/force mains for 11 of the 19 proposed residential units. The force main from each of the 11 residential units convey wastewater from residences that are located at elevations below the sanitary sewer gravity main. Sewer laterals convey wastewater directly to the sewer main from each lot.

Project Sewer Generation

The CSCSD is administered by the San Mateo County Department of Public Works, which uses a sewer generation rate of 220 gallons per day (gpd) per equivalent residential unit. The proposed Project, with 19 residential units is anticipated to generate approximately 4,180 gpd (0.004 mgd) of wastewater.

Project Sewer Impacts and Mitigation

The SMWTP has an average dry weather design capacity of 15.7 mgd, and a peak wet weather flow capacity of approximately 40 mgd [1]. SMWTP treated and disposed of an average dry weather flow of 12.4 mgd of wastewater, leaving a surplus capacity of 3.3 mgd. The proposed development is anticipated to generate approximately 0.004 mgd of average dry weather flow, which is well within the current surplus capacity at the SMWTP.

Vesting Tentative Subdivision Maps of the proposed development dated July 1, 2013 show the general location of the proposed sewer infrastructure, but do not provide details of the infrastructure size or construction, which is typical at this stage of the project. It is assumed that proposed infrastructure will be designed in compliance with CSCSD and San Mateo County Department of Public Works standards.

The *County of San Mateo, Crystal Springs County Sanitation District, Sewer Master Plan* [3] completed in August 1999 identified approximately $2.3 million in capital improvement projects within CSCSD. In addition, San Mateo County Public Works Department staff indicated as part of the 2009 Draft EIR that the immediate Project area does not experience any sewer deficiencies [4]. In a letter dated November 8, 2013, the County confirmed that there are no sewer deficiencies in the immediate area of the project; however, downstream sewer pipelines within the Town of Hillsborough and the City of San Mateo have capacity issues during wet weather events [5]. Additional sewer generated by the Project will exacerbate the downstream capacity issues.

In accordance with the Sanitary Sewer Agreement between CSCSD and City of San Mateo, CSCSD is responsible for paying a proportionate share for downstream, out-of-district, capital

improvement projects. The Town of Hillsborough completed a pipe replacement project in which CSCSD was responsible for $1.177 million of the cost [1]. The City of San Mateo also completed an improvement project at the SMWTP in which CSCSD was responsible for $1.57 million [1]. In 2007, the CSCSD Board of Supervisors approved a rate increase, which will generate funds to repay the City of Hillsborough, but not the City of San Mateo [1].

In a letter addressed to the San Mateo County from the City of San Mateo Department of Public Works regarding two subdivisions in CSCSD, CSCSD is noted as being in arrears in payments to the City of San Mateo for operating and capital costs due under the Sanitary Sewer Agreement. The City of San Mateo Department of Public Works has a resolution in place to not approve additional flows from new developments in CSCSD service area until the owed payments are made. [4]

In March 2009, the Regional Water Quality Control Board (Regional Board) issued a Cease and Desist Order (CDO) regarding sanitary sewer overflows from the City of San Mateo, Town of Hillsborough, and CSCSD sanitary sewer systems. From December 2004 through May 2008, 22 sanitary sewer overflows occurred from the CSCSD collection system. One of these overflows caused the discharge of 15,000 gallons of wastewater to surface water.

The CSCSD collection system receives high flows during the rainy season due to stormwater inflow and groundwater infiltration (I/I) into the collection system. The CDO requires CSCSD to take specific steps to prevent future sanitary sewer overflows, including the completion of eight capital improvement projects described in the CSCSD Sewer Master Plan [1]. The estimated cost of the eight capital improvement projects is $2,500,000. To comply with the CDO, CSCSD has begun construction cof the eight capital improvement projects described in the Sewer Master Plan with an anticipated completion date in the fall of 2014 [5].

Because the City of San Mateo Department of Public Works will not approve additional flows from new subdivisions within the CSCSD service area, the impacts associated with wastewater conveyance infrastructure for the proposed Project would be **potentially significant**.

The City of San Mateo may consider granting approval for sewer flows associated with the Project if CSCSD pays money due to the City and CSCSD presents an acceptable plan that assures sufficient revenues necessary to meet current and future costs as defined in the Sanitary Sewer Agreement [4].

To alleviate impacts to downstream sewer infrastructure, improvements to the CSCSD sewer system may be constructed to reduce existing inflow and infiltration (I/I). These improvements will offset sewer flows from the Project during wet weather events. This measure is listed as Mitigation Measure UTIL-1 in the 2009 DEIR.

Cumulative Sewer Impacts

The 2009 DEIR lists 22 other projects in addition to the proposed Ascension Heights Subdivision that will be constructed in the area served by the SMWTP. The sewer flow from the 22 other projects is estimated to be 456,386 gpd (0.456 mgd). The combined sewer flow from the

proposed other projects listed in the 2009 DEIR and the Ascension Heights Subdivision equal 0.460 mgd, which is less than the SMWTP surplus capacity of 3.3 mgd. Furthermore, of the proposed projects listed it the 2009 DEIR, only two projects are located in CSCSD's service area. The sewer generation from these two projects is 2,420 gpd (0.0024 mgd). Cumulative impacts associated with wastewater treatment capacity would be **less than significant** and no mitigation measurements are required.

Because CSCSD is predominately built-out and is not expected to experience a significant growing demand for sewer service [5], there are no cumulative impacts associated with the Project other than those described in the preceding section.

3.0 WATER

The Project is located in the service area of the Mid-Peninsula District of the California Water Service Company (Cal Water), which is an investor-owned public utility. Cal Water purchases water from the City and County of San Francisco's regional system, which is operated by the San Francisco Public Utilities Commission (SFPUC). The Mid-Peninsula District of Cal Water should not be confused with the neighboring Mid-Peninsula Water District.

SFPUC supply is predominantly from the Sierra Nevada through the Hetch Hetchy aqueducts, but also includes treated water produced by the SFPUC from local watersheds and facilities in Alameda and San Mateo Counties.

Water Supply

The business relationship between SFPUC and its wholesale customers is largely defined by the *Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County and Santa Clara County* (WSA), executed in July 2009. The WSA provides an annual purchased water supply of 35.68 mgd, which is shared among the Bear Gulch, Mid-Peninsula, and South San Francisco Districts of Cal Water [6]. The portion of the annual purchased water supply available to the Mid-Peninsula District is assumed to be equal to the projected normal-year demand in the district, which is summarized in Table 1.

TABLE 1
MID-PENINSULA DISTRICT PLANNED WATER SUPPLIES [6]

Year	Projected Population	Water Supply, ac-ft/yr	Water Supply, mgd
2010 (Actual)	126,850	15,965	14.25
2015	130,382	18,911	16.88
2020	134,004	18,613	16.62
2025	137,824	19,143	17.09
2030	141,853	19,703	17.59
2035	146,101	20,293	18.12
2040	150,580	20,915	18.67

On October 31, 2008, SFPUC imposed an Interim Supply Limitation that limits the volume of water available to wholesale customers while capital improvements are made to the Regional Water System as part of the Water Supply Improvement Program (WSIP). Cal Water's Interim Supply Allocation (ISA) is 35.68 mgd, to be shared amongst Cal Water's Bear Gulch, Mid-Peninsula, and South San Francisco Districts [6].

The Bear Gulch and South San Francisco Districts each have local water supplies available in addition to water supplied by SFPUC. These local supplies are not available to the Mid-Peninsula District. However, the sharing of Cal Water's water supply from SFPUC among the three districts provides operation flexibility to distribute the SFPUC supply as needed in each system depending on the availability of local supplies and conditions within each district.

Because Cal Water can distribute SFPUC supply between the three districts, the source reliability analysis is performed considering the three districts together. Table 2 presents the normal-year supply and demand comparison.

TABLE 2
NORMAL YEAR SUPPLY AND DEMAND COMPARISON, AC-FT [6]

	2015	2020	2025	2030	2035	2040
Supply						
SFPUC	39,967	39,967	39,967	39,967	39,967	39,967
Bear Gulch Surface	1,260	1,260	1,260	1,260	1,260	1,260
South San Francisco Groundwater	1,535	1,535	1,535	1,535	1,535	1,535
Total Supply	**42,762**	**42,762**	**42,762**	**42,762**	**42,762**	**42,762**
Demand						
Bear Gulch	13,839	12,622	12,975	13,348	13,743	14,160
Mid-Peninsula	18,911	18,613	19,143	19,703	20,293	20,915
South San Francisco	9,297	8,665	8,928	9,204	9,494	9,799
Total Demand	**42,047**	**39,900**	**41,046**	**42,255**	**43,530**	**44,875**
Difference	**715**	**2,862**	**1,716**	**507**	**-768**	**-2,113**
Difference as % of Supply	1.7%	6.7%	4.0%	1.2%	-1.8%	-4.9%
Difference as % of Demand	1.7%	7.2%	4.2%	1.2%	-1.8%	-4.7%

As seen in Table 2, there will be a deficiency of 768 ac-ft in 2035, and 2,113 ac-ft in 2040.

A comparison of supply and demand during a single dry year is provided in Table 3. A single dry year is assumed to result in a system-wide ten percent reduction in SFPUC supplies, which is anticipated to result in a 17 percent reduction of SFPUC water delivered to Cal Water. Cal Water has observed an increase in water used during single dry years due to the maintenance of landscape and other high water uses that would normally be supplied by precipitation [6]. Project demands are determined by increasing the SBx7-7 target demand projections reported in the Urban Water Management Plan in each year by the percentage observed in historical data [6]. Note these values represent a decrease in water demands presented in Table 2. A decrease in Bear Gulch surface water supplies shown in Table 3 is based on historical data [6].

TABLE 3
SINGLE DRY YEAR SUPPLY AND DEMAND COMPARISON, AC-FT [6]

	2015	2020	2025	2030	2035	2040
Supply						
SFPUC	33,173	33,173	33,173	33,173	33,173	33,173
Bear Gulch Surface	351	351	351	351	351	351
South San Francisco Groundwater	1,535	1,535	1,535	1,535	1,535	1,535
Total Supply	**35,059**	**35,059**	**35,059**	**35,059**	**35,059**	**35,059**
Demand						
Bear Gulch	15,065	13,740	14,125	14,531	14,960	15,415
Mid-Peninsula	17,861	17,580	18,081	18,609	19,167	19,754
South San Francisco	8,819	8,220	8,469	8,731	9,006	9,296
Total Demand	**41,746**	**39,540**	**40,675**	**41,871**	**43,134**	**44,465**
Difference	**-6,687**	**-4,481**	**-5,616**	**-6,813**	**-8,075**	**-9,406**
Difference as % of Supply	-19.1%	-12.8%	-16.0%	-19.4%	-23.0%	-26.8%
Difference as % of Demand	-16.0%	-11.3%	-13.8%	-16.3%	-18.7%	-21.2%

As seen in Table 3, demands are greater than supplies during single dry years. The analysis presented in the Urban Water Management Plan is conservative. Historically, SFPUC supplies have not been reduced as dramatically as presented in Table 3 during the first year of a drought [6]. Under normal circumstances, SFPUC has adequate storage in the Regional Water System to provide an increased level of service in single dry years [6]. If the hydrologic conditions were severe enough, Cal Water would expect SFPUC to request a voluntary reduction in purchases. Cal Water would respond accordingly by requesting additional conservation by its customers, which is expected reduce demands to the level of supplies [6].

A comparison of supply and demand during multiple dry years is provided in Table 4. A SFPUC system-wide reduction of ten percent is projected for the first year of multiple dry years, and twenty percent system-wide reduction in subsequent year. A ten percent reduction in SFPUC water supply results in a 17 percent reduction in SFPUC supplied to Cal Water [6]. A 20 percent reduction in SFPUC water supply results in a 34 percent reduction in SFPUC water supplied to Cal Water [6]. Historical data indicates customer demand in multiple dry years varied between 12 and 18 percent [6].

TABLE 4
MULTIPLE DRY YEAR SUPPLY AND DEMAND COMPARISON, AC-FT [6]

		2015	2020	2025	2030	2035
FIRST YEAR	**Supply**					
	SFPUC	33,173	33,173	33,173	33,173	33,173
	Bear Gulch Surface	609	609	609	609	609
	South San Francisco Groundwater	1,535	1,535	1,535	1,535	1,535
	Total Supply	**35,316**	**35,316**	**35,316**	**35,316**	**35,316**
	Demand					
	Bear Gulch	11,329	10,332	10,622	10,927	11,250
	Mid-Peninsula	17,355	17,081	17,568	18,081	18,623
	South San Francisco	8,528	7,648	8,190	8,443	8,709
	Total Demand	**37,212**	**35,362**	**36,379**	**37,451**	**38,582**
	Difference	**-1,895**	**-45**	**-1,063**	**-2,135**	**-3,266**
	Difference as % of Supply	-5.4%	-0.1%	-3.0%	-6.0%	-9.2%
	Difference as % of Demand	-5.1%	-0.1%	-2.9%	-5.7%	-8.5%
SECOND YEAR	**Supply**					
	SFPUC	26,378	26,378	26,378	26,378	26,378
	Bear Gulch Surface	609	609	609	609	609
	South San Francisco Groundwater	1,535	1,535	1,535	1,535	1,535
	Total Supply	**28,522**	**28,522**	**28,522**	**28,522**	**28,522**
	Demand					
	Bear Gulch	11,329	10,571	10,869	11,183	11,516
	Mid-Peninsula	16,878	16,685	17,163	17,667	18,198
	South San Francisco	8,232	7,821	8,060	8,310	8,573
	Total Demand	**36,439**	**35,077**	**36,091**	**37,160**	**38,287**
	Difference	**-7,917**	**-6,555**	**-7,569**	**-8,636**	**-9,765**
	Difference as % of Supply	-27.8%	-23.0%	-26.5%	-30.3%	-34.2%
	Difference as % of Demand	-21.7%	-18.7%	-21.0%	-323.2%	-25.5%
THIRD YEAR	**Supply**					
	SFPUC	26,378	26,378	26,378	26,378	26,378
	Bear Gulch Surface	609	609	609	609	609
	South San Francisco Groundwater	1,535	1,535	1,535	1,535	1,535
	Total Supply	**28,522**	**28,522**	**28,522**	**28,522**	**28,522**
	Demand					
	Bear Gulch	10,880	10,392	10,686	10,996	11,325
	Mid-Peninsula	16,404	16,288	16,757	17,252	17,774
	South San Francisco	8,120	7,868	8,109	8,361	8,627
	Total Demand	**35,404**	**34,548**	**35,552**	**36,610**	**37,726**
	Difference	**-6,882**	**-6,026**	**-7,030**	**-8,088**	**-9,204**
	Difference as % of Supply	-24.1%	-21.1%	-24.6%	-28.4%	-32.3%
	Difference as % of Demand	-19.4%	-17.4%	-19.8%	-22.1%	-24.4%

As seen in Table 4, there are supply shortfalls in all years of a multiple year drought. These shortfalls would need to be met through a combination of customer demand reductions resulting

from the implementation of the Water Shortage Contingency Plan, and the development of alternative supplies [6].

Project Water Facilities

An existing storage tank owned by Cal Water is located within the project site. Water from this existing storage tank will be used to supply the proposed development. A proposed pressure booster pump system will be located at the existing storage tank to pressurize the subdivision water mains. Water is conveyed to the proposed residences through a dead-end water main.

In addition to water infrastructure associated with providing water to the proposed subdivision, two existing water mains will be relocated so that the relocated water mains are located in proposed streets or at the property boundary between lots for ease of maintenance of the water mains.

Project Water Demand

Based on actual 2010 single family accounts and volumes reported in the Urban Water Management Plan, the water demand for single family residences is 260 gpd/du. The average day water demand for the proposed 19 single-family units is approximately 4,940 gpd (0.005 mgd). The maximum day demand for the Project is approximately 8,000 mgd which correlates to a peaking factor of 1.62 [7]. The peak hour demand for the Project is 12,000 mgd which correlates to a maximum day to peak hour peaking factor of 1.50 [7].

Project Water Impacts and Mitigation

Vesting Tentative Subdivision Maps of the proposed development dated July 1, 2013 show the general location of the proposed water infrastructure, but do not provide details of the infrastructure size or construction, which is typical at this stage of the project. It is assumed that proposed infrastructure will be designed in compliance with MPWD and San Mateo County Department of Public Works standards. The increase in population due to the Project is consistent with population projections listed in the Urban Water Management Plan [6].

The Project water demand (0.005 mgd) is approximately 0.038 percent of the 2010 Mid-Peninsula District water demand (13.254 mgd). As seen in Tables 3 and 4, there are significant project water supply shortfalls during single dry and multiple dry years. Because of the projected water shortfalls, water demands associated with the Project are **potentially significant**. The Project water demands may be mitigated through customer demand reductions resulting from customer demand reductions resulting from the implementation of the Water Shortage Contingency Plan.

Cumulative Water Impacts

Cal Water is near buildout conditions and has set boundaries. Increases in water demand will likely be due to infill projects. The 2009 DEIR lists seven proposed projects other than the Ascension Heights Subdivision in the Mid-Peninsula District. Only one of these projects will

result in additional water demand equaling 2,781 gpd (0.003 mgd) [4]. The additional water demand of all proposed projects, including the Ascension Heights Subdivision, is approximately 0.008 mgd. Table 5 is a summary of water demand for the district.

TABLE 5
MID-PENINSULA DISTRICT DEMAND SUMMARY

Description	Demand, mgd
2010 Water Demand	13.254
Additional Projects Listed in 2009 DEIR	0.003
Ascension Heights Subdivision Project	0.005
Total Demand	13.262

In summary, the sum of the existing demand and demand of known proposed projects (total demand) is approximately 13.262 mgd.

As described above, significant supply shortfalls are projected during single dry and multiple dry years. Because of the projected water shortfalls, water demands associated with the Project are **potentially significant**. The Project water demands may be mitigated through customer demand reductions resulting from customer demand reductions resulting from the implementation of the Water Shortage Contingency Plan.

4.0 REFERENCES

[1] Regional Water Quality Control Board, *Cease and Desist Order No. R2-2009-0020, Requiring the City of San Mateo, Town of Hillsborough, Crystal Springs County Sanitation District in San Mateo County to Cease and Desist Discharging Waste from Their Respective Sanitary Sewer Systems in Violation of Requirements in Regional Water Board Order Nos. 01-071 and R2-2007-0075 (NPDES Permit No. CA 0037541), Water Quality Control Plan for the San Francisco Bay Basin, and/or State Water Board Order No. 2009-0003 DWQ*, March 2009.

[2] City of San Mateo, *Treatment Process* (webpage), http://www.cityofsanmateo.org/index.aspx?NID=156, accessed December 2, 2013.

[3] Brown and Caldwell, *County of San Mateo, Crystal Springs County Sanitation District, Sewer Master Plan*, August 1999.

[4] Christopher A. Joseph & Associates, *Draft Environmental Impact Report, Ascension Heights Subdivision Project*, June 2009.

[5] James C. Porter, *Proposed Ascension Heights Subdivision Environmental Impact Report (EIR) – Solid Waste & Sewer Service* (letter), November 8, 2013.

[6] California Water Service Company, *California Water Service Company, 2010 Urban Water Management Plan, Mid-Peninsula District*, June 2011.

[7] Tom Salzano, *RE:Mid-Peninsula District Peaking Factors*(email), December 19, 2013.

APPENDIX H

TRAFFIC IMPACT ANALYSIS

RKH

Civil and Transportation Engineering

TRAFFIC IMPACT ANALYSIS

ASCENSION HEIGHTS SUBDIVISION
UNINCORPORATED SAN MATEO COUNTY, CALIFORNIA

December 10, 2013
Revised October 24, 2014

Prepared for -

Analytical Environmental Services
1801 7th Street
Suite 100
Sacramento, CA 95811

837 Columba Lane • Foster City, CA 94404 • (650) 212-0837 • FAX(650) 212-3150

Table of Contents

Section **Page**

Appendices

List of Figures

Figure **Page**

List of Tables

Table **Page**

INTRODUCTION
SECTION 1.

STUDY PURPOSE

The purpose of this study is to quantify and analyze the traffic impacts of a proposed subdivision for 19 single family residential units on a 13.32 acre parcel off of Bel Aire Road in unincorporated San Mateo County adjacent to the City of San Mateo. See Figure 1, Location Map, page 2.

ANALYSIS METHODOLOGIES

Six street segments have been designated for analysis in this study. They are –

1) Polhemus Road south of Ascension Drive
2) Ascension Drive, Polhemus Road to Bel Aire Road
3) Bel Aire Road, Ascension Drive to Laurie Lane
4) Laurie Lane
5) Parrott Drive, Laurie Lane to CSM Drive
6) CSM Drive east of Parrott Drive

The six designated street segments have been analyzed according to the T.I.R.E. Index. The TRAFFIX program[1] has been used to generate and distribute the traffic on the street network. The TIRE Index is a way to determine the impact of a project's traffic on the surrounding street system is by use of the TIRE (**T**raffic **I**nfusion on **R**esidential **E**nvironment) index.[2] This index is based on the idea that increases in traffic volume have a greater impact on the residential environment on a lower volume street than along a street with a much higher level of baseline traffic. The TIRE index is a representation of the effects of traffic on safety, pedestrians, bicyclists, children playing near the street and the ability to freely maneuver into and out of driveways. A change in the TIRE index of 0.1 or more would be a noticeable increase in traffic on the street, and, therefore, an impact upon the residential environment. The five levels of the TIRE index are shown in Table A on page 3.

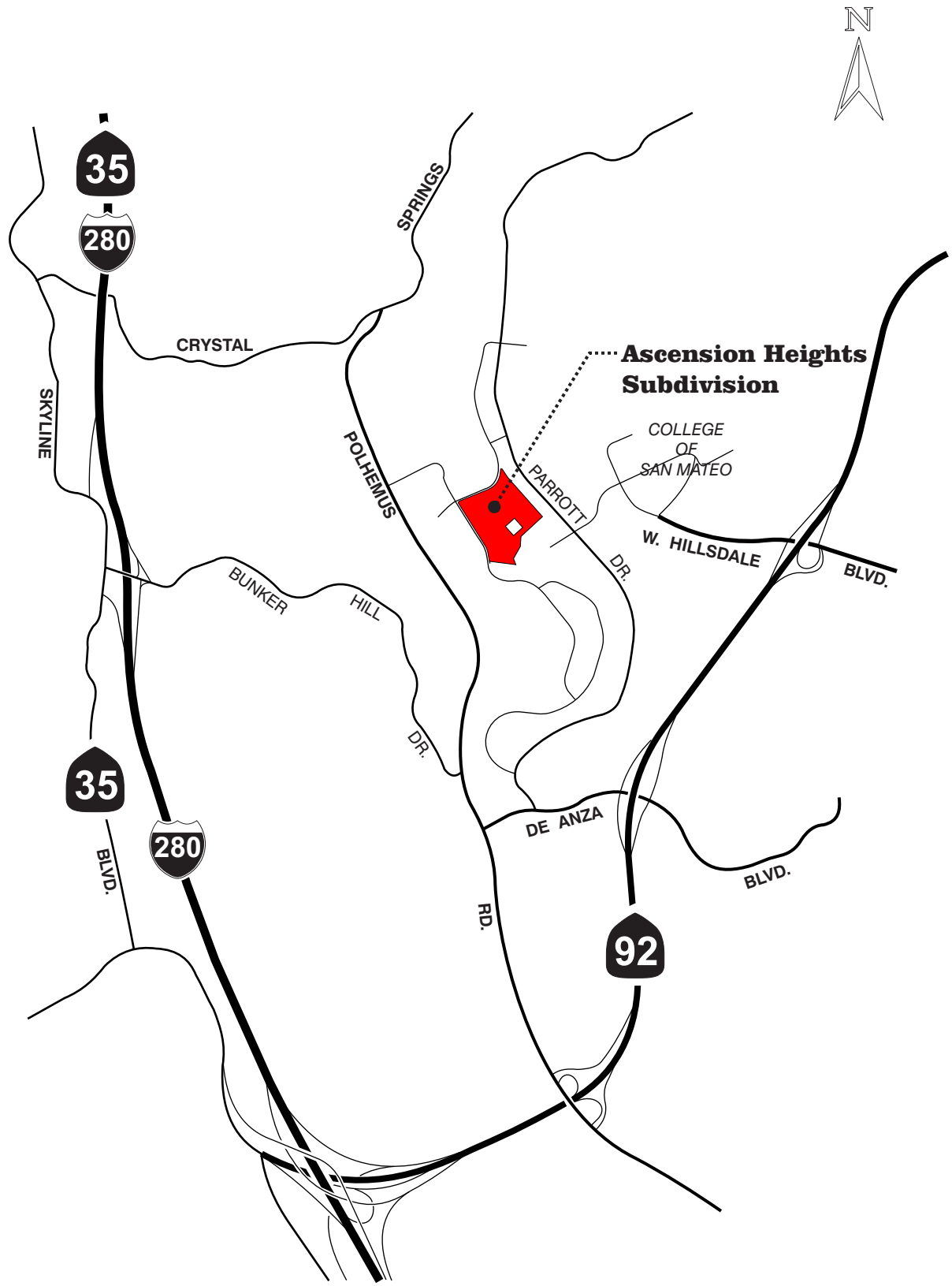
Four intersections are included in the analysis. They are –

1) Polhemus Road & Ascension Drive
2) Ascension Drive & Bel Aire Road
3) Laurie Lane & Parrott Drive
4) Parrott Drive & CSM Drive

These four STOP controlled intersections have been analyzed according to the procedures contained in the 2000 Highway Capacity Manual.

[1] Dowling Associates, TRAFFIX 8.0.0715, ©2008

[2] Goodrich, D.K. and Donald Appleyard, University of California, Berkeley



0 1/4 1/2 3/4

Scale in Miles

LOCATION MAP
FIGURE 1

RKH

ANALYSIS SCENARIOS

Four scenarios have been developed and analyzed in this study.

1. **Existing Conditions.** Current (2013 and 2014) traffic volumes within the study area.

2. **Background Conditions (Existing + Approved Projects).** Background traffic is that traffic expected to be present at the time the project is ready for occupancy. It consists of existing traffic plus traffic expected to be generated by those developments that are approved but were not built and occupied at the time the traffic counts were taken.

3. **Project Conditions. (Existing + Approved + Project)** Project trips are estimated based on the proposed land use and are then added to Background Conditions traffic in order to obtain the Project Conditions traffic scenario. An Existing+Project scenario is also analyzed in order to comply with a recent Supreme Court ruling.

4. **Year 2030 Cumulative Conditions. (Existing + Approved + Project + Future Development)** Cumulative traffic is that traffic expected to be present within the next five years. It consists of existing traffic plus trips from Approved Projects plus trips from the project plus trips from future development projects within the study area.

Table A: TIRE Index Levels

TIRE INDEX	DAILY TRAFFIC VOLUME	RESIDENTIAL ENVIRONMENT
0	1	
		A cul-de-sac street with one home.
1	10	
		A cul-de-sac street with 2-15 homes.
2	100	
		A 2-lane minor street.
3	1000	
		A 2-lane collector or arterial street.
4	10000	
		A 2 to 6-lane arterial street.
5	100000	

TABLE A1: Levels of Service Definitions for 2-Way and All-Way STOP Controlled Intersections	
Level of Service	Traffic Conditions
A	Very low delay, less than or equal to10.0 seconds of average control delay per vehicle.
B	Average control delay in the range of 10.1 to 15.0 seconds per vehicle
C	Average control delay in the range of 15.1 to 25.0 seconds per vehicle
D	Average control delay in the range of 25.1 to 35.0 seconds per vehicle
E	Average control delay in the range of 35.1 to 50.0 seconds per vehicle
F	Average control delay in excess of 50 seconds per vehicle.

Reference: *Highway Capacity Manual*, Chapter 17, HCM2000.

LEVELS OF SERVICE STANDARDS

The LOS standards are described in the County's General Plan (§II.A.1.d.(2), pg. 12.8-12.10). There is no clearly defined LOS standard for the area in which the project is located, but the County has set a LOS standard of C in other planning areas. For purposes of this analysis a LOS standard of C will be used.

EXISTING CONDITIONS
SECTION 2.

ROADWAY NETWORK

Polhemus Road. This 2-lane road is classified as an arterial highway in the County's General Plan and connects Ralston Avenue to Crystal Springs Road.

Ascension Drive, Bel Aire Road, and Laurie Lane. These 2-lane residential streets serve Ascension Heights residential neighborhood. Parking is generally allowed on either side of the street.

Parrott Drive. This street is an extension of Parrott Drive in the City of San Mateo and connects to De Anza Boulevard in the City of San Mateo. It is a 2-lane street with parking generally allowed on both sides of the street.

CSM Drive. This 2-lane street connects Parrott Drive on the west to W. Hillsdale Boulevard on the east in the College of San Mateo.

EXISTING TRAFFIC VOLUMES

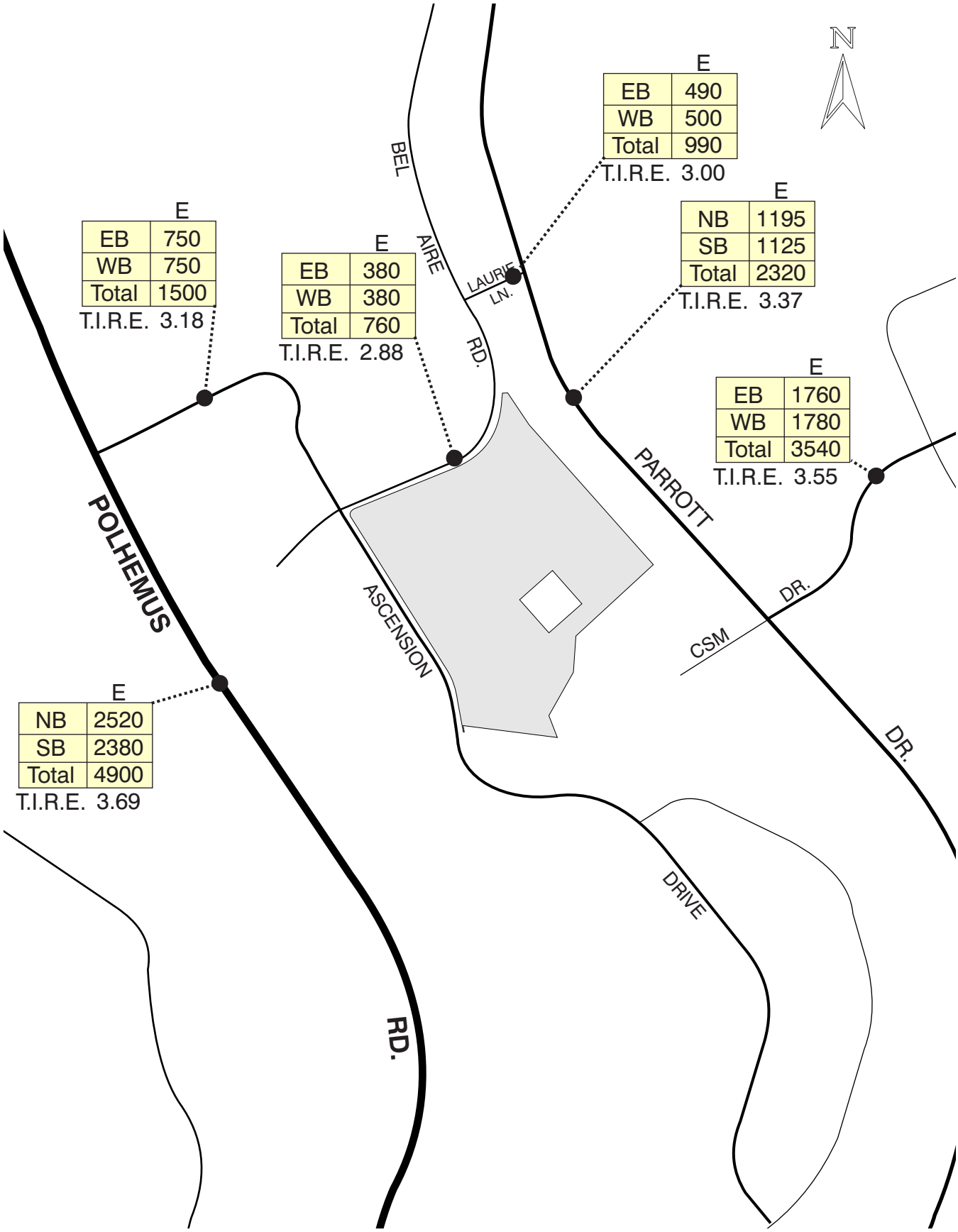
Existing 2013 daily traffic volumes on the study area streets are shown on Figure 2, Existing Daily Traffic Volumes, page 6. The traffic counts were obtained during the month of May, 2013 prior to the close of the spring semester at the College of San Mateo. Turning movement counts at the four study area intersections were collected in September, 2014. See Appendix A for the traffic count data.

Figure 2 also shows the associated TIRE Index for the total daily traffic volumes on the six street segments. With the exception of Bel Aire Road, all of the other street segments are functioning as collector streets. In the case of Polhemus Road it is acting as a minor arterial street.

Figure 2A, Existing Intersection Peak Hour Volumes, page 7, shows the volume of traffic during the highest 60 minute period in both the 7-9 a.m. and 4-6 p.m. peak traffic periods.

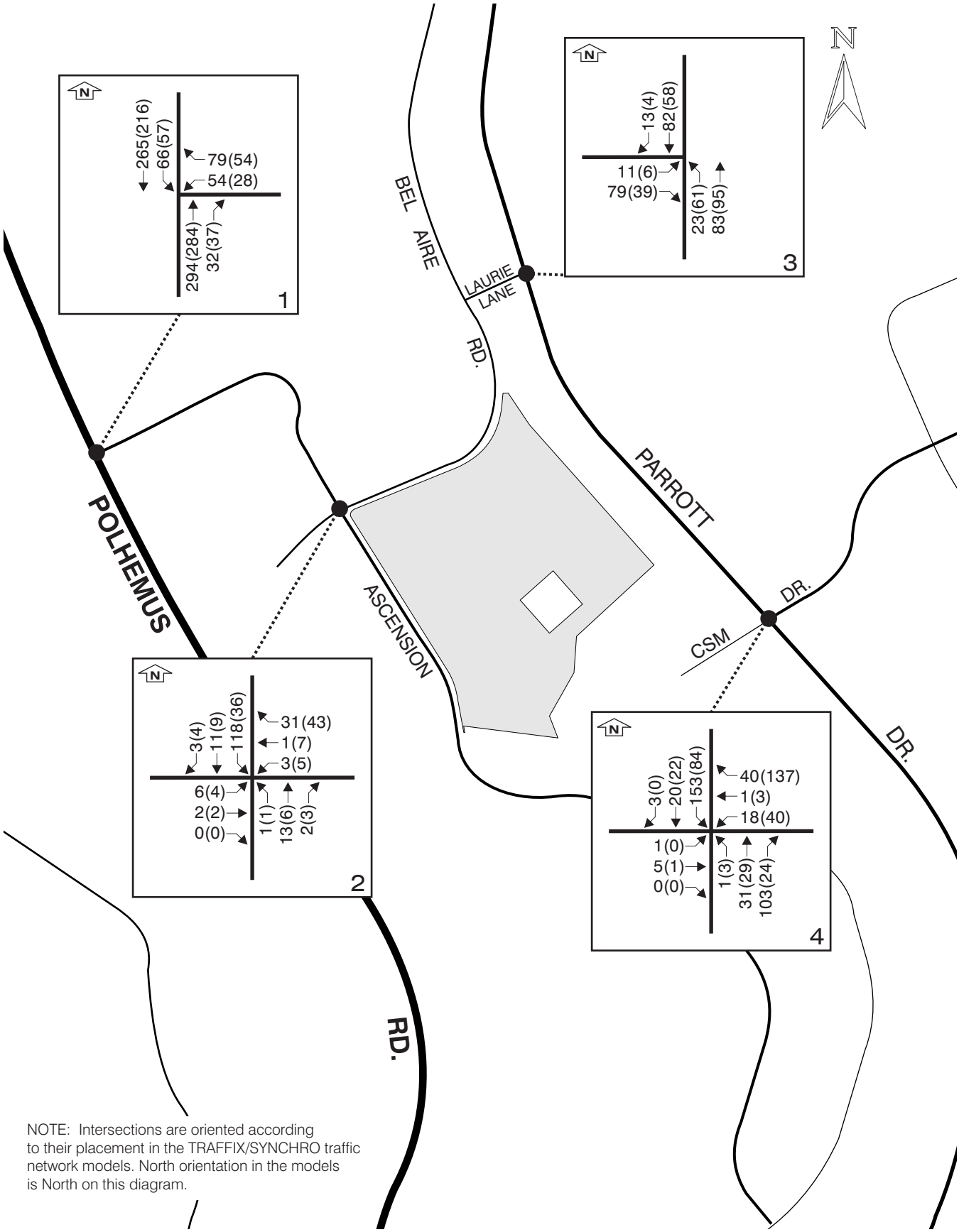
EXISTING INTERSECTION LEVELS OF SERVICE

Levels of Service have been calculated for the existing conditions scenario using the analysis methods contained in the *2000 Highway Capacity Manual* using the Synchro 6 program. The results of the LOS calculations are summarized in Table B on page 8. The calculation worksheets are provided in Appendix B. The LOS calculations reflect traffic conditions existing in 2014.



EXISTING DAILY TRAFFIC VOLUMES
FIGURE 2

RKH



NOTE: Intersections are oriented according to their placement in the TRAFFIX/SYNCHRO traffic network models. North orientation in the models is North on this diagram.

KEY:
000(000) = AM(PM) Peak Hour Traffic Volumes
AM Peak Hour Between 7 and 9 AM
PM Peak Hour Between 4 and 6 PM

EXISTING INTERSECTION PEAK HOUR VOLUMES
FIGURE 2A

RKH

TABLE B: Intersection Levels of Service Existing Conditions				
STOP Controlled Intersections	Controlled Approach	Peak Hour	Delay	LOS
1 - Polhemus Road & Ascension Drive	Ascension Dr.	AM	15.2	C
		PM	12.7	B
2 - Ascension Drive & Bel Aire Road	4-way STOP	AM	7.8	A
		PM	7.1	A
3 - Parrott Drive & Laurie Lane	3-way STOP	AM	7.7	A
		PM	7.9	A
4 - Parrott Drive & CSM Drive	4-way STOP	AM	8.1	A
		PM	8.0	A

Delay is average control delay in seconds per vehicle.
LOS is Level of Service. See TableA1 for definitions.

BACKGROUND CONDITIONS
SECTION 3.

Background Conditions are those traffic conditions which are expected to occur immediately prior to the completion and occupancy of the proposed subdivision. Traffic from developments that are approved and/or ones that are expected to be completed and occupied prior to the proposed project is added to existing traffic volumes to create this traffic analysis scenario.

APPROVED PROJECTS

There are no approved projects in the study area that will be completed by the time the subdivision is expected to be completed and occupied (2017).

BACKGROUND TRAFFIC GROWTH

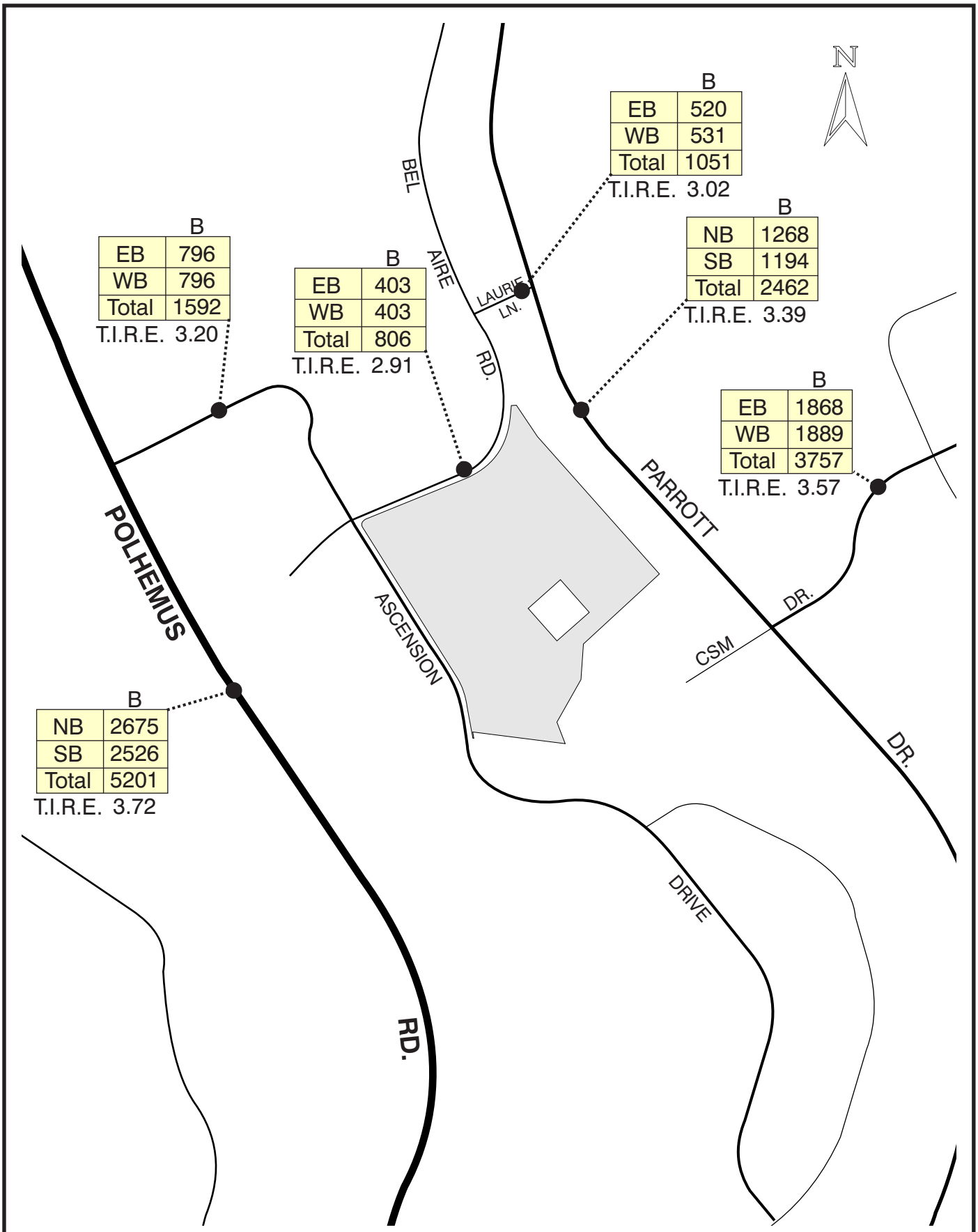
Traffic volumes taken on the same street segments as in this study some years ago have been analyzed to determine the growth in traffic due to general development of the area. An analysis of the growth is provided in Appendix C. For purposes of this study a background growth factor of 1.5% per year is used for all street segments to project traffic to the year 2017.

BACKGROUND CONDITIONS TRAFFIC VOLUMES

Background Conditions Daily Traffic Volumes are shown in Figure 3, page 10. As can be seen, the TIRE Indices increased slightly from that of Existing Conditions. Background Conditions Peak Hour Traffic Volumes, Figure 3A, are shown on page 11.

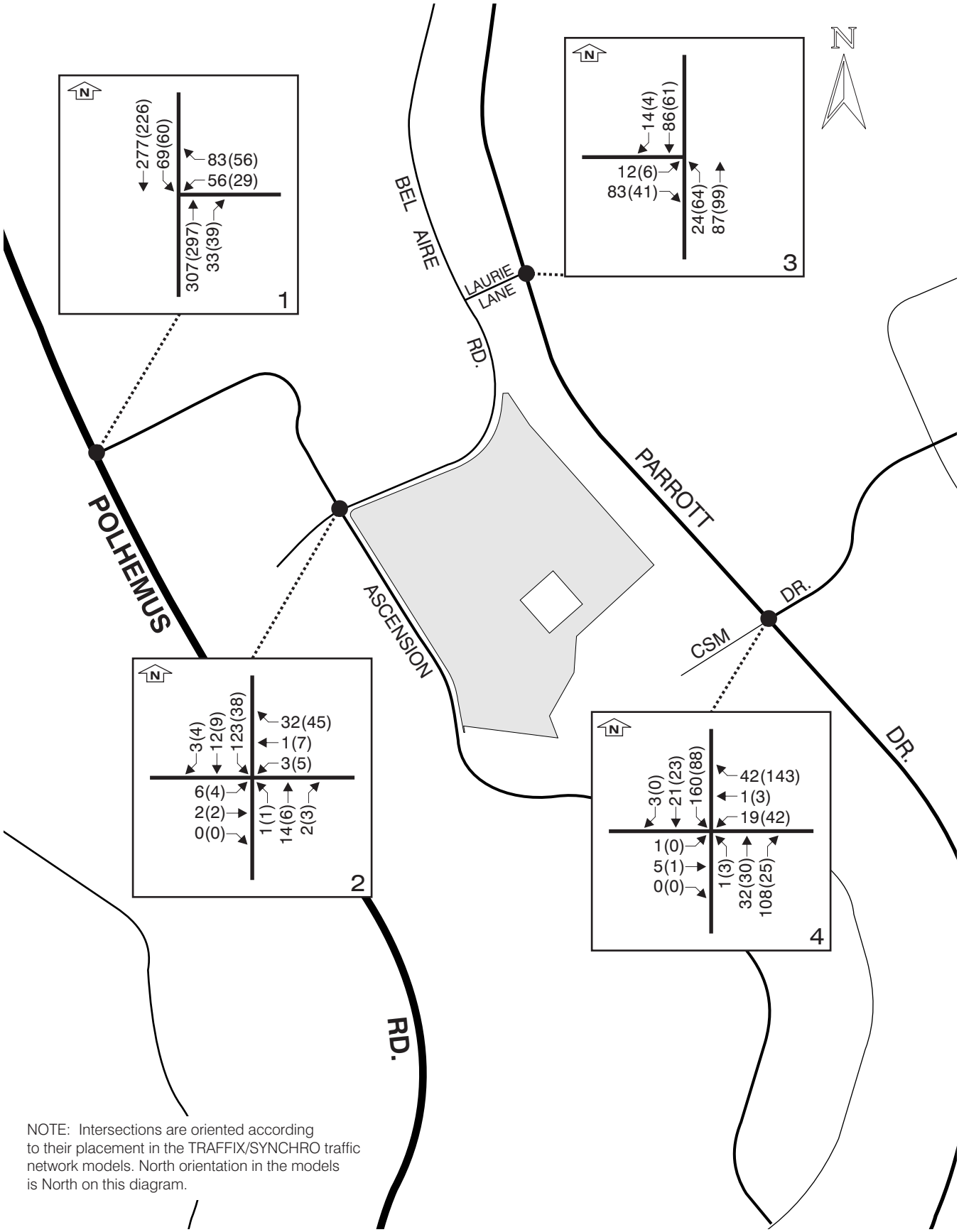
BACKGROUND CONDITIONS INTERSECTION LEVELS OF SERVICE

Levels of Service have been calculated for the background conditions scenario using the analysis methods contained in the *2000 Highway Capacity Manual* using the Synchro 6 program. The results of the LOS calculations are summarized in Table C on page 12. The calculation worksheets are provided in Appendix B.



BACKGROUND CONDITIONS DAILY TRAFFIC VOLUMES
FIGURE 3

RKH



NOTE: Intersections are oriented according to their placement in the TRAFFIX/SYNCHRO traffic network models. North orientation in the models is North on this diagram.

KEY:
000(000) = AM(PM) Peak Hour Traffic Volumes
AM Peak Hour Between 7 and 9 AM
PM Peak Hour Between 4 and 6 PM

BACKGROUND CONDITIONS
PEAK HOUR VOLUMES
FIGURE 3A

RKH

TABLE C: Intersection Levels of Service Background Conditions						
			Existing Conditions		Background Conditions	
STOP Controlled Intersections	Controlled Approach	Peak Hour	Delay	LOS	Delay	LOS
1 - Polhemus Road & Ascension Drive	Ascension Dr.	AM	15.2	C	15.9	C
		PM	12.7	B	13.1	B
2 - Ascension Drive & Bel Aire Road	4-way STOP	AM	7.8	A	7.8	A
		PM	7.1	A	7.1	A
3 - Parrott Drive & Laurie Lane	3-way STOP	AM	7.7	A	7.8	A
		PM	7.9	A	7.9	A
4 - Parrott Drive & CSM Drive	4-way STOP	AM	8.1	A	8.2	A
		PM	8.0	A	8.1	A

Delay is average control delay in seconds per vehicle.
LOS is Level of Service. See TableA1 for definitions.

PROJECT CONDITIONS
SECTION 4.

PROJECT DESCRIPTION

The project will construct 19 single family residential units served off of Bel Aire Road by private streets.

PROJECT VEHICLE TRIP GENERATION

The estimate of vehicle trips to be generated by the project is shown in Table D below. The estimate is based on data contained in *Trip Generation.*[3] The AM Street Peak Hour is generally between 7 a.m. and 9 a.m. and the PM Street Peak Hour is generally between 4 p.m. and 6 p.m. A detailed trip generation table can be found in Appendix C.

Table D: Project Vehicle Trip Generation

Land Use	Size	Units	AM Street Peak Hour			PM Street Peak Hour			AWDT
			In	Out	Total	In	Out	Total	
Single-Family Detached Housing	19	DU	16	7	23	15	9	24	228

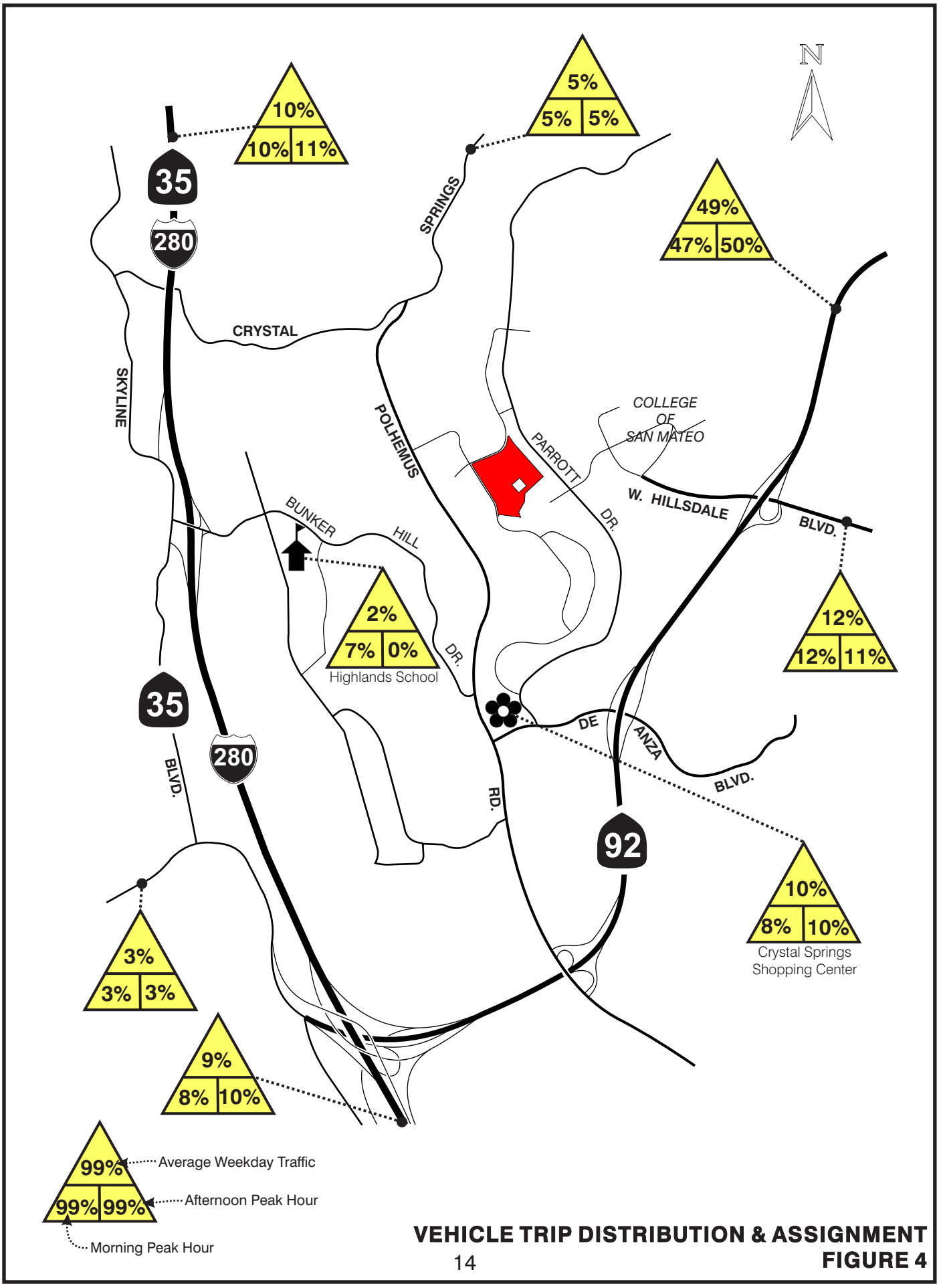
AWDT is Average Weekday Traffic (24-hr. volume)

PROJECT VEHICLE TRIP DISTRIBUTION

Project generated vehicle trips have been distributed on the basis of trip purpose as shown on Table 5 of the 2009 National Household Travel Survey[4] using Google Maps © to determine travel time routes to the trip purpose destinations. The assumed vehicle trip distributions are shown on Figure 4, Vehicle Trip Distribution & Assignment, page 14.

[3] Institute of Transportation Engineers, 9th Edition, © 2012.

[4] U.S. Department of Transportation, Federal Highway Administration, Publication FHWA-PL-11-022, June 2011



VEHICLE TRIP DISTRIBUTION & ASSIGNMENT
FIGURE 4

RKH

PROJECT CONDITIONS TRAFFIC VOLUMES

The Project Conditions (Existing + Approved + Project) daily traffic volumes on the six study area street segments are shown on Figure 5, Project Conditions Daily Traffic Volumes, page 16. Figure 5 shows the Background Conditions daily traffic volumes in comparison with Project Conditions daily traffic and the associated TIRE Indices. The change in TIRE Index on the six street segments as a result of project traffic being added is less than 0.10 on all of the street segments, and, therefore, the addition of project traffic results in a less than significant impact. Project conditions intersection peak hour traffic volumes are shown on Figure 5A, page 17.

EXISTING PLUS PROJECT TRAFFIC VOLUMES

Because of a California State Supreme Court ruling, an Existing + Project Scenario must be evaluated. Figure 6, Existing + Project Conditions Daily Traffic Volumes, page 18, shows the changes in volumes and their associated TIRE Indices from Existing to Existing + Project Conditions. The change in TIRE Index on all of the street segments is less than 0.10. Figure 6A, page 19, shows the intersection peak hour volumes for the Existing + Project scenario.

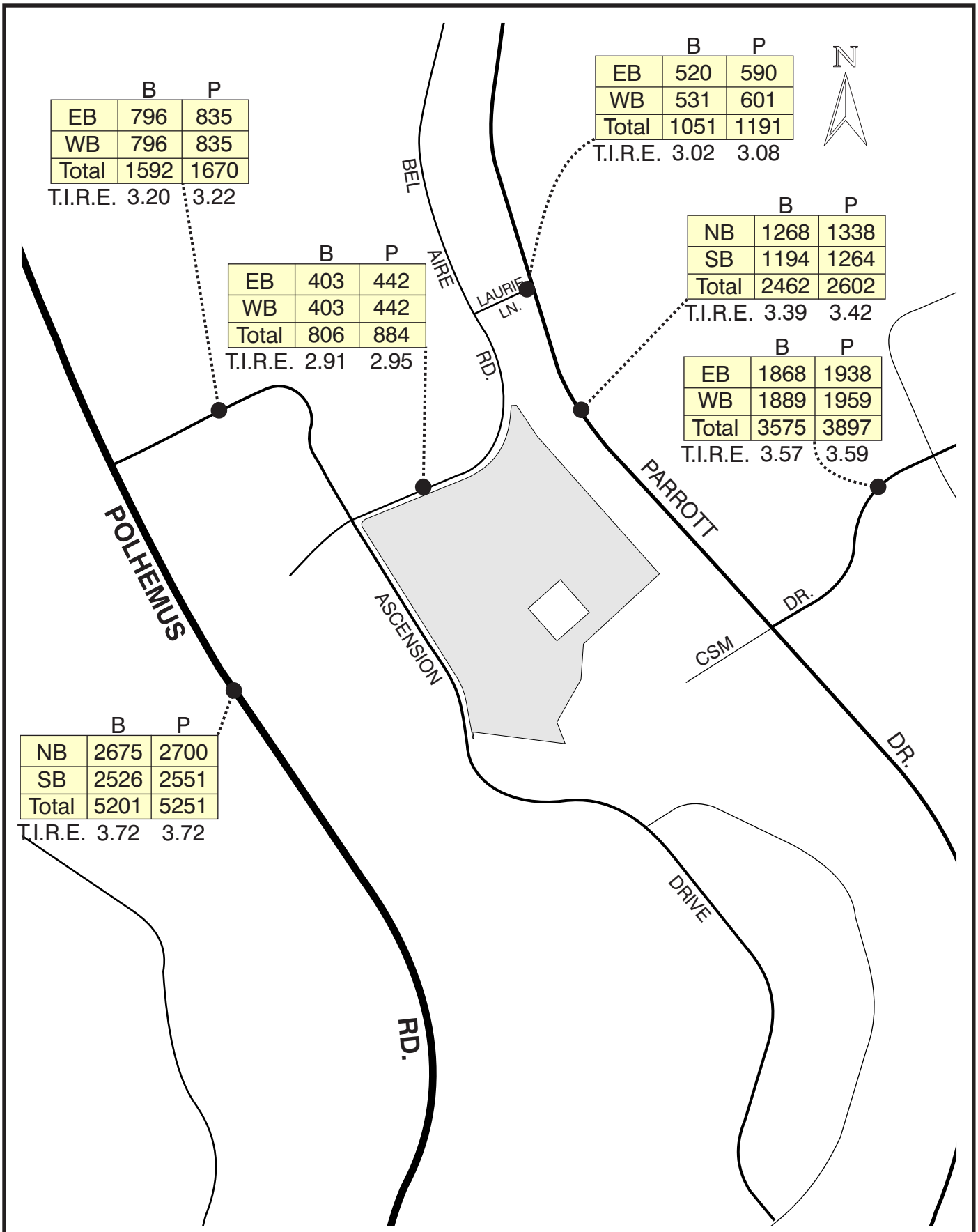
PROJECT CONDITIONS INTERSECTION LEVELS OF SERVICE

Levels of Service have been calculated for the project conditions scenario using the analysis methods contained in the *2000 Highway Capacity Manual* using the Synchro 6 program. The results of the LOS calculations are summarized in Table E below. The calculation worksheets are provided in Appendix B.

TABLE E: Intersection Levels of Service
Project Conditions

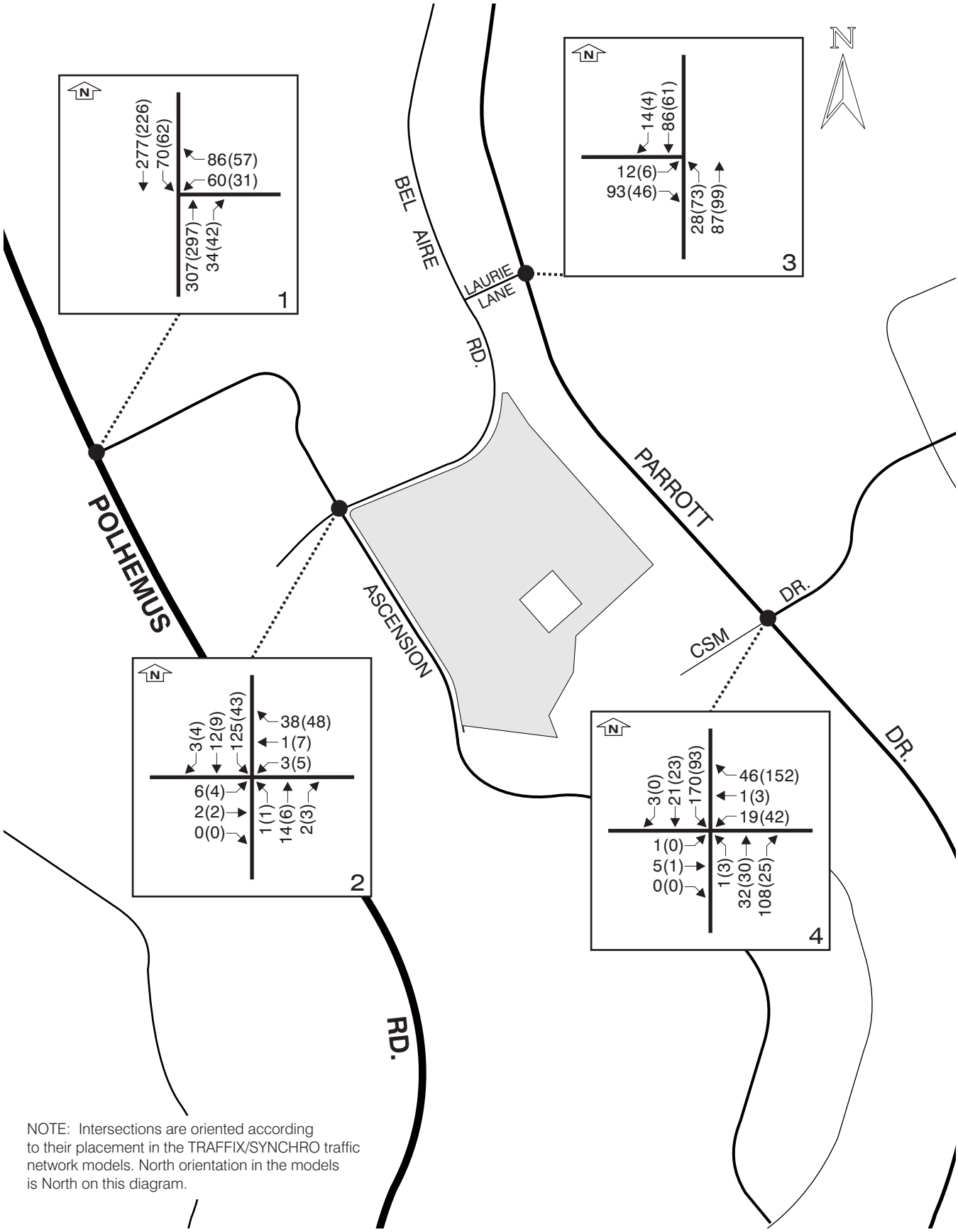
			Project Conditions		Ex. + Project Conditions	
STOP Controlled Intersections	Controlled Approach	Peak Hour	Delay	LOS	Delay	LOS
1 - Polhemus Road & Ascension Drive	Ascension Dr.	AM	16.3	C	15.5	C
		PM	13.3	B	12.9	B
2 - Ascension Drive & Bel Aire Road	4-way STOP	AM	7.8	A	7.8	A
		PM	7.2	A	7.1	A
3 - Parrott Drive & Laurie Lane	3-way STOP	AM	7.8	A	7.8	A
		PM	8.0	A	7.9	A
4 - Parrott Drive & CSM Drive	4-way STOP	AM	8.3	A	8.2	A
		PM	8.2	A	8.1	A

Delay is average control delay in seconds per vehicle.
LOS is Level of Service. See TableA1 for definitions.



PROJECT CONDITIONS DAILY TRAFFIC VOLUMES
FIGURE 5

RKH

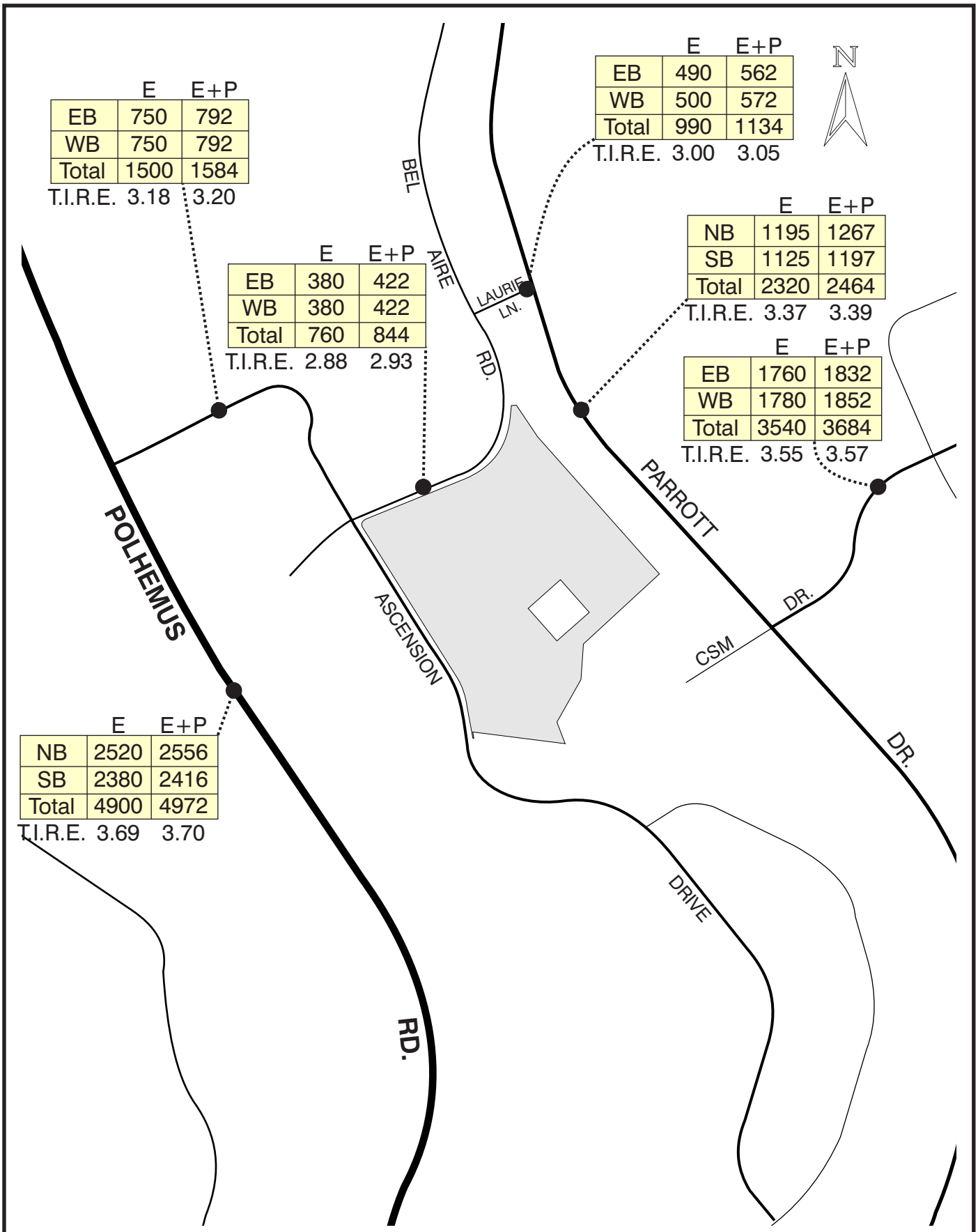


NOTE: Intersections are oriented according to their placement in the TRAFFIX/SYNCHRO traffic network models. North orientation in the models is North on this diagram.

KEY:
000(000) = AM(PM) Peak Hour Traffic Volumes
AM Peak Hour Between 7 and 9 AM
PM Peak Hour Between 4 and 6 PM

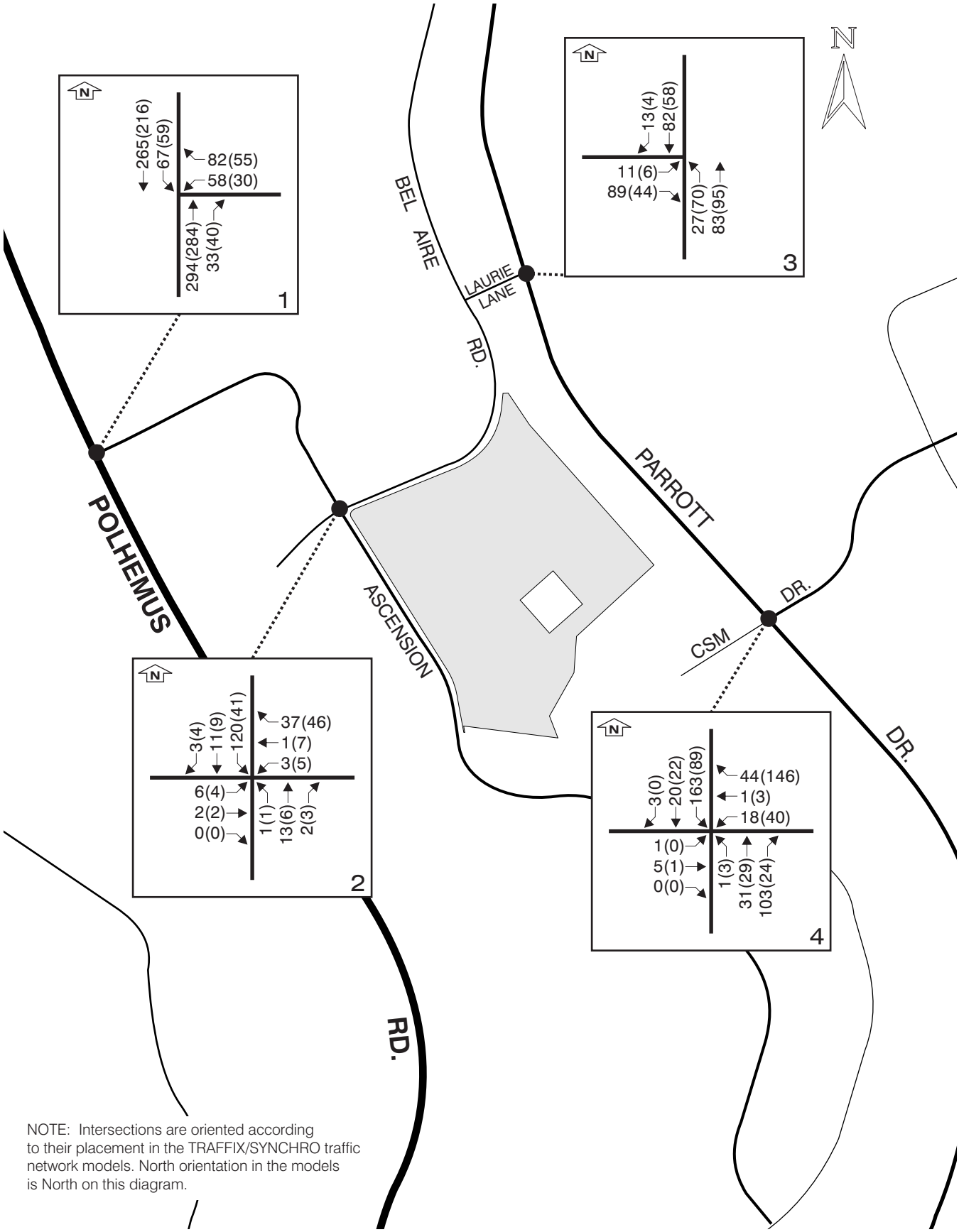
PROJECT CONDITIONS
PEAK HOUR VOLUMES
FIGURE 5A

RKH



EXISTING +PROJECT CONDITIONS
DAILY TRAFFIC VOLUMES
FIGURE 6

RKH



NOTE: Intersections are oriented according to their placement in the TRAFFIX/SYNCHRO traffic network models. North orientation in the models is North on this diagram.

KEY:
000(000) = AM(PM) Peak Hour Traffic Volumes
AM Peak Hour Between 7 and 9 AM
PM Peak Hour Between 4 and 6 PM

EXISTING + PROJECT PEAK HOUR VOLUMES
FIGURE 6A

RKH

YEAR 2030 CUMULATIVE CONDITIONS
SECTION 5.

CUMULATIVE CONDITIONS SCENARIO

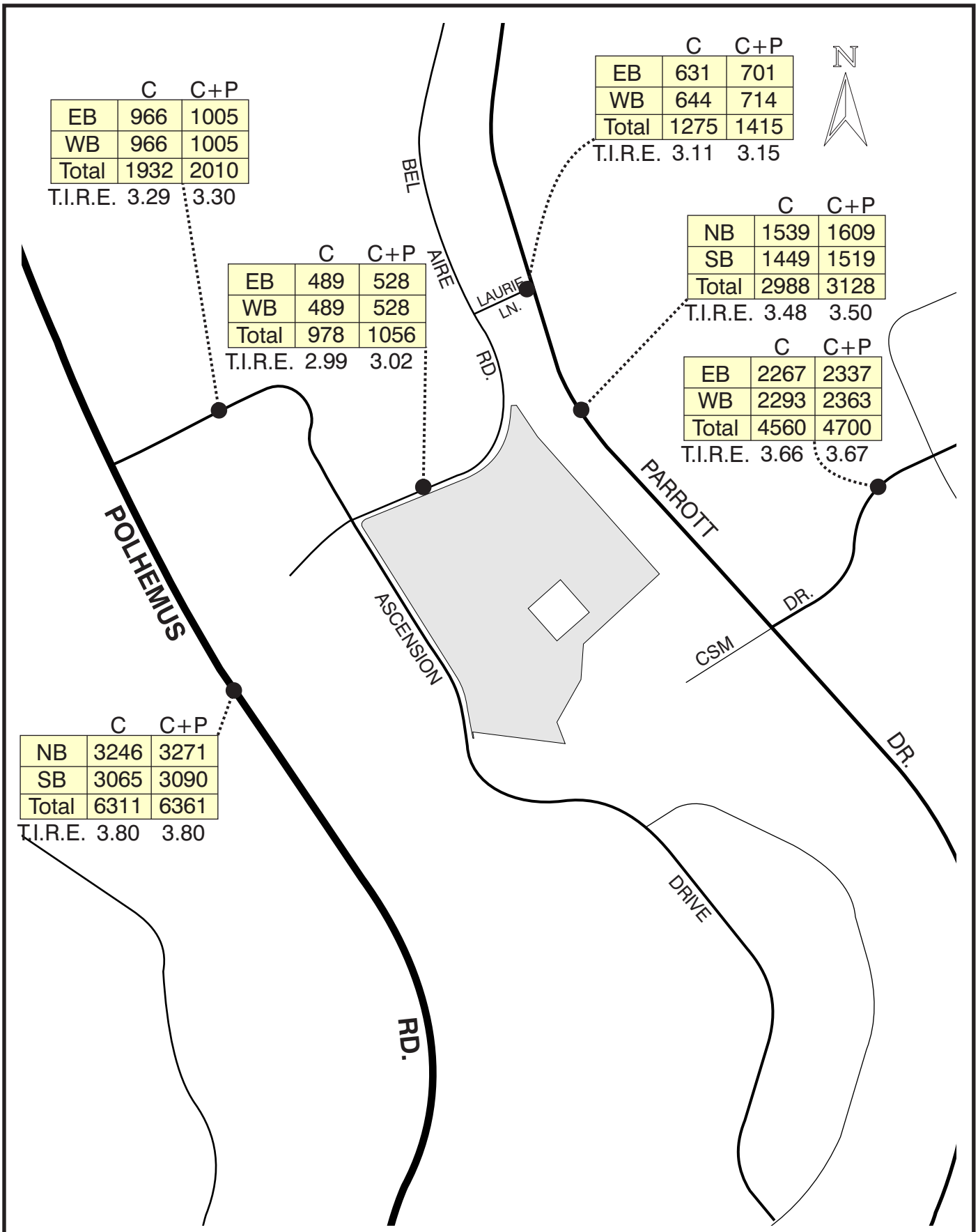
The Cumulative Conditions scenario for purposes of this study are those that are expected by the year 2030. There are no identified future developments that could affect traffic volumes in the project study area. A background growth factor of 1.5% per year has been applied to the existing traffic volumes to extrapolate them to the year 2030.

CUMULATIVE CONDITIONS TRAFFIC VOLUMES

The 2030 cumulative traffic volumes are shown on Figure 7, Cumulative Conditions Daily Traffic Volumes, page 21. Figure 7 also shows and compares the Cumulative + Project daily traffic volumes with the Cumulative Conditions volumes. The associated TIRE Indices show a less than 0.10 change in the index on all street segments, and, therefore, the addition of project generated traffic will not create a significant impact on the surrounding street system. Figure 7A, page 22, shows the intersection peak hour volumes for the cumulative scenario and Figure 7B, page 23, shows the intersection peak hour volumes for the cumulative + project scenario.

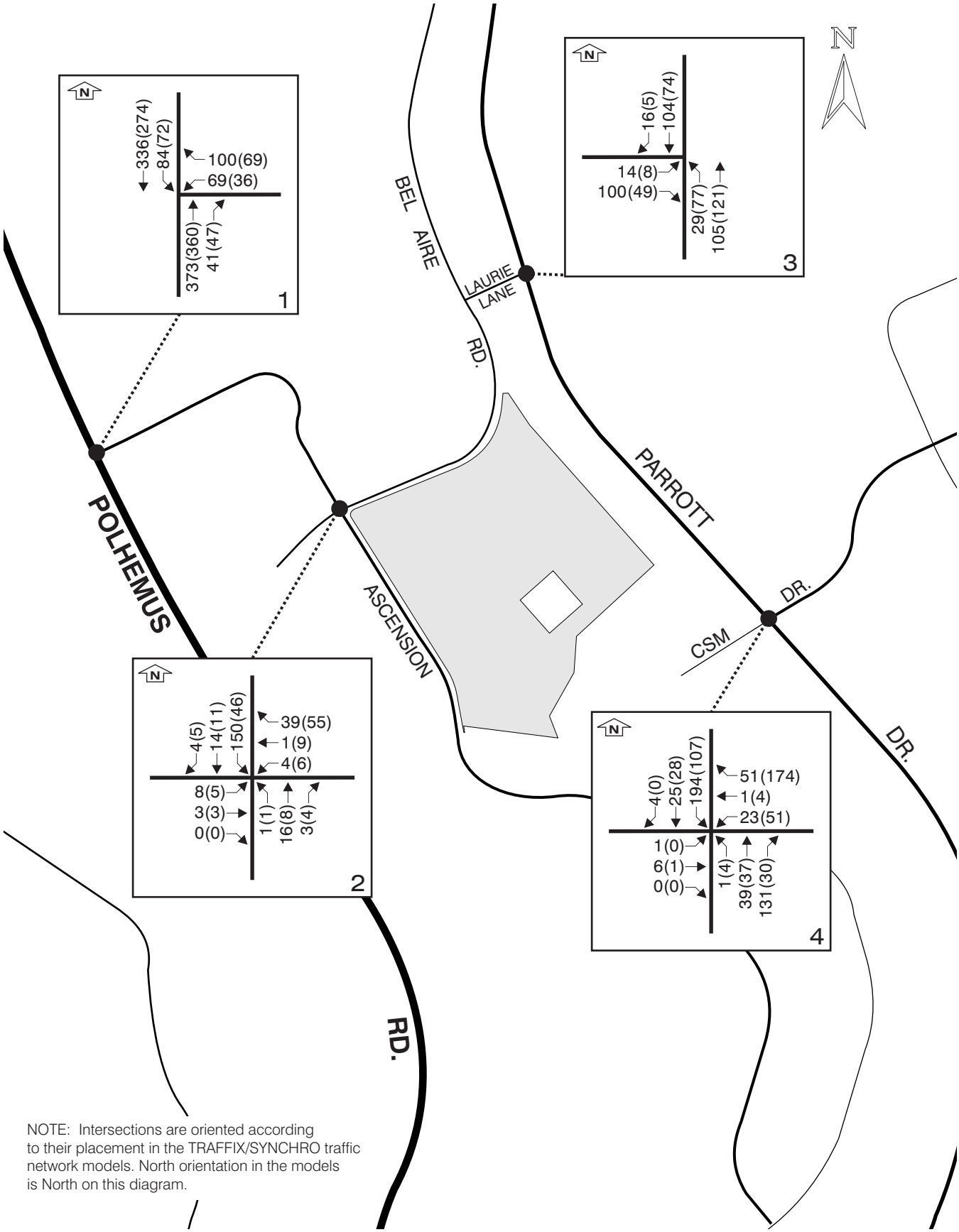
CUMULATIVE CONDITIONS INTERSECTION LEVELS OF SERVICE

Levels of Service have been calculated for the cumulative conditions and the cumulative + project scenarios using the analysis methods contained in the *2000 Highway Capacity Manual* using the Synchro 6 program. The results of the LOS calculations are summarized in Table F on page 24. The calculation worksheets are provided in Appendix B.



CUMULATIVE CONDITIONS
DAILY TRAFFIC VOLUMES
FIGURE 7

RKH

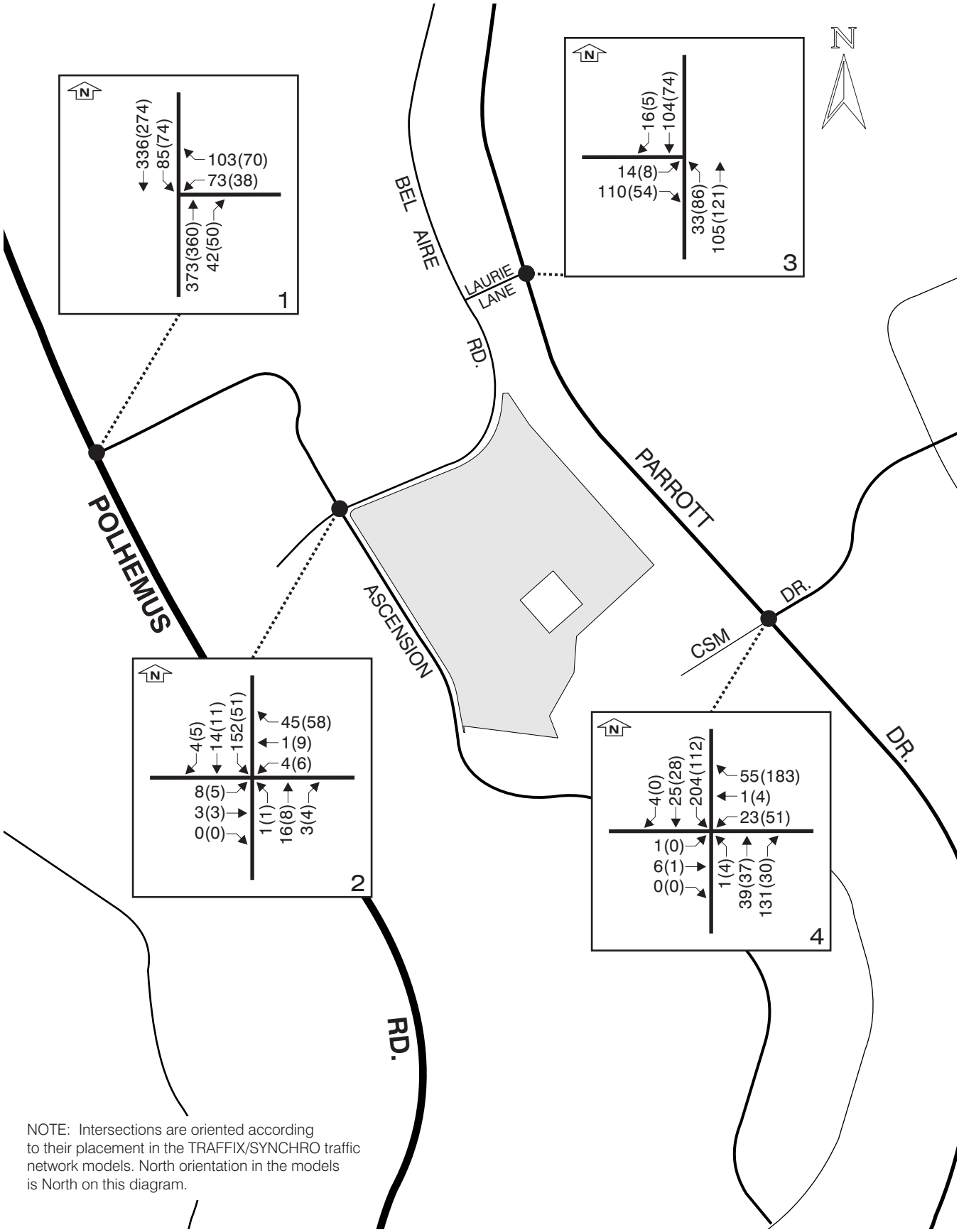


NOTE: Intersections are oriented according to their placement in the TRAFFIX/SYNCHRO traffic network models. North orientation in the models is North on this diagram.

KEY:
000(000) = AM(PM) Peak Hour Traffic Volumes
AM Peak Hour Between 7 and 9 AM
PM Peak Hour Between 4 and 6 PM

CUMULATIVE CONDITIONS
PEAK HOUR VOLUMES
FIGURE 7A

RKH



NOTE: Intersections are oriented according to their placement in the TRAFFIX/SYNCHRO traffic network models. North orientation in the models is North on this diagram.

KEY:
000(000) = AM(PM) Peak Hour Traffic Volumes
AM Peak Hour Between 7 and 9 AM
PM Peak Hour Between 4 and 6 PM

CUMULATIVE + PROJECT CONDITIONS PEAK HOUR VOLUMES
FIGURE 7B

RKH

TABLE F: Intersection Levels of Service Cumulative Conditions						
			Cumulative Conditions		C + Project Conditions	
STOP Controlled Intersections	Controlled Approach	Peak Hour	Delay	LOS	Delay	LOS
1 - Polhemus Road & Ascension Drive	Ascension Dr.	AM	21.9	C	22.8	C
		PM	15.4	C	15.7	C
2 - Ascension Drive & Bel Aire Road	4-way STOP	AM	8.0	A	8.1	A
		PM	7.2	A	7.3	A
3 - Parrott Drive & Laurie Lane	3-way STOP	AM	8.1	A	8.1	A
		PM	8.2	A	8.3	A
4 - Parrott Drive & CSM Drive	4-way STOP	AM	8.7	A	8.8	A
		PM	8.6	A	8.7	A

Delay is average control delay in seconds per vehicle.
LOS is Level of Service. See TableA1 for definitions.

SITE ACCESS, CIRCULATION AND PARKING SECTION 6.

SITE PLAN

The subdivision plan is shown on Figure 8, Site Plan, page 26. The 19 lots will be served by private residential streets with one intersection on Bel Aire Road.

SITE ACCESS AND CIRCULATION

Access to the site will be from Bel Aire Road via a single private street. Vehicles exiting the site should have adequate corner sight distance when entering Bel Aire Road Corner sight distance is based on the stopping sight distance for vehicles traveling at 30 miles per hour, 5 mile per hour above the prima facie speed limit of 25 miles per hour. The area within the sight triangles should be unobstructed by landscape shrubbery, trees, large signs, or parked vehicles. See Figure 9, Corner Sight Distance, page 27.

The private streets are 36 feet wide, curb-to-curb, within a 50-ft. wide right of way. A 36-ft. wide street allows for two parking lanes each eight feet wide and two travel lanes each 10 feet wide. At the end of each of the two private streets there is a hammerhead cul-de-sac, 20 feet wide by 85 feet long. This end treatment is adequate for autos and single unit delivery trucks. Parking should not be allowed in the cul-de-sac areas.

The maximum grade on the private streets is around 19%. This is higher than typically allowed on residential streets (15-17% for mountainous conditions)[5] but the length of the grades is relatively short, under 500 feet.

PARKING

The private streets, like public streets of comparable size allow for parking on both sides of the street. For single family detached housing each unit is typically required to have two garage spaces and, depending on the lot configuration, space on the driveway for two additional vehicles. Street parking will depend on the location and proximity of one driveway to the next. Typically a single family detached house will be able to accommodate up to five vehicles on the site and immediately fronting the lot. Guests should be able to park on the driveways and immediately in front of each house without difficulty.

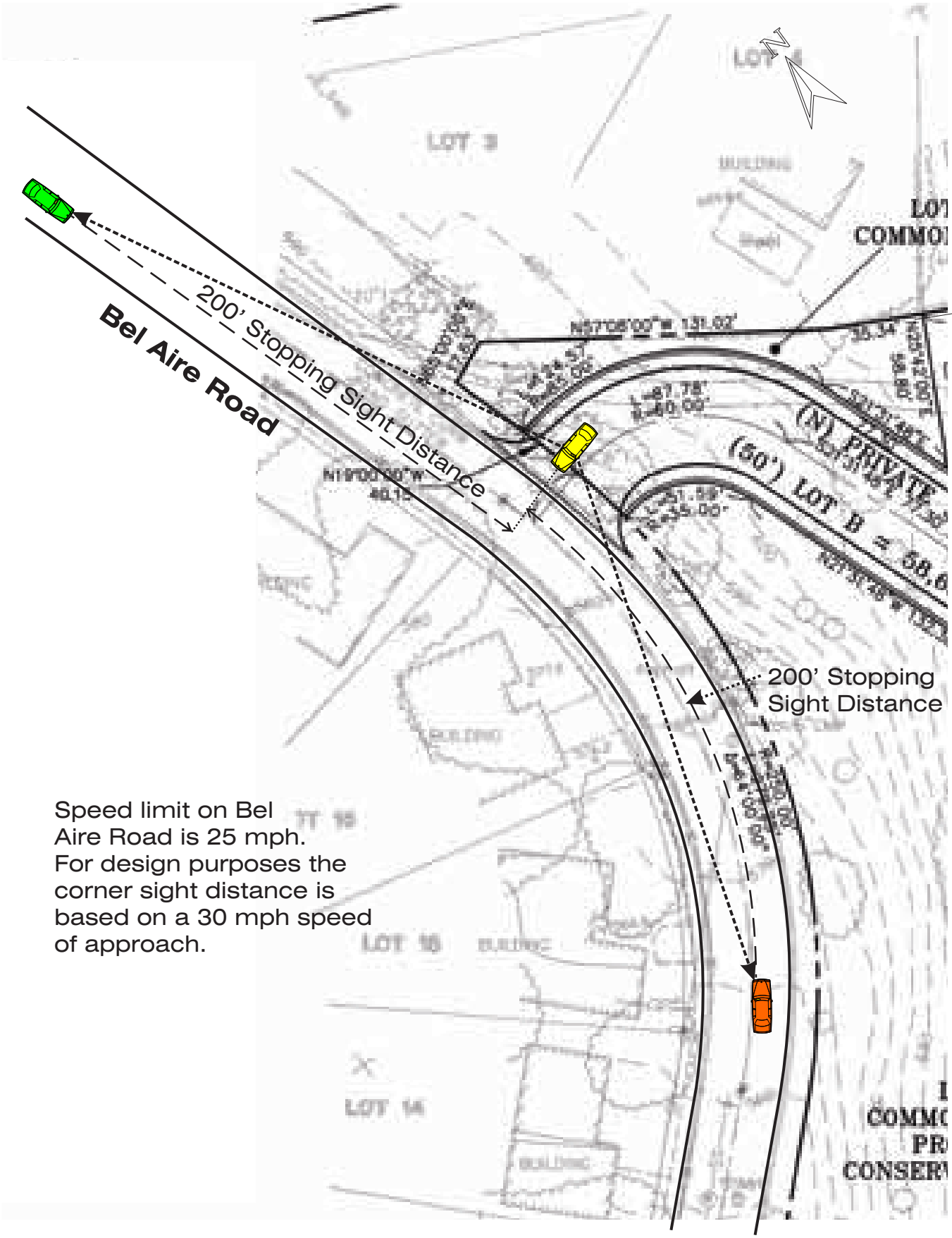
[5] AASHTO, A Policy on Geometric Design of Highways and Streets, 6th Edition, © 2011

0 75 150 225

Scale in Feet

SITE PLAN
FIGURE 8

RKH



CORNER SIGHT DISTANCE
FIGURE 9

RKH

PEDESTRIAN AND BICYCLE CIRCULATION

The private streets are to have 5-ft. wide sidewalks on each side of the street. Bel Aire Road has a sidewalk only on the west side of the street and not on the east side where the subdivision is to be constructed. Pedestrians desiring to walk beyond the limits of the developed subdivision will have to cross Bel Aire Road and use the existing sidewalk there to access areas beyond the subdivision. Cyclists will have easy access to the surrounding street system, although there are no designated bike lanes on the surrounding residential streets.

The streets should be illuminated for the safety of pedestrians and cyclists. For a residential street with low pedestrian conflict areas such as on these streets the minimum maintained average illuminance should be 0.4 fc (foot candles) with an average to minimum uniformity ratio of 6.0.[6]

TRANSPORTATION DEMAND MANAGEMENT PLAN

This project does not trigger the need for a Transportation Demand Management (TDM) Plan as mandated by the City-County Association of Governments (C/CAG) Congestion Management Program because it generates less than 100 net new peak hour trips on the CMP network.

CONSTRUCTION TRAFFIC

Construction traffic will most likely access the site via Polhemus Road, Ascension Drive, and Bel Aire Road. Construction worker vehicles could park on the site and should also be able to park on the east side of Bel Aire Road without interfering with adjacent residential parking. An estimated 46,480 cubic yards of earth are to be excavated on the site and 19,970 cubic yards are to be remain on the site as fill. The remaining 26,510 cubic yards are to be off hauled. The off haul equates to about 40,000 bulk cubic yards. An 18 wheel end-dump truck can carry 15 bulk cubic yards, a single or double bottom dump semi-truck can carry 20-23 bulk cubic yards, and a 10 wheel dump truck can carry 10-13 bulk cubic yards. Assuming 30 working days for off haul and an average of 17 bulk cubic yards per truck, the number of truck trips per day into and out of the site will be on the order of 156. These truck trips will likely be on Bel Aire Road and Ascension Drive to Polhemus Road. This added construction traffic will, however, not result in a significant change to the TIRE Index for these two street segments.

[6] Illuminating Engineering Society of North America, American National Standard Practice for Roadway Lighting, Publication RP-8-00, 6/27/2000

CONCLUSIONS AND RECOMMENDATIONS
SECTION 7.

CONCLUSIONS

The Ascension Heights subdivision is estimated to generate 228 new vehicle trips during a typical weekday, 23 trips during the morning peak hour and 24 trips during the afternoon peak hour. Based on the TIRE Index analysis, none of the street segments in this study will experience a noticeable increase in traffic. The all-way STOP controlled intersections operate at LOS A for all scenarios analyzed. The controlled approach of Ascension Drive at Polhemus Road operates at LOS C or better under all scenario conditions. Thus, the project will not create a significant impact.

RECOMMENDATIONS

Off-site:

None.

On-site:

1) Within the corner sight triangles at the new street intersection there should be no walls, fencing, or signs that would obstruct visibility. Trees should be planted so as to not create a "wall" effect when viewed at a shallow angle. The type of shrubbery planted within the triangles should such that it will grow no higher than three feet above the adjacent roadway surface. Trees planted within the sight triangle areas should be large enough that the lowest limbs are at least seven feet above the surface of the adjacent roadway. Street parking should be prohibited within the bounds of the sight triangle.

2) Provide street lighting on the private streets to a level of 0.4 minimum maintained average foot-candles with a uniformity ratio of 6:1, average to minimum.

Richard K. Hopper, P.E., PTOE
Principal

APPENDICES

A. Traffic Count Data

B. Levels of Service Calculation Worksheets

C. Traffic Analysis Worksheets

A. Traffic Count Worksheets

MARKS TRAFFIC DATA

mietekm@comcast.net
916.806.0250

COUNTY OF SAN MATEO
POLHEMUS RD. - ASCENSION DR. to BUNKER HILL DR.

Site Code: 1
polhemus1

Start	23-May-13	SB		Hour Totals		NB		Hour Totals		Both Dir. Total	
Time	Thu	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		5	33			0	0			5	33
12:15		1	28			0	0			1	28
12:30		3	27			0	0			3	27
12:45		1	30	10	118	0	0	0	0	1	30
01:00		0	27			0	0			0	27
01:15		0	18			0	0			0	18
01:30		0	31			0	0			0	31
01:45		1	36	1	112	0	0	0	0	1	36
02:00		1	46			0	0			1	46
02:15		0	42			0	0			0	42
02:30		1	35			0	0			1	35
02:45		0	47	2	170	0	0	0	0	0	47
03:00		0	63			0	0			0	63
03:15		0	70			0	0			0	70
03:30		0	69			0	0			0	69
03:45		0	57	0	259	0	0	0	0	0	57
04:00		1	61			0	0			1	61
04:15		0	55			0	0			0	55
04:30		1	***78***			0	0			1	***78***
04:45		1	***57***	3	251	0	0	0	0	1	***57***
05:00		1	***71***			0	0			1	***71***
05:15		2	***68***			0	0			2	***68***
05:30		3	56			0	0			3	56
05:45		3	59	9	254	0	0	0	0	3	59
06:00		6	65			0	0			6	65
06:15		6	52			0	0			6	52
06:30		8	53			0	0			8	53
06:45		24	38	44	208	0	0	0	0	24	38
07:00		23	31			0	0			23	31
07:15		21	25			0	0			21	25
07:30		41	19			0	0			41	19
07:45		***74***	22	159	97	0	0	0	0	***74***	22
08:00		***98***	18			0	0			***98***	18
08:15		***61***	22			0	0			***61***	22
08:30		***70***	21			0	0			***70***	21
08:45		55	19	284	80	0	0	0	0	55	19
09:00		43	11			0	0			43	11
09:15		28	6			0	0			28	6
09:30		38	16			0	0			38	16
09:45		36	6	145	39	0	0	0	0	36	6
10:00		34	11			0	0			34	11
10:15		31	6			0	0			31	6
10:30		38	5			0	0			38	5
10:45		37	2	140	24	0	0	0	0	37	2
11:00		25	8			0	0			25	8
11:15		29	3			0	0			29	3
11:30		25	5			0	0			25	5
11:45		32	2	111	18	0	0	0	0	32	2
Total		908	1630			0	0			908	1630
Day Total		2538				0				2538	
Percent		35.8%	64.2%			0.0%	0.0%			35.8%	64.2%
Peak		07:45	04:30							07:45	04:30
Vol.		303	274							303	274
P.H.F.		0.773	0.878							0.773	0.878

MARKS TRAFFIC DATA

mietekm@comcast.net
916.806.0250

COUNTY OF SAN MATEO
ASCENSION DR. - POLHEMUS RD. to BEL AIRE RD.

Site Code: 2
ascension2

Start	23-May-13	WB		Hour Totals		EB		Hour Totals		Both Dir. Total	
Time	Thu	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		2	12			4	13			6	25
12:15		0	4			0	9			0	13
12:30		0	4			1	8			1	12
12:45		0	11	2	31	0	8	5	38	0	19
01:00		0	6			0	3			0	9
01:15		0	11			0	12			0	23
01:30		0	13			0	8			0	21
01:45		1	6	1	36	0	10	0	33	1	16
02:00		0	9			0	8			0	17
02:15		0	11			0	8			0	19
02:30		0	19			0	6			0	25
02:45		0	14	0	53	0	15	0	37	0	29
03:00		0	15			0	16			0	31
03:15		0	6			0	13			0	19
03:30		0	7			0	20			0	27
03:45		0	11	0	39	0	13	0	62	0	24
04:00		0	16			0	14			0	30
04:15		0	16			0	7			0	23
04:30		0	14			0	20			0	34
04:45		2	12	2	58	0	22	0	63	2	34
05:00		0	14			0	13			0	27
05:15		3	18			2	12			5	30
05:30		5	13			0	***21***			5	34
05:45		1	13	9	58	2	***22***	4	68	3	35
06:00		5	***15***			0	***22***			5	***37***
06:15		2	***13***			2	***21***			4	***34***
06:30		11	***15***			1	18			12	***33***
06:45		8	***21***	26	64	2	16	5	77	10	***37***
07:00		6	6			4	13			10	19
07:15		13	6			4	5			17	11
07:30		22	4			7	5			29	9
07:45		***34***	3	75	19	***20***	16	35	39	***54***	19
08:00		***37***	9			***23***	18			***60***	27
08:15		***17***	3			***23***	12			***40***	15
08:30		***27***	5			***12***	10			***39***	15
08:45		17	6	98	23	11	11	69	51	28	17
09:00		16	4			10	6			26	10
09:15		14	3			9	2			23	5
09:30		9	4			11	8			20	12
09:45		9	1	48	12	15	9	45	25	24	10
10:00		10	6			5	4			15	10
10:15		10	3			10	4			20	7
10:30		17	0			11	1			28	1
10:45		11	0	48	9	11	2	37	11	22	2
11:00		6	2			10	5			16	7
11:15		4	2			9	2			13	4
11:30		8	5			6	3			14	8
11:45		7	1	25	10	8	3	33	13	15	4
Total		334	412			233	517			567	929
Day Total		746				750				1496	
Percent		44.8%	55.2%			31.1%	68.9%			37.9%	62.1%
Peak		07:45	06:00			07:45	05:30			07:45	06:00
Vol.		115	64			78	86			193	141
P.H.F.		0.777	0.762			0.848	0.977			0.804	0.953

MARKS TRAFFIC DATA

mietekm@comcast.net
916.806.0250

COUNTY OF SAN MATEO
BEL AIRE RD. - ASCENSION DR. to LAURIE LN.

Site Code: 3
bel aire3

Start	23-May-13	WB		Hour Totals		EB		Hour Totals		Both Dir. Total	
Time	Thu	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		0	7			1	3			1	10
12:15		1	2			0	5			1	7
12:30		0	1			0	3			0	4
12:45		0	7	1	17	0	6	1	17	0	13
01:00		0	3			0	7			0	10
01:15		0	6			0	4			0	10
01:30		0	8			1	5			1	13
01:45		1	***7***	1	24	0	2	1	18	1	9
02:00		0	***13***			0	3			0	16
02:15		0	***9***			0	4			0	13
02:30		0	***13***			0	4			0	17
02:45		0	7	0	42	0	4	0	15	0	11
03:00		0	9			0	2			0	11
03:15		0	4			0	7			0	11
03:30		0	7			0	6			0	13
03:45		0	9	0	29	0	8	0	23	0	17
04:00		0	9			0	4			0	13
04:15		0	12			0	6			0	18
04:30		0	10			0	8			0	18
04:45		0	6	0	37	0	4	0	22	0	10
05:00		0	6			0	5			0	11
05:15		0	11			1	3			1	14
05:30		0	9			0	5			0	14
05:45		0	10	0	36	3	10	4	23	3	20
06:00		2	7			2	4			4	11
06:15		0	9			2	***16***			2	***25***
06:30		2	7			1	***7***			3	***14***
06:45		1	11	5	34	3	***10***	8	37	4	***21***
07:00		5	5			4	***7***			9	***12***
07:15		1	6			5	3			6	9
07:30		4	1			***13***	3			***17***	4
07:45		***12***	5	22	17	***21***	5	43	18	***33***	10
08:00		***20***	2			***10***	4			***30***	6
08:15		***2***	3			***18***	7			***20***	10
08:30		***9***	2			8	3			17	5
08:45		5	3	36	10	9	1	45	15	14	4
09:00		3	2			6	4			9	6
09:15		5	1			12	1			17	2
09:30		0	3			7	0			7	3
09:45		5	1	13	7	12	3	37	8	17	4
10:00		3	1			2	2			5	3
10:15		7	1			6	4			13	5
10:30		6	2			4	1			10	3
10:45		7	1	23	5	10	0	22	7	17	1
11:00		2	2			2	2			4	4
11:15		1	2			7	0			8	2
11:30		4	3			2	2			6	5
11:45		3	0	10	7	4	0	15	4	7	0
Total		111	265			176	207			287	472
Day Total		376				383				759	
Percent		29.5%	70.5%			46.0%	54.0%			37.8%	62.2%
Peak		07:45	01:45			07:30	06:15			07:30	06:15
Vol.		43	42			62	40			100	72
P.H.F.		0.538	0.808			0.738	0.625			0.758	0.720

MARKS TRAFFIC DATA

mietekm@comcast.net
916.806.0250

COUNTY OF SAN MATEO
LAURIE LN.

Site Code: 4
laurie4

Start	23-May-13	WB		Hour Totals		EB		Hour Totals		Both Dir. Total	
Time	Thu	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		0	10			0	5			0	15
12:15		1	5			0	8			1	13
12:30		0	8			0	9			0	17
12:45		0	10	1	33	0	9	0	31	0	19
01:00		0	8			0	8			0	16
01:15		0	10			0	10			0	20
01:30		0	9			0	6			0	15
01:45		1	5	1	32	0	4	0	28	1	9
02:00		0	15			0	7			0	22
02:15		0	10			0	6			0	16
02:30		0	14			0	5			0	19
02:45		0	8	0	47	0	7	0	25	0	15
03:00		0	9			0	7			0	16
03:15		0	9			0	9			0	18
03:30		0	10			0	6			0	16
03:45		0	12	0	40	0	11	0	33	0	23
04:00		0	12			0	5			0	17
04:15		0	12			0	5			0	17
04:30		0	12			0	10			0	22
04:45		0	7	0	43	0	9	0	29	0	16
05:00		0	8			0	9			0	17
05:15		0	10			3	3			3	13
05:30		0	***21***			1	8			1	***29***
05:45		0	***18***	0	57	5	9	9	29	5	***27***
06:00		2	***8***			4	5			6	***13***
06:15		0	***11***			5	***12***			5	***23***
06:30		2	13			2	***7***			4	20
06:45		0	13	4	45	4	***14***	15	38	4	27
07:00		4	8			5	***7***			9	15
07:15		4	8			5	2			9	10
07:30		3	4			***13***	2			***16***	6
07:45		***10***	7	21	27	***24***	5	47	16	***34***	12
08:00		***10***	6			***18***	4			***28***	10
08:15		***4***	7			***19***	7			***23***	14
08:30		***7***	7			6	3			13	10
08:45		5	8	26	28	7	1	50	15	12	9
09:00		6	4			9	3			15	7
09:15		3	5			17	0			20	5
09:30		1	8			14	0			15	8
09:45		3	7	13	24	14	2	54	5	17	9
10:00		3	5			4	2			7	7
10:15		6	4			11	0			17	4
10:30		4	3			6	2			10	5
10:45		9	3	22	15	11	3	32	7	20	6
11:00		3	2			5	2			8	4
11:15		1	1			7	0			8	1
11:30		2	3			6	2			8	5
11:45		7	0	13	6	8	0	26	4	15	0
Total		101	397			233	260			334	657
Day Total		498				493				991	
Percent		20.3%	79.7%			47.3%	52.7%			33.7%	66.3%
Peak		07:45	05:30			07:30	06:15			07:30	05:30
Vol.		31	58			74	40			101	92
P.H.F.		0.775	0.690			0.771	0.714			0.743	0.793

MARKS TRAFFIC DATA

mietekm@comcast.net
916.806.0250

COUNTY OF SAN MATEO
PARROT DR. - LAURIE LN. to CSM DR.

Site Code: 5
parrot5

Start	23-May-13	SB		Hour Totals		NB		Hour Totals		Both Dir. Total	
Time	Thu	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		1	18			3	26			4	44
12:15		1	17			1	21			2	38
12:30		0	20			0	18			0	38
12:45		0	26	2	81	1	15	5	80	1	41
01:00		1	15			0	21			1	36
01:15		1	17			4	13			5	30
01:30		2	23			0	16			2	39
01:45		0	15	4	70	1	12	5	62	1	27
02:00		1	17			0	21			1	38
02:15		0	19			0	25			0	44
02:30		0	22			0	15			0	37
02:45		0	20	1	78	0	27	0	88	0	47
03:00		0	***20***			0	19			0	39
03:15		1	***23***			1	28			2	51
03:30		0	***19***			0	18			0	37
03:45		0	***27***	1	89	0	22	1	87	0	49
04:00		0	20			0	26			0	46
04:15		0	21			1	22			1	43
04:30		0	20			0	21			0	41
04:45		0	14	0	75	0	19	1	88	0	33
05:00		1	16			0	***24***			1	***40***
05:15		5	21			0	***32***			5	***53***
05:30		4	21			2	***43***			6	***64***
05:45		8	24	18	82	0	***28***	2	127	8	***52***
06:00		7	16			2	23			9	39
06:15		8	20			2	33			10	53
06:30		8	13			2	29			10	42
06:45		8	19	31	68	4	22	10	107	12	41
07:00		13	11			4	17			17	28
07:15		12	10			12	16			24	26
07:30		***22***	9			***16***	14			***38***	23
07:45		***30***	10	77	40	***44***	28	76	75	***74***	38
08:00		***42***	12			***17***	17			***59***	29
08:15		***33***	8			***16***	8			***49***	16
08:30		18	7			13	17			31	24
08:45		17	2	110	29	17	17	63	59	34	19
09:00		16	3			15	11			31	14
09:15		22	6			13	11			35	17
09:30		28	1			14	14			42	15
09:45		26	9	92	19	8	13	50	49	34	22
10:00		10	5			12	11			22	16
10:15		19	6			15	9			34	15
10:30		18	5			14	7			32	12
10:45		15	6	62	22	16	8	57	35	31	14
11:00		20	3			12	5			32	8
11:15		18	2			9	6			27	8
11:30		16	3			13	7			29	10
11:45		13	0	67	8	15	3	49	21	28	3
Total		465	661			319	878			784	1539
Day Total		1126				1197				2323	
Percent		41.3%	58.7%			26.6%	73.4%			33.7%	66.3%
Peak		07:30	03:00			07:30	05:00			07:30	05:00
Vol.		127	89			93	127			220	209
P.H.F.		0.756	0.824			0.528	0.738			0.743	0.816

MARKS TRAFFIC DATA

mietekm@comcast.net
916.806.0250

COUNTY OF SAN MATEO
CSM DR. - PARROT DR. to PERIMETER RD.

Site Code: 6
csm6

Start Time	23-May-13 Thu	WB A.M.	WB P.M.	Hour Totals A.M.	Hour Totals P.M.	EB A.M.	EB P.M.	Hour Totals A.M.	Hour Totals P.M.	Both Dir. Total A.M.	Both Dir. Total P.M.
12:00		5	37			1	34			6	71
12:15		1	32			1	32			2	64
12:30		2	32			0	21			2	53
12:45		0	32	8	133	0	32	2	119	0	64
01:00		0	27			2	25			2	52
01:15		4	25			1	21			5	46
01:30		0	26			1	25			1	51
01:45		1	21	5	99	0	25	4	96	1	46
02:00		0	34			0	28			0	62
02:15		0	32			0	27			0	59
02:30		0	19			0	30			0	49
02:45		0	28	0	113	0	25	0	110	0	53
03:00		0	25			0	28			0	53
03:15		1	27			0	33			1	60
03:30		0	26			1	27			1	53
03:45		0	27	1	105	0	34	1	122	0	61
04:00		0	32			0	35			0	67
04:15		0	33			0	36			0	69
04:30		0	28			0	45			0	73
04:45		0	29	0	122	0	***39***	0	155	0	68
05:00		1	***36***			2	***45***			3	***81***
05:15		5	***42***			6	***40***			11	***82***
05:30		5	***42***			6	***51***			11	***93***
05:45		0	***35***	11	155	9	34	23	170	9	***69***
06:00		3	30			8	47			11	77
06:15		0	40			11	35			11	75
06:30		6	30			13	31			19	61
06:45		12	31	21	131	15	31	47	144	27	62
07:00		17	31			20	28			37	59
07:15		18	22			20	21			38	43
07:30		23	20			***37***	19			60	39
07:45		***36***	33	94	106	***39***	13	116	81	***75***	46
08:00		***41***	23			***40***	15			***81***	38
08:15		***38***	22			***30***	16			***68***	38
08:30		***34***	25			32	9			***66***	34
08:45		35	20	148	90	27	4	129	44	62	24
09:00		38	15			22	6			60	21
09:15		25	11			29	9			54	20
09:30		40	16			36	8			76	24
09:45		25	20	128	62	33	6	120	29	58	26
10:00		20	18			21	7			41	25
10:15		16	10			26	5			42	15
10:30		16	13			22	12			38	25
10:45		24	8	76	49	30	5	99	29	54	13
11:00		24	7			30	5			54	12
11:15		20	9			31	2			51	11
11:30		23	10			21	3			44	13
11:45		25	5	92	31	25	4	107	14	50	9
Total		584	1196			648	1113			1232	2309
Day Total		1780				1761				3541	
Percent		32.8%	67.2%			36.8%	63.2%			34.8%	65.2%
Peak		07:45	05:00			07:30	04:45			07:45	05:00
Vol.		149	155			146	175			290	325
P.H.F.		0.909	0.923			0.913	0.858			0.895	0.874

Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Polhemus & Ascension

File Name : Polhemus & Ascension AM
Site Code : 00000000
Start Date : 9/23/2014
Page No : 1

Groups Printed- Unshifted - Bank 1

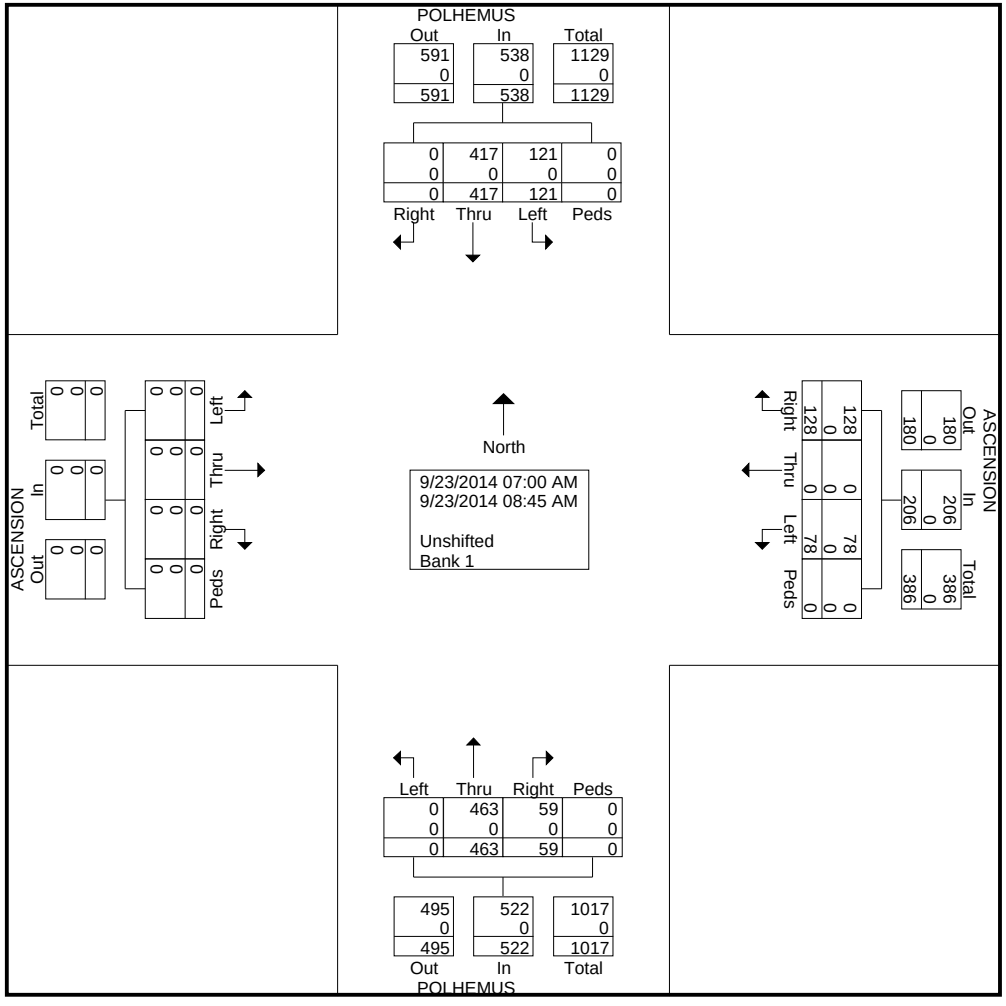
	POLHEMUS From North					ASCENSION From East					POLHEMUS From South					ASCENSION From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	19	3	0	22	8	0	12	0	20	6	21	0	0	27	0	0	0	0	0	69
07:15 AM	0	41	11	0	52	9	0	6	0	15	4	36	0	0	40	0	0	0	0	0	107
07:30 AM	0	40	9	0	49	13	0	12	0	25	7	72	0	0	79	0	0	0	0	0	153
07:45 AM	0	69	19	0	88	24	0	19	0	43	6	88	0	0	94	0	0	0	0	0	225
Total	0	169	42	0	211	54	0	49	0	103	23	217	0	0	240	0	0	0	0	0	554
08:00 AM	0	89	24	0	113	22	0	16	0	38	6	63	0	0	69	0	0	0	0	0	220
08:15 AM	0	67	14	0	81	20	0	7	0	27	13	71	0	0	84	0	0	0	0	0	192
08:30 AM	0	50	18	0	68	13	0	0	0	13	7	55	0	0	62	0	0	0	0	0	143
08:45 AM	0	42	23	0	65	19	0	6	0	25	10	57	0	0	67	0	0	0	0	0	157
Total	0	248	79	0	327	74	0	29	0	103	36	246	0	0	282	0	0	0	0	0	712
Grand Total	0	417	121	0	538	128	0	78	0	206	59	463	0	0	522	0	0	0	0	0	1266
Apprch %	0	77.5	22.5	0		62.1	0	37.9	0		11.3	88.7	0	0		0	0	0	0		
Total %	0	32.9	9.6	0	42.5	10.1	0	6.2	0	16.3	4.7	36.6	0	0	41.2	0	0	0	0	0	
Unshifted	0	417	121	0	538	128	0	78	0	206	59	463	0	0	522	0	0	0	0	0	1266
% Unshifted	0	100	100	0	100	100	0	100	0	100	100	100	0	0	100	0	0	0	0	0	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Polhemus & Ascension

File Name : Polhemus & Ascension AM
Site Code : 00000000
Start Date : 9/23/2014
Page No : 2



Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Polhemus & Ascension

File Name : Polhemus & Ascension AM
Site Code : 00000000
Start Date : 9/23/2014
Page No : 3

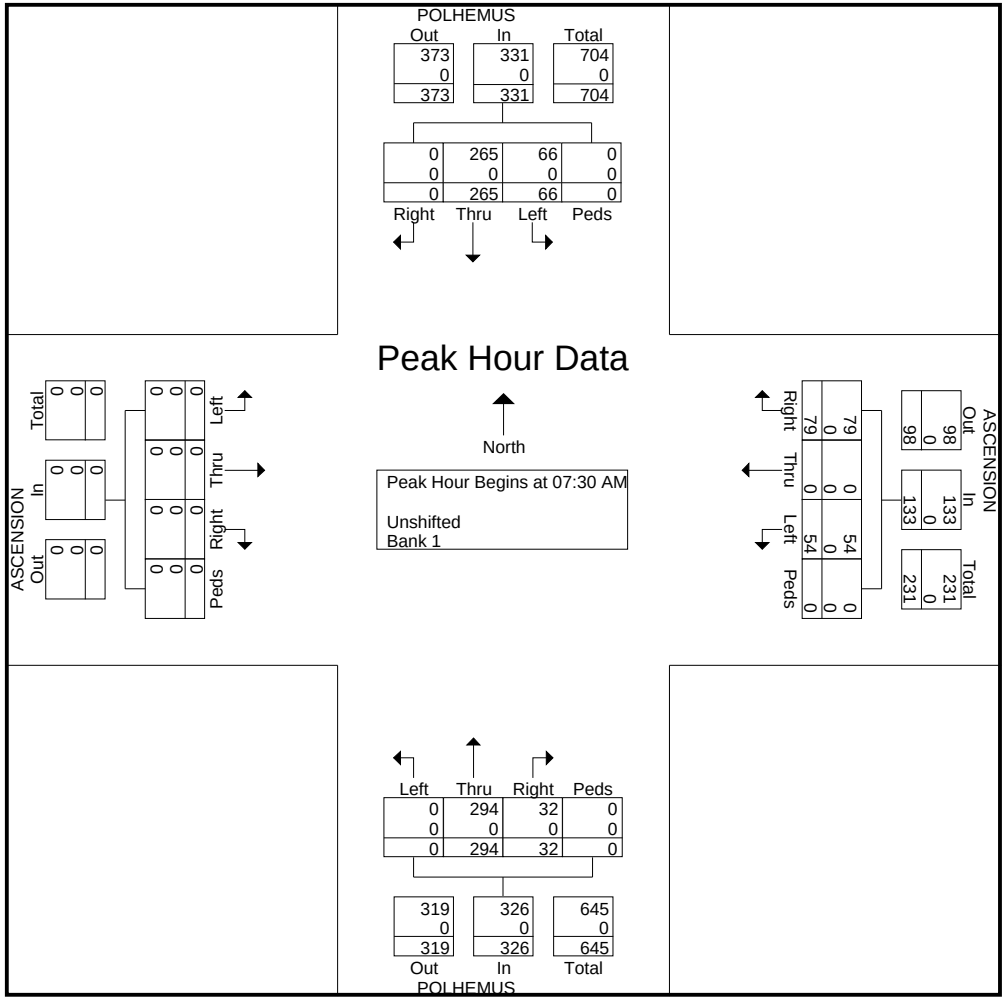
	POLHEMUS From North					ASCENSION From East					POLHEMUS From South					ASCENSION From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	40	9	0	49	13	0	12	0	25	7	72	0	0	79	0	0	0	0	0	153
07:45 AM	0	69	19	0	88	**24**	0	**19**	0	**43**	6	**88**	0	0	**94**	0	0	0	0	0	**225**
08:00 AM	0	**89**	**24**	0	**113**	22	0	16	0	38	6	63	0	0	69	0	0	0	0	0	220
08:15 AM	0	67	14	0	81	20	0	7	0	27	**13**	71	0	0	84	0	0	0	0	0	192
Total Volume	0	265	66	0	331	79	0	54	0	133	32	294	0	0	326	0	0	0	0	0	790
% App. Total	0	80.1	19.9	0		59.4	0	40.6	0		9.8	90.2	0	0		0	0	0	0		
PHF	.000	.744	.688	.000	.732	.823	.000	.711	.000	.773	.615	.835	.000	.000	.867	.000	.000	.000	.000	.000	.878
Unshifted	0	265	66	0	331	79	0	54	0	133	32	294	0	0	326	0	0	0	0	0	790
% Unshifted	0	100	100	0	100	100	0	100	0	100	100	100	0	0	100	0	0	0	0	0	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Polhemus & Ascension

File Name : Polhemus & Ascension AM
Site Code : 00000000
Start Date : 9/23/2014
Page No : 4



Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Polhemus & Ascension

File Name : Polhemus & Ascension PM
Site Code : 00000000
Start Date : 9/24/2014
Page No : 1

Groups Printed- Unshifted - Bank 1

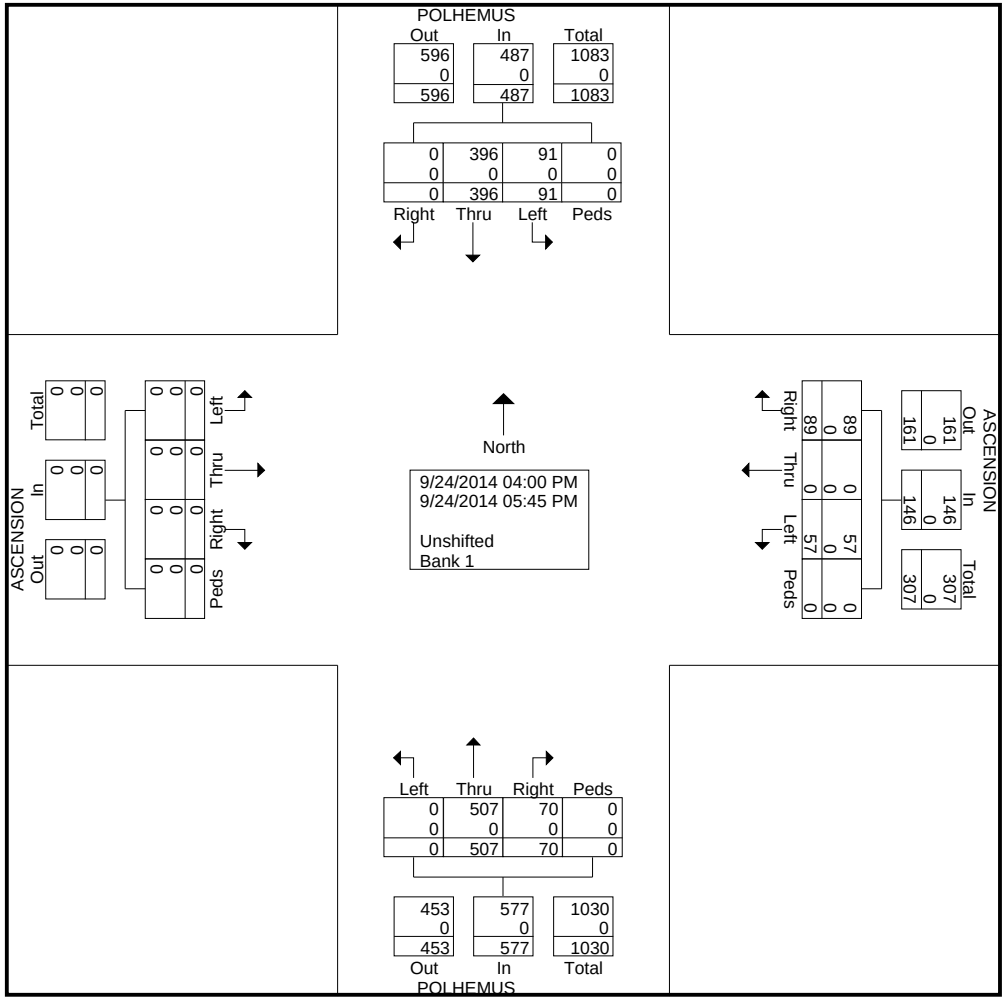
	POLHEMUS From North					ASCENSION From East					POLHEMUS From South					ASCENSION From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	43	9	0	52	4	0	7	0	11	5	47	0	0	52	0	0	0	0	0	115
04:15 PM	0	43	9	0	52	7	0	5	0	12	10	64	0	0	74	0	0	0	0	0	138
04:30 PM	0	43	7	0	50	9	0	7	0	16	13	61	0	0	74	0	0	0	0	0	140
04:45 PM	0	51	9	0	60	15	0	10	0	25	5	51	0	0	56	0	0	0	0	0	141
Total	0	180	34	0	214	35	0	29	0	64	33	223	0	0	256	0	0	0	0	0	534
05:00 PM	0	55	12	0	67	20	0	8	0	28	10	67	0	0	77	0	0	0	0	0	172
05:15 PM	0	43	20	0	63	15	0	10	0	25	11	61	0	0	72	0	0	0	0	0	160
05:30 PM	0	67	16	0	83	8	0	3	0	11	9	82	0	0	91	0	0	0	0	0	185
05:45 PM	0	51	9	0	60	11	0	7	0	18	7	74	0	0	81	0	0	0	0	0	159
Total	0	216	57	0	273	54	0	28	0	82	37	284	0	0	321	0	0	0	0	0	676
Grand Total	0	396	91	0	487	89	0	57	0	146	70	507	0	0	577	0	0	0	0	0	1210
Apprch %	0	81.3	18.7	0		61	0	39	0		12.1	87.9	0	0		0	0	0	0		
Total %	0	32.7	7.5	0	40.2	7.4	0	4.7	0	12.1	5.8	41.9	0	0	47.7	0	0	0	0	0	
Unshifted	0	396	91	0	487	89	0	57	0	146	70	507	0	0	577	0	0	0	0	0	1210
% Unshifted	0	100	100	0	100	100	0	100	0	100	100	100	0	0	100	0	0	0	0	0	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Polhemus & Ascension

File Name : Polhemus & Ascension PM
Site Code : 00000000
Start Date : 9/24/2014
Page No : 2



Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Polhemus & Ascension

File Name : Polhemus & Ascension PM
Site Code : 00000000
Start Date : 9/24/2014
Page No : 3

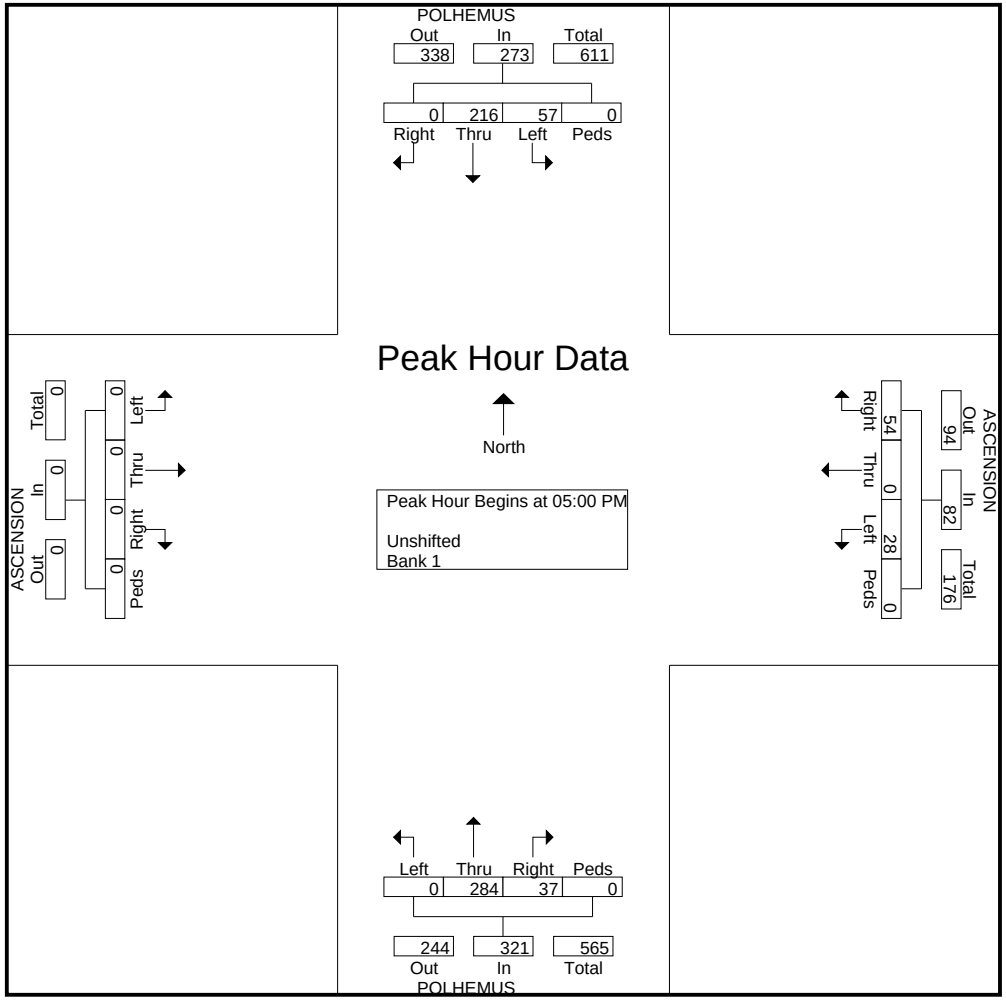
	POLHEMUS From North					ASCENSION From East					POLHEMUS From South					ASCENSION From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	55	12	0	67	**20**	0	8	0	**28**	10	67	0	0	77	0	0	0	0	0	172
05:15 PM	0	43	**20**	0	63	15	0	**10**	0	25	**11**	61	0	0	72	0	0	0	0	0	160
05:30 PM	0	**67**	16	0	**83**	8	0	3	0	11	9	**82**	0	0	**91**	0	0	0	0	0	**185**
05:45 PM	0	51	9	0	60	11	0	7	0	18	7	74	0	0	81	0	0	0	0	0	159
Total Volume	0	216	57	0	273	54	0	28	0	82	37	284	0	0	321	0	0	0	0	0	676
% App. Total	0	79.1	20.9	0		65.9	0	34.1	0		11.5	88.5	0	0		0	0	0	0		
PHF	.000	.806	.713	.000	.822	.675	.000	.700	.000	.732	.841	.866	.000	.000	.882	.000	.000	.000	.000	.000	.914

Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Polhemus & Ascension

File Name : Polhemus & Ascension PM
Site Code : 00000000
Start Date : 9/24/2014
Page No : 4



Traffic Research Associates

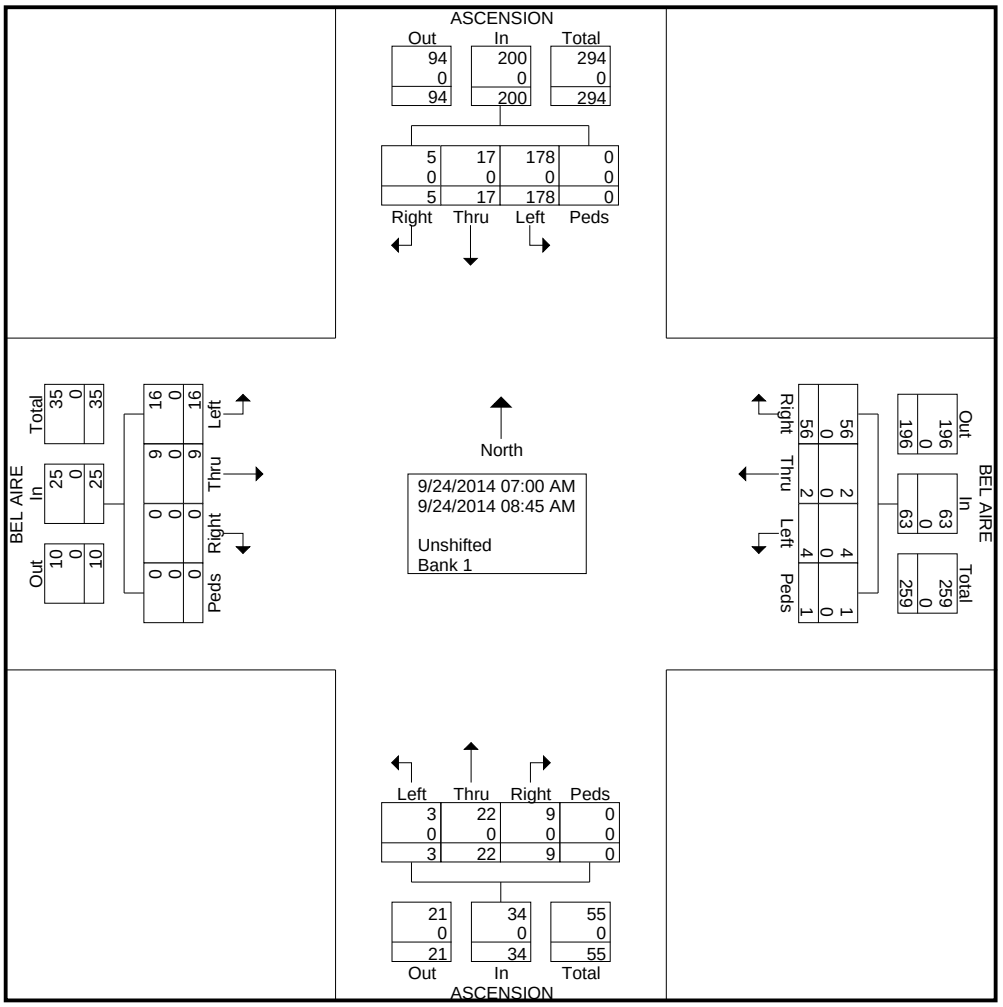
P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Ascension & Bel Aire

File Name : Ascension & Bel Aire AM
Site Code : 00000000
Start Date : 9/24/2014
Page No : 1

Groups Printed- Unshifted - Bank 1

	ASCENSION From North					BEL AIRE From East					ASCENSION From South					BEL AIRE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	1	2	5	0	8	1	1	0	1	3	1	0	2	0	3	0	1	3	0	4	18
07:15 AM	0	0	10	0	10	6	0	0	0	6	2	2	0	0	4	0	2	3	0	5	25
07:30 AM	0	1	15	0	16	7	0	0	0	7	2	2	0	0	4	0	1	2	0	3	30
07:45 AM	1	3	30	0	34	11	0	1	0	12	2	5	0	0	7	0	3	2	0	5	58
Total	2	6	60	0	68	25	1	1	1	28	7	9	2	0	18	0	7	10	0	17	131
08:00 AM	1	3	25	0	29	12	0	1	0	13	0	3	0	0	3	0	0	3	0	3	48
08:15 AM	2	1	16	0	19	11	0	1	0	12	0	4	0	0	4	0	1	2	0	3	38
08:30 AM	0	4	29	0	33	2	0	1	0	3	0	4	1	0	5	0	1	1	0	2	43
08:45 AM	0	3	48	0	51	6	1	0	0	7	2	2	0	0	4	0	0	0	0	0	62
Total	3	11	118	0	132	31	1	3	0	35	2	13	1	0	16	0	2	6	0	8	191
Grand Total	5	17	178	0	200	56	2	4	1	63	9	22	3	0	34	0	9	16	0	25	322
Apprch %	2.5	8.5	89	0		88.9	3.2	6.3	1.6		26.5	64.7	8.8	0		0	36	64	0		
Total %	1.6	5.3	55.3	0	62.1	17.4	0.6	1.2	0.3	19.6	2.8	6.8	0.9	0	10.6	0	2.8	5	0	7.8	
Unshifted	5	17	178	0	200	56	2	4	1	63	9	22	3	0	34	0	9	16	0	25	322
% Unshifted	100	100	100	0	100	100	100	100	100	100	100	100	100	0	100	0	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



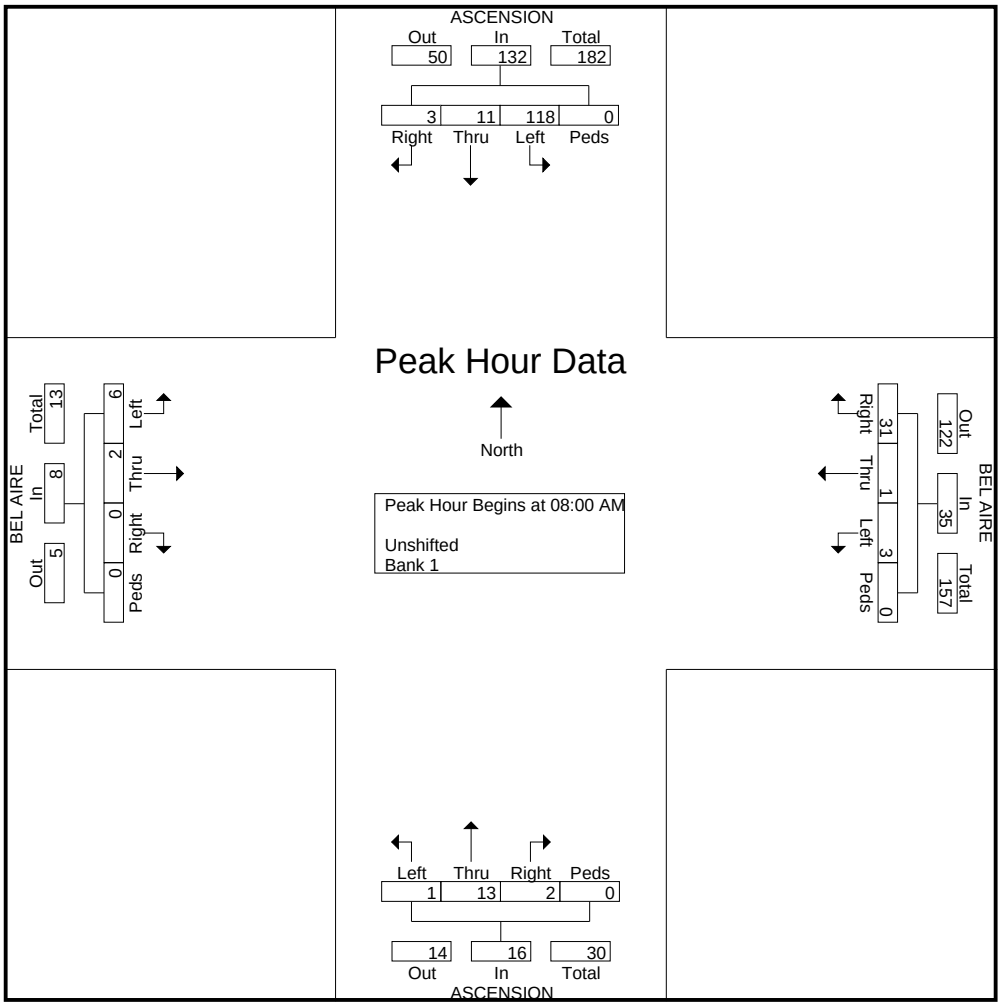
Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Ascension & Bel Aire

File Name : Ascension & Bel Aire AM
Site Code : 00000000
Start Date : 9/24/2014
Page No : 2

	ASCENSION From North					BEL AIRE From East					ASCENSION From South					BEL AIRE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	1	3	25	0	29	**12**	0	**1**	0	**13**	0	3	0	0	3	0	0	**3**	0	**3**	48
08:15 AM	**2**	1	16	0	19	11	0	1	0	12	0	**4**	0	0	4	0	**1**	2	0	3	38
08:30 AM	0	**4**	29	0	33	2	0	1	0	3	0	4	**1**	0	**5**	0	1	1	0	2	43
08:45 AM	0	3	**48**	0	**51**	6	**1**	0	0	7	**2**	2	0	0	4	0	0	0	0	0	**62**
Total Volume	3	11	118	0	132	31	1	3	0	35	2	13	1	0	16	0	2	6	0	8	191
% App. Total	2.3	8.3	89.4	0		88.6	2.9	8.6	0		12.5	81.2	6.2	0		0	25	75	0		
PHF	.375	.688	.615	.000	.647	.646	.250	.750	.000	.673	.250	.813	.250	.000	.800	.000	.500	.500	.000	.667	.770



Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Ascension & Bel Aire

File Name : Ascension & Bel Aire PM
Site Code : 00000000
Start Date : 9/25/2014
Page No : 1

Groups Printed- Unshifted - Bank 1

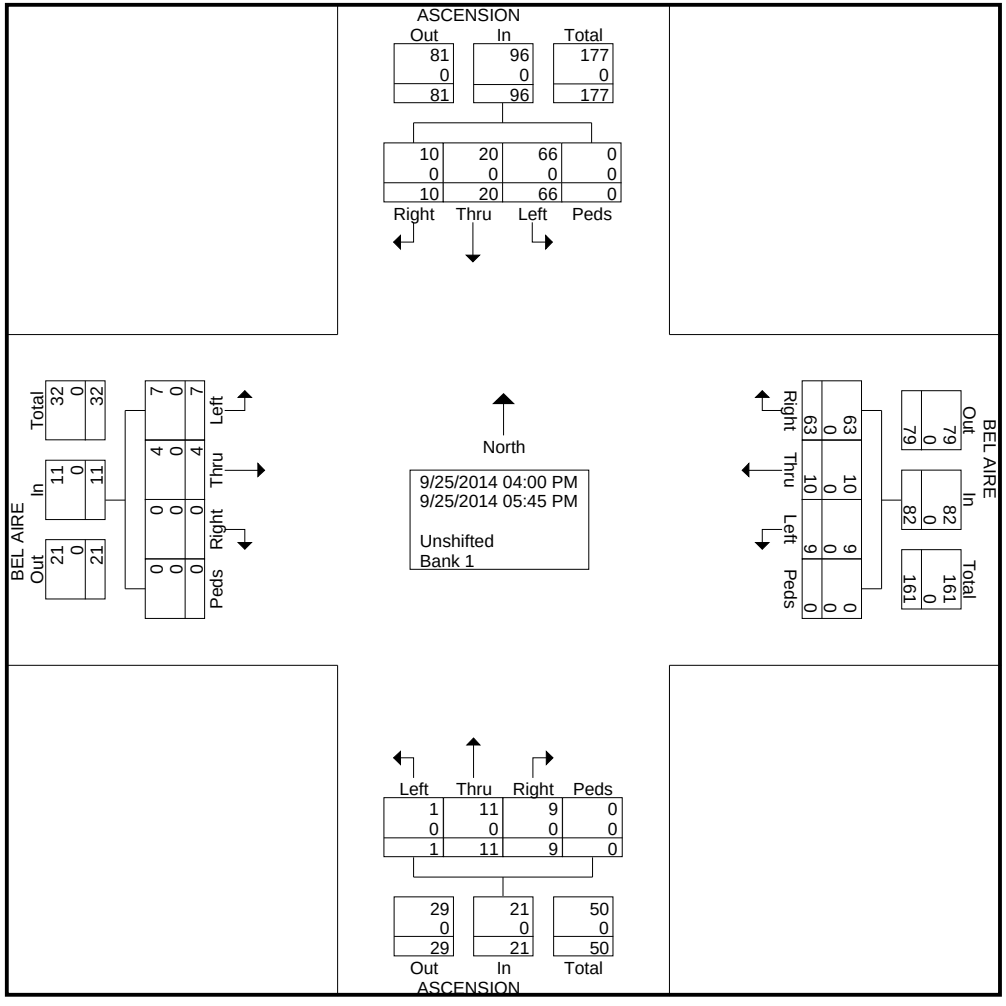
	ASCENSION From North					BEL AIRE From East					ASCENSION From South					BEL AIRE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	3	4	0	7	7	2	0	0	9	1	1	0	0	2	0	1	2	0	3	21
04:15 PM	1	2	7	0	10	4	0	1	0	5	2	0	0	0	2	0	0	0	0	0	17
04:30 PM	3	4	11	0	18	7	1	2	0	10	1	2	0	0	3	0	0	0	0	0	31
04:45 PM	2	2	8	0	12	2	0	1	0	3	2	2	0	0	4	0	1	1	0	2	21
Total	6	11	30	0	47	20	3	4	0	27	6	5	0	0	11	0	2	3	0	5	90
05:00 PM	2	3	8	0	13	9	2	1	0	12	1	2	0	0	3	0	1	0	0	1	29
05:15 PM	0	0	13	0	13	8	1	1	0	10	1	1	0	0	2	0	0	0	0	0	25
05:30 PM	1	3	7	0	11	17	1	1	0	19	1	2	0	0	3	0	0	2	0	2	35
05:45 PM	1	3	8	0	12	9	3	2	0	14	0	1	1	0	2	0	1	2	0	3	31
Total	4	9	36	0	49	43	7	5	0	55	3	6	1	0	10	0	2	4	0	6	120
Grand Total	10	20	66	0	96	63	10	9	0	82	9	11	1	0	21	0	4	7	0	11	210
Apprch %	10.4	20.8	68.8	0		76.8	12.2	11	0		42.9	52.4	4.8	0		0	36.4	63.6	0		
Total %	4.8	9.5	31.4	0	45.7	30	4.8	4.3	0	39	4.3	5.2	0.5	0	10	0	1.9	3.3	0	5.2	
Unshifted	10	20	66	0	96	63	10	9	0	82	9	11	1	0	21	0	4	7	0	11	210
% Unshifted	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	0	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Ascension & Bel Aire

File Name : Ascension & Bel Aire PM
Site Code : 00000000
Start Date : 9/25/2014
Page No : 2



Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Ascension & Bel Aire

File Name : Ascension & Bel Aire PM
Site Code : 00000000
Start Date : 9/25/2014
Page No : 3

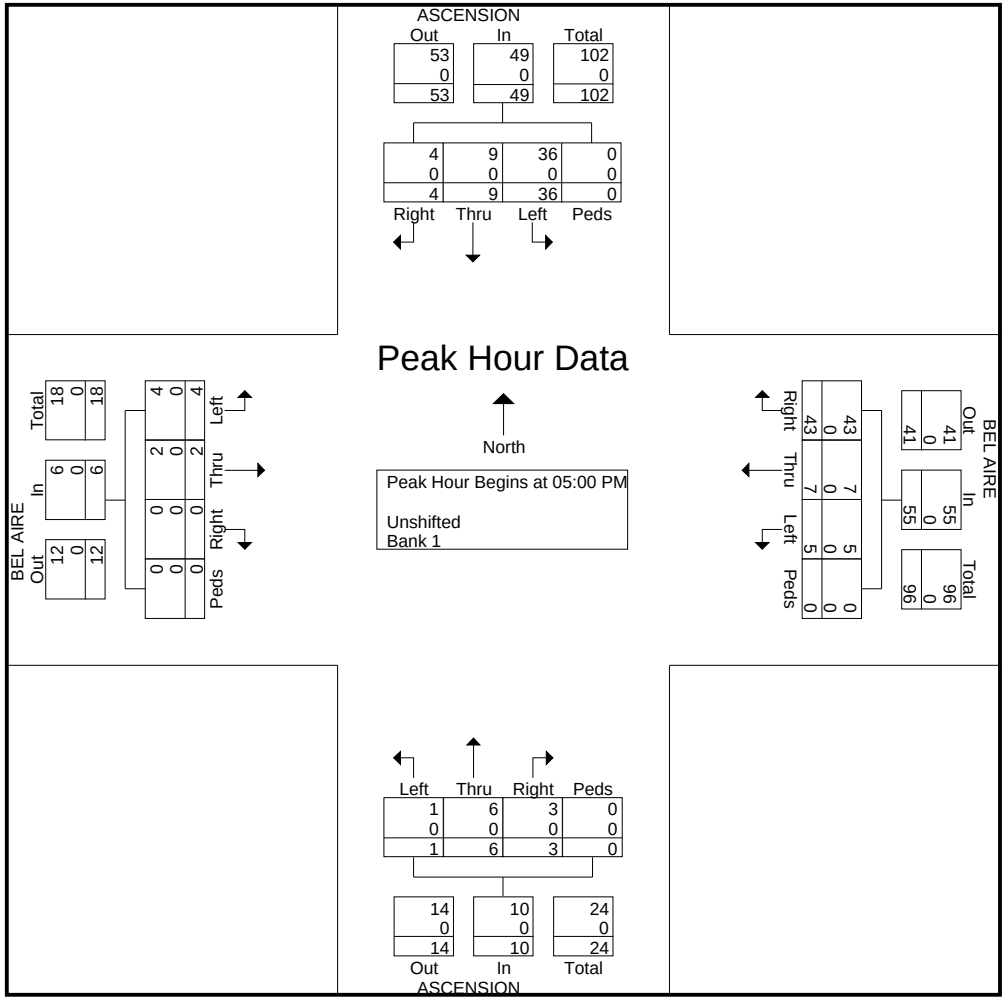
	ASCENSION From North					BEL AIRE From East					ASCENSION From South					BEL AIRE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	**2**	**3**	8	0	**13**	9	2	1	0	12	**1**	**2**	0	0	**3**	0	**1**	0	0	1	29
05:15 PM	0	0	**13**	0	13	8	1	1	0	10	1	1	0	0	2	0	0	0	0	0	25
05:30 PM	1	3	7	0	11	**17**	1	1	0	**19**	1	2	0	0	3	0	0	**2**	0	2	**35**
05:45 PM	1	3	8	0	12	9	**3**	**2**	0	14	0	1	**1**	0	2	0	1	2	0	**3**	31
Total Volume	4	9	36	0	49	43	7	5	0	55	3	6	1	0	10	0	2	4	0	6	120
% App. Total	8.2	18.4	73.5	0		78.2	12.7	9.1	0		30	60	10	0		0	33.3	66.7	0		
PHF	.500	.750	.692	.000	.942	.632	.583	.625	.000	.724	.750	.750	.250	.000	.833	.000	.500	.500	.000	.500	.857
Unshifted	4	9	36	0	49	43	7	5	0	55	3	6	1	0	10	0	2	4	0	6	120
% Unshifted	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	0	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Ascension & Bel Aire

File Name : Ascension & Bel Aire PM
Site Code : 00000000
Start Date : 9/25/2014
Page No : 4



Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Laurie & Parrott

File Name : Parrott & Laurie AM
Site Code : 00000000
Start Date : 9/25/2014
Page No : 1

Groups Printed- Unshifted - Bank 1

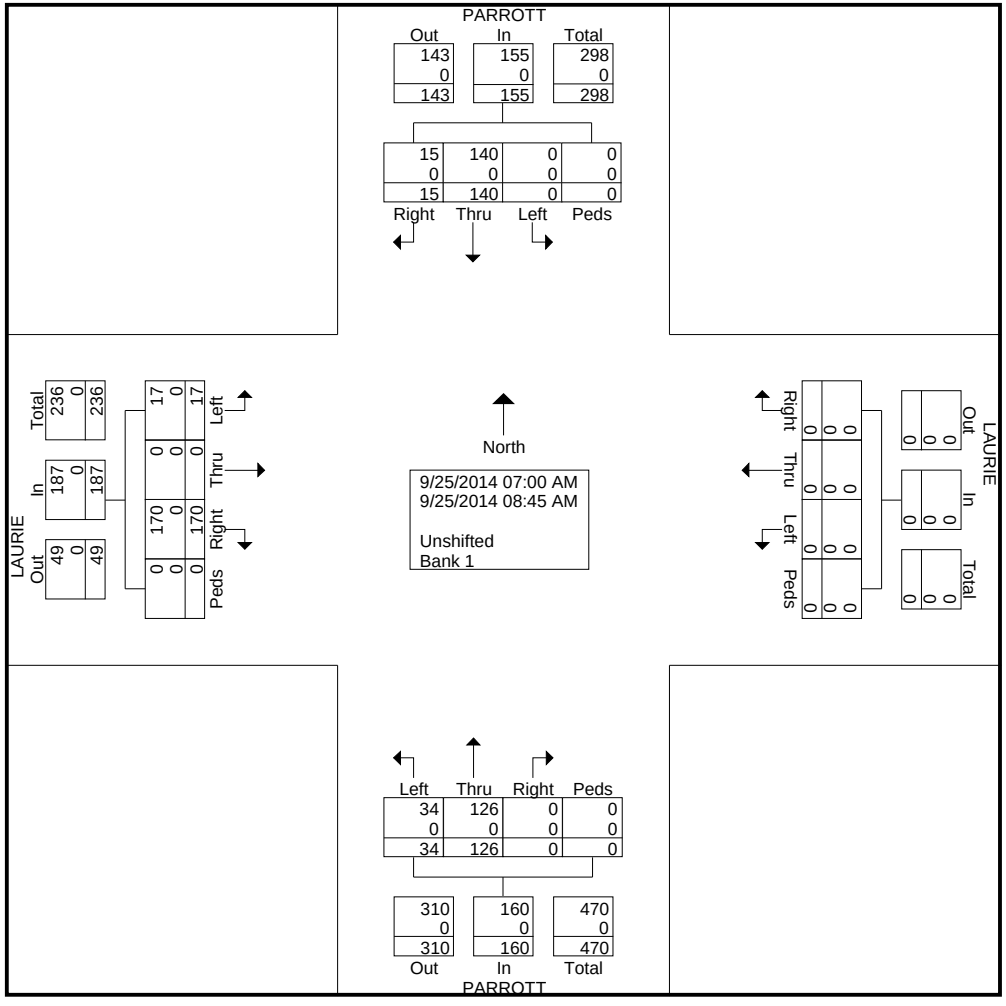
	PARROTT From North					LAURIE From East					PARROTT From South					LAURIE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	13	0	0	13	0	0	0	0	0	0	4	1	0	5	8	0	0	0	8	26
07:15 AM	3	24	0	0	27	0	0	0	0	0	0	12	3	0	15	17	0	2	0	19	61
07:30 AM	4	15	0	0	19	0	0	0	0	0	0	46	8	0	54	16	0	3	0	19	92
07:45 AM	4	21	0	0	25	0	0	0	0	0	0	15	8	0	23	24	0	2	0	26	74
Total	11	73	0	0	84	0	0	0	0	0	0	77	20	0	97	65	0	7	0	72	253
08:00 AM	2	22	0	0	24	0	0	0	0	0	0	10	4	0	14	22	0	4	0	26	64
08:15 AM	1	12	0	0	13	0	0	0	0	0	0	12	2	0	14	20	0	1	0	21	48
08:30 AM	1	16	0	0	17	0	0	0	0	0	0	15	2	0	17	29	0	2	0	31	65
08:45 AM	0	17	0	0	17	0	0	0	0	0	0	12	6	0	18	34	0	3	0	37	72
Total	4	67	0	0	71	0	0	0	0	0	0	49	14	0	63	105	0	10	0	115	249
Grand Total	15	140	0	0	155	0	0	0	0	0	0	126	34	0	160	170	0	17	0	187	502
Apprch %	9.7	90.3	0	0		0	0	0	0		0	78.8	21.2	0		90.9	0	9.1	0		
Total %	3	27.9	0	0	30.9	0	0	0	0	0	0	25.1	6.8	0	31.9	33.9	0	3.4	0	37.3	
Unshifted	15	140	0	0	155	0	0	0	0	0	0	126	34	0	160	170	0	17	0	187	502
% Unshifted	100	100	0	0	100	0	0	0	0	0	0	100	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Laurie & Parrott

File Name : Parrott & Laurie AM
Site Code : 00000000
Start Date : 9/25/2014
Page No : 2



Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Laurie & Parrott

File Name : Parrott & Laurie AM
Site Code : 00000000
Start Date : 9/25/2014
Page No : 3

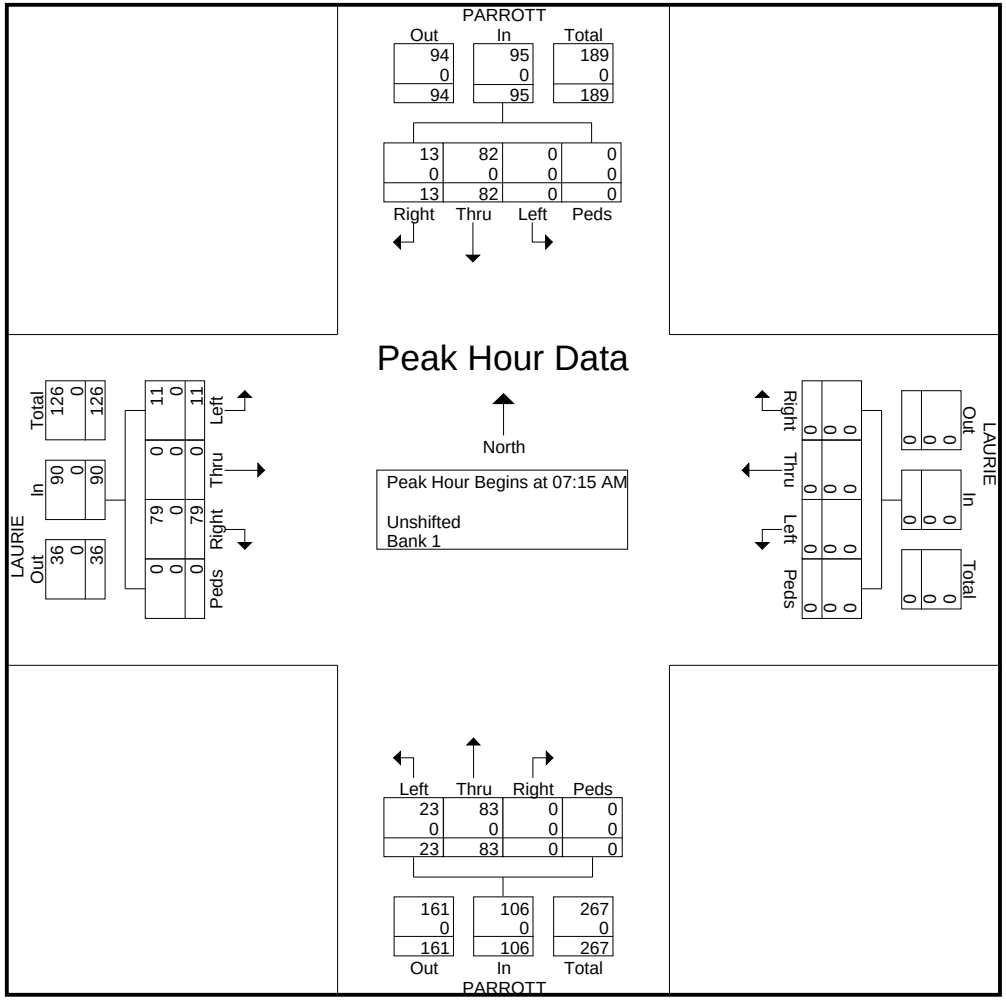
	PARROTT From North					LAURIE From East					PARROTT From South					LAURIE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	3	**24**	0	0	**27**	0	0	0	0	0	0	12	3	0	15	17	0	2	0	19	61
07:30 AM	**4**	15	0	0	19	0	0	0	0	0	0	**46**	**8**	0	**54**	16	0	3	0	19	**92**
07:45 AM	4	21	0	0	25	0	0	0	0	0	0	15	8	0	23	**24**	0	2	0	**26**	74
08:00 AM	2	22	0	0	24	0	0	0	0	0	0	10	4	0	14	22	0	**4**	0	26	64
Total Volume	13	82	0	0	95	0	0	0	0	0	0	83	23	0	106	79	0	11	0	90	291
% App. Total	13.7	86.3	0	0		0	0	0	0		0	78.3	21.7	0		87.8	0	12.2	0		
PHF	.813	.854	.000	.000	.880	.000	.000	.000	.000	.000	.000	.451	.719	.000	.491	.823	.000	.688	.000	.865	.791
Unshifted	13	82	0	0	95	0	0	0	0	0	0	83	23	0	106	79	0	11	0	90	291
% Unshifted	100	100	0	0	100	0	0	0	0	0	0	100	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Laurie & Parrott

File Name : Parrott & Laurie AM
Site Code : 00000000
Start Date : 9/25/2014
Page No : 4



Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Laurie & Parrot

File Name : Parrott & Laurie PM
Site Code : 00000000
Start Date : 9/29/2014
Page No : 1

Groups Printed- Unshifted - Bank 1

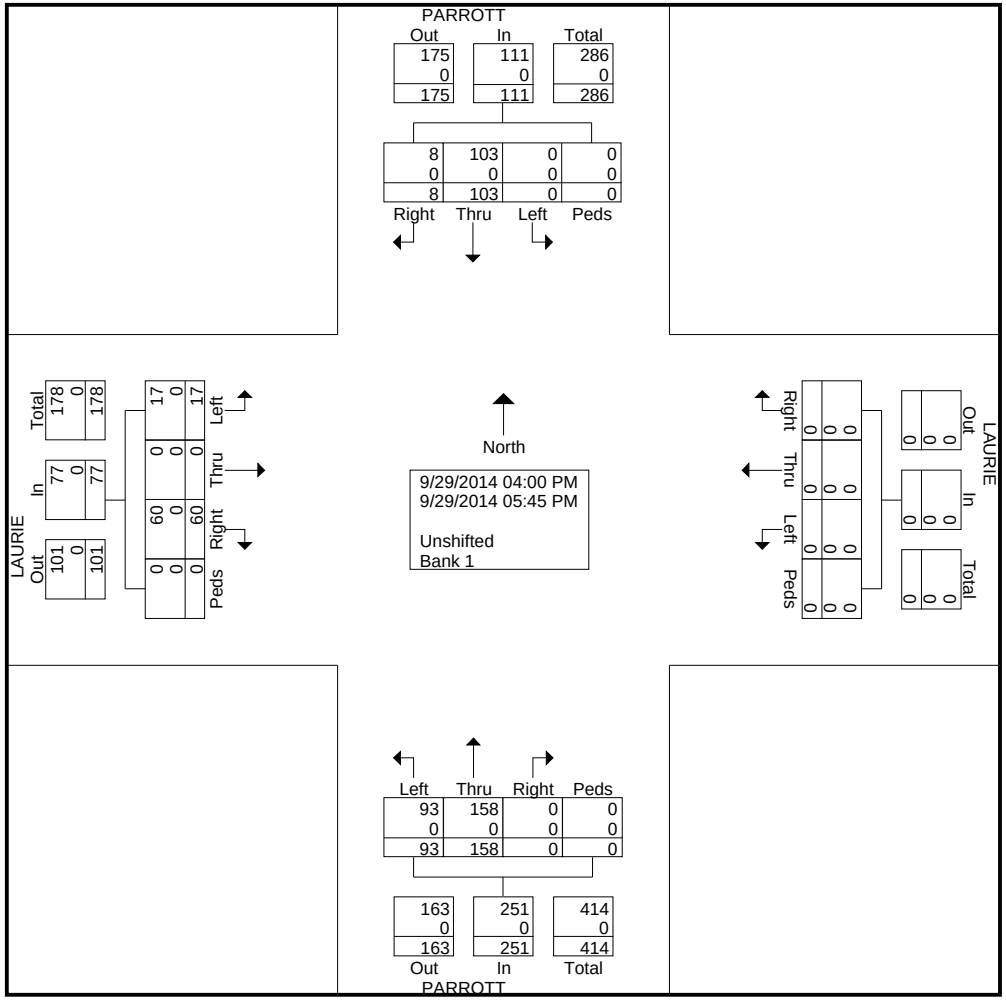
	PARROTT From North					LAURIE From East					PARROTT From South					LAURIE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	7	0	0	7	0	0	0	0	0	0	6	6	0	12	6	0	2	0	8	27
04:15 PM	2	15	0	0	17	0	0	0	0	0	0	12	7	0	19	2	0	3	0	5	41
04:30 PM	1	13	0	0	14	0	0	0	0	0	0	20	9	0	29	3	0	4	0	7	50
04:45 PM	1	15	0	0	16	0	0	0	0	0	0	17	16	0	33	12	0	4	0	16	65
Total	4	50	0	0	54	0	0	0	0	0	0	55	38	0	93	23	0	13	0	36	183
05:00 PM	1	10	0	0	11	0	0	0	0	0	0	25	18	0	43	9	0	2	0	11	65
05:15 PM	1	20	0	0	21	0	0	0	0	0	0	31	12	0	43	11	0	0	0	11	75
05:30 PM	1	13	0	0	14	0	0	0	0	0	0	22	15	0	37	7	0	0	0	7	58
05:45 PM	1	10	0	0	11	0	0	0	0	0	0	25	10	0	35	10	0	2	0	12	58
Total	4	53	0	0	57	0	0	0	0	0	0	103	55	0	158	37	0	4	0	41	256
Grand Total	8	103	0	0	111	0	0	0	0	0	0	158	93	0	251	60	0	17	0	77	439
Apprch %	7.2	92.8	0	0		0	0	0	0		0	62.9	37.1	0		77.9	0	22.1	0		
Total %	1.8	23.5	0	0	25.3	0	0	0	0	0	0	36	21.2	0	57.2	13.7	0	3.9	0	17.5	
Unshifted	8	103	0	0	111	0	0	0	0	0	0	158	93	0	251	60	0	17	0	77	439
% Unshifted	100	100	0	0	100	0	0	0	0	0	0	100	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Laurie & Parrot

File Name : Parrott & Laurie PM
Site Code : 00000000
Start Date : 9/29/2014
Page No : 2



Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Laurie & Parrot

File Name : Parrott & Laurie PM
Site Code : 00000000
Start Date : 9/29/2014
Page No : 3

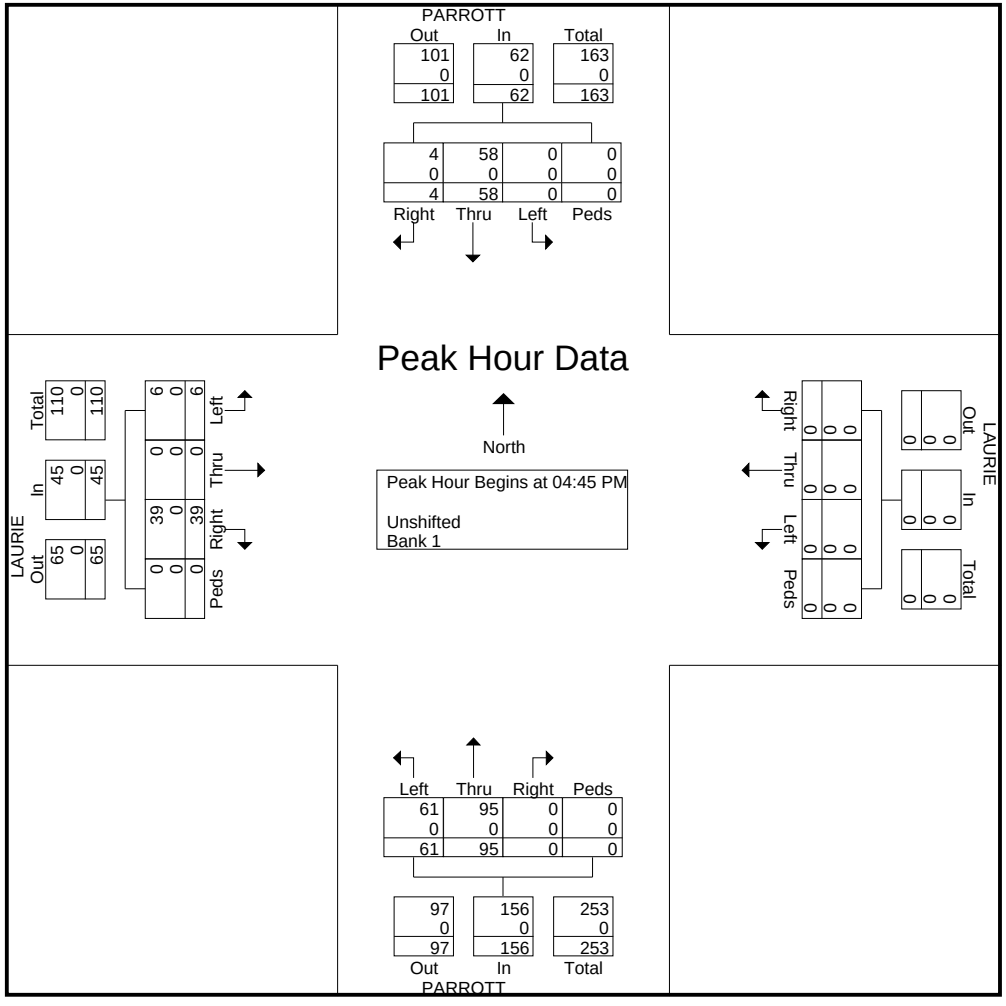
	PARROTT From North					LAURIE From East					PARROTT From South					LAURIE From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	**1**	15	0	0	16	0	0	0	0	0	0	17	16	0	33	**12**	0	**4**	0	**16**	65
05:00 PM	1	10	0	0	11	0	0	0	0	0	0	25	**18**	0	**43**	9	0	2	0	11	65
05:15 PM	1	**20**	0	0	**21**	0	0	0	0	0	0	**31**	12	0	43	11	0	0	0	11	**75**
05:30 PM	1	13	0	0	14	0	0	0	0	0	0	22	15	0	37	7	0	0	0	7	58
Total Volume	4	58	0	0	62	0	0	0	0	0	0	95	61	0	156	39	0	6	0	45	263
% App. Total	6.5	93.5	0	0		0	0	0	0		0	60.9	39.1	0		86.7	0	13.3	0		
PHF	1.00	.725	.000	.000	.738	.000	.000	.000	.000	.000	.000	.766	.847	.000	.907	.813	.000	.375	.000	.703	.877
Unshifted	4	58	0	0	62	0	0	0	0	0	0	95	61	0	156	39	0	6	0	45	263
% Unshifted	100	100	0	0	100	0	0	0	0	0	0	100	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
Laurie & Parrot

File Name : Parrott & Laurie PM
Site Code : 00000000
Start Date : 9/29/2014
Page No : 4



Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
CSM & Parrott

File Name : Parrott & CSM AM
Site Code : 00000000
Start Date : 9/26/2014
Page No : 1

Groups Printed- Unshifted - Bank 1

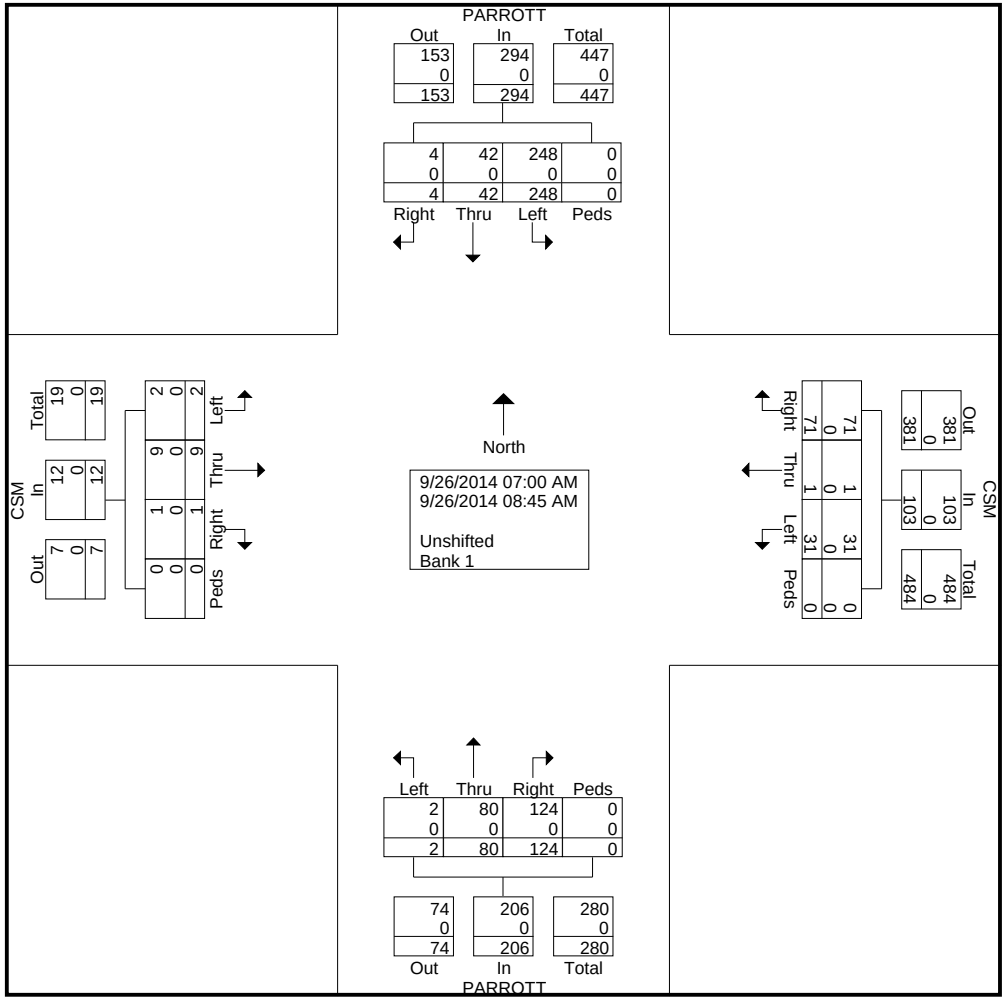
	PARROTT From North					CSM From East					PARROTT From South					CSM From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	1	2	18	0	21	5	0	4	0	9	3	3	0	0	6	0	0	0	0	0	36
07:15 AM	0	1	20	0	21	5	0	1	0	6	3	2	0	0	5	0	2	0	0	2	34
07:30 AM	0	4	23	0	27	11	0	4	0	15	5	20	1	0	26	1	1	0	0	2	70
07:45 AM	0	15	34	0	49	10	0	4	0	14	10	24	0	0	34	0	1	1	0	2	99
Total	1	22	95	0	118	31	0	13	0	44	21	49	1	0	71	1	4	1	0	6	239
08:00 AM	0	15	34	0	49	9	0	5	0	14	15	7	0	0	22	0	0	1	0	1	86
08:15 AM	0	0	26	0	26	9	0	6	0	15	15	7	0	0	22	0	1	0	0	1	64
08:30 AM	1	3	41	0	45	9	0	2	0	11	30	12	0	0	42	0	2	0	0	2	100
08:45 AM	2	2	52	0	56	13	1	5	0	19	43	5	1	0	49	0	2	0	0	2	126
Total	3	20	153	0	176	40	1	18	0	59	103	31	1	0	135	0	5	1	0	6	376
Grand Total	4	42	248	0	294	71	1	31	0	103	124	80	2	0	206	1	9	2	0	12	615
Apprch %	1.4	14.3	84.4	0		68.9	1	30.1	0		60.2	38.8	1	0		8.3	75	16.7	0		
Total %	0.7	6.8	40.3	0	47.8	11.5	0.2	5	0	16.7	20.2	13	0.3	0	33.5	0.2	1.5	0.3	0	2	
Unshifted	4	42	248	0	294	71	1	31	0	103	124	80	2	0	206	1	9	2	0	12	615
% Unshifted	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
CSM & Parrott

File Name : Parrott & CSM AM
Site Code : 00000000
Start Date : 9/26/2014
Page No : 2



Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
CSM & Parrott

File Name : Parrott & CSM AM
Site Code : 00000000
Start Date : 9/26/2014
Page No : 3

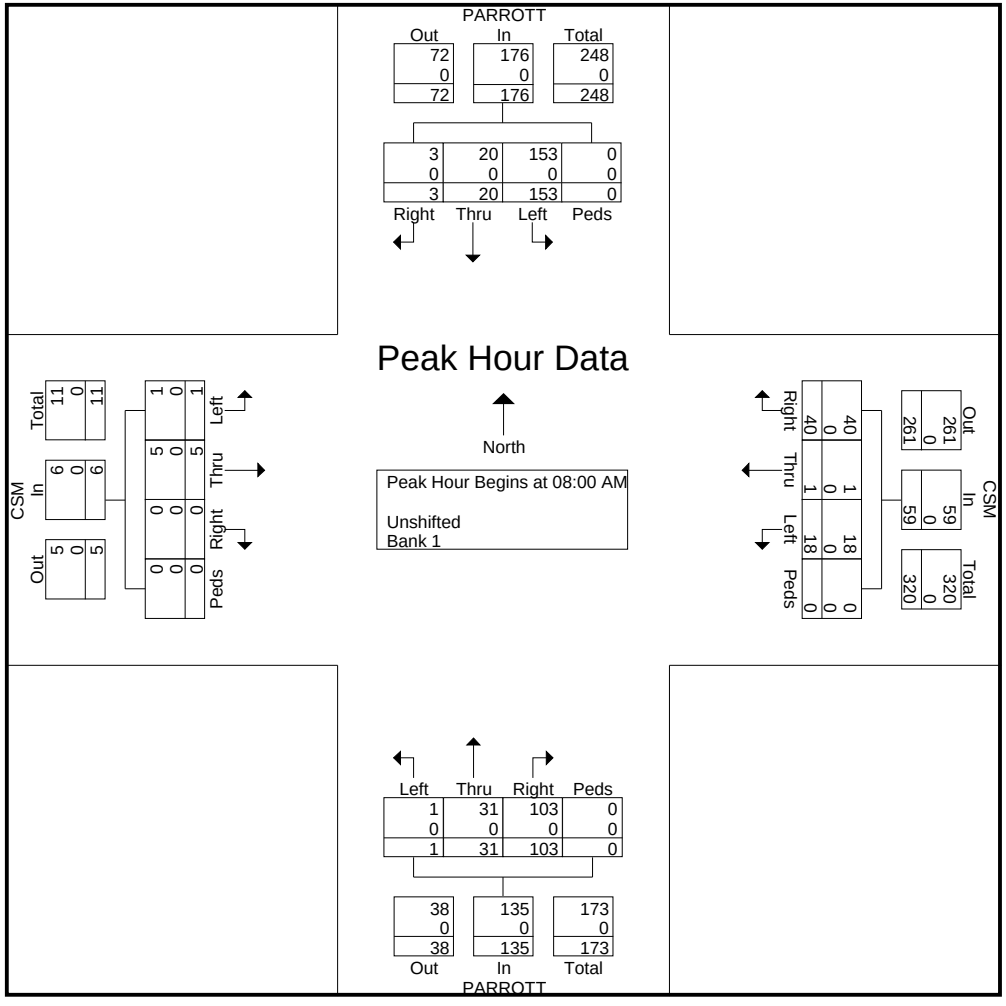
	PARROTT From North					CSM From East					PARROTT From South					CSM From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	**15**	34	0	49	9	0	5	0	14	15	7	0	0	22	0	0	**1**	0	1	86
08:15 AM	0	0	26	0	26	9	0	**6**	0	15	15	7	0	0	22	0	1	0	0	1	64
08:30 AM	1	3	41	0	45	9	0	2	0	11	30	**12**	0	0	42	0	**2**	0	0	**2**	100
08:45 AM	**2**	2	**52**	0	**56**	**13**	**1**	5	0	**19**	**43**	5	**1**	0	**49**	0	2	0	0	2	**126**
Total Volume	3	20	153	0	176	40	1	18	0	59	103	31	1	0	135	0	5	1	0	6	376
% App. Total	1.7	11.4	86.9	0		67.8	1.7	30.5	0		76.3	23	0.7	0		0	83.3	16.7	0		
PHF	.375	.333	.736	.000	.786	.769	.250	.750	.000	.776	.599	.646	.250	.000	.689	.000	.625	.250	.000	.750	.746
Unshifted	3	20	153	0	176	40	1	18	0	59	103	31	1	0	135	0	5	1	0	6	376
% Unshifted	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	0	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
CSM & Parrott

File Name : Parrott & CSM AM
Site Code : 00000000
Start Date : 9/26/2014
Page No : 4



Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
CSM & Parrott

File Name : Parrott & CSM PM
Site Code : 00000000
Start Date : 9/23/2014
Page No : 1

Groups Printed- Unshifted - Bank 1

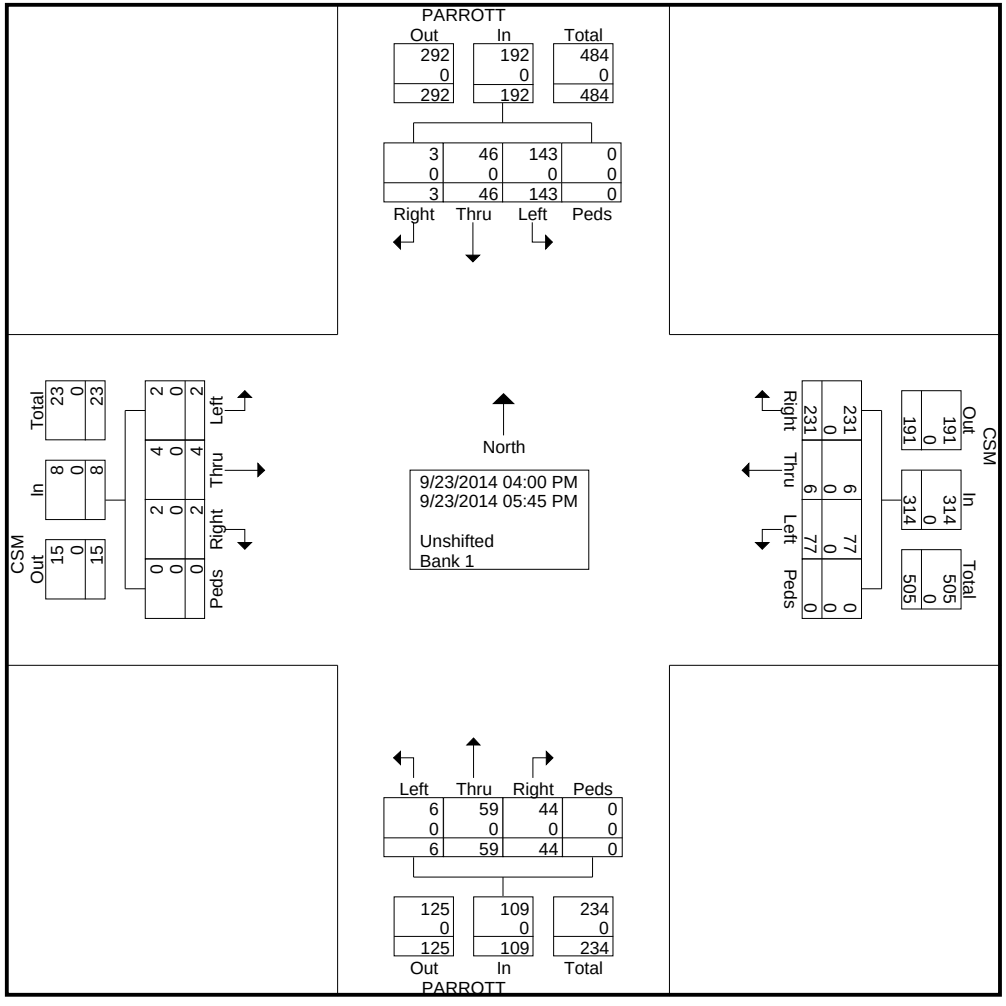
	PARROTT From North					CSM From East					PARROTT From South					CSM From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	7	11	0	18	29	1	13	0	43	8	5	0	0	13	0	0	0	0	0	74
04:15 PM	1	5	15	0	21	17	0	5	0	22	4	7	1	0	12	0	0	0	0	0	55
04:30 PM	0	6	19	0	25	23	2	12	0	37	4	9	0	0	13	1	2	1	0	4	79
04:45 PM	2	6	14	0	22	25	0	7	0	32	4	9	2	0	15	1	1	1	0	3	72
Total	3	24	59	0	86	94	3	37	0	134	20	30	3	0	53	2	3	2	0	7	280
05:00 PM	0	4	20	0	24	38	0	8	0	46	5	7	1	0	13	0	0	0	0	0	83
05:15 PM	0	6	23	0	29	31	0	11	0	42	4	7	1	0	12	0	1	0	0	1	84
05:30 PM	0	6	14	0	20	29	2	8	0	39	5	6	1	0	12	0	0	0	0	0	71
05:45 PM	0	6	27	0	33	39	1	13	0	53	10	9	0	0	19	0	0	0	0	0	105
Total	0	22	84	0	106	137	3	40	0	180	24	29	3	0	56	0	1	0	0	1	343
Grand Total	3	46	143	0	192	231	6	77	0	314	44	59	6	0	109	2	4	2	0	8	623
Apprch %	1.6	24	74.5	0		73.6	1.9	24.5	0		40.4	54.1	5.5	0		25	50	25	0		
Total %	0.5	7.4	23	0	30.8	37.1	1	12.4	0	50.4	7.1	9.5	1	0	17.5	0.3	0.6	0.3	0	1.3	
Unshifted	3	46	143	0	192	231	6	77	0	314	44	59	6	0	109	2	4	2	0	8	623
% Unshifted	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
CSM & Parrott

File Name : Parrott & CSM PM
Site Code : 00000000
Start Date : 9/23/2014
Page No : 2



Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
CSM & Parrott

File Name : Parrott & CSM PM
Site Code : 00000000
Start Date : 9/23/2014
Page No : 3

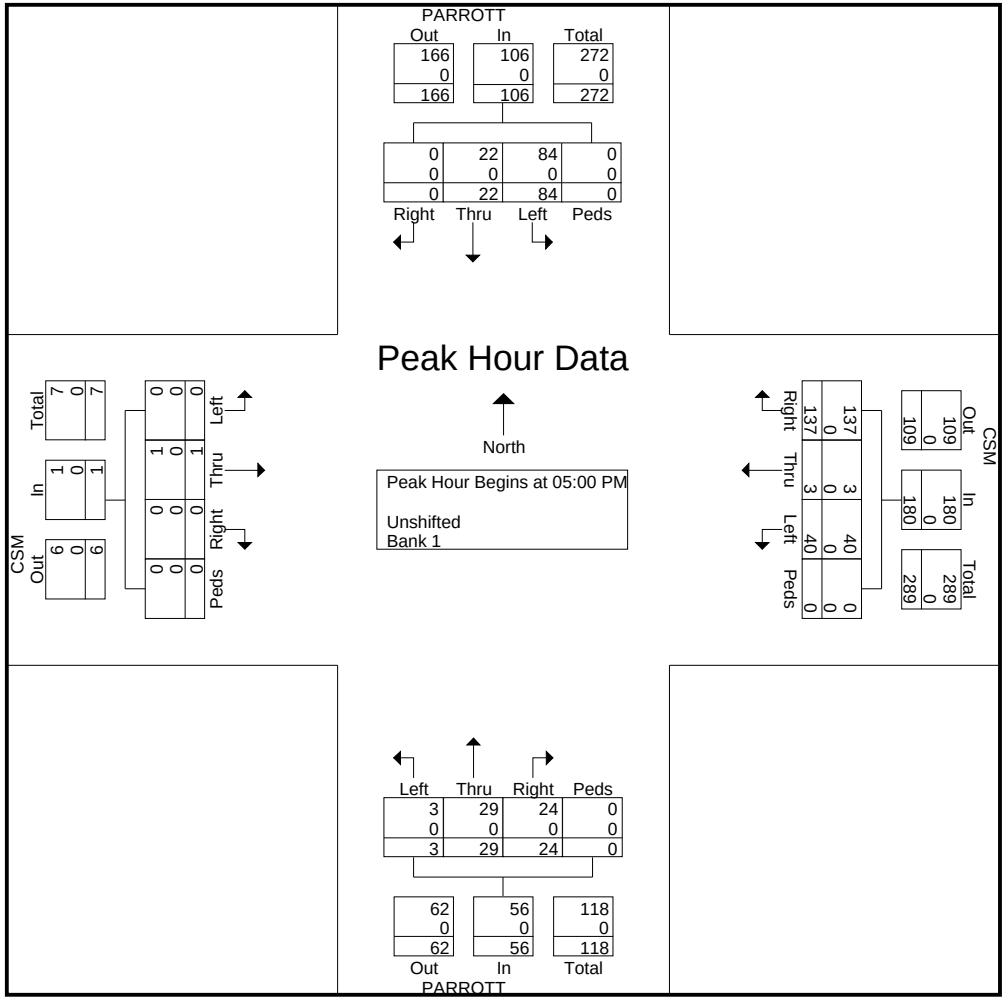
	PARROTT From North					CSM From East					PARROTT From South					CSM From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	4	20	0	24	38	0	8	0	46	5	7	**1**	0	13	0	0	0	0	0	83
05:15 PM	0	**6**	23	0	29	31	0	11	0	42	4	7	1	0	12	0	**1**	0	0	**1**	84
05:30 PM	0	6	14	0	20	29	**2**	8	0	39	5	6	1	0	12	0	0	0	0	0	71
05:45 PM	0	6	**27**	0	**33**	**39**	1	**13**	0	**53**	**10**	**9**	0	0	**19**	0	0	0	0	0	**105**
Total Volume	0	22	84	0	106	137	3	40	0	180	24	29	3	0	56	0	1	0	0	1	343
% App. Total	0	20.8	79.2	0		76.1	1.7	22.2	0		42.9	51.8	5.4	0		0	100	0	0		
PHF	.000	.917	.778	.000	.803	.878	.375	.769	.000	.849	.600	.806	.750	.000	.737	.000	.250	.000	.000	.250	.817
Unshifted	0	22	84	0	106	137	3	40	0	180	24	29	3	0	56	0	1	0	0	1	343
% Unshifted	0	100	100	0	100	100	100	100	0	100	100	100	100	0	100	0	100	0	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Traffic Research Associates

P.O. Box 4205
San Leandro, CA 94579

TRA Traffic Survey
RKH Consultants
City of San Mateo
CSM & Parrott

File Name : Parrott & CSM PM
Site Code : 00000000
Start Date : 9/23/2014
Page No : 4



B. Levels of Service Calculation Worksheets

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	54	79	294	32	66	265
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	86	320	35	72	288
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	768	337			354	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	768	337			354	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	83	88			94	
cM capacity (veh/h)	348	705			1204	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	145	354	72	288
Volume Left	59	0	72	0
Volume Right	86	35	0	0
cSH	497	1700	1204	1700
Volume to Capacity	0.29	0.21	0.06	0.17
Queue Length 95th (ft)	30	0	5	0
Control Delay (s)	15.2	0.0	8.2	0.0
Lane LOS	C		A	
Approach Delay (s)	15.2	0.0	1.6	
Approach LOS	C			

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	6	2	0	3	1	31	1	13	2	118	11	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	2	0	3	1	34	1	14	2	128	12	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	9	38	17	143
Volume Left (vph)	7	3	1	128
Volume Right (vph)	0	34	2	3
Hadj (s)	0.18	-0.48	-0.03	0.20
Departure Headway (s)	4.5	3.8	4.1	4.2
Degree Utilization, x	0.01	0.04	0.02	0.17
Capacity (veh/h)	769	907	849	842
Control Delay (s)	7.5	6.9	7.2	8.1
Approach Delay (s)	7.5	6.9	7.2	8.1
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.8		
HCM Level of Service	A		
Intersection Capacity Utilization	24.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	11	79	23	83	82	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	86	25	90	89	14

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	98	115	103
Volume Left (vph)	12	25	0
Volume Right (vph)	86	0	14
Hadj (s)	-0.47	0.08	-0.05
Departure Headway (s)	3.9	4.3	4.2
Degree Utilization, x	0.11	0.14	0.12
Capacity (veh/h)	871	811	836
Control Delay (s)	7.4	8.0	7.7
Approach Delay (s)	7.4	8.0	7.7
Approach LOS	A	A	A

Intersection Summary			
Delay	7.7		
HCM Level of Service	A		
Intersection Capacity Utilization	24.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	5	0	18	1	40	1	31	103	153	20	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	5	0	20	1	43	1	34	112	166	22	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	7	64	147	191
Volume Left (vph)	1	20	1	166
Volume Right (vph)	0	43	112	3
Hadj (s)	0.07	-0.31	-0.42	0.20
Departure Headway (s)	4.8	4.3	3.8	4.4
Degree Utilization, x	0.01	0.08	0.16	0.23
Capacity (veh/h)	688	764	904	791
Control Delay (s)	7.8	7.7	7.6	8.7
Approach Delay (s)	7.8	7.7	7.6	8.7
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.1		
HCM Level of Service	A		
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	28	54	284	37	57	216
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	59	309	40	62	235
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	688	329			349	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	688	329			349	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	92			95	
cM capacity (veh/h)	391	713			1210	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	89	349	62	235
Volume Left	30	0	62	0
Volume Right	59	40	0	0
cSH	557	1700	1210	1700
Volume to Capacity	0.16	0.21	0.05	0.14
Queue Length 95th (ft)	14	0	4	0
Control Delay (s)	12.7	0.0	8.1	0.0
Lane LOS	B		A	
Approach Delay (s)	12.7	0.0	1.7	
Approach LOS	B			

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	4	2	0	5	7	43	1	6	3	36	9	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	2	0	5	8	47	1	7	3	39	10	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	7	60	11	53
Volume Left (vph)	4	5	1	39
Volume Right (vph)	0	47	3	4
Hadj (s)	0.17	-0.42	-0.13	0.13
Departure Headway (s)	4.3	3.6	4.0	4.2
Degree Utilization, x	0.01	0.06	0.01	0.06
Capacity (veh/h)	825	970	881	845
Control Delay (s)	7.3	6.9	7.0	7.4
Approach Delay (s)	7.3	6.9	7.0	7.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.1		
HCM Level of Service	A		
Intersection Capacity Utilization	19.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	6	39	61	95	58	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	42	66	103	63	4

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	49	170	67
Volume Left (vph)	7	66	0
Volume Right (vph)	42	0	4
Hadj (s)	-0.46	0.11	0.00
Departure Headway (s)	4.0	4.2	4.2
Degree Utilization, x	0.05	0.20	0.08
Capacity (veh/h)	856	841	844
Control Delay (s)	7.2	8.2	7.5
Approach Delay (s)	7.2	8.2	7.5
Approach LOS	A	A	A

Intersection Summary			
Delay	7.9		
HCM Level of Service	A		
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	1	0	40	3	137	3	29	24	84	22	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	43	3	149	3	32	26	91	24	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	1	196	61	115
Volume Left (vph)	0	43	3	91
Volume Right (vph)	0	149	26	0
Hadj (s)	0.03	-0.38	-0.21	0.19
Departure Headway (s)	4.5	3.9	4.2	4.6
Degree Utilization, x	0.00	0.21	0.07	0.15
Capacity (veh/h)	747	879	801	744
Control Delay (s)	7.6	8.0	7.6	8.4
Approach Delay (s)	7.6	8.0	7.6	8.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.0		
HCM Level of Service	A		
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	56	83	307	33	69	277
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	61	90	334	36	75	301
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	803	352			370	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	803	352			370	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	82	87			94	
cM capacity (veh/h)	331	692			1189	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	151	370	75	301
Volume Left	61	0	75	0
Volume Right	90	36	0	0
cSH	480	1700	1189	1700
Volume to Capacity	0.31	0.22	0.06	0.18
Queue Length 95th (ft)	33	0	5	0
Control Delay (s)	15.9	0.0	8.2	0.0
Lane LOS	C		A	
Approach Delay (s)	15.9	0.0	1.6	
Approach LOS	C			

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	40.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	6	2	0	3	1	32	1	14	2	123	12	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	2	0	3	1	35	1	15	2	134	13	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	9	39	18	150
Volume Left (vph)	7	3	1	134
Volume Right (vph)	0	35	2	3
Hadj (s)	0.18	-0.48	-0.02	0.20
Departure Headway (s)	4.5	3.8	4.1	4.2
Degree Utilization, x	0.01	0.04	0.02	0.18
Capacity (veh/h)	765	902	846	841
Control Delay (s)	7.5	7.0	7.2	8.1
Approach Delay (s)	7.5	7.0	7.2	8.1
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.8		
HCM Level of Service	A		
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	12	83	24	87	86	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	90	26	95	93	15

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	103	121	109
Volume Left (vph)	13	26	0
Volume Right (vph)	90	0	15
Hadj (s)	-0.46	0.08	-0.05
Departure Headway (s)	3.9	4.3	4.2
Degree Utilization, x	0.11	0.14	0.13
Capacity (veh/h)	863	806	832
Control Delay (s)	7.4	8.0	7.8
Approach Delay (s)	7.4	8.0	7.8
Approach LOS	A	A	A

Intersection Summary			
Delay	7.8		
HCM Level of Service	A		
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	5	0	19	1	42	1	32	108	160	21	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	5	0	21	1	46	1	35	117	174	23	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	7	67	153	200
Volume Left (vph)	1	21	1	174
Volume Right (vph)	0	46	117	3
Hadj (s)	0.07	-0.31	-0.42	0.20
Departure Headway (s)	4.8	4.4	3.9	4.4
Degree Utilization, x	0.01	0.08	0.16	0.25
Capacity (veh/h)	680	756	900	788
Control Delay (s)	7.9	7.7	7.6	8.8
Approach Delay (s)	7.9	7.7	7.6	8.8
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.2		
HCM Level of Service	A		
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	29	56	297	39	60	226
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	61	323	42	65	246
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	720	344			365	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	720	344			365	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	91			95	
cM capacity (veh/h)	373	699			1193	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	92	365	65	246
Volume Left	32	0	65	0
Volume Right	61	42	0	0
cSH	538	1700	1193	1700
Volume to Capacity	0.17	0.21	0.05	0.14
Queue Length 95th (ft)	15	0	4	0
Control Delay (s)	13.1	0.0	8.2	0.0
Lane LOS	B		A	
Approach Delay (s)	13.1	0.0	1.7	
Approach LOS	B			

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	36.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	4	2	0	5	7	45	1	6	3	38	9	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	2	0	5	8	49	1	7	3	41	10	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	7	62	11	55
Volume Left (vph)	4	5	1	41
Volume Right (vph)	0	49	3	4
Hadj (s)	0.17	-0.42	-0.13	0.14
Departure Headway (s)	4.3	3.6	4.0	4.2
Degree Utilization, x	0.01	0.06	0.01	0.06
Capacity (veh/h)	823	969	879	843
Control Delay (s)	7.3	6.9	7.0	7.5
Approach Delay (s)	7.3	6.9	7.0	7.5
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.1		
HCM Level of Service	A		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	6	41	64	99	61	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	45	70	108	66	4

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	51	177	71
Volume Left (vph)	7	70	0
Volume Right (vph)	45	0	4
Hadj (s)	-0.46	0.11	0.00
Departure Headway (s)	4.0	4.2	4.2
Degree Utilization, x	0.06	0.21	0.08
Capacity (veh/h)	850	839	841
Control Delay (s)	7.2	8.3	7.6
Approach Delay (s)	7.2	8.3	7.6
Approach LOS	A	A	A

Intersection Summary			
Delay	7.9		
HCM Level of Service	A		
Intersection Capacity Utilization	25.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	1	0	42	3	143	3	30	25	88	23	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	46	3	155	3	33	27	96	25	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	1	204	63	121
Volume Left (vph)	0	46	3	96
Volume Right (vph)	0	155	27	0
Hadj (s)	0.03	-0.38	-0.21	0.19
Departure Headway (s)	4.6	4.0	4.3	4.6
Degree Utilization, x	0.00	0.22	0.07	0.15
Capacity (veh/h)	740	874	795	740
Control Delay (s)	7.6	8.1	7.6	8.4
Approach Delay (s)	7.6	8.1	7.6	8.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.1		
HCM Level of Service	A		
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	60	86	307	34	70	277
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	93	334	37	76	301
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	805	352			371	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	805	352			371	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	86			94	
cM capacity (veh/h)	329	691			1188	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	159	371	76	301
Volume Left	65	0	76	0
Volume Right	93	37	0	0
cSH	476	1700	1188	1700
Volume to Capacity	0.33	0.22	0.06	0.18
Queue Length 95th (ft)	36	0	5	0
Control Delay (s)	16.3	0.0	8.2	0.0
Lane LOS	C		A	
Approach Delay (s)	16.3	0.0	1.7	
Approach LOS	C			

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	6	2	0	3	1	38	1	14	2	125	12	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	2	0	3	1	41	1	15	2	136	13	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	9	46	18	152
Volume Left (vph)	7	3	1	136
Volume Right (vph)	0	41	2	3
Hadj (s)	0.18	-0.49	-0.02	0.20
Departure Headway (s)	4.5	3.8	4.1	4.2
Degree Utilization, x	0.01	0.05	0.02	0.18
Capacity (veh/h)	762	904	841	837
Control Delay (s)	7.6	7.0	7.2	8.1
Approach Delay (s)	7.6	7.0	7.2	8.1
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.8		
HCM Level of Service	A		
Intersection Capacity Utilization	24.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	12	93	28	87	86	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	101	30	95	93	15

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	114	125	109
Volume Left (vph)	13	30	0
Volume Right (vph)	101	0	15
Hadj (s)	-0.47	0.08	-0.05
Departure Headway (s)	3.9	4.3	4.2
Degree Utilization, x	0.13	0.15	0.13
Capacity (veh/h)	863	800	824
Control Delay (s)	7.5	8.1	7.8
Approach Delay (s)	7.5	8.1	7.8
Approach LOS	A	A	A

Intersection Summary			
Delay	7.8		
HCM Level of Service	A		
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	5	0	19	1	46	1	32	108	170	21	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	5	0	21	1	50	1	35	117	185	23	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	7	72	153	211
Volume Left (vph)	1	21	1	185
Volume Right (vph)	0	50	117	3
Hadj (s)	0.07	-0.33	-0.42	0.20
Departure Headway (s)	4.9	4.4	3.9	4.4
Degree Utilization, x	0.01	0.09	0.17	0.26
Capacity (veh/h)	674	753	893	786
Control Delay (s)	7.9	7.8	7.7	9.0
Approach Delay (s)	7.9	7.8	7.7	9.0
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.3		
HCM Level of Service	A		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	31	57	297	42	62	226
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	62	323	46	67	246
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	726	346			368	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	726	346			368	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	91			94	
cM capacity (veh/h)	369	697			1190	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	96	368	67	246
Volume Left	34	0	67	0
Volume Right	62	46	0	0
cSH	531	1700	1190	1700
Volume to Capacity	0.18	0.22	0.06	0.14
Queue Length 95th (ft)	16	0	4	0
Control Delay (s)	13.3	0.0	8.2	0.0
Lane LOS	B		A	
Approach Delay (s)	13.3	0.0	1.8	
Approach LOS	B			

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	4	2	0	5	7	48	1	6	3	43	9	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	2	0	5	8	52	1	7	3	47	10	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	7	65	11	61
Volume Left (vph)	4	5	1	47
Volume Right (vph)	0	52	3	4
Hadj (s)	0.17	-0.43	-0.13	0.14
Departure Headway (s)	4.3	3.6	4.0	4.2
Degree Utilization, x	0.01	0.07	0.01	0.07
Capacity (veh/h)	819	967	875	840
Control Delay (s)	7.3	6.9	7.0	7.5
Approach Delay (s)	7.3	6.9	7.0	7.5
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.2		
HCM Level of Service	A		
Intersection Capacity Utilization	20.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	6	46	73	99	61	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	50	79	108	66	4

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	57	187	71
Volume Left (vph)	7	79	0
Volume Right (vph)	50	0	4
Hadj (s)	-0.47	0.12	0.00
Departure Headway (s)	4.0	4.2	4.2
Degree Utilization, x	0.06	0.22	0.08
Capacity (veh/h)	846	835	835
Control Delay (s)	7.3	8.4	7.6
Approach Delay (s)	7.3	8.4	7.6
Approach LOS	A	A	A

Intersection Summary			
Delay	8.0		
HCM Level of Service	A		
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	1	0	42	3	152	3	30	25	93	23	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	46	3	165	3	33	27	101	25	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	1	214	63	126
Volume Left (vph)	0	46	3	101
Volume Right (vph)	0	165	27	0
Hadj (s)	0.03	-0.39	-0.21	0.19
Departure Headway (s)	4.6	4.0	4.3	4.6
Degree Utilization, x	0.00	0.24	0.08	0.16
Capacity (veh/h)	735	872	788	735
Control Delay (s)	7.6	8.2	7.6	8.5
Approach Delay (s)	7.6	8.2	7.6	8.5
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.2		
HCM Level of Service	A		
Intersection Capacity Utilization	38.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	58	82	294	33	67	265
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	63	89	320	36	73	288
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	771	338			355	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	771	338			355	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	82	87			94	
cM capacity (veh/h)	346	705			1203	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	152	355	73	288
Volume Left	63	0	73	0
Volume Right	89	36	0	0
cSH	493	1700	1203	1700
Volume to Capacity	0.31	0.21	0.06	0.17
Queue Length 95th (ft)	33	0	5	0
Control Delay (s)	15.5	0.0	8.2	0.0
Lane LOS	C		A	
Approach Delay (s)	15.5	0.0	1.7	
Approach LOS	C			

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	6	2	0	3	1	37	1	13	2	120	11	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	2	0	3	1	40	1	14	2	130	12	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	9	45	17	146
Volume Left (vph)	7	3	1	130
Volume Right (vph)	0	40	2	3
Hadj (s)	0.18	-0.49	-0.03	0.20
Departure Headway (s)	4.5	3.8	4.1	4.2
Degree Utilization, x	0.01	0.05	0.02	0.17
Capacity (veh/h)	767	909	844	838
Control Delay (s)	7.5	7.0	7.2	8.1
Approach Delay (s)	7.5	7.0	7.2	8.1
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.8		
HCM Level of Service	A		
Intersection Capacity Utilization	24.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	11	89	27	83	82	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	97	29	90	89	14

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	109	120	103
Volume Left (vph)	12	29	0
Volume Right (vph)	97	0	14
Hadj (s)	-0.48	0.08	-0.05
Departure Headway (s)	3.9	4.3	4.2
Degree Utilization, x	0.12	0.14	0.12
Capacity (veh/h)	870	804	829
Control Delay (s)	7.4	8.0	7.8
Approach Delay (s)	7.4	8.0	7.8
Approach LOS	A	A	A

Intersection Summary			
Delay	7.8		
HCM Level of Service	A		
Intersection Capacity Utilization	25.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	5	0	18	1	44	1	31	103	163	20	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	5	0	20	1	48	1	34	112	177	22	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	7	68	147	202
Volume Left (vph)	1	20	1	177
Volume Right (vph)	0	48	112	3
Hadj (s)	0.07	-0.33	-0.42	0.20
Departure Headway (s)	4.8	4.3	3.9	4.4
Degree Utilization, x	0.01	0.08	0.16	0.25
Capacity (veh/h)	682	761	898	789
Control Delay (s)	7.9	7.7	7.6	8.9
Approach Delay (s)	7.9	7.7	7.6	8.9
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.2		
HCM Level of Service	A		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	30	55	284	40	59	216
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	60	309	43	64	235
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	693	330			352	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	693	330			352	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	92			95	
cM capacity (veh/h)	387	711			1207	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	92	352	64	235
Volume Left	33	0	64	0
Volume Right	60	43	0	0
cSH	549	1700	1207	1700
Volume to Capacity	0.17	0.21	0.05	0.14
Queue Length 95th (ft)	15	0	4	0
Control Delay (s)	12.9	0.0	8.2	0.0
Lane LOS	B		A	
Approach Delay (s)	12.9	0.0	1.7	
Approach LOS	B			

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	35.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	4	2	0	5	7	46	1	6	3	36	9	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	2	0	5	8	50	1	7	3	39	10	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	7	63	11	53
Volume Left (vph)	4	5	1	39
Volume Right (vph)	0	50	3	4
Hadj (s)	0.17	-0.42	-0.13	0.13
Departure Headway (s)	4.3	3.6	4.0	4.2
Degree Utilization, x	0.01	0.06	0.01	0.06
Capacity (veh/h)	824	972	879	843
Control Delay (s)	7.3	6.9	7.0	7.5
Approach Delay (s)	7.3	6.9	7.0	7.5
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.1		
HCM Level of Service	A		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	6	44	70	95	58	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	48	76	103	63	4

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	54	179	67
Volume Left (vph)	7	76	0
Volume Right (vph)	48	0	4
Hadj (s)	-0.47	0.12	0.00
Departure Headway (s)	4.0	4.2	4.2
Degree Utilization, x	0.06	0.21	0.08
Capacity (veh/h)	852	836	838
Control Delay (s)	7.2	8.3	7.5
Approach Delay (s)	7.2	8.3	7.5
Approach LOS	A	A	A

Intersection Summary			
Delay	7.9		
HCM Level of Service	A		
Intersection Capacity Utilization	25.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	1	0	40	3	146	3	29	24	89	22	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	43	3	159	3	32	26	97	24	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	1	205	61	121
Volume Left (vph)	0	43	3	97
Volume Right (vph)	0	159	26	0
Hadj (s)	0.03	-0.39	-0.21	0.19
Departure Headway (s)	4.6	3.9	4.3	4.6
Degree Utilization, x	0.00	0.22	0.07	0.15
Capacity (veh/h)	742	877	794	740
Control Delay (s)	7.6	8.1	7.6	8.4
Approach Delay (s)	7.6	8.1	7.6	8.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.1		
HCM Level of Service	A		
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	69	100	373	41	84	336
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	75	109	405	45	91	365
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	976	428			450	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	976	428			450	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	71	83			92	
cM capacity (veh/h)	256	627			1110	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	184	450	91	365
Volume Left	75	0	91	0
Volume Right	109	45	0	0
cSH	394	1700	1110	1700
Volume to Capacity	0.47	0.26	0.08	0.21
Queue Length 95th (ft)	60	0	7	0
Control Delay (s)	21.9	0.0	8.5	0.0
Lane LOS	C		A	
Approach Delay (s)	21.9	0.0	1.7	
Approach LOS	C			

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	8	3	0	4	1	39	1	16	3	150	14	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	3	0	4	1	42	1	17	3	163	15	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	12	48	22	183
Volume Left (vph)	9	4	1	163
Volume Right (vph)	0	42	3	4
Hadj (s)	0.18	-0.48	-0.05	0.20
Departure Headway (s)	4.6	3.9	4.2	4.2
Degree Utilization, x	0.02	0.05	0.03	0.22
Capacity (veh/h)	745	875	834	834
Control Delay (s)	7.7	7.1	7.3	8.4
Approach Delay (s)	7.7	7.1	7.3	8.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.0		
HCM Level of Service	A		
Intersection Capacity Utilization	26.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	14	100	29	105	104	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	109	32	114	113	17

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	124	146	130
Volume Left (vph)	15	32	0
Volume Right (vph)	109	0	17
Hadj (s)	-0.47	0.08	-0.05
Departure Headway (s)	4.1	4.4	4.3
Degree Utilization, x	0.14	0.18	0.16
Capacity (veh/h)	825	790	803
Control Delay (s)	7.7	8.3	8.1
Approach Delay (s)	7.7	8.3	8.1
Approach LOS	A	A	A

Intersection Summary			
Delay	8.1		
HCM Level of Service	A		
Intersection Capacity Utilization	27.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	6	0	23	1	51	1	39	131	194	25	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	7	0	25	1	55	1	42	142	211	27	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	8	82	186	242
Volume Left (vph)	1	25	1	211
Volume Right (vph)	0	55	142	4
Hadj (s)	0.06	-0.31	-0.42	0.20
Departure Headway (s)	5.0	4.5	4.0	4.5
Degree Utilization, x	0.01	0.10	0.20	0.30
Capacity (veh/h)	643	721	875	774
Control Delay (s)	8.1	8.1	8.0	9.4
Approach Delay (s)	8.1	8.1	8.0	9.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.7		
HCM Level of Service	A		
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	36	69	360	47	72	274
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	75	391	51	78	298
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	871	417			442	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	871	417			442	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	88			93	
cM capacity (veh/h)	299	636			1118	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	114	442	78	298
Volume Left	39	0	78	0
Volume Right	75	51	0	0
cSH	459	1700	1118	1700
Volume to Capacity	0.25	0.26	0.07	0.18
Queue Length 95th (ft)	24	0	6	0
Control Delay (s)	15.4	0.0	8.5	0.0
Lane LOS	C		A	
Approach Delay (s)	15.4	0.0	1.8	
Approach LOS	C			

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	5	3	0	6	9	55	1	8	4	46	11	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	3	0	7	10	60	1	9	4	50	12	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	9	76	14	67
Volume Left (vph)	5	7	1	50
Volume Right (vph)	0	60	4	5
Hadj (s)	0.16	-0.42	-0.14	0.13
Departure Headway (s)	4.3	3.7	4.0	4.2
Degree Utilization, x	0.01	0.08	0.02	0.08
Capacity (veh/h)	812	956	867	833
Control Delay (s)	7.4	7.0	7.1	7.6
Approach Delay (s)	7.4	7.0	7.1	7.6
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.2		
HCM Level of Service	A		
Intersection Capacity Utilization	20.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	8	49	77	121	74	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	53	84	132	80	5

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	62	215	86
Volume Left (vph)	9	84	0
Volume Right (vph)	53	0	5
Hadj (s)	-0.45	0.11	0.00
Departure Headway (s)	4.1	4.2	4.3
Degree Utilization, x	0.07	0.25	0.10
Capacity (veh/h)	806	829	825
Control Delay (s)	7.4	8.7	7.7
Approach Delay (s)	7.4	8.7	7.7
Approach LOS	A	A	A

Intersection Summary			
Delay	8.2		
HCM Level of Service	A		
Intersection Capacity Utilization	27.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	1	0	51	4	174	4	37	30	107	28	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	55	4	189	4	40	33	116	30	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	1	249	77	147
Volume Left (vph)	0	55	4	116
Volume Right (vph)	0	189	33	0
Hadj (s)	0.03	-0.38	-0.21	0.19
Departure Headway (s)	4.7	4.1	4.4	4.7
Degree Utilization, x	0.00	0.28	0.09	0.19
Capacity (veh/h)	696	839	761	717
Control Delay (s)	7.8	8.6	7.9	8.9
Approach Delay (s)	7.8	8.6	7.9	8.9
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.6		
HCM Level of Service	A		
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	73	103	373	42	85	336
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	79	112	405	46	92	365
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	978	428			451	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	978	428			451	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	69	82			92	
cM capacity (veh/h)	255	627			1109	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	191	451	92	365
Volume Left	79	0	92	0
Volume Right	112	46	0	0
cSH	390	1700	1109	1700
Volume to Capacity	0.49	0.27	0.08	0.21
Queue Length 95th (ft)	65	0	7	0
Control Delay (s)	22.8	0.0	8.5	0.0
Lane LOS	C		A	
Approach Delay (s)	22.8	0.0	1.7	
Approach LOS	C			

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	8	3	0	4	1	45	1	16	3	152	14	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	3	0	4	1	49	1	17	3	165	15	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	12	54	22	185
Volume Left (vph)	9	4	1	165
Volume Right (vph)	0	49	3	4
Hadj (s)	0.18	-0.49	-0.05	0.20
Departure Headway (s)	4.6	3.9	4.2	4.3
Degree Utilization, x	0.02	0.06	0.03	0.22
Capacity (veh/h)	742	876	830	830
Control Delay (s)	7.7	7.1	7.3	8.5
Approach Delay (s)	7.7	7.1	7.3	8.5
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.1		
HCM Level of Service	A		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	14	110	29	105	104	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	120	32	114	113	17

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	135	146	130
Volume Left (vph)	15	32	0
Volume Right (vph)	120	0	17
Hadj (s)	-0.48	0.08	-0.05
Departure Headway (s)	4.0	4.4	4.3
Degree Utilization, x	0.15	0.18	0.16
Capacity (veh/h)	827	784	797
Control Delay (s)	7.8	8.4	8.1
Approach Delay (s)	7.8	8.4	8.1
Approach LOS	A	A	A

Intersection Summary			
Delay	8.1		
HCM Level of Service	A		
Intersection Capacity Utilization	28.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	6	0	23	1	55	1	39	131	204	25	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	7	0	25	1	60	1	42	142	222	27	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	8	86	186	253
Volume Left (vph)	1	25	1	222
Volume Right (vph)	0	60	142	4
Hadj (s)	0.06	-0.33	-0.42	0.20
Departure Headway (s)	5.1	4.5	4.0	4.5
Degree Utilization, x	0.01	0.11	0.21	0.32
Capacity (veh/h)	637	718	869	771
Control Delay (s)	8.1	8.1	8.0	9.6
Approach Delay (s)	8.1	8.1	8.0	9.6
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.8		
HCM Level of Service	A		
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	38	70	360	50	74	274
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	76	391	54	80	298
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	877	418			446	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	877	418			446	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	88			93	
cM capacity (veh/h)	296	635			1115	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	117	446	80	298
Volume Left	41	0	80	0
Volume Right	76	54	0	0
cSH	452	1700	1115	1700
Volume to Capacity	0.26	0.26	0.07	0.18
Queue Length 95th (ft)	26	0	6	0
Control Delay (s)	15.7	0.0	8.5	0.0
Lane LOS	C		A	
Approach Delay (s)	15.7	0.0	1.8	
Approach LOS	C			

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	5	3	0	6	9	58	1	8	4	51	11	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	3	0	7	10	63	1	9	4	55	12	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	9	79	14	73
Volume Left (vph)	5	7	1	55
Volume Right (vph)	0	63	4	5
Hadj (s)	0.16	-0.43	-0.14	0.14
Departure Headway (s)	4.3	3.7	4.0	4.2
Degree Utilization, x	0.01	0.08	0.02	0.09
Capacity (veh/h)	808	953	864	830
Control Delay (s)	7.4	7.0	7.1	7.6
Approach Delay (s)	7.4	7.0	7.1	7.6
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.3		
HCM Level of Service	A		
Intersection Capacity Utilization	21.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	8	54	86	121	74	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	59	93	132	80	5

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	67	225	86
Volume Left (vph)	9	93	0
Volume Right (vph)	59	0	5
Hadj (s)	-0.46	0.12	0.00
Departure Headway (s)	4.1	4.3	4.3
Degree Utilization, x	0.08	0.27	0.10
Capacity (veh/h)	802	826	819
Control Delay (s)	7.5	8.8	7.8
Approach Delay (s)	7.5	8.8	7.8
Approach LOS	A	A	A

Intersection Summary			
Delay	8.3		
HCM Level of Service	A		
Intersection Capacity Utilization	28.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	1	0	51	4	183	4	37	30	112	28	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	55	4	199	4	40	33	122	30	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	1	259	77	152
Volume Left (vph)	0	55	4	122
Volume Right (vph)	0	199	33	0
Hadj (s)	0.03	-0.38	-0.21	0.19
Departure Headway (s)	4.8	4.1	4.4	4.8
Degree Utilization, x	0.00	0.29	0.10	0.20
Capacity (veh/h)	691	837	755	712
Control Delay (s)	7.8	8.8	7.9	8.9
Approach Delay (s)	7.8	8.8	7.9	8.9
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.7		
HCM Level of Service	A		
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

C. Traffic Analysis Worksheets

Ascension Heights Subdivision
Traffic Volume Data

		Average Weekday Traffic				
Street	Location	9/2/2003	5/20/2008	5/23/2013	10-yr. change	Annual change
Polhemus Road	S/O Ascension Drive	4030	4300	4900	122%	2.0%
Ascension Drive	E/O Polhemus Road	1420	1430	1500	106%	0.5%
Bel Aire Road	E/O Ascension Drive	700	710	760	109%	0.8%
Laurie Lane		900	950	990	110%	1.0%
Parrott Drive	S/O Laurie Lane	2240	2150	2320	104%	0.4%
CSM Drive	E/O Parrott Drive	2800	2545	3540	126%	2.4%
	Total	12090	12085	14010	116%	1.5%

All counts done by Marks TDS

ASCENSION HEIGHTS SUBDIVISION

VEHICLE TRIP GENERATION

November 6, 2013

TZ No.	LOCATION	LAND USE	LU CODE	SIZE	UNITS	TRIP GENERATION RATE*							TRIP GENERATION VOLUME						
						A.M. PEAK HOUR			P.M. PEAK HOUR			AWDT	A.M. PEAK HOUR			P.M. PEAK HOUR			AWDT
						IN	OUT	TOTAL	IN	OUT	TOTAL		IN	OUT	TOTAL	IN	OUT	TOTAL	
1	Ascension Heights Subd.	SFR	210	19	DU	0.30	0.91	1.21	0.78	0.46	1.24	11.99	6	17	23	15	9	24	227.9

* ITE, Trip Generation, 9th Edition, © 2012, using fitted curve equations

Household Travel

Trip Purpose	Person Trips	% Total
To/From Work	541	16%
Work Related Business	106	3%
Shopping	725	21%
Other Family/Personal Errands	748	22%
School/Church	333	10%
Social/Recreational	952	27%
Other	61	2%
Total	3466	100%

Vehicle Trip Distribution - 24 hr. Volume

	280 N	280 S	CSR E	92 E	92 W	Hillsdale E	Highlands ES	CS Sh. Ctr.	Total
To/From Work	4%	1%	1%	10%					16%
Work Related Business	1%	1%		2%					3%
Shopping		2%	1%	7%		5%		5%	21%
Other Family/Personal Errands	2%	2%	1%	12%		2%		2%	22%
School/Church			1%	5%		1%	2%		10%
Social/Recreational	3%	3%	1%	11%	3%	4%		3%	27%
Other				2%					2%
Total	10%	9%	5%	49%	3%	12%	2%	10%	100%

TRAFFIX Gate:	1	2	3	4	5	6	7	Total
	15%	0%	0%	61%	3%	3%	19%	100%

Vehicle Trip Distribution - AMPH

Trip Purpose	280 N	280 S	CSR E	92 E	92 W	Hillsdale E	Highlands ES	CS Sh. Ctr.	Total
To/From Work	4%	1%	1%	10%					16%
Work Related Business	1%	1%		2%					4%
Shopping		1%	0%	5%		4%		3%	13%
Other Family/Personal Errands	2%	2%	1%	12%		2%		2%	21%
School/Church			2%	5%		2%	7%		16%
Social/Recreational	3%	3%	1%	11%	3%	4%		3%	28%
Other				2%					2%
	10%	8%	5%	47%	3%	12%	7%	8%	100%

TRAFFIX Gate:	1	2	3	4	5	6	7	Total
	15%	0%	0%	59%	2%	2%	22%	100%

Vehicle Trip Distribution - PMPH

Trip Purpose	280 N	280 S	CSR E	92 E	92 W	Hillsdale E	Highlands ES	CS Sh. Ctr.	Total
To/From Work	5%	2%	2%	16%					25%
Work Related Business	1%	1%		2%					4%
Shopping		2%	1%	7%		5%		5%	20%
Other Family/Personal Errands	2%	2%	1%	12%		2%		2%	21%
School/Church			0%	0%		0%	0%		0%
Social/Recreational	3%	3%	1%	11%	3%	4%		3%	28%
Other				2%					2%
	11%	10%	5%	50%	3%	11%	0%	10%	100%

TRAFFIX Gate:	1	2	3	4	5	6	7	Total
	16%	0%	0%	61%	3%	3%	18%	100%

	Avg. Trip Length, mi.
To/From Work	11.8
Work Related Business	20.0
Shopping	6.5
Other Family/Personal Errands	7.0
School/Church	6.3
Social/Recreational	10.7
Other	51.5

Source: Table 5, 2009 National Household Travel Survey

APPENDIX I

RESPONSES TO PUBLIC SERVICES, UTILITIES, AND RECREATION INQUIRY LETTERS

From: Molly Barton [mailto:mbarton@smfc.k12.ca.us]
Sent: Tuesday, October 22, 2013 5:46 PM
To: Stephanie Henderson
Subject: Ascension Heights Subdivision Project

Dear Ms. Henderson,

Dr. Simms has referred your request for information to me. Please see my responses below in red. Please feel free to contact me for any additional information or further clarification.

Sincerely,

Molly Barton

Molly Barton
Assistant Superintendent, Student Services | San Mateo-Foster City School District
Phone: 650.312.7341 | Fax: 650.655.3387 | Website: www.smfc.k12.ca.us

NOTICE: This E-mail (including attachments) is covered by the Electronic Communications Privacy Act, 18 U.S.C. 2510-2521, is confidential, and may be legally privileged. Information contained in this e-mail message is intended only for the individual to whom it is addressed and is private and confidential. If you are not the intended recipient, or the employee or agent responsible for delivering this message to the intended recipient, any dissemination, distribution or copying of this communication is strictly prohibited. If you are not the intended recipient of this e-mail, please destroy it and notify the sender immediately by reply e-mail. Please take standard precautions to mitigate virus issues. Thank you for your cooperation.

From: Stephanie Henderson [mailto:shenderson@analyticalcorp.com]
Sent: Wednesday, October 02, 2013 3:19 PM
To: Cynthia Simms
Subject: Ascension Heights Subdivision Project-Public Utilities and Services Inquiry Letter

October 2, 2013

San Mateo-Foster City School District Office
Cynthia Simms, Ph.D., Superintendent
1170 Chess Drive
Foster City, CA 94404

Re: Proposed Ascension Heights Subdivision Environmental Impact Report (EIR)

Dear Dr. Simms,

Analytical Environmental Services (AES) is preparing an Environmental Impact Report (EIR) for the proposed Ascension Heights Subdivision Project on behalf of San Mateo County. The project site is located in the Baywood Park area of unincorporated San Mateo County at the northeast corner of Bel Aire Road and Ascension Drive, east of Interstate 280 and west of State Route 92 (**Figure 1**). As

proposed, the project would subdivide 6 parcels on 13.32 acres into 21 lots for development of 19 single-family residences with the remaining 2 lots (approximately 7.81-acres) maintained as a conservation area (**Figure 2**). Based on the San Mateo County Housing Element 2007-2014 Draft (revised May 2012), it is estimated the proposed project will add approximately 53 new residents to the area. Potable water would be provided by connection to the Mid-Peninsula Water District, and wastewater collection would be provided by the Crystal Springs Sanitation District with treatment at the City of San Mateo Wastewater Treatment Plant.

The project is a re-design of a previous project, which proposed a subdivision of the project site into 27 parcels, of which 25 would have been developed; this previous project was denied by the San Mateo County Planning Commission in 2009. The applicant and County have since engaged the community in a discussion of the project and the revised project for reconsideration as a reduced intensity project limiting residential development to the northwestern portion of the project site, thereby reducing the subdivision request and associated number of proposed residential units.

The purpose of the EIR is to assess the project's potential impacts to various environmental issues areas and public service agencies. We hope you can help us identify potential impacts to the San Mateo-Foster City School District (SMFCSD) in the project area that may be created by the proposed residential project. If it is determined that significant impacts will be created by the project, the study will provide mitigation measures to reduce potentially significant impacts to "less than significant" levels. Any assistance that you can provide with the following questions would be greatly appreciated.

~~1.~~ Please confirm if this is correct or edit as necessary: *The SMFCSD provides a total of 16 elementary serving grades TK (transitional kindergarten) though fifth grade, 4 middle schools serving grades 6 – 8 and one K-8 school* ~~*including 16 schools serving kindergarten through fifth grade and 4 middle schools serving sixth through eighth grade. The SMFCSD provides a total of 20 elementary and middle schools, including 16 schools serving kindergarten through fifth grade and 4 middle schools serving sixth through eighth grade.*~~

~~2.~~

3. Please confirm if this is correct or edit as necessary: *Highlands Elementary School, located at 2320 Newport in the City of San Mateo, and Borel Middle School, located at 425 Barneson in the City of San Mateo, are the SMFCSD schools that serve the project site and surrounding area. Correct*

4. What is the current enrollment at Highlands Elementary (or whichever elementary school that

   serves the project area)? Is enrollment below, above, or at capacity? Current enrollment at Highlands Elementary School is 606 students, TK-5. It is slightly below capacity as they have room for ~650 students.

5. What is the current enrollment at Borel Middle School (or whichever middle school that serves the project area)? Is enrollment below, above, or at capacity? Current enrollment at Borel Middle School is 947 with a capacity of ~1000

   4a. If SMFCSD grammar and middle schools are above capacity, what measures does the District employ to address this issue?

All residents of the neighborhood are served by their neighborhood school unless there is no space. When any school in the District reaches capacity, students are overflowed to the nearest school with space.

6. Are there any current plans to upgrade, improve, and/or expand Highlands Elementary or Borel Middle School (or whichever schools serve the project area)? Would these plans increase capacity?
   The District is currently working on plans to upgrade and renovate our schools to address capacity concerns. How the concerns are addressed will depend on if our construction bond, Measure P, passes in the November election.

7. Based on the above description of the proposed project, will serving the residents of the proposed project have a significant impact on the SMFCSD? Not at Highlands Elementary school, possibly at Borel although using the demographers report of potential impact from this site, unlikely.

8. In addition to addressing project-specific impacts to SMFCSD, the EIR will also address cumulative impacts to SMFCSD. We are in the process of compiling a list of reasonably foreseeable development in the County. **Table 1**, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department accommodate the demand for SMFCSD associated with the development of these projects in conjunction with the proposed project? Based on our Board adopted 2013 Enrollment Management Plan, all San Mateo-Foster City School District schools are projected to be at or above capacity by fall of 2017. Any projected developments that are built to include school age children should take this into consideration. Having said that, the passage of Measure P will alleviate this concern.

9. Do you have any recommendations that might help reduce any potentially significant impacts to the SMFCSD generated by the proposed project?

10. Please confirm if this is correct or edit as necessary: *As of July 1, 2012, the San Mateo Union High School District will collect School Impact (also known as Developer) Fees for the SMFCSD. Correct. The fees are $1.28 per square foot for residential construction.*

Developer Fees Rate for San Mateo-Foster City School District is $1.92 per square foot for residential and $0.31 for commercial.

The SMUHSD gets $1.28 and $0.20 per square foot respectively.

Thank you for your assistance with the questions outlined above. Any response that you can provide will help us ensure that our analysis of project-specific and cumulative impacts on library services is accurate and complete. In order to attain a timely completion of our analysis, please provide your response (via mail, email, or fax) no later than **November 11, 2013**. Should you have any questions or need additional information on any aspect of this project, please feel free to contact me by phone at (916) 447-3479 or by e-mail at shenderson@analyticalcorp.com.

Sincerely,

Stephanie Henderson
Technical Analyst / Associate
Analytical Environmental Services

Enclosed:
Figure 1: Regional and Vicinity Map
Figure 2: Site Plan
Table 1: Related Projects List

--
Stephanie Henderson
ANALYTICAL ENVIRONMENTAL SERVICES
Technical Analyst / Associate | shenderson@analyticalcorp.com
1801 7th Street, Suite 100 | Sacramento, CA 95811
916.447.3479 | Fax 447.1665
www.analyticalcorp.com

Molly Barton
Assistant Superintendent, Student Services | San Mateo-Foster City School District
Phone: 650.312.7341 | Fax: 650.655.3387 | Website: www.smfc.k12.ca.us

Like us on Facebook

NOTICE: This E-mail (including attachments) is covered by the Electronic Communications Privacy Act, 18 U.S.C. 2510-2521, is confidential, and may be legally privileged. Information contained in this e-mail message is intended only for the individual to whom it is addressed and is private and confidential. If you are not the intended recipient, or the employee or agent responsible for delivering this message to the intended recipient, any dissemination, distribution or copying of this communication is strictly prohibited. If you are not the intended recipient of this e-mail, please destroy it and notify the sender immediately by reply e-mail. Please take standard precautions to mitigate virus issues. Thank you for your cooperation.

From: Roberta Beeken [mailto:rbeeken@smuhsd.org]
Sent: Friday, October 25, 2013 11:26 AM
To: Stephanie Henderson
Subject: Ascension Heights Subdivision Project-Public Utilities and Services Inquiry

Here is the response to EIR questions for the Ascension Heights project. See attached.

--
Roberta Beeken
Administrative Assistant to the Superintendent
San Mateo Union High School District
650 N. Delaware Street
San Mateo, CA 94401
(650) 558-2201

1. Please confirm if this is correct or edit as necessary: Aragon High School, located at 900 Alameda de las Pulgas in the City of San Mateo, serves the project site and surrounding area.

Yes, Aragon High School would be the assigned school.

2. What is the current enrollment at Aragon High School (or whichever high school that serves the project area)? Is enrollment below, above, or at capacity?

The current enrollment at Aragon is 1,444 students. The school is at capacity.

2a. If SMHUSD high schools are above capacity, what measures does the District employ to address this issue?

Below is some of the verbiage for Board Policy 5116-School Attendance Boundaries, which addresses what the Superintendent or designee does every year to review the capacity for the district.

The District Board Policy 5116 states "The Superintendent or designee shall periodically review school attendance boundaries and, as necessary make recommendations to the Board for boundary adjustments. When reviewing school attendance boundaries, the Superintendent or designee may consider the following factors to ensure boundaries align with approved facility capacity. 1) School enrollment data 2) Facility capacity and design, including potential commercial and residential developments 3) School feeder patterns 4) Federal, state, or court mandates 5) Community input 6) Student safety 7) Transportation capacity 8) Community and neighborhood identity 9) Geographic features of the district 10) Educational programs 11) Other factors. In order to alleviate overcrowding, the Superintendent or designee shall place some students in a school outside of their attendance area. Parents/guardians of students who are attending schools outside of their attendance area shall be notified of the school their child will be attending as soon as possible. (To read more on Board Policy 5116-School Attendance Boundaries go to the district website and on the homepage click on "Board Policies."

3. Are there any current plans to upgrade, improve, and/or expand Aragon High School (or whichever high school serves the project area)? Would these plans increase capacity?

Aragon High School, as well as all the district high schools, has had upgrades and improvements. There are no plans to expand Aragon High School.

4. Based on the above description of the proposed project, will serving the residents of the proposed project have a significant impact on the SMUHSD?

No, it will not have significant impact on the San Mateo Union High School District.

5. In addition to addressing project-specific impacts to SMUHSD, the EIR will also address cumulative impacts to SMUHSD. We are in the process of compiling a list of reasonably foreseeable development in the County. Table 1, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department accommodate the demand for SMUHSD associated with the development of these projects in conjunction with the proposed project?

We are seeing severe growth in the southern part of the district and we are anticipating the growth by expanding three high schools, Burlingame High School, Hillsdale High School and San Mateo High School, to accommodate the increase.

6. Do you have any recommendations that might help reduce any potentially significant impacts to the SMUHSD generated by the proposed project?

No, we do not have any recommendations.

7. Please confirm if this is correct or edit as necessary: As of July 1, 2012, the SMUHSD will collect School Impact (also known as Developer) Fees for the San Mateo-Foster City School District. The fees are $1.28 per square foot for residential construction.

Yes, this information is correct. The SMUHSD collects Developer Fees for the San Mateo/Foster City School District at $1.28 per square foot for residential construction.

Stephanie Henderson

From: Jan Busa [busa@cityofsanmateo.org]
Sent: Tuesday, November 05, 2013 4:06 PM
To: Stephanie Henderson
Subject: RE: Ascension Heights Subdivision Project-Public Utilities and Services Inquiry Letter

Stephanie:

Apologies for the delay in getting this to you. Please see our responses below. Let me know if you have any questions.

Thanks,

Jan

Jan Busa | Management Analyst II | **San Mateo Public Library**
55 W. Third Avenue, San Mateo, CA 94402 | Voice: 650.522.7842 | Fax: 650.522.7801
E-mail: jbusa@cityofsanmateo.org | Website: www.smplibrary.org

---

From: Stephanie Henderson [mailto:shenderson@analyticalcorp.com]
Sent: Wednesday, October 02, 2013 3:28 PM
To: Jan Busa
Subject: Ascension Heights Subdivision Project-Public Utilities and Services Inquiry Letter

October 2, 2013

City of San Mateo Public Library
Jan Busa, Management Analyst

Re: Proposed Ascension Heights Subdivision Environmental Impact Report (EIR)

Dear Ms. Busa,

Analytical Environmental Services (AES) is preparing an Environmental Impact Report (EIR) for the proposed Ascension Heights Subdivision Project. The project site is located in the Baywood Park area of unincorporated San Mateo County at the northeast corner of Bel Aire Road and Ascension Drive, east of Interstate 280 and west of State Route 92 (**Figure 1**). As proposed, the project would subdivide 6 parcels on 13.32 acres into 21 lots for development of 19 single-family residences with the remaining 2 lots (approximately 7.81-acres) maintained as a conservation area (**Figure 2**). Based on the San Mateo County Housing Element 2007-2014 Draft (revised May 2012), it is estimated the proposed project will add approximately 53 new residents to the area. Potable water would be provided by connection to the Mid-Peninsula Water District, and wastewater collection would be provided by the Crystal Springs Sanitation District with treatment at the City of San Mateo Wastewater Treatment Plant.

The project is a re-design of a previous project, which proposed a subdivision of the project site into 27 parcels, of which 25 would have been developed; this previous project was denied by the San Mateo County Planning Commission in 2009. The applicant and County have since engaged the community in a discussion of the project and the revised

project for reconsideration as a reduced intensity project limiting residential development to the northwestern portion of the project site, thereby reducing the subdivision request and associated number of proposed residential units.

The purpose of the EIR is to assess the project's potential impacts to various environmental issues areas and public service agencies. We hope you can help us identify potentially significant impacts to the City of San Mateo Public Library that may be created by the proposed residential project. If it is determined that significant impacts will be created by the project, the study will provide mitigation measures to reduce potentially significant impacts to "less than significant" levels. Any assistance that you can provide with the following questions would be greatly appreciated.

1. It was determined when the previous EIR was prepared that the Main Library and Hillsdale Library would serve (are located closest to) the project site. Is that still accurate?
   Yes
2. How many full time equivalent staff members work at the Main Library and Hillsdale Library (or other library that serves the project site)?
   Main Library – 40.8 FTE
   Hillsdale Branch Library – 3.9 FTE
3. Is the City of San Mateo Public Library adequately staffed to meet the existing needs of residents?
   Yes
4. Are the existing library facilities in the City of San Mateo Public Library adequate to meet the existing needs of residents?
   Yes
   4a. Is free Internet offered at both the Main Library and Hillsdale Library (or other library that serves the project site)?
   Yes
5. *Will serving the residents of the proposed project have a significant impact on the City of San Mateo Public Library system?*
   No
6. Does the City have any plans to develop new libraries or expand existing libraries in the proposed project area?
   No
7. In addition to addressing project-specific impacts to library services, the EIR will also address cumulative impacts to library services. We are in the process of compiling a list of reasonably foreseeable development in the County. **Table 1**, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department accommodate the demand for library services associated with the development of these projects in conjunction with the proposed project?

   7a. How does the Library address the growing demand for library services?
   The new Main Library project was constructed to address needs of City of San Mateo residents using a 50 year projection into the future. The Needs Assessment study that was conducted addressed population projections with service demand implications. The future residents of this development would be eligible for library services at San Mateo libraries using a County Library card because the development is located in unincorporated San Mateo County.

   7b. Do you have any projections for future demand based on projected growth in the region?
   Information is gathered through needs assessment studies, customer satisfaction surveys, and focus groups. Strategic planning is conducted periodically and in conjunction with the Peninsula Library System consortia of public and community college libraries in San Mateo County.

   7c. What would be needed to meet the cumulative demand for library services?

A corresponding growth in the Library's operating budget to support an increase in services and resources (e.g. staffing, technology and collections).

8. Do you have any recommendations that might help reduce any potentially significant impacts to the City of San Mateo Public Library generated by the proposed project?
   No - see #5 above

Thank you for your assistance with the questions outlined above. Any response that you can provide will help us ensure that our analysis of project-specific and cumulative impacts on library services is accurate and complete. In order to attain a timely completion of our analysis, please provide your response (via mail, email, or fax) no later than **October 18, 2013**. Should you have any questions or need additional information on any aspect of this project, please feel free to contact me by phone at (916) 447-3479 or by e-mail at shenderson@analyticalcorp.com.

Sincerely,

Stephanie Henderson
Technical Analyst / Associate
Analytical Environmental Services

Enclosed:
Figure 1: Regional and Vicinity Map
Figure 2: Site Plan
Table 1: Related Projects List

- -
Stephanie Henderson
ANALYTICAL ENVIRONMENTAL SERVICES
Technical Analyst / Associate | shenderson@analyticalcorp.com
1801 7th Street, Suite 100 | Sacramento, CA 95811
916.447.3479 | Fax 447.1665
www.analyticalcorp.com

PRIVILEGE AND CONFIDENTIALITY NOTICE: This message, together with any attachments, is intended only for the use of the individual or entity to which it is addressed. It may contain information that is confidential and prohibited from disclosure. If you are not the intended recipient, you are hereby notified that any dissemination or copying of this message or any attachment is strictly prohibited. If you have received this message in error, please notify the original sender immediately by telephone or by return e-mail and delete this message along with any attachments from your computer. Thank you.

From: Colbert, Marc@CALFIRE
To: Stephanie Henderson
Subject: RE: Ascension Heights Subdivision Project-Public Services Inquiry Letter
Date: Tuesday, December 10, 2013 10:14:03 AM
Attachments: image001.png

Hi Stephanie,

I will answer the questions by number order:

1. Yes

2. Station 17 is a two engine station, E 17 and E 217, with each engine having a minimum of 3 firefighters with one of them having paramedic certification. During fire season, there is an additional state wildland engine, E1771, and a dozer.
2 a, b, c. These meet or exceeded the San Mateo County Fire Chief's Joint Powers Agreement for staffing and response. No ratio has been proposed that I know.
3. About 5 minutes.
4. The impacts have been addressed by an alternate materials and methods request for higher fire sprinkler discharges for all buildings in the development for using the current road design.
5. No
6. No
6b. The closest emergency room is located at San Mateo Medical Center, 222 W 39th Ave San Mateo, CA 94403.
6c. You would need to contact San Mateo County EMS for that answer.
7. The project is in a Very High Fire Hazard Severity Zone, Local Responsibility Area, as determined by CAL FIRE.
8. No
9. Much of the developement would affect the county system wide. You would need to contact the San Mateo County Fire Chief's Assocoiation for an answer.
10. See answer 9.

Marc Colbert
Deputy Fire Marshal
San Mateo County Fire/CAL Fire
(650) 573-3846; fax (650) 573-3850

From: Stephanie Henderson [shenderson@analyticalcorp.com]
Sent: Tuesday, December 03, 2013 3:49 PM
To: Colbert, Marc@CALFIRE
Subject: Ascension Heights Subdivision Project-Public Services Inquiry Letter

Hello Deputy Fire Marshall Colbert,

I work for a consultant company that is contracted by the County of San Mateo to prepare an Environmental Impact Report (EIR) for a subdivision project. As part of our scoping process, we need to assess public services in the vicinity of the proposed subdivision. I contacted Station 17, and they recommended I email you. The following letter (also attached) provides additional information regarding the project and includes questions regarding County of San Mateo Fire services. It would be greatly appreciated if you could please respond to the questions below no later than a week from Friday, December 15, 2013. Please feel free to contact me with any additional questions or concerns.

Thank you,
Stephanie

December 3, 2013

San Mateo Fire Department
Marc Colbert, Deputy Fire Marshall
California Department of Forestry and Fire Protection (CAL FIRE) – San Mateo/Santa Cruz Unit

Re: Proposed Ascension Heights Subdivision Environmental Impact Report (EIR)

Dear Deputy Fire Marshall Colbert,

Analytical Environmental Services (AES) is preparing an Environmental Impact Report (EIR) for the proposed Ascension Heights Subdivision Project on behalf of San Mateo County. The project site is located in the Baywood Park area of unincorporated San Mateo County at the northeast corner of Bel Aire Road and Ascension Drive, east of Interstate 280 and west of State Route 92 (**Figure 1**). As proposed, the project would subdivide 6 parcels on 13.32 acres into 21 lots for development of 19 single-family residences with the remaining 2 lots (approximately 7.81-acres) maintained as a conservation area (**Figure 2**). Based on the San Mateo County Housing Element 2007-2014 Draft (revised May 2012), it is estimated the proposed project will add approximately 55 new residents to the area. Potable water would be provided by connection to the Mid-Peninsula Water District, and wastewater collection would be provided by the Crystal Springs Sanitation District with treatment at the City of San Mateo Wastewater Treatment Plant.

The project is a re-design of a previous project, which proposed a subdivision of the project site into 27 parcels, of which 25 would have been developed; this previous project was denied by the San Mateo County Planning Commission in 2009. The applicant and County have since engaged the community in a discussion of the project and the revised project for reconsideration as a reduced intensity project limiting residential development to the northwestern portion of the project site, thereby reducing the subdivision request and associated number of proposed residential units.

The purpose of the EIR is to assess the project's potential impacts to various environmental issues areas and public service agencies. We hope you can help us identify potential impacts to fire protection and emergency services in the project area that may be created by the proposed residential project. If it is determined that significant impacts will be created by the project, the study will provide mitigation measures to reduce potentially significant impacts to "less than significant" levels. Any assistance that you can provide with the following questions would be greatly appreciated.

1. It has been determined that the San Mateo City Fire Department's Station 27 would provide initial response to the proposed project. If warranted, County Fire/CAL FIRE Station 17 would provide secondary assistance. Station 17 is located at 320 Paul Scannell

Drive in the City of San Mateo. Are these statements accurate?

2. What is the existing staffing levels and equipment inventories (i.e., Engine, Truck, Rescue ambulance, etc.) for Station 17 (or other station that would serve the proposed project)?

   2a. Are these levels adequate to meet existing needs for fire protection and emergency response?

   2b. Would additional staffing or equipment be needed to mitigate potential impacts of this project on services provided by your Department?

   2c. Does the Department have a preferred ratio of fire fighters per population? What is the current ratio?

3. What is the average response distance and time for the stations responding to the project area? Do these statistics meet the desired performance standards of the Department?

4. The proposed project is designed with an access road connecting to Bel Aire Road. An access road forks into two roads to provide access to residences within the proposed project, and emergency vehicle turnarounds are provided at the dead end of each fork of the access road. Will these road designs have a significant impact on response time within the project? If so, can you recommend changes to the road design that would mitigate or avoid these impacts? (Please refer to enclosed **Figure 2**.)

5. Does the Department have plans to develop any new fire stations or make improvements to the staff/equipment levels of stations in the area of the proposed project?

   5a. If so, please describe the specifics of these planned improvements.

6. Does the Department have a preferred response time to calls for emergency service?

   8a. What is the Department's record in meeting this preferred response time?

   8b. What is the distance to the nearest hospital emergency room?

   8c. Is the hospital capable of meeting emergency demand?

7. Is the project site susceptible to wildland fires?

8. Would implementation of the proposed project require the Department to construct new facilities or expand existing facilities to accommodate the increased demand for fire protection services created by the proposed project?

9. In addition to addressing project-specific impacts to fire protection services, the EIR will also address cumulative impacts to fire protection services. We are in the process of compiling a list of reasonably foreseeable development in the County. **Table 1**, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved

development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department accommodate the demand for fire protection services associated with the development of these projects in conjunction with the proposed project?

10. Please provide recommendations that could reduce the demand for fire protection services created by the proposed project and cumulative development.

Thank you for your assistance with the questions outlined above. Any response that you can provide will help us ensure that our analysis of project-specific and cumulative impacts on library services is accurate and complete. In order to attain a timely completion of our analysis, please provide your response (via mail, email, or fax) no later than **December 13, 2013**. Should you have any questions or need additional information on any aspect of this project, please feel free to contact me by phone at (916) 447-3479 or by e-mail at shenderson@analyticalcorp.com.

Sincerely,

Stephanie Henderson
Technical Analyst / Associate
Analytical Environmental Services

Enclosed:
Figure 1: Regional and Vicinity Map
Figure 2: Site Plan
Table 1: Related Projects List

- -
Stephanie Henderson
ANALYTICAL ENVIRONMENTAL SERVICES
Technical Analyst / Associate | shenderson@analyticalcorp.com
1801 7th Street, Suite 100 | Sacramento, CA 95811
916.447.3479 | Fax 447.1665
www.analyticalcorp.com

COUNTY OF SAN MATEO
PARKS DEPARTMENT

BOARD OF SUPERVISORS
DAVE PINE
CAROLE GROOM
DON HORSLEY
WARREN SLOCUM
ADRIENNE J. TISSIER

JIM NANTELL
INTERIM DIRECTOR

555 COUNTY CENTER, 5TH FLOOR • REDWOOD CITY • CALIFORNIA 94063-1665 • PHONE (650) 363-4020 • FAX (650) 599-1721

October 24, 2013

Attn: Stephanie Henderson, Technical Analyst/Associate
AES
1801 7th Street, Suite 100
Sacramento, CA 95811

Subject: Proposed Ascension Heights Subdivision Environmental Impact Report (EIR)

I am writing in response to your request for feedback on the proposed project related to San Mateo County Parks. In summary the project will not impact County Parks or regional trails directly. San Mateo County Parks is in the processing of expanding the nearby multi-use Crystal Springs Regional Trail across the Crystal Springs Dam to South of Highway 92 connecting to the Ralston Trail on Canada Road. I recommend this development be reviewed with the San Mateo Highlands Recreation Area Special District because there is more of a nexus to this development.

If you have additional questions I can be reached at sherzberg@smcgov.or or 650/363-1823.

Sincerely,

Sam Herzberg
Senior Planner

From: Michael "Mike" Keefe [mailto:keefe@cityofsanmateo.org]
Sent: Thursday, October 24, 2013 10:55 AM
To: Stephanie Henderson
Subject: Proposed Ascension Heights Subdivision Environmental Impact Report (EIR)

Ms. Henderson,

Please find the attached document that you have requested regarding the proposed Ascension Heights Subdivision.

Please feel free to contact me with any questions or comments.

Regards,

Mike

Michael Keefe
Fire Chief
Foster City-San Mateo- Belmont FPD
1040 E Hillsdale Blvd
Foster City, CA. 94404
650-286-3358 Office
650-642-1317 Cell
mkeefe@fostercity.org
mkeefe@cityofsanmateo.org

The purpose of the EIR is to assess the project's potential impacts to various environmental issues areas and public service agencies. We hope you can help us identify potential impacts to fire protection and emergency medical response in the project area that may be created by the proposed residential project. If it is determined that significant impacts will be created by the project, the study will provide mitigation measures to reduce potentially significant impacts to "less than significant" levels. Any assistance that you can provide with the following questions would be greatly appreciated.

1. It was determined in the previous EIR the San Mateo City Fire Department's Station 27 would provide initial response to the proposed project. Is this still accurate?

Answer: Yes, E27 is the "first due" resource assigned to that location followed by E17, E15 and E25.

2. What is the existing staffing levels and equipment inventories (i.e., Engine, Truck, Rescue ambulance, etc.) for Station 27 (or other station that would serve the proposed project)?

Answer: Station 27 is staffed with 3 personnel. A Captain and two firefighters and at least one of the three is a paramedic. The station houses a Fire Engine, Brush Engine (used for Wildland areas) and a State of California owned fire engine.

2a. Are these levels adequate to meet existing needs for fire protection and emergency response?

Answer: Yes this is adequate at this time for the proposed project.

2b. Would additional staffing or equipment be needed to mitigate potential impacts of this project on services provided by your Department? Does the Department have a preferred ratio of fire fighters per population? 2c. What is the current ratio?

Answer: No additional staffing or equipment is needed at this time. We do not have a ratio of firefighters per population but base our station and apparatus locations on response times.

3. It was determined in the previous EIR the San Mateo County Fire/ CALFIRE Station 17 would provide initial response to the proposed project. Is this still accurate? Any other agencies that would provide mutual aid to the project site and surrounding area?

Answer: The proposed location is within the County of San Mateo's Fire Response Area; however we have a JPA agreement throughout the County to send the closest resources to any address.

The first four resources to the location are E27 (San Mateo), E17 (County of San Mateo), E15 (Belmont Fire Protection District), E25 (San Mateo)

4. What is the existing staffing levels and equipment inventories (i.e., Engine, Truck, Rescue ambulance, etc.) for San Mateo County Fire/ CALFIRE Station 17 (or other station that would serve the proposed project)?

Answer: Contact County of San Mateo (Cal Fire) for information regarding Station 17

4a. Are these levels adequate to meet existing needs for fire protection and emergency response?

Answer: Contact County of San Mateo (Cal Fire) for information regarding Station 17

4b. Would additional staffing or equipment be needed to mitigate potential impacts of this project on services provided by your Department? Does the Department have a preferred ratio of fire fighters per population?

4c. What is the current ratio?

Answer: Contact County of San Mateo (Cal Fire) for information regarding Station 17

5. What is the average response distance and time for the stations responding to the project area? Do these statistics meet the desired performance standards of the Department?

Answer: E27 has a median response time of 04:49 and a 90% time of 6:24. These times meet our performance standards. I would expect the same response times for the proposed project

6. The proposed project is designed with an access road connecting to Bel Aire Road. An access road forks into two roads to provide access to residences within the proposed project, and emergency vehicle turnarounds are provided at the dead end of each fork of the access road. Will these road designs have a significant impact on response time within the project? If so, can you recommend changes to the road design that would mitigate or avoid these impacts? (Please refer to enclosed **Figure 2**.)

Answer: Road designs as shown will not affect response times.

7. Does the Department have plans to develop any new fire stations or make improvements to the staff/equipment levels of stations in the area of the proposed project?

Answer: Not at this time.

7a. if so, please describe the specifics of these planned improvements.

8. Does the Department have a preferred response time to calls for emergency service?

Answer: Goal is to respond to 90% of calls in less than 6:59
SMFD Median response time 4:17 and 6:24 for 90% of all incidents

8a. What is the Department's record in meeting this preferred response time?

Answer: SMFD Median response time 4:17 and 6:24 for 90% of all incidents

8b. What is the distance to the nearest hospital emergency room?

Answer: Closest hospitals are San Mateo County General Hospital and Mill Peninsula Hospital

8c. Is the hospital capable of meeting emergency demand?

Answer: Check with local facilities.

9. Is the project site susceptible to wildland fires?

Answer: Check with County Fire for the designated wildland fire risk.

10. Would implementation of the proposed project require the Department to construct new facilities or expand existing facilities to accommodate the increased demand for fire protection services created by the proposed project?

Answer: Not for any San Mateo or Belmont Facilities.

11. In addition to addressing project-specific impacts to fire protection services, the EIR will also address cumulative impacts to fire protection services. We are in the process of compiling a list of reasonably foreseeable development in the County. **Table 1**, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department accommodate the demand for fire protection services associated with the development of these projects in conjunction with the proposed project?

Answer: Yes, San Mateo Fire can accommodate demand.

12. How does your agency address the growing demand for fire protection services?

Answer: We constantly evaluate our responses and our response times. We evaluate our service delivery to our citizens. We look at each project and forecast upcoming projects for impacts.

12a. Do you have any projections for future demand based on projected growth in the region?

Answer: Not at this time, however we are watching the impacts of several large developments in our jurisdiction.

12b. What would be needed to meet the cumulative demand for fire protection services?

Answer: Unknown at this time.

13. Please provide recommendations that could reduce the demand for fire protection services created by the proposed project and cumulative development.

Answer: Require Fire Sprinklers in all structures.

Thank you for your assistance with the questions outlined above. Any response that you can provide will help us ensure that our analysis of project-specific and cumulative impacts on library services is accurate and complete. In order to attain a timely completion of our analysis, please provide your response (via mail, email, or fax) no later than **November 11, 2013**. Should you have any questions or need additional information on any aspect of this project, please feel free to contact me by phone at (916) 447-3479 or by e-mail at shenderson@analyticalcorp.com.

CALIFORNIA WATER SERVICE COMPANY
[illegible] • SA[illegible] • A[illegible]
[illegible] • FA[illegible]

BAYSHORE DISTRICT

November 17, 2013

Ms. Stephanie Henderson
Technical Analyst / Associate
Analytical Environmental Services
1801 7th Street, Suite 100
Sacramento, CA 95811

Re: Proposed Ascension Heights Subdivision Environmental Report (EIR)

Dear Ms. Henderson,

California Water Service Company has received the plans for the above mentioned project and would like to make the following comments:

1. Make correction - change Mid-Peninsula Water District to California Water Service Company Bayshore District.

2. The proposed access road/private street does not seem to follow the exact alignment of the existing 10" water main in Cal Water easement connecting the tank and the water main on Bel Aire Road. If Cal Water is required to relocate any portion of the 10" water main, the developer is required to fund the relocation work and also provide an easement for installation and maintenance of the water main and ingress/egress to/from Cal Water' tank site.

3. There is an existing 8" water main in a Cal Water easement connecting the tank and the water main on Parrot Drive through Lot 6 & 11 and driveways of Lot 7 & 12. This water main is not shown on the vesting tentative subdivision map. This water main is required to be remained in the same location. The developer is required to work with Cal Water to make sure we have access to the water main for maintenance. No structure should be built on the existing easement.

4. The proposed water main within the above mentioned subdivision is not properly connected to Cal Water's system. The proposed connection to Cal Water's existing water main will not provide adequate pressure to serve the subdivision. Pumping facilities are required to be built to serve the subdivision with adequate pressure and the developer is responsible to fund these facilities. The developer is required to contact Cal Water for design of the water main and other facilities to serve the subdivision. The contact person, who will initiate the project at Cal Water, is Leighton Low. I can be reached at (650) 558-7862.

5. Cal Water would like to review the geotechnical report for the above mentioned project to ensure any construction (cut or fill) of the slope will not negatively impact Cal Water tank site.

CALIFORNIA WATER SERVICE COMPANY

In addition to the above comment, I have attached a letter date September 15, 2008 addressing the EIR planner's questions regarding the above mentioned project. Additional comments were noted on the attached letter. In the September 15, 2008 where it references 2007 Urban Water Management Plan, please now refer to the 2010 Urban Water Management Plan which can be found at Cal Water web site www.calwater.com. Please feel free to contact me at (650) 558-7862 or Ting He at (408) 367-8323 for any further questions.

Sincerely,

Leighton Low
Construction Superintendent
California Water Service Company

Enclosed: Letter dated September 15, 2008 addressing to EIR Planner for the above mentioned project

ANALYTICAL ENVIRONMENTAL SERVICES

October 2, 2013

California Water Service Company
Leighton Low
341 North Delaware Street
San Mateo, CA 94401

Re: Proposed Ascension Heights Subdivision Environmental Impact Report (EIR)

Dear Mr. Low,

Analytical Environmental Services (AES) is preparing an Environmental Impact Report (EIR) for the proposed Ascension Heights Subdivision Project on behalf of San Mateo County. The project site is located in the Baywood Park area of unincorporated San Mateo County at the northeast corner of Bel Aire Road and Ascension Drive, east of Interstate 280 and west of State Route 92 (**Figure 1**). As proposed, the project would subdivide 6 parcels on 13.32 acres into 21 lots for development of 19 single-family residences with the remaining 2 lots (approximately 7.81-acres) maintained as a conservation area (**Figure 2**). Based on the San Mateo County Housing Element 2007-2014 Draft (revised May 2012), it is estimated the proposed project will add approximately 53 new residents to the area. Potable water would be provided by connection to the Mid-Peninsula Water District, California Water Service and wastewater collection would be provided by the Crystal Springs Sanitation District with treatment at the City of San Mateo Wastewater Treatment Plant.

The project is a re-design of a previous project, which proposed a subdivision of the project site into 27 parcels, of which 25 would have been developed; this previous project was denied by the San Mateo County Planning Commission in 2009. The applicant and County have since engaged the community in a discussion of the project and the revised project for reconsideration as a reduced intensity project limiting residential development to the northwestern portion of the project site, thereby reducing the subdivision request and associated number of proposed residential units.

The purpose of the EIR is to assess the project's potential impacts to various environmental issues areas and public service agencies. We hope you can help us identify potential impacts to water services in the project area that may be created by the proposed residential project. If it is determined that significant impacts will be created by the project, the study will provide mitigation measures to reduce potentially significant impacts to "less than significant" levels. Any assistance that you can provide with the following questions would be greatly appreciated.

1. In the previous EIR, a map of the existing water lines near the project site was provided and is included with this letter as **Exhibit A**. Have there been any updates or changes in the vicinity of the project site? If so, could you please provide an updated map? NO, Nothing has changed
2. Are there any other existing water service problems/deficiencies in the project area? NO There is NO existing water Service Problem in the Area
   2a. If yes, how would the project affect these problems/deficiencies? Immediately adjacent to the project

1801 7TH STREET, SUITE 100 • SACRAMENTO, CA 95811 • TEL 916-447-3479 FAX 916-447-1665
www.analyticalcorp.com

2b. If yes, what measures could the project incorporate to minimize the affect these water service problems/deficiencies on the project and surrounding uses?

3. In the previous EIR, Cal Water indicated the existing water system could accommodate the water demand for the project site but could not supply adequate pressure to the site. The developer would need to pay for booster facilities to be built at the take site. Is this still accurate? yes

4. Similarly, CAL FIRE standards require hydrants at the project site must deliver 1,000 gpm with residual pressure of 20 psi. What type of updates/new infrastructure would be required to meet these requirements? Water mains and booster facilities
See Question 3

5. Is recycled water within the project area or that could serve the project site? NO

6. In the previous EIR, Cal Water indicated temporary interruption of service to existing customers may happen during tie-ins of new and/or relocated pipelines to the existing water system or tank inlet/outlet. Is this still a possibility with the new project? What would be the estimated length of time of an interruption? yes

7. California Water Service Company has a terminal storage tank that will be bounded on all sides by the proposed project. The existing access road to the tank will be expanded and developed to accommodate the proposed residences. Are there any issues as to access and maintenance of this tank that need to be addressed by the proposed project? See 2008 Letter

8. Please confirm or edit the following statements: *The City of Belmont separates the Cities of San Carlos and San Mateo and divides the Mid Peninsula Water District (MPWD) into two systems, which are considered separate divisions of MPWD. In the MPWD's San Mateo Division, 14.656 million gallons of potable water is contained in 19 tanks, and 5.748 million gallons of potable water are stored in 21 tanks in the San Carlos Division.* California Water Service Company – Bayshore District

9. Because the proposed subdivision is less than 500 units, a water supply assessment report is not required. However, the information contained in such a report would be very useful for planning purposes. Have you recently prepared a water supply assessment report for another purpose, and, if possible, could you send us a copy? NO a Water Supply Assessment has not been done

10. In addition to addressing project-specific impacts to water services, the EIR will also address cumulative impacts to water services. We are in the process of compiling a list of reasonably foreseeable development in the County. **Table 1**, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department accommodate the demand for water services associated with the development of these projects in conjunction with the proposed project?
Please See Cal Water 2010 Urban Water Management Plan

10a. How does your agency address the growing demand for water services?
See Cal Water 2010 Urban Water Management Plan

10b. Do you have any projections for future demand based on projected growth in the region?

10c. What would be needed to meet the cumulative demand for water services?

11. In the previous EIR, Cal Water indicated it would submit a water supply assessment report to the lead agency if the development meets SB 610 requirements. Is this still the protocol for conducting water supply assessment for proposed developments such as the proposed project?
yes, the water supply Assessment if required Paid by developer
12. Please provide recommendations that could reduce the demand for water services created by the proposed project and cumulative development.
See 2010 Urban Water Management Plan

Thank you for your assistance with the questions outlined above. Any response that you can provide will help us ensure that our analysis of project-specific and cumulative impacts on water services is accurate and complete. In order to attain a timely completion of our analysis, please provide your response (via mail, email, or fax) no later than **November 11, 2013**. Should you have any questions or need additional information on any aspect of this project, please feel free to contact me by phone at (916) 447-3479 or by e-mail at shenderson@analyticalcorp.com.

Sincerely,

Stephanie Henderson
Technical Analyst / Associate
Analytical Environmental Services

Enclosed:
Figure 1: Regional and Vicinity Map
Figure 2: Site Plan
Table 1: Related Projects List
Exhibit A: Existing Water Mains (2008)

CALIFORNIA WATER SERVICE COMPANY
1720 NORTH FIRST STREET • SAN JOSE, CA 95112-4598
(408) 367-8200

September 15, 2008

Byron Easton
Associate Environmental Planner
Christopher A. Joseph & Associates
179 H Street
Petaluma, CA 94952

Re: Proposed Ascension Heights Subdivision Environmental Impact Report (EIR)

Dear Mr. Easton:

I would like to thank you for the opportunity to provide our comments to the proposed Ascension Heights EIR. I apologize for the late reply due to not receiving your letter prior to your deadline. I hope our answers to your questions below will still be useful to your EIR preparation for the above mentioned project.

1. What is the size and capacity of existing water mains near the project? If possible, please include a map illustrating your discussion.

   Please see below map for location and size of existing water mains near the proposed project.

CALIFORNIA WATER SERVICE COMPANY
1720 NORTH FIRST STREET • SAN JOSE, CA 95112-4598
(408) 367-8200

2. Are there any existing water service problems or deficiencies in the area immediately adjacent to the project?

   There is no existing water service problem in the area immediately adjacent to the project.

3. Can the existing water distribution system near the project site accommodate the increased water demand from the project site? If not, what improvements to the system would need to be made?

   The existing water distribution system near the project site can accommodate the water demand from the project site. However, the existing system can not provide the adequate pressure to the project site. The developer needs to pay for booster facilities to be built at the tank site in order to serve the project with adequate pressure.

4. Does Cal Water offer recycled water within the project area, or that could serve the project site?

   No, Cal Water currently does not offer recycled water.

CALIFORNIA WATER SERVICE COMPANY
1720 NORTH FIRST STREET • SAN JOSE, CA 95112-4598
(408) 367-8200

5. What is the current and remaining treatment capacity of the Mid-Peninsula Water District?

   Please see Cal Water's 2007 Urban Water Management Plan.

6. Does San Mateo County have its own methods or water generation rate?

   Please see Cal Water's 2007 Urban Water Management Plan.

7. What water treatment plant would serve treated water to the proposed project?

   Please see Cal Water's 2007 Urban Water Management Plan.

8. In order to meet California Department of Forestry and Fire Protection (CAL FIRE) standards, all hydrants in the proposed project must deliver 1,000 gpm with a residual pressure of 20psi. Is the water supply to the site adequate to meet this standard?

   The existing water system will have not adequate pressure to serve the project. Please see answer to question 3 above for improvements needed to serve the project.

9. Will connection of the proposed project to your system create any temporary interruption of service to existing customers? If the project will disrupt service, can you give us an estimate of how long the interruption would last?

   Temporary interruption of service to existing customers may happen during tie-ins of new and/or relocated pipelines to the existing water system or tank inlet/outlet.

10. California Water Service Company has a terminal storage tank that will be bounded on all sites by the proposed project. A new access road will be constructed to the tank as part of the proposed project. Are there any additional issues as to access and maintenance of this tank that need to be addressed by the proposed project?

    Cal Water would like to review geotechnical report for the project to ensure any construction (cut or fill) of the slope will not negatively impact Cal Water's tank site located at the top of the hill. We would also need to review the design of the access road (i.e. width, turning radius, slope) to ensure big heavy vehicles can access the tank site to maintain the tank and other equipment at the site.

11. In addition to addressing project-specific impacts to water service, the EIR will also address cumulative impacts to water service. We are in the process of compiling a list of reasonably-foreseeable development in the County. Table 1, Related project list includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location (refer to Figure 3, Location of Related Projects). However, additional projects will likely be added to the list as our research continues. Can the District accommodate the demand

CALIFORNIA WATER SERVICE COMPANY
1720 NORTH FIRST STREET • SAN JOSE, CA 95112-4598
(408) 367-8200

for water services associated with these projects in conjunction with the proposed project?

Please see Cal Water's 2007 Urban Water Management Plan.

12. What process does the District use for conducting water supply assessments for proposed developments?

    When a development is big enough that meets SB 610 requirements, a water supply assessment report will be prepared upon request of the lead agency on the EIR. Cal Water's Urban Water Management Plan will also analyze growth and supply projection of our water system. Enclosed is a CD of 2007 Urban Water Management Plan for Cal Water's Mid-Peninsula District.

13. Do you have any recommendations that would avoid or mitigate significant impacts on the existing system?

    Recommendations have been made in answers to above questions.

Please feel free to contact me via phone at (408) 367-8323 or via email at the@calwater.com for further questions.

Thank you.

Sincerely,

Ting He, P.E.
Manager of Distribution, Engineering

Enclosed:
2007 Urban Water Management Plan for Cal Water's Mid-Peninsula District in CD

COUNTY OF SAN MATEO

Office of the Sheriff

GREG MUNKS
SHERIFF

CARLOS G. BOLANOS
UNDERSHERIFF

TRISHA L. SANCHEZ
ASSISTANT SHERIFF

400 COUNTY CENTER ▫ REDWOOD CITY ▫ CALIFORNIA 94063-1662 ▫ TELEPHONE (650) 599-1664 ▫ www.smcsheriff.com

ADDRESS ALL COMMUNICATIONS TO THE SHERIFF

October 14, 2013

Via E-Mail: shenderson@analyticalcorp.com

Stephanie Henderson
Technical Analyst / Associate
Analytical Environmental Services
1801 7th Street, Suite 100
Sacramento, CA 95811

Re: Proposed Ascension Heights Subdivision Environmental Impact Report

Ms. Henderson,

Please accept this correspondence as the response of the San Mateo County Sheriff's Office to your inquiry regarding the proposed Ascension Heights Subdivision dated October 2, 2013.

Question 1: "It was determined in the previous EIR the Headquarters Patrol, Hall of Justice, Redwood City is the sheriff department serving the project site, and the Highland Patrol Area provides office space for report taking. Is this still accurate?"

Response: The San Mateo County Sheriff's Office continues to provide law enforcement services for the site in question. However, the assigned Sheriff's Deputy works out of the Sheriff's Office Millbrae Police Bureau located at 581 Magnolia Avenue in Millbrae, California. The Sheriff's Deputy assigned to this area has access to workspace at the Highlands Recreation Center to prepare reports and complete investigations.

Question 2: "What are the existing staff levels (both sworn and civilian) of the Headquarters Patrol (or other station that would serve the proposed project)?"

Response: There is one dedicated Sheriff's Deputy assigned to the Highlands area from 6am to midnight seven days a week based on a contractual agreement. From midnight through 6am services are included with those provided to additional unincorporated areas in the vicinity. Deputies assigned to this area are supported by an Investigations Bureau, one supervisor, one manager, and one administrative staff member.

Question 2a.: ***"Are these staff level adequate to meet existing needs for the fire protection and emergency response?"***

Response: The existing staff levels are adequate to meet the demand for law enforcement response. (Question refers to fire protection. It is assumed that the intent was to address law enforcement services.)

Question 3: ***"What is the existing equipment inventory at the Headquarters Patrol (or other station that would serve the proposed project)?"***

Response: Patrol vehicles and safety equipment are dedicated to this area to effectively provide law enforcement services. For security purposes a detailed list of law enforcement resources is not available.

Question 3a: ***"Are the equipment levels adequate to meet the project area's current demand for police services?"***

Response: Yes.

Question 4: ***"Is there a target response time for incidents in the proposed project area? Will the proposed project have a significant impact on achieving or maintaining this response time?"***

Response: The target response time for emergency calls for service in this area is under four minutes. It is not anticipated that the proposed project will have a significant impact on achieving or maintaining this response time.

Question 5: ***"Does the Sheriff's Department have a preferred deputy-to-population ratio?"***

Response: No.

Question 5a.: ***"What is the current ratio?"***

Response: Deployment of personnel is based on several variables rather than on population alone. These factors may include crime rates and the structure of the identified community including residential areas, commercial areas, schools, and traffic patterns.

Question 6: ***"Is the current staffing level adequate to meet the current demands for police services in the proposed area?"***

Response: Yes.

Question 7: ***"Included in this letter is the proposed site plan. Does the proposed design conform to the Sheriff' Department requirements for emergency access?"***

Response: Yes.

Question 8: "*It was determined in the previous EIR the project site is within Reporting District 40 Beat. Is this still accurate?"*

Response: Yes.

Question 8a.: *"Please provide recent statistics for this Reporting District."*

Response: There were five Part One Crimes reported in this area during the last reporting quarter from July 1, 2013 through September 30, 2013. One arrest was made during this time period. There have been nine reported Part One Crimes reported in this area over the last six months with five arrests.

Question 8b.: *"How does the crime rate near the proposed project compare to the overall crime rate for other unincorporated areas of San Mateo County?"*

Response: The crime rate in this area is generally lower than in other unincorporated areas of San Mateo County.

Question 9: *"Would the Sheriff's Department need to construct new police facilities or expand existing facilities in order to accommodate the project's demand for poke (sic) services?"*

Response: No.

Question 9a.: *"Would the project require the Sheriff's Department to hire more deputies or staff?"*

Response: No.

Question 9b.: *"Would the project require the Sheriff's Department to purchase more equipment?"*

Response: No.

Question 10: *"Does the Emergency Management Unit still provides (sic) rescue and hazmat response to San Mateo County and its cities? Will the proposed project have a significant impact on services provided by the Emergency Management Unit. (sic)"*

Response: The San Mateo County Sheriff's Office of Emergency Services continues to facilitate rescue and HazMat services to all cities within the county. It is not anticipated that the proposed project have a significant impact on these services.

Question 11: *"In addition to addressing project-specific impacts to police services, the EIR will also address cumulative impacts to police services. We are in the process of compiling a list of reasonably foreseeable development in the County. Table 1, Related Project List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues.*

Can the Department accommodate the demand for police services associated with the development of these projects in conjunction with the proposed project?

Response: Yes.

Question 11a.: "*How does your agency address the growing demand for policing services?"*

Response: The Sheriff's Office continually monitors and evaluates the demand for law enforcement services in each of the communities it serves. Should a significant increase in demand be forecasted, the Office works with residents, business owners, and additional stakeholders in order to determine how to best meet an increasing or changing demand.

Question 11b.: "*Do you have any projections for future demand based on the projected growth in the region?"*

Response: An increase in the demand for law enforcement services for the area in question is not anticipated.

Question 11c.: "*What would be needed to meet the cumulative demand for police services?"*

Response: The cumulative demand for police services can be met with existing resources.

Question 12: "*Please provide recommendations that could reduce the demand for fire protection services created by the proposed project and cumulative development."*

Response: No recommendations. (Question refers to fire protection. It is assumed that the intent was to address law enforcement services.)

Sincerely,

Greg Munks
San Mateo County Sheriff

GAM:eb

COUNTY OF SAN MATEO

BOARD OF SUPERVISORS
DAVE PINE
CAROLE GROOM
DON HORSLEY
WARREN SLOCUM
ADRIENNE J. TISSIER

Department of Public Works

JAMES C. PORTER
DIRECTOR

555 COUNTY CENTER, 5TH FLOOR • REDWOOD CITY • CALIFORNIA 94063-1665 • PHONE (650) 363-4100 • FAX (650) 361-8220

November 8, 2013

Ms. Stephanie Henderson
Technical Analyst / Associate
Analytical Environmental Services
1801 7th Street
Sacramento, CA 95811

Re: Proposed Ascension Heights Subdivision Environmental Impact Report (EIR) – Solid Waste & Sewer Service

Dear Ms. Henderson:

We are in receipt of your letter dated October 2, 2013, regarding the above project. We have listed below your questions (Q) and our responses (R) to your questions.

SOLID WASTE SERVICES

Q1. In the previous EIR, it was reported solid waste from the project area is transferred to the South Bayside Integrated Facility Transfer Station (also known as the Shoreway Environmental Center). Is this still accurate?

R1. The current collection service provider for garbage and recyclables for the project site would be Recology San Mateo County (RSMC). The County has a franchise agreement with RSMC to collect solid waste and recycling from the County franchised area (CFA), which is comprised of: Burlingame Hills, San Mateo Highlands and Baywood Park [Crystal Springs area], Harbor Industrial, Devonshire Canyon, Palomar Park, Oak Knoll, Kensington Square, Emerald Lake Hills, Sequoia Tract, Peninsula Golf Club, and Trailer Ranchero. The collected material is transported by RSMC to the Shoreway Environmental Center (SWIS # 41-AA-0016), which is owned by the South Bayside Waste Management Authority where the material is processed and hauled for disposal, recycling, or compost by South Bay Recycling.

Q2. According to the CalRecycle website, the Shoreway Environmental Center is permitted for a maximum throughput of 3,000 tons per day. Is this accurate? What is the average daily throughput at the facility in recent years (2011-2012)?

R2. The Shoreway Environmental Center is permitted for a maximum throughput of 3,000 tons per day. The SBWMA (650-802-3500) or South Bay Recycling (650-802-8355) should be contacted to determine the average daily throughput at the facility in recent years (2011-2012).

Q3. Would the Shoreway Environmental Center have the capacity to serve the proposed project?
R3. The SBWMA or Shoreway Environmental Center should be contacted regarding capacity to process the additional materials from the proposed subdivision. The CalRecycle goal for the County unincorporated areas is for generation rates of 3.0 pounds/per person per day or less. The assumed generation rate and total generation should be determined through the environmental review process.

Q3a. If not, what would be needed to accommodate the project's generation of solid waste?
R3a. Chapter 4.04 – "Solid Waste Collection, Transport, Storage, and Disposal" requires minimum levels of service for properties in the CFA. Review of Ordinance Code may be beneficial to the environmental review.

Q4. Solid waste services for the proposed project area are provided by Republic Services of Half Moon Bay. The primary disposal site is the Ox Mountain Sanitary Landfill. According to the CalRecycle website, this site had an original capacity of 37.9 million cubic yards and has exceeded its permitted capacity by approximately 6.7 million cubic yards. It was determined in the previous EIR that Ox Mountain can continue to accept waste as the landfill gradually settles and new space becomes available. Is this information still accurate?
R4. As stated in R1, solid waste services for the proposed project area are provided by RSMC. The primary disposal site for materials collected by RSMC is the Ox Mountain Landfill. Republic Services is the owner and operator of the Ox Mountain Landfill and they informed the County in September 2013 that they expect the landfill to be at capacity in approximately 26 years.

Q5. In the previous EIR, it was reported the Ox Mountain Sanitary Landfill has a permitted maximum throughput of 3,598 tons per day. Is this still accurate? What is the average throughput per day in recent years (2011-2012)?
R5. Republic Services (650-726-4718) should be contacted to determine the permitted maximum throughput at the Ox Mountain Landfill.

Q6. Would the Ox Mountain Sanitary Landfill have the capacity to serve the proposed project?
R6. As stated in R1 and R2, materials collected from the proposed subdivision are taken to the Shoreway Environmental Center. From there the solid waste is taken to and disposed of at the Ox Mountain Landfill. Contact should be made with the Shoreway Environmental Center regarding the ability to process material from the proposed subdivision. Republic Services may be contacted with additional questions regarding disposal of materials from the propose subdivision.

Q6a. If not, what would be needed to accommodate the project's generation of solid waste?
R6a. The area is required to have a minimum level of garbage service. There are no other options that exist at this time.

Q7. According to the CalRecycle website, the closure date of the Ox Mountain Sanitary Landfill is estimated for 2018. Is this still accurate? What is the plan for future solid waste disposal from the project area?
R7. As stated in R4, Republic Services is the owner and operator of the Ox Mountain Landfill. They may be contacted to verify remaining capacity at the site. Republic Services has provided information to

the County indicating that site capacity will be reached in approximately 26 years.

Q8. What recycling programs are available for the residents of the proposed project?
R8. The residents would receive recycling services provided by RSMC. The standard residential service for this area consists of: one 32 gallon solid waste cart, one 64 gallon single stream recycling cart, and one 96 gallon organics cart. Details of what materials can be collected for recycling can be found at RSMC's website (http://www.recologysanmateocounty.com/)

Q8a. How much diversion of solid waste does the recycling program average?
R8a. The County and CalRecycle measure disposal not diversion. The SBWMA provides information on a regular basis to member agencies regarding tons disposed, recycled, and composted. The SBWMA reported a diversion rate for single family dwellings in the SBWMA service area to be 66.7% for 2012. The SBWMA reported a diversion rate for single family dwellings in the CFA for 2012 of 68.3%.

Q9. A diversion plan will be implemented for all construction debris generated by the proposed project. The plan will follow technical guidelines provided by your Waste Management Section. Are there any suggestions for mitigation of potential construction related impacts to solid waste services?
R9. For detailed information about our Waste Management Plans and process please refer to http://www.recycleworks.org/con_dem/ordinance_condem.html .

Q10. In addition to addressing project-specific impacts to solid waste services, the EIR will also address cumulative impacts to solid waste services. We are in the process of compiling a list of reasonably foreseeable development in the County. Table 1, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department accommodate the demand for solid waste services associated with the development of these projects in conjunction with the proposed project?
R10. As explained in the previous responses, the proposed subdivision is serviced by RSMC under a franchise agreement with the County. Also, as explained above the SBWMA or Shoreway Environmental Center should be contacted regarding the anticipated additional materials generated from the proposed subdivision and the ability to process and dispose of the material.

Q10a. How does your agency address the growing demand for solid waste services, in particular landfill capacity?
R10a. The County reports remaining landfill capacity to CalRecycle each fiscal year. If there is less than 15 years of landfill capacity remaining, the County is required to create a Waste Management Plan in conjunction with the cities in the County to address future disposal. All cities and counties must comply with AB939 on an annual basis and annually report their Source Reduction and Recycling Elements programs to CalRecycle.

Q10b. Do you have any projections for future demand based on projected growth in the region?
R10b. No.

Q10c. What would be needed to meet the cumulative demand for solid waste services?
R10c. Increased recycling services and increased customer participation in recycling services.

Q11. Please provide recommendations that could reduce the demand for solid waste services created by the proposed project and cumulative development.
R11. Residents could utilize the comprehensive curbside recycling and composting services provided by RSMC to the fullest extent possible.

SEWER SERVICES

Q1. In the previous EIR, a map of the existing sewer lines surrounding the project site was provided and is included with this letter as **Exhibit A**. Have there been any updates or changes in the vicinity of the project site? If so, could you please provide an updated map?
R1. No updates or changes have occurred to the existing sewer lines in the vicinity of the project site since 2008.

Q2. On March 11, 2009, Cease and Desist Order No. R2-2008-0065 was issued by the San Francisco Bay Regional Water Quality Control Board and required the City of San Mateo, Town of Hillsborough, and the Crystal Springs County Sanitation District in San Mateo County to address issues related to high flows during rainy season. To date, what projects have been completed or are planned to address these issues?
R2. The Cease and Desist Order (CDO) identified numerous capital improvement projects to be completed by the City of San Mateo (City), Town of Hillsborough (Town) and the Crystal Springs County Sanitation District (District). However, the projects applicable to the District include the eight remaining capital improvement projects within the District as identified in the 1999 Sewer Master Plan, the Town's Crystal Springs/El Cerrito Trunk Sewer Phase II, and the City's El Cerrito Relief Line Project. Both Town's and City's projects are currently in the design phase.

The District awarded the construction contract to D'Arcy and Harte Construction Inc. on October 8, 2013 for the eight remaining capital improvement projects within the District. However, the District is awaiting final approval of a State Revolving Fund Program loan before the Notice to Proceed can be issued to the contractor.

Q3. Are there any other existing sewer service problems/deficiencies in the project area?
R3. There are capacity issues in the sewer lines downstream of the project area within the Town and the City during wet weather events. Both downstream jurisdictions are working on projects to reduce wet weather sewer overflows by increasing capacity of the shared trunk lines, as required by the CDO. Based on the District's agreement with both downstream agencies, a portion of the costs associated with future projects on shared facilities will be paid by the District.

Q3a. How would the project affect these problems/deficiencies?
R3a. The additional sewage generated from the project will exacerbate the downstream capacity problems unless the wet weather issues are resolved.

Q3b. What measures could the project incorporate to minimize the affect these sewer service problems/deficiencies on the project and surrounding uses?

R3b. The project could minimize its impact on the downstream systems by completing capital improvement projects within the District that would reduce inflow and infiltration in an amount equal to the projected sewage discharge amount to the District from the project. This type of mitigation would mitigate the project's effect on downstream pipes by reducing or eliminating wet weather inflow and infiltration from the District to downstream of the project.

Q4. In the previous EIR, the Department indicated an interruption of service to existing customers would not occur during construction of the proposed project as sewer lines affected by the project may require by-pass pumping during construction. Is this still accurate?

R4. Yes.

Q5. Is recycled water within the project area or that could serve the project site?

R5. There is no recycled water within the project area.

Q6. What sewage generation rates does the Department of Public Works use?

R6. The San Mateo County Department of Public Works in its capacity of administering the Crystal Springs County Sanitation District uses the sewage generation rate of 220 gallons per day per equivalent residential unit.

Q7. In addition to addressing project-specific impacts to sewer services, the EIR will also address cumulative impacts to sewer services. We are in the process of compiling a list of reasonably foreseeable development in the County. **Table 1**, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department accommodate the demand for sewer services associated with the development of these projects in conjunction with the proposed project?

R7. All projects listed in Table 1 are located outside of the District boundary and do not affect the District's sewer service demand. However, as indicated in R3 above, the Dale Avenue Pump Station Improvements and the El Cerrito Relief Line Project are improvements to downstream shared facilities that the District is responsible for a portion of the costs associated with these projects.

Q7a. How does your agency address the growing demand for sewer services?

R7a. The District is predominantly built-out and does not experience a growing demand for sewer service.

The District has a Sewer Master Plan prepared by Brown and Caldwell in 1999, which evaluated the District's sewer system using hydraulic modeling. The District upgraded a portion of the Polhemus Road trunk line in 2003 as it was identified in the master plan as being hydraulically deficient to meet peak wet weather flow conditions. The project replaced the existing 10" vitrified clay pipes with 12" to 15" plastic pipes. A copy of the master plan can be obtained on our website at: www.smcgov.org/sewers

The remaining capital improvement projects, as mentioned in R2 above, were identified based on

structural deficiencies and maintenance efforts.

Q7b. Do you have any projections for future demand based on projected growth in the region?
R7b. As stated in R7a above, the District is predominantly built-out and does not experience a growing demand for sewer service. We do not have any projections for future demand based on projected growth in the District.

Q7c. What would be needed to meet the cumulative demand for sewer services?
R7c. The developer of the proposed subdivision must demonstrate that the District sewer mains utilized to transport sewage from the subdivision has the peak wet weather capacity for conveying the additional flow to be generated by the 19 residences. If it is determined that the lines are insufficient to convey additional flow, the developer may need to upgrade the sewer lines to accommodate this subdivision. This study and work will not, however, resolve the downstream capacity issues mentioned in R3. A project or projects to reduce inflow and infiltration in the District would be required by the developer to offset any increase in sewage produced by the proposed subdivision during wet weather events.

Q8. Please provide recommendations that could reduce the demand for sewer services created by the proposed project and cumulative development.
R8. See R7c.

If you have any other questions, please contact Lillian Clark at (650) 599-1447 regarding solid waste services, and Mark Chow at (650) 599-1489 regarding sewer services.

Very truly yours,

for James C. Porter
Director of Public Works

JCP:AMS:MC:LC:JY
G:\users\utility\sewers\Districts\Crystal Springs CSD\Property Information\Ascension Heights Subdivision\EIR\Response Letter to AES 2013.11.docx

cc: Ann M. Stillman, Deputy Director, Engineering and Resource Protection
Joe La Mariana, Waste Management and Environmental Services Manager
Mark Chow, Principal Civil Engineer, Utilities-Flood Control-Watershed Protection
Lillian Clark, RecycleWorks Program Manager, Waste Management and Environmental Services
Julie Young, Senior Civil Engineer, Utilities-Flood Control-Watershed Protection

From: Brigitte Shearer [mailto:brigittes@highlandsrec.ca.gov]
Sent: Wednesday, October 02, 2013 6:28 PM
To: Stephanie Henderson
Subject: RE: Ascension Heights Subdivision Project-Public Utilities and Services Inquiry Letter

I've prepared responses to your questions. Please let me know if you need anything further. It's important to understand that the proposed project is not within the Highlands Recreation District boundaries.

Brigitte Shearer
Highlands Recreation District
General Manager
650-341-4251
brigittes@highlandsrec.ca.gov

---

1. Does the Highlands Recreation District have any plans to develop new parks or expand existing parks in the project area?

The Highlands Recreation District (HRD) currently operates a 3.45 acre facility on Lexington Avenue. We also oversee programs which take place at Highlands Elementary School and Crystal Springs United Methodist Church on Bunker Hill Drive. In addition, the HRD manages 40 acres of open space at the 'north' end of the Highlands neighborhood. That acreage is not open to the public. There are currently no plans to expand offerings beyond what is described above. However, in the future, the HRD may pursue making the 40 acres of open space accessible to the public or perhaps only HRD residents, for hiking. In addition, it is possible that, the HRD may also be granted additional acreage currently owned by Ticonderoga Partners. This land would be designated as permanent open space under a conservation easement. It is possible that this land might also one day be governed by the HRD and that it may eventually be developed for hiking, if the community so desires and necessary permissions are granted.

2. Would the project significantly affect existing park facilities?

The construction of additional homes would potentially increase patronage of the HRD facility and the nearby Highlands Elementary School. Persons living in the new development would not be Highlands Recreation District Residents, would not contribute property taxes to the HRD, and would therefore pay a higher rate to attend many of the HRD programs. Some programs are at capacity at this time, and would therefore not be available to these new homeowners. Since capacity limitations exist, the impact of this project would not be significant.

2a. If yes, please identify which facilities might be affected, and any anticipated impacts.

3. In addition to addressing project-specific impacts to park and recreational services, the EIR will also address cumulative impacts to park and recreational services. We are in the process of

compiling a list of reasonably foreseeable development in the County. **Table 1**, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department (**District**?) accommodate the demand for park and recreational services associated with the development of these projects in conjunction with the proposed project?

The District is not obligated to accommodate any additional demand for park and recreational services resulting from increased population outside of the District boundaries.

3a. How does your agency address the growing demand for parks and recreational services?

As stated above, some of the programs offered at the HRD are at capacity and there are no plans in place to add additional capacity at our existing facility. Highlands Recreation District residents have priority in accessing these capacity-limited programs because HRD residents support the facility's operation through property tax contribution. Persons living in the proposed development would not have such priority and would therefore potentially have limited access to certain HRD programs.

3b. Do you have any projections for future demand based on projected growth in the region?

No.

3c. What would be needed to meet the cumulative demand for parks and recreational services?

Additional facilities would be needed to provide space for additional or expanded program offerings. The current HRD site does not have any ability to expand to meet such needs.

4. Please provide any recommendations that might help eliminate or reduce any potential impacts the proposed project would have on parks and recreational services provided by the District.

The proposed project is not located within the boundaries of the District. Patrons from the new project wishing to participate in District programs would add traffic congestion to our facility, as access is currently only available by car. Shuttle bus service from the HRD to the Baywood Park community would be enormously helpful in reducing traffic congestion and CO2 emissions. In addition, creating public space in or near the new project may also provide an alternative to the HRD facility. At minimum, a playground and tennis court would be very welcome. Ideally, perhaps even a structure which could be used for additional HRD-type programs – enrichment classes, meetings, etc. – would be helpful. The HRD is currently not overseeing any programs in locations outside the HRD boundaries. If such expanded oversight were desired, obtaining permission to do so would be lengthy and cumbersome, as it would require expansion of the HRD boundaries, revisiting the property tax distribution of the Baywood Park residences, and Local Agency Formation Commission approval.

-----Original Message-----
From: Cathi Zammit [mailto:CZammit@cityofsanmateo.org]
Sent: Monday, November 18, 2013 9:52 PM
To: Stephanie Henderson
Cc: Darcy Forsell
Subject: RE: Ascension Heights Subdivision Project-Public Utilities and Services Inquiry Letter

Hi Stephanie,

Sorry this took longer than I originally estimated. Attached are responses to your questions, except for number 5. for which I do not have an updated status. I've also attached a recent report to the Water Board with the status of many of our projects and activities. Let me know if you have any questions. I will be out of the office Tues & Wed this week but returning on Thursday. Thank you,

Cathi Zammit
City of San Mateo
Public Works
(650) 522-7306
czammit@cityofsanmateo.org

Responses to your questions listed below:

1. Please confirm if the following statements are accurate or revise as necessary: *In general, wastewater generated from uses in the surrounding area enters existing sewer infrastructure owned and maintained by Crystal Springs County Sanitation District and flows to sewer infrastructure owned and maintained by the Town of Hillsborough. This wastewater then flows to sewer infrastructure owned and maintained by the City of San Mateo for treatment at the wastewater treatment plant owned and operated by the City of San Mateo located at 2050 Detroit Drive.*

Response: This statement is correct.

2. On March 11, 2009, Cease and Desist Order No. R2-2008-0065 was issued by the San Francisco Bay Regional Water Quality Control Board and required the City of San Mateo, Town of Hillsborough, and the Crystal Springs County Sanitation District in San Mateo County to address issues related to high flows during rainy season. To date, what projects have been completed or are planned to address these issues?

Response: The correct Order No. is R2-2009-0020. Enclosed is the most recent annual report submitted to the RWQCB describing projects completed to date and proposed projects to address wet weather capacity assurance.

3. In the previous EIR, it was reported the City completed an expansion in 1996 that increased the hydraulic capacity of the wastewater treatment plant to 15.7 mgd during the dry months (April 11-October 31) and 60 mgd total primary capacity. Has there been any capacity upgrades since?

Response: No.

4. What is the average daily flow of discharge? Does the City's wastewater treatment plant have the capacity to sever the proposed project?

Response: ADWF received at the Wastewater Treatment Plant in 2012 is 12.4 mgd.

5. In the previous EIR, it was reported that the Crystal Springs County Sanitation District was in arrears in its payments in an amount of $1,274,000 to the City of San Mateo for operating and capital costs due under the Sanitary Sewer Agreement, and the City of San Mateo Department of Public Works therefore could not approve the additional flow that would result from these new subdivisions. Have there been any developments with regards to this?

6. In addition to addressing project-specific impacts to wastewater treatment services, the EIR will also address cumulative impacts to wastewater treatment services. We are in the process of compiling a list of reasonably foreseeable development in the County. **Table 1**, Related Projects List, includes a list of some of the other major, reasonably-foreseeable approved development in the County in proximity to the proposed project's location. However, additional projects will likely be added to the list as our research continues. Can the Department accommodate the demand for wastewater treatment services associated with the development of these projects in conjunction with the proposed project?

Response: Please refer to the EIR prepared for the City of San Mateo 2030 General Plan available on-line on the City's website.

6a. How does your agency address the growing demand for wastewater treatment services?

Response: The City is in process of preparing an updated master plan for wet weather capacity assurance improvements at the wastewater treatment plant

6b. Do you have any projections for future demand based on projected growth in the region?

Response: The projected average daily flow is 14.6mgd for year 2020.

6c. What would be needed to meet the cumulative demand for wastewater treatment services?

Response: Please refer to the City of San Mateo 2030 General Plan and Sewer System Management Plan available online on the City's website.

7. Please provide recommendations that could reduce the demand for wastewater treatment services created by the proposed project and cumulative development.

Additional information:

The projected peak wet weather flow under five-year design storm conditions in year 2020 is 88mgd, which exceeds the plant design outfall capacity of 60mgd. The City has developed and is implementing a wet weather capacity assurance capital improvement program for the sanitary sewer conveyance system. The City is in process of preparing an updated master plan for capacity assurance improvements at the wastewater treatment plant and will integrate identified projects into the capital improvement program.

The wastewater generated from the proposed Ascension Heights project will increase the peak wet weather flow in the system. The peak wet weather flow already exceeds collection system and plant capacity during certain wet weather events causing sanitary sewer overflows, thus additional flow cannot be accepted into the system without mitigation. City of San Mateo Waste Water Treatment Plant Expansion development impact fees will apply. In addition, mitigation measures should include construction of improvements to reduce inflow and infiltration to the sanitary sewer system such that the project will result in a "zero net increase" in flow during wet weather events, and complete such construction prior to the start of the construction of the project.

APPENDIX J

ASCENSION HEIGHTS DESIGN HANDBOOK

ASCENSION HEIGHTS

Design Handbook

July 29, 2015

Design Guidelines

Architectural Styles

3361 Walnut Blvd. Suite 120 Brentwood, CA 94513
925.634.7000
www.straussdesign.com

SDG Architects, Inc.

General Requirements

The following section describes general architectural requirements for the Ascension Heights community. These requirements are encouraged to maintain the overall vision for Ascension Heights. Certain items must be done to comply with restrictions established by the County of San Mateo. It is the responsibility of the homeowner to verify all local jurisdiction requirements. The general requirements are as follows:

Massing:
Regardless of the configuration, home designs shall incorporate stepped building forms to complement the adjacent hillside topography. Using this approach and following required height restrictions (see pages 5-6 ((“Height Standard”)) two-story massing will be minimized, one-story massing will predominate, buildings will appear more understated and the landscape will be more appreciated.

Except for the roof structures, all major building mass components should have a rectangular or square plan. Minor building mass components, such as bay window projections or singular tower elements, may have an octagonal or a round plan. However, all exterior corners in plan should predominantly be 90 degrees.

Building mass components should be combined to create simple, additive compositions. This approach should be used to minimize the appearance of larger homes. For example, second floor massing should be setback from the main level.

To promote indoor-outdoor living and to maximize access to light and ventilation, porches, balconies, loggia courtyards and breezeways are all encouraged.

Detached and semi-detached structures are also encouraged to reduce the appearance of overall building mass. This rural approach to assembling building masses is consistent with the Ascension Heights vision.

To encourage a diversity of built forms throughout the community, special attention should be given to the front/street and rear/hillside elevations. Streetscape and hillscape building profiles should vary from lot to lot. To further this ideal, homeowners are encouraged to utilize a variety of projections to personalize their home elevations such as: balconies, porches, trellis, chimneys, dormers, and bay windows.

Height Requirements:
Overall building height cannot exceed 36' measured from average finish grade to the average height between the highest horizontal plan and the highest point on the roof per County of San Mateo Municipal Code for the R1-S-8 District. In addition, there is a 28' height profile restriction. This profile measurement is to be taken from, and follow the profile of, the adjacent finish grade along the perimeter of the building. Refer to page 5 ("Height Standard").

Maximum Allowable Square Footage:
Maximum Allowable Square Footage is the area described as the footprint of any structure greater than 18" above finish grade and is limited to a maximum of 40% of the lot.

Setback Requirements:
Setback requirements shall are described in the San Mateo County Development Standards for zoning designation R-1-S-8 District. They are as follow:

Front (ft.)	20
Side (ft.)	5
Rear (ft.)	20

Garages:
Garage doors should complement a regional style and be either wood or wood clad doors. Sectional garage doors must be the types that appear to be a single, or pair of, panel doors.

Roof:
Roof designs should complement the adjacent hillside topography. For this reason, roofs should be predominantly low-profile and pitched. Roof pitch should not exceed 8:12. The only exception shall be for architectural features such as tower elements, dormers and for roofs in the "Cottage" and "American Farmhouse" architectural styles (refer to pages 7-22). To emphasize the low-profile roof pitch and to reduce solar heat gain, roof overhangs should be considered.

Roof designs should consist of intersecting pitched gables, hips, or shed roof forms. Dome and flat roofs are not allowed. Roof designs should be simple, not overly complex. Roof crickets should be minimal or as needed for chimney roof penetrations.

Skylights:
The County of San Mateo may approve skylights with the following requirements:

- Skylights must be equipped with motorized shades. These shades must have a photocell timer/switch to close the shade, automatically, at night.
- Skylights must be installed to be low-profile .
- Skylights must not exceed 30" in width or length and must be rectangular or square.
- Skylight glazing must be flat glass, not mirror reflective and should be a minimum of 70% clear.
- Skylight frames should be of a color to match adjacent roof or flashing material. Domed or "bubble" skylights are not allowed.

Solar and Wind Powered Systems:
Solar photovoltaic (PV) panel systems and solar water heating systems, not visible from the street, may be allowed. Wind powered systems are not allowed. All PV panel installations should be the integrated-flush panel type and cannot be installed within a barrel tile roof.

Mechanical Equipment and Antennae:
Mechanical equipment cannot be installed on a roof, with the exception of those solar systems noted above. Antennae or satellite dishes must be installed so they are not visible to adjacent neighbors or from the street.

Chimneys:
All chimney spark arrestors must be screened with a decorative chimney cap.

3361 Walnut Blvd. Suite 120 Brentwood, CA 94513
925.634.7000
www.straussdesign.com
SDG Architects, Inc.

Materials:
The homeowner is encouraged to use natural and sustainable materials whenever possible. If stone or brick is introduced onto the exterior facade, it shall be a natural material, not cultured. The homeowner is also encouraged to specify roof, flashing, gutter, downspout and chimney cap materials as defined for each of the suggested architectural styles (refer to pages 7-22).

Colors:
Building material colors shall be as defined as follow:

"Exterior colors shall be selected to harmonize with the overall hillside and neighborhood landscape setting. The larger scale color palette for homes within specific residential parcels shall be complementary. Bright colors or high sheen finishes shall be avoided. Generally, the color palette for major wall surfaces shall be responsive to the natural colors of the materials being used. Where wood is used, colors shall include tans, browns, taupes and natural weathered colors including the warm greys. Wood colors may also occur in a variety of other tones provided they are applied as a stain and are muted in tone. Stucco or plaster colors shall include, beige and earth tones such as tan, rust, ochre, sienna, umber or brown. Accent and contrasting colors may be used sparingly for fenestration, trim and other special architectural details to add interest and variety."

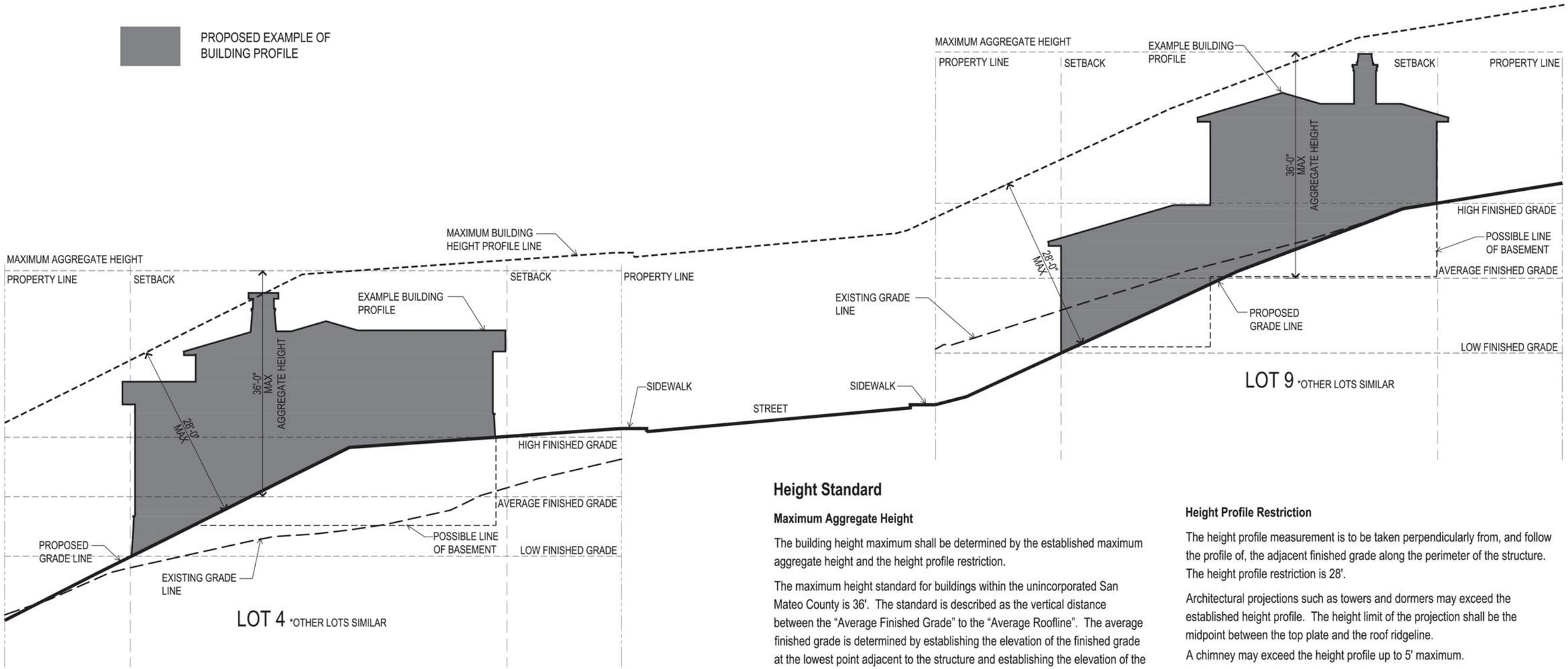
The imagery presented in this design handbook of styles, color, and details do not represent exactly what is allowed.

Sustainable Architecture:
As noted in the vision statement, homeowners are encouraged to design using sustainable architectural principles. These principles encourage: (1.) conservation of natural resources, (2.) conservation of energy, (3.) conservation and protection of water supplies, (4.) improvement of air quality and (5.) more livable communities. Opportunities to exercise these principles are highlighted throughout this document using green text.

Traditional Interpretation:
Homeowners are encouraged to design their homes within a general framework of historic, regional architectural styles. Examples of these styles are described on pages 7-22. Through the interpretation of these styles, our hope is that the community will develop along similar aesthetic principles while maintaining the Ascension Heights vision.

There are five groups of architectural styles proposed for homeowner consideration: Arts and Crafts, Cottage, Adobe Ranch, American Farmhouse, and Prairie School. The following pages describe these five groups and the various styles within each.

3361 Walnut Blvd. Suite 120 Brentwood, CA 94513
925.634.7000
www.straussdesign.com
SDG Architects, Inc.



Height Standard

Maximum Aggregate Height

The building height maximum shall be determined by the established maximum aggregate height and the height profile restriction.

The maximum height standard for buildings within the unincorporated San Mateo County is 36'. The standard is described as the vertical distance between the "Average Finished Grade" to the "Average Roofline". The average finished grade is determined by establishing the elevation of the finished grade at the lowest point adjacent to the structure and establishing the elevation of the finished grade at the highest point adjacent to the structure along the same section then averaging the elevation between the two points. This will establish the "Average Finished Grade".

The average roofline is determined by establishing the elevation of the highest horizontal plate and the elevation of the highest point on the roof along the same section then averaging the elevation between the two planes. This will establish the "Average Roofline".

The vertical distance between the "Average Finished Grade" and the "Average Roofline" cannot exceed 36'.

Height Profile Restriction

The height profile measurement is to be taken perpendicularly from, and follow the profile of, the adjacent finished grade along the perimeter of the structure. The height profile restriction is 28'.

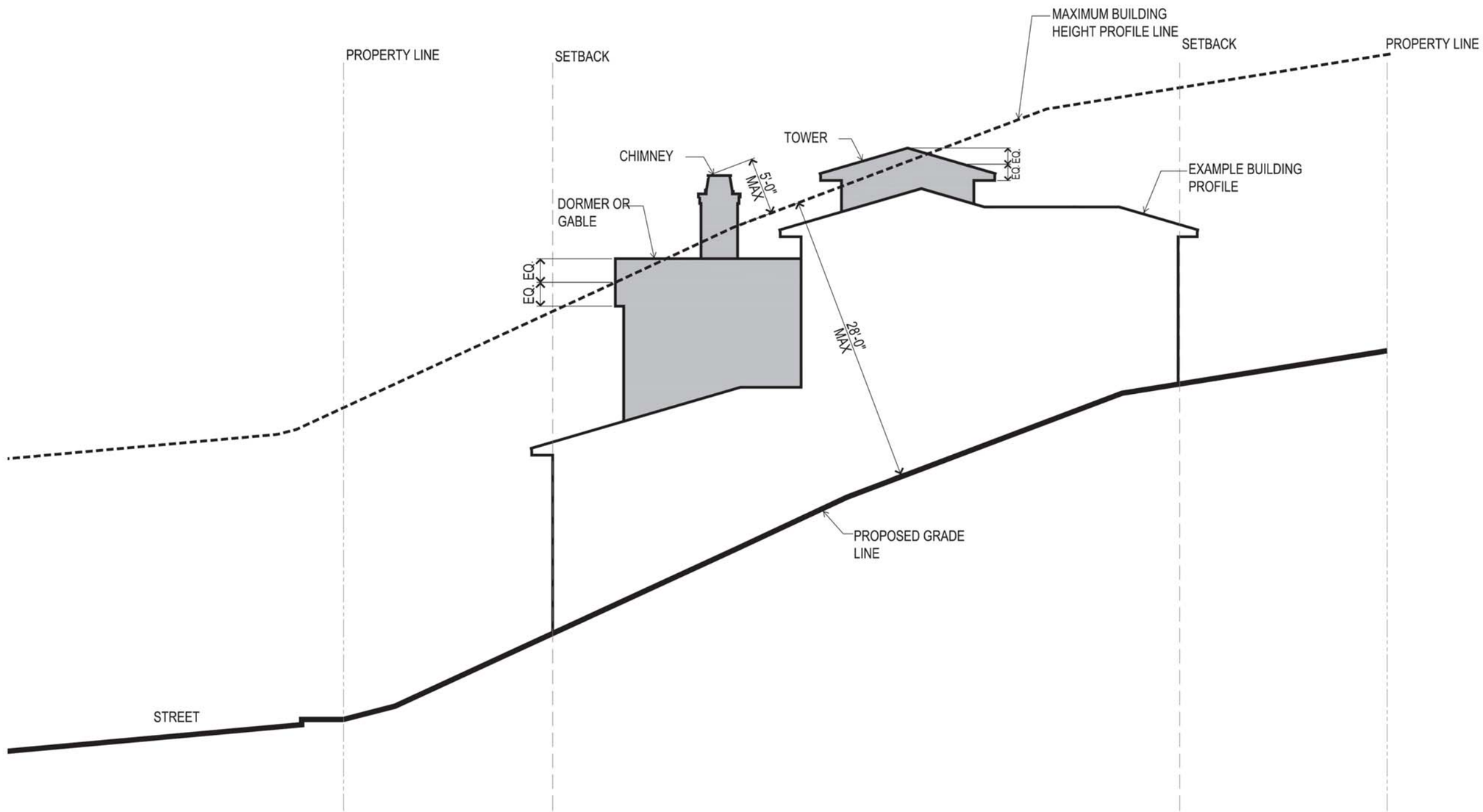
Architectural projections such as towers and dormers may exceed the established height profile. The height limit of the projection shall be the midpoint between the top plate and the roof ridgeline.

A chimney may exceed the height profile up to 5' maximum.

Refer to example on page 6.

Height verification, per County of San Mateo procedures, is required for all structures designed within 2' of the maximum height profile limit.

3361 Walnut Blvd. Suite 120 Brentwood, CA 94513
925.634.7000
www.straussdesign.com
SDG Architects, Inc.



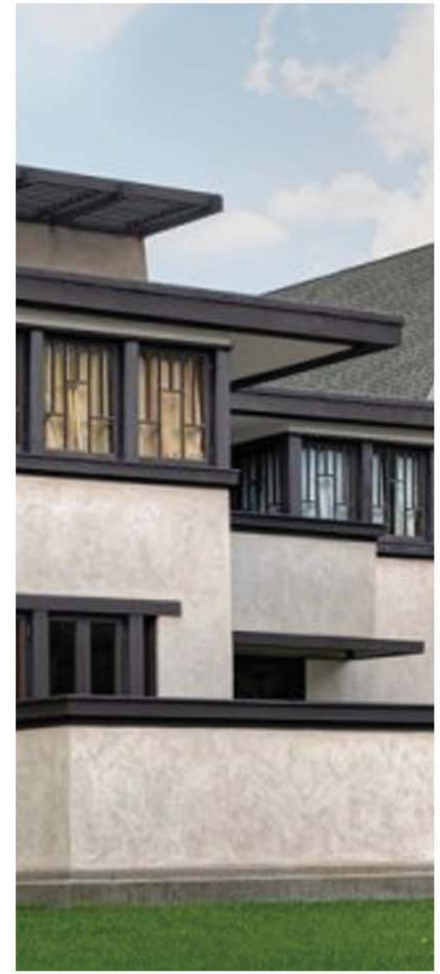
Ascension Heights
July 29, 2015

Architectural Projections

3361 Walnut Blvd. Suite 120 Brentwood, CA 94513
925.634.7000
www.straussdesign.com
SDG Architects, Inc.

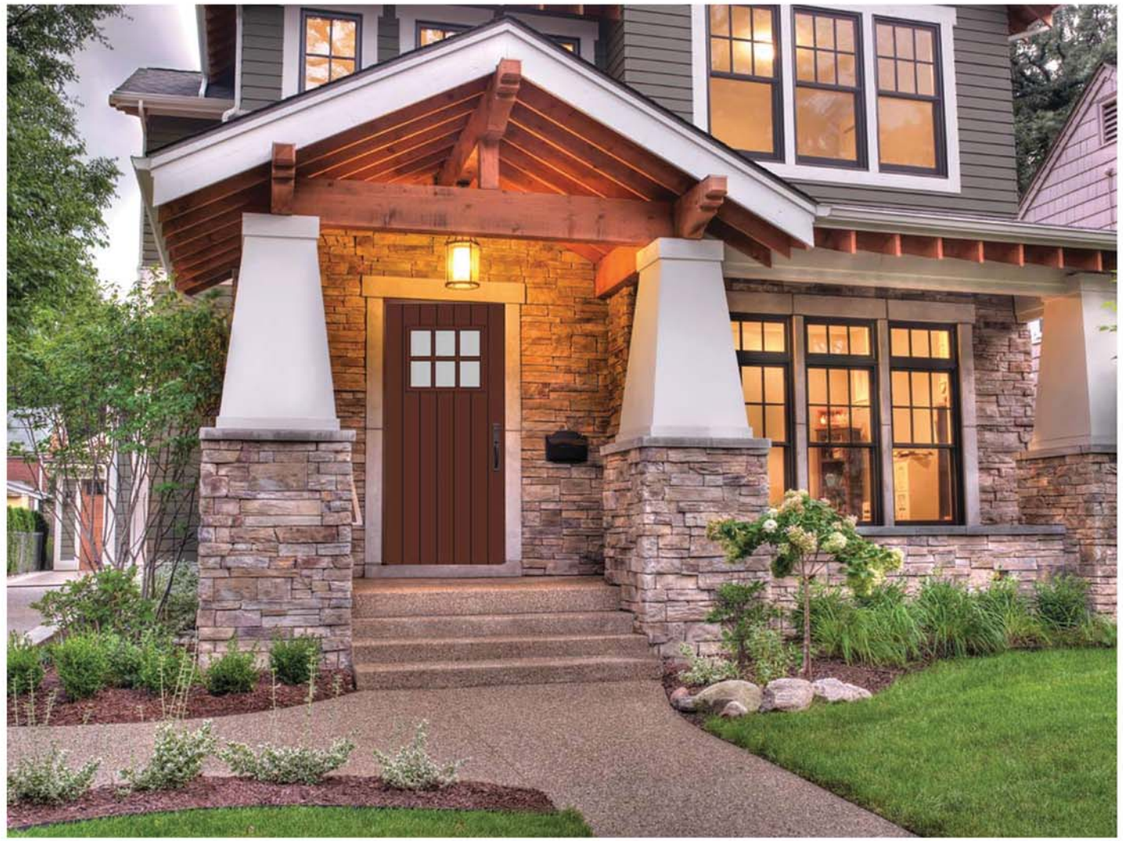






Architecture Styles

The selected architectural styles and their related building forms and details are a product of cultural tastes and values that reflect the vision of Ascension Heights .
The goal is to have a cohesive string of distinct architectural influences while enhancing the natural landscape of San Mateo.
In order to adhere to the principles set by Ascension Heights the styles have been chosen due to their identifying characteristics, indicative detailing and low profile massing. The five styles are: **Arts and Crafts, Cottage, Adobe Ranch, American Farmhouse and Prairie School.**



Arts and Crafts

Arts and Crafts is defined by architecture with an old-world charm and quality that honor the artisans and craftsmen that developed it as a style back in the 1800s. Also known as the Craftsman style, it maintains the tradition of creative detailing and simple understated forms. It has been enhanced by the works of architects such as Bernard Maybeck, Gustav Stickley, Charles and Henry Greene Brothers. As part of the Arts and Crafts movement, Craftsman homes often promote indoor-outdoor living and are best demonstrated with low-profile roofs with deep overhangs, heavy timber detailing, shingle roof and various types of wall treatments such as wood siding, plaster, or painted wood shingle or clapboard siding. Porches, decks, arbors, and trellises are often used to complement the primary building massing.

In addition to the General Requirements, the following specific requirements should be considered when designing in this particular style:

Massing: Except for featured mass components (i.e. bay windows, towers) and the roof, building mass components should either be rectangular or square. Featured mass components may be rectangular, square or octagonal. Additive massing composition is encouraged to reduce the perceived size of the building.

Roof Pitch: Roof pitches shall be low profile and not exceed 3.5:12. Short roof spans are also encouraged to reduce the perceived size of the building.

Roof Materials: Roof material shall be Class "A" fire-rated, fire-resistant wood shake roofing. Synthetic wood shake may be acceptable.

Chimney Materials: Chimney walls should be brick or stone. All chimneys must have a decorative chimney cap in a design that complements the style of the home.




Exterior Wall Materials: The wall material should be varied between painted wood shingle, clapboard siding or hand-troweled exterior plaster ("stucco"). The primary wall material chosen should cover all exterior wall surfaces with the exception of trim, basement level and/or understory walls and freestanding and/or enclosure walls. When used, the finish stucco texture should appear slightly irregular emphasizing the hand-made quality of the installation. All outside comers should have a minimum 1- inch radius bull nose. Basement level, skirt and understory walls should be of brick or stone.

Doors and Windows: Doors and windows should be wood or clad wood. Windows may be double or single-hung, casement or fixed. Divided lites for glazed doors and windows are encouraged and should be designed in typical "Craftsman" layout. Shutters may be allowed for this style.

Detail and Ornament: Details and ornament common to this style include decorative wood trim and detailing, brick and stonework using river rock and clinker brick, "craftsman" motif dark bronze hardware and light fixtures, lap and mortise wood joinery, bronze patina copper flashing, decorative shaped and patterned shingles, decorative ornament and entry door surrounds, painted brick detailing, dormer and transom windows, and tapered and boxed painted wood columns.

Cottage

Cottage architecture is the American Arts and Crafts interpretation of the English cottage style. With a sense of French influence, it denotes a small, often cozy dwelling, and small size that is integral to the style. Quaint detail and an overall minimalism is often seen along with the architectural projections, such as dormers, purlins, rafter tails and posts enhancing the cottage experience. This style is identified by the use of steep pitched roofs, often sweeping over the entry and thick walls to suggest a stucco-coated masonry wall construction. Hand-stacked stone veneer is often used as an accent surface material while plaster walled courtyards are often used to create outdoor rooms. Arched windows and stone trim are also prevalent.

In addition to the General Requirements, the following specific requirements should be considered when designing in this particular style:

Massing: Except for featured massing components (i.e. bay windows, towers) and the roof, building massing should either be rectangular or square. Featured massing components may be rectangular, square or octagonal. Additive massing composition is encouraged to reduce the perceived size of the building.

Roof Pitch: Whenever possible, most of the roof pitches shall not exceed 8:12. However, "featured" roof pitches which promote the "European Cottage" aesthetic shall not exceed 12:12. Short roof spans are also encouraged to reduce the perceived size of the building.

Roof Materials: Roof material should be either Class "A" fire-rated, fire-resistant wood shake roofing, slate shingle or dimensional asphalt shingle roofing, per code requirements. Synthetic wood shake or synthetic slate shingle may be acceptable.

Chimney Materials: Chimney walls should be either hand-stacked stone or hand-troweled exterior plaster ("stucco"). All chimneys must have a decorative chimney cap in a design that complements the style of the home.

Exterior Wall Materials: The primary wall material should be hand-troweled exterior plaster ("stucco"). This primary wall material should cover most exterior wall surfaces. The plaster finish coat texture should be applied to appear slightly irregular emphasizing the hand-made quality of the installation. All outside corners should have a minimum I-inch radius bull nose. Secondary "feature" walls should be hand-stacked stone. Basement level, skirt and understory walls should be either hand-stacked stone or hand-troweled exterior plaster.

Doors and Windows: Doors and windows should be steel, wood or clad wood. Windows may be casement or fixed. Divided lites for glazed doors and windows are encouraged and should be designed in an orthogonal grid layout. Shutters are allowed for this style.

Detail and Ornamentation: Details common to this style include steep attic roofs with dormer windows, decorative main entry door, transom windows, window boxes, heavy timber detailing, brick or stone wall caps and window sills, use of decorative ironwork.

Adobe Ranch

The “Adobe Ranch" style is representative of simple, adobe courtyard farmhouses of California's Spanish-occupied past. It is far less formal than that of the Spanish Colonial style. Mountainous and rugged terrains often lend itself to this vibrant, yet rustic, Spanish farmhouse interpretation. Adobe characteristics include: low-profile clay-tiled roofs, predominant one-story massing, courtyard plans, hand-troweled stucco over thickened walls and heavy timber porches. Doors and windows typically have simple detailing with no trim boards, heavy-timber headers and lintels, possibly shutters and extended wood sills.

In addition to the General Requirements, the following specific requirements should be considered when designing in this particular style:

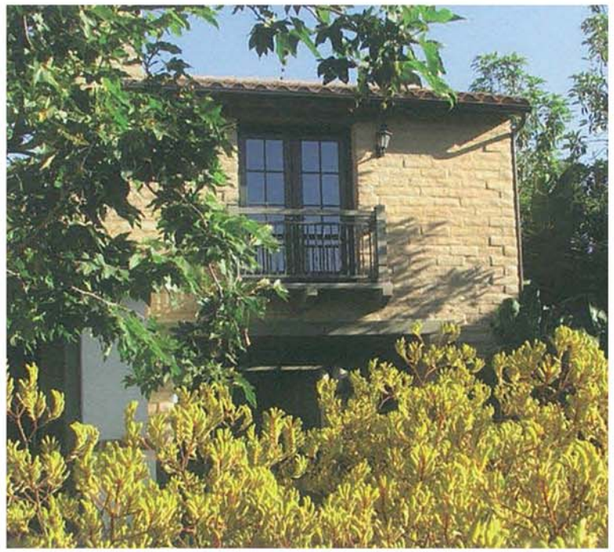
Massing: All massing components, except for the roof, should either be rectangular or square. Featured or projecting massing should also be rectangular or square. Additive massing composition is encouraged to reduce the perceived size of the building.

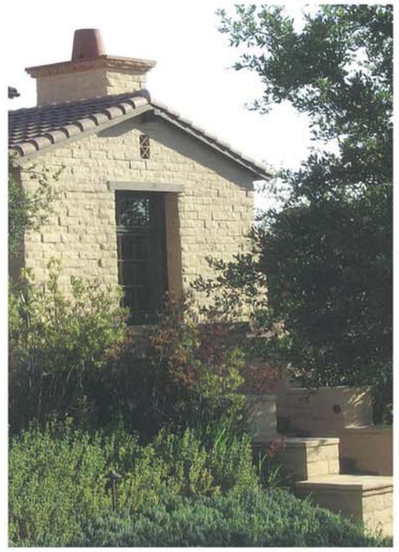
Roof Pitch: Roof pitches shall be low profile and not exceed 3.5: I2. Short roof spans are also encouraged to reduce the perceived size of the building.

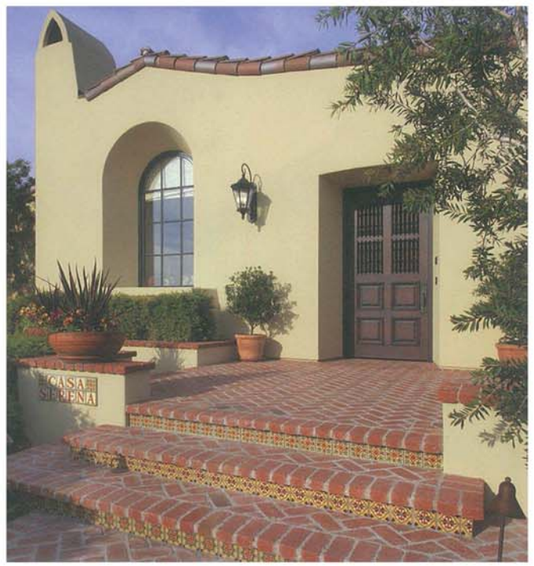
Roof Materials: All roofing must be comprised of two-piece clay barrel tiles, per code requirements. Tiles should be specified in a mixture of tile colors. End eave tiles should be boosted while ridge tiles may or may not be boosted. Random roof surface tiles may also be boosted. Mud stops should be installed while decorative stops may be acceptable.

Chimney Materials: Chimney walls should be hand-troweled exterior plaster ("stucco"). The plaster finish coat texture should be applied to appear slightly irregular emphasizing the hand-made quality of the installation. All outside corners should have a minimum I-inch radius bull nose. All chimneys must have a decorative chimney cap in a design that complements the style of the home.

Exterior Wall Materials: The primary wall material should be hand-troweled exterior plaster ("stucco"). Primary wall material should cover all exterior wall surfaces with the exception of wood components (i.e. eave, lintels porch, deck, railing, arbor and trellis). The plaster finish coat texture should be applied to appear slightly irregular emphasizing the hand-made quality of the installation. All outside corners should have a minimum I-inch radius bull nose. Basement level, skirt and understory walls should also hand-troweled exterior plaster ("stucco").







Doors and Windows: Doors and windows should be steel, wood or clad wood. Doors and windows should be installed "Adobe" style, without any applied wood trim and or surround. Windows may be casement or fixed. Divided lites for glazed doors and windows are encouraged and should be designed to have horizontal muntins only. Shutters are allowed for this style.

Detail and Ornamentation: Details common to this style include: "craftsman" motif hardware and light fixtures, lap and mortise wood joinery, precast decorative ornamentation and entry door surrounds, painted brick detailing, transom windows, tapered and boxed painted wood columns.

American Farmhouse

The American farmhouse was a functional home before it was an architectural style. The design of the American farmhouse was initially influenced strictly by function and geography. The farmhouse was always unpretentious, straightforward and functional, shaped by the needs of the farmers, the local climate and the materials available. American colonists built the earliest farmhouses in the early 18th century. Farmhouses were often built of raw logs—in what is considered a log-cabin style—or some combination of rough-hewn logs, native stone or mud. That changed in the mid-19th century, when railroads made it possible to transport manufactured materials across the country. This gave farmers access to many more style possibilities as well as the ability to build with brick, lumber and quarried stone.
The original building method of these homes was one room at a time building; live in one and the additional were built as needed. American farmhouses provide an open floor plan so everything flows. Wood siding is the most common, simple gable roof lines and traditional double hung windows and shutters. There is typically a large porch which acts as an additional living space when weather permits. The interior has traditional but simple details around windows and doors.

In addition to the General Requirements, the following specific requirements should be considered when designing in this particular style:

Massing: Except for featured massing components and the roof, the massing should be simple, rectangular or sometimes in a T shape. Straight forward, functional design is the emphasis on houses built to acknowledge the American Farmhouse. The massing is composed of basic asymmetrical shapes to allow for expansion. This style usually incorporates a welcoming wide front porch.

Roof Pitch: Roof pitches shall be a maximum 8:12 often with side and front facing gables. Eaves and rakes are typically very shallow. Roof form should be adequately broken into smaller masses to reduce the perceived size of the building.

Roof Materials: Roof material shall be either Class “A” fire-rated dimensional asphalt shingles, or standing seam metal, most typically a combination of both. The colors should be complimentary to the exterior color of the home.

Chimney Materials: Chimney walls can be either hand-troweled exterior plaster ("stucco"), brick or stone. All chimneys must have a decorative chimney cap in a design that complements the style of the home.

Exterior Wall Materials: Primarily wall materials should be a thoughtful composition combining various materials and should include vertical board and batt siding with a contrasting horizontal element of clapboard siding often with accents of stone.

Doors and Windows: Doors and windows should be wood or clad wood. Windows should be fixed or single-hung and small in nature. Avoid groupings of large picture windows. Windows should have a minimal amount of trim detail.

Prairie School

The Prairie School developed in sympathy with the ideals and design aesthetics of the Arts and Crafts Movement begun in the late 19th century in England. Prairie School was an architectural style, most common to the Midwestern United States. The designation Prairie is due to the dominant horizontality of the majority of Prairie School buildings which echoes the wide, flat, treeless expanses of the mid-Western United States. The Prairie School was also an attempt at developing an indigenous North American style of architecture that did not share design elements and aesthetic vocabulary with earlier styles of European classical architecture.

The style is usually marked by its integration with the surrounding landscape, strong horizontal lines, flat or hipped roofs pitched low with broad overhanging eaves which appear to spread out and hug the ground, windows (sometimes with art glass) in geometric shapes placed intricately in horizontal bands, solid construction, craftsmanship, and restraint in the use of ornament. Homes appear to grow out of the ground; very low and close to the terrain. Horizontal lines were thought to evoke and relate to the native prairie landscape. One-story cantilevered projections were typical and the entrances are typically secluded.

In addition to the General Requirements, the following specific requirements should be considered when designing in this particular style:

Massing: Except for featured massing components and the roof, the massing should be either rectangular or square. Horizontal is the emphasis on houses built to acknowledge the flat prairie lands. The massing is horizontal, and so are treatments such as porches, banded windows, and belt courses. The plans are generally organized around a central well-detailed chimney massing and are asymmetrical.

Roof Pitch: Roof pitches shall be a maximum 4:12 low-pitched hip roof with deep overhanging eaves, a minimum of 36". Depending on the design a gable might be considered. Roof form should have a strong balanced horizontal element, roof extension or cantilevered projection at the eaves. Roofs often extend over exterior rooms and/or walkways.

Roof Materials: Roof material shall be either Class "A" fire-rated, fire-resistant wood shake roofing, standing seam metal, or dimensional asphalt shingles. The colors should be black, dark brown or light brown.

Chimney Materials: Chimney walls should be either hand-troweled exterior plaster ("stucco"), brick or stone. All chimneys must have a decorative chimney cap in a design that complements the style of the home.

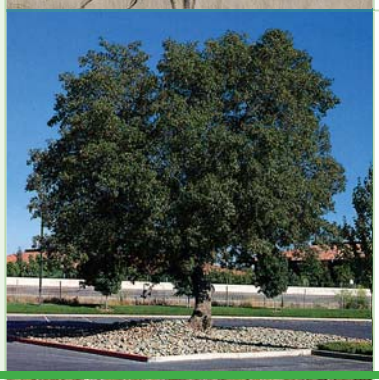
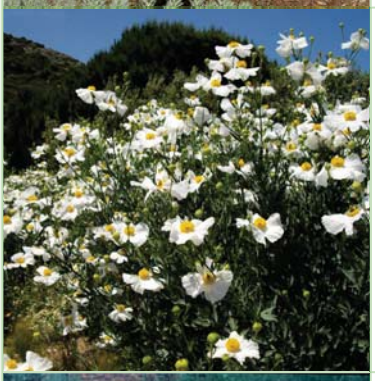
Exterior Wall Materials: Primarily wall materials should be a thoughtful composition combining various materials and may include light, earth colored stucco with a smooth hand-troweled or sand finish, horizontal wood or composition siding, brick and stone.

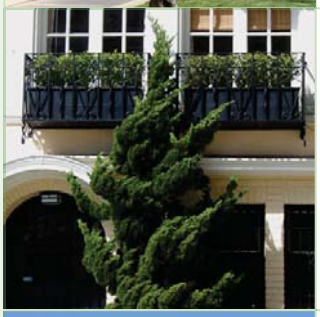
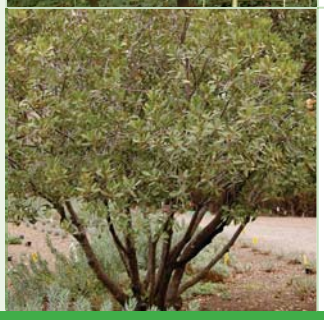
Doors and Windows: Doors and windows should be wood or clad wood. Windows should be fixed or casement and geometrically shaped and in multiply banks, groups or rows. Windows should be kept tight to the soffit.

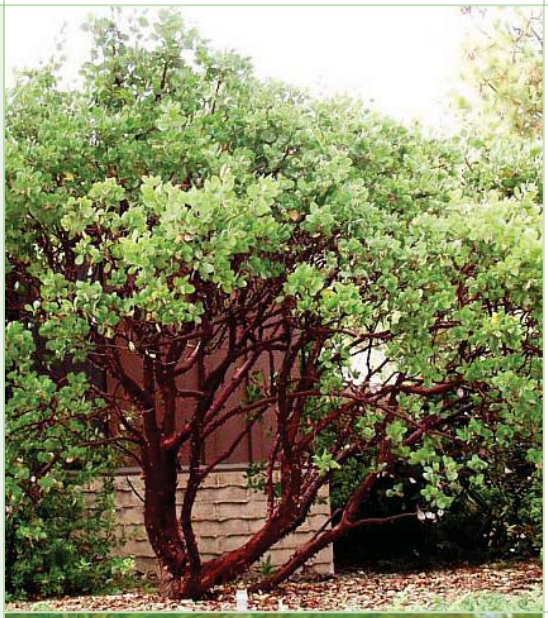
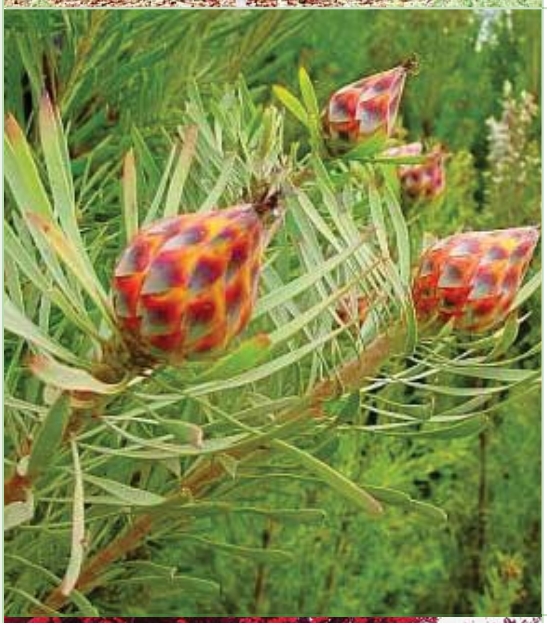
APPENDIX K

PRELIMINARY PLANT PALETTE

		NAME	CHARACTER
STREET TREES		**Italian Stone Pine** *Pinus pinea*	- Evergreen - Moderate growth rate - 40' - 80' tall - 40' - 80' wide - Deep green needles - Broad & flat topped - Very thick & full canopy - Very low water use
ENTRY PLANTINGS		**Olive Tree** *Olea europaea*	- Evergreen - Fast growing in youth, then slowing with age - 25' - 30' tall - 25' - 30' wide - Soft gray-green - Foliage with smooth gray trunks - Very low water use
		**Century Plant** *Agave americana*	- Evergreen - Moderate growth rate - 8' tall - 12' wide - Hooked spines along margins - 15' - 40' flower stalk after 10+ years - Very low water use

		NAME	CHARACTER
TREES ON SLOPE		**Sydney Golden Wattle** *Acacia longifolia*	- Evergreen - Fast growing - 10’ - 25’ tall - 9’ - 15’ wide - Bright green lance-shaped leaves 3’-6” long - Scented golden yellow flower spike in late winter + early spring - Low water use
		**Coast Live Oak** *Quercus agrifolia*	- Evergreen - Slow growth - 20’ - 70’ tall - 20’ - 70’ wide - Stiff leathery green leaves with sharp teeth - 3/4” - 1 1/2” acorns appear in fall - Smooth gray bark becomes deeply fissure with age - Very low water use
UNDERSTORY PLANTING ON SLOPE		**Toyon** *Heteromelese arbutifolia*	- Evergreen - 8’ - 15’ tall - 25’ wide - 2” - 4” dark green leathery leaves - Edged with bristled pointed teeth - Small white flowers lead to bright red berries - Low water use
		**Matilja Poppy** *Romneya coulteri*	- Perennial - 6’ - 8’ tall - Dies back in late summer - Thick stems with irregular grey-green leaves appear in late winter - 9” white flowers with yellow centers - Very low water use
		**Deer Grass** *Muhlenbergia rigens*	- Evergreen grass - 4’ tall - 4’ wide - Bright green leaves form a dense, tight clump - Low water use

		NAME	CHARACTER
SCREEN PLANTING		**Italian Stone Pine** *Pinus pinea*	- Evergreen - Moderate growth rate - 40’ - 80’ tall - 40’ - 80’ wide - Deep green needles - Broad & flat topped - Very thick & full canopy - Very low water use
		**Olive Tree** *Olea europaea*	- Evergreen - Fast growing in youth, then slowing with age - 25’ - 30’ tall - 25’ - 30’ wide - Soft gray-green - Foliage with smooth gray trunks - Very low water use
		**Hollywood Juniper** *Juniperus chinensus* ‘Torulosa’	- Evergreen - 15’ tall - 10’ wide - Irregular + upright with twisted appearance - Rich green foliage - Low water use
		**White Oleander** *Nerium oleander*	- Evergreen - Moderate to fast growth - 20’ tall - 12’ wide - Narrow dark green leaves - White flowers in late spring to fall
		**Silk Tassel** *Garrya elliptica*	- Evergreen - 5’-10’ tall - 8’-10’ wide - Dark green leathery curled leaves with wavy edges - Long hanging flower catkins extend 3”-8” long - Very low water use
		**Toyon** *Heteromelese arbutifolia*	- Evergreen - 8’ - 15’ tall - 25’ wide - 2” - 4” dark green leathery leaves - Edged with bristled pointed teeth - Small white flowers lead to bright red berries - Low water use

		NAME	CHARACTER
OPEN SPACE PLANTING		**Manzanita** *Arctostaphylos*	- Evergreen - Moderate growth rate - 8’ tall - 6’ wide - Tree-like shrubs - White or pink flowers in late winter to early spring - Cinnamon colored bark on twisted trunks - Low water use
		**Conebush** *Leucadendron sp.*	- Evergreen - Moderate growth rate - 8’ - 10’ tall - 8’ wide - Leaf color varies with species from deep green to gray green to red-tinged - Flowers vary from silvery green to pink to yello - Moderate water use
		**New Zealand Tea Tree** *Leptospermum sp.*	- Evergreen - 6’ - 10’ tall - 6’ wide - Small green leaves on fine textured limbs - Abundant tiny 1/2” flowers vary from deep pink to white in spring - Low water use