State Clearinghouse No.: 2012121071
Draft EIR (Distributed): November 27, 2013
Final EIR (Certified): _____

# Esperanza Hills
# Draft Environmental Impact Report
## Project No. PA120037


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# 1. Introduction

Pursuant to *California Public Resources Code* §21082.1, the County of Orange (County) has independently reviewed and analyzed information contained in this Draft Environmental Impact Report (DEIR) prior to its distribution as a Draft EIR. Conclusions and discussions contained herein reflect the independent judgment of the County as to those issues known at the time of publication.

## 1.1 Purpose of the DEIR

This DEIR has been prepared as a Project EIR on behalf of the County of Orange to evaluate the environmental consequences, the mitigation measures and the project alternatives associated with the proposed Esperanza Hills residential development project. The Proposed Project requires the following discretionary actions:

- General Plan Amendment to change the Land Use designation from Open Space (5) to Suburban Residential (1B) to allow for residential development
- Specific Plan adoption to replace the existing A1 (General Agriculture) and A1(O) (General Agriculture/Oil Production) zoning designations and to regulate and guide development of the property
- Approval of vesting tentative tract maps
- Potential annexation to the City of Yorba Linda
- Pre-Annexation and Municipal Services Agreement

It is intended that this DEIR be considered in the decision-making process for this project, along with other information presented on the project such as at public proceedings on the project. Pursuant to California Environmental Quality Act (CEQA) Guidelines §15200, this DEIR will serve the following purposes of review:

1. Sharing expertise,
2. Disclosing agency analyses,
3. Checking for accuracy,
4. Detecting omissions,
5. Discovering public concerns, and
6. Soliciting counter proposals.

## 1.2 Statutory Authority

This DEIR has been prepared in accordance with the CEQA statutes, as amended (*Public Resources Code* §21000, et seq.). In accordance with the CEQA Guidelines §15146, the degree of specificity required in an EIR must correspond to the actions sought to be covered by the EIR. In accordance with CEQA Guidelines §15050, the County of Orange is the Lead Agency for this DEIR.

The DEIR identifies and discusses every significant impact, mitigation measure, and project alternative with relationship to this project, using best efforts to forecast, while incorporating requests by the public and responsible agencies for consideration of specific mitigation measures and/or alternatives.

The mitigation measures included in this DEIR are designed to avoid or reduce the environmental impacts described herein. Mitigation measures are structured in accordance with §15370 of the CEQA Guidelines. This section refers to effects on the physical environment, as opposed to other types of effects (e.g. economic and social effects) that may arise as a result of this project or that may be of interest to the public and decision makers generally. Accordingly, the mitigation measures have been structured to meet the following criteria:

- Avoiding the impact altogether by not taking a certain action or parts of an action
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation
- Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action
- Compensating for the impact by replacing or providing substitute resources or environments

## 1.3 CEQA Process

CEQA requires agencies to prepare EIRs and other environmental documentation "as early as feasible in the planning process to enable environmental considerations to influence project program and design and yet late enough to provide meaningful information for environmental assessment" (CEQA Guidelines §15004(b)). The first step in this CEQA process is the preparation of an Initial Study (IS). This document, along with a Notice of Preparation (NOP), was prepared and distributed for review and comment on December 21, 2012 and is provided as Appendix A. Time limits mandated by state law required a 30-day review period. However, the comment period for the IS/NOP was extended to 42 days due to the holiday season and ended on February 1, 2013. The purpose of the NOP was to provide public information and

to elicit responses on matters to be studied in the EIR. The comment letters are included in this DEIR as Appendix B. The NOP was filed with the Orange County Clerk-Recorder, posted on the Project Site, posted on the County's website, and sent via U.S. mail to approximately 800 public agencies, adjacent residences and interested parties.

In addition, a Public Scoping Meeting was held on January 31, 2013, in the City of Yorba Linda (City) to allow local residents and interested persons an opportunity to review the Proposed Project and provide input on issues to be addressed in the EIR. At that meeting, the process for commenting on the Draft EIR was described and attendees were notified that a public meeting would be held by the County Board of Supervisors to consider the EIR.

The Scoping Meeting was attended by approximately 120 individuals, along with representatives from the City of Yorba Linda and Chino Hills State Park. Comments were solicited from the meeting attendees. Agencies, cities, and individuals expressed similar comments during the IS/NOP review and scoping meeting. A summary of the main comments provided during the scoping meeting is included in Table 1-3-1 below, along with a notation of where the issue is addressed in the DEIR.

**Table 1-3-1 Summary of Scoping Meeting Comments**

| Comment | Where Comment Is Addressed in DEIR |
|---|---|
| Insufficient access roads | Chapter 4 - Project Description; Section 5.14 - Transportation and Traffic (beginning on page 5-543); Chapter 6 -Alternatives Analysis |
| Increased traffic | Section 5.14 - Transportation and Traffic (beginning on page 5-543) |
| Aesthetics - views of hills/ridgelines | Section 5.1 - Aesthetics (beginning on page 5-1) |
| Loss of habitat for wildlife/biological resources | Section 5.3 - Biological Resources (beginning on page 5-91) |
| Construction noise | Section 5.10 - Noise (beginning on page 5-459) |
| Construction impacts to air quality | Section 5.2 - Air Quality (beginning on page 5-65) |
| Safety concerns due to wildfire potential/evacuation | Section 5.7 - Hazards and Hazardous Materials (beginning on page 5-275) |
| Change in land use from open space to residential | Section 5.9 - Land Use and Planning (beginning on page 5-395) |
| Impacts to schools, parks from additional residents | Section 5.12 - Public Services (beginning on page 5-493); Section 5.13 - Recreation (beginning on page 5-511) |
| Water pressure/availability during fires | Section 5.7 - Hazards and Hazardous Materials (beginning on page 5-275); Section 5.8, Hydrology and Water Quality (beginning on page 5-341) |
| Consistency with Yorba Linda General Plan/policies | Chapter 3 - Project History and Background; Section 5.9 - Land Use and Planning (beginning on page 5-395) |
| Future annexation to Yorba Linda | Section 5.9 - Land Use and Planning (beginning on page 5-395) |
| Danger from existing utility transmission lines | Section 5.7 - Hazards and Hazardous Materials (beginning on page 5-275) |
| Cumulative impacts from adjacent projects | Cumulative Impacts - Sections 5.1 through 5.15 |
| Gated community excludes neighboring residents | Section 5.13 - Recreation (beginning on page 5-511) |
| Protection of/connection to existing trails | Section 5.13 - Recreation (beginning on page 5-511) |
| Provision of additional trails | Section 5.13 - Recreation (beginning on page 5-511) |
| Inconsistent with ridgeline protection policies | Section 5.1 - Aesthetics (beginning on page 5-1) |

This Draft EIR will be distributed to affected agencies, surrounding cities and interested parties for a 45-day review and comment period in accordance with CEQA Guidelines §15087. Upon completion of the 45-day public review period, written responses will be prepared to all comments received on the Draft EIR during the public review period. These comments and responses, along with the Mitigation Monitoring and Reporting Program for the project, will constitute the Final EIR for the project. The Final EIR will be considered for certification by the Board of Supervisors of Orange County. In accordance with CEQA Guidelines, written responses to comments from public agencies will be made available to those agencies at least ten days prior to the public hearing with the Board of Supervisors, at which time certification of the Final EIR would be considered.

It should be noted that the environmental impacts of a project may not always be mitigated to a less than significant level. When this occurs, impacts are considered significant unavoidable impacts. If a public agency approves a project that has significant unavoidable impacts, the Lead Agency shall state in writing the specific reasons for approving the project based on the Final EIR and any other information in the public record for the project. This is termed a "Statement of Overriding Considerations" in accordance with CEQA Guidelines §15093, and is used to explain the specific reasons the benefits of the Proposed Project make its significant unavoidable impacts acceptable. The Statement of Overriding Considerations is prepared after the Final EIR has been completed, but before action to approve the project has been taken.

## 1.4 Incorporation by Reference

Certain documents are to be incorporated by reference into this EIR pursuant to CEQA Guidelines §15150. Where a document is incorporated by reference, its pertinent sections will be briefly summarized and referenced in the relevant sections in this DEIR. The following documents are among those incorporated by reference herein:

- County of Orange General Plan (2005)
- County of Orange Zoning Code (2005)
- 2010 Urban Water Management Plan, Municipal Water District of Orange County
- South Coast Air Quality Management District's "CEQA Air Quality Handbook (1993)"
- City of Yorba Linda General Plan (1993)
- Chino Hills State Park General Plan (1999)
- OCFA Fire Protection Regulations
- Orange County Fire Ready, Set, Go! Program
- Yorba Linda Water District 2010 Sewer Master Plan Update

Copies of all documents incorporated by reference are available for public review at the County of Orange, Public Works Department, 300 N. Flower Street, 1st Floor, Santa Ana, California.

## 1.5 Areas of Controversy/Issues to be Resolved

CEQA Guidelines §§15123(b)(2) and (3) require that the EIR summary identify areas of controversy known to the lead agency, issues raised by agencies and the public and issues to be resolved, including the choice among alternatives and whether or how to mitigate significant impacts.

Areas of public controversy and issues to be resolved that are known or have been called to the attention of the County during the Initial Study/NOP process are noted below. Because each issue to be resolved involves some degree of public controversy, the distinction between the area of public controversy and an issue to be resolved is not critical. Areas of public controversy raised during the scoping meeting and the IS/NOP review period are:

- Increased traffic due to additional residential development
- Noise from construction activities
- Air quality impacts from construction activities
- Greenhouse gas emissions
- Removal of vegetation and wildlife habitat
- Obstruction/loss of scenic views and ridgelines; light/glare impacts
- Increased storm water runoff
- Fire hazard/fire protection
- Inadequate water supply and water pressure for fire fighting
- Inadequate roads to accommodate emergency evacuation of new and existing development
- Landslides/unstable soils due to grading activity, geologic impacts (e.g., earthquakes – Whittier Fault)
- Impacts to public services including schools, fire/police services, recreation facilities
- Infrastructure improvements (e.g., water distribution system, sewers, utility transmission lines)
- Historic resource preservation
- Water quality/hydrology
- Wetland/stream protection
- Loss of open space/trails
- Conflicts regarding land use related to the Yorba Linda General Plan
- Impact to mineral resources, including existing oil wells on-site
- Limited (gate guarded) access to recreational amenities for the general public

- Equestrian, pedestrian, bike trail connections/linkages
- Consistency with the Chino Hills State Park General Plan
- Alternatives analysis for reduced project size, annexation to Yorba Linda
- Add additional roadway ingress/egress

It is recognized that other issues may be raised during the review and hearing process that were not and could not have been known at the time of the publication of this Draft EIR. These will be addressed to the extent required by law in the preparation of the Final EIR and in the deliberation process.

## 1.6 Disagreement among Experts

This Draft EIR contains substantial evidence to support all of the conclusions presented herein. That is not to say that there will not be disagreements with these conclusions. The CEQA Guidelines and more particularly, case law, clearly provide the standards for treating disagreement among experts. Where evidence and opinions of experts conflict on an issue concerning the environment, and the agency knows of these controversies in advance, the EIR must acknowledge the controversies, summarize the conflicting opinions of the experts, and include sufficient information to allow the public and decision-makers to take intelligent account of the environmental consequences of their action.

It is also possible that evidence will be presented during the Draft EIR review that might create disagreement. This evidence is considered by the decision-makers during the public hearing process. In rendering a decision on a project where there is disagreement among experts, the decision-makers are not obligated to select the most conservative or environmentally protective option. They may give more weight to one expert than another, and resolve a dispute among experts through the exercise of their collective good faith judgment. In their proceedings, they must consider the comments received and address objections, but need not follow said comments or objections so long as they state the basis for their decision and that decision is supported by substantial evidence.

## 1.7 Thresholds of Significance

The state does not require that local agencies adopt their own thresholds of significance. In this regard, the County relies on the state's CEQA Environmental Checklist. In addition, in some areas, the County relies on its General Plan, codes and ordinances as thresholds of significance.

## 1.8 Project Alternatives

Chapter 6, Alternatives Analysis, presents alternatives that have been designed to alleviate identified environmental impacts. These alternatives consist of the No Project Alternative, the Option 2A Alternative, the Reduced Density Alternative, and the City of Yorba Linda General Plan Alternative. Each of the alternatives has been measured against the stated objectives of the Proposed Project and in accordance with CEQA Guidelines §15126.6, the alternatives must be able to attain most of the basic objectives of the project.

The alternatives focus on approaches capable of eliminating significant environmental impacts associated with the Proposed Project including, but not limited to, air quality, aesthetics, and biological resources, or reducing them to a level of insignificance. Consistent with CEQA Guidelines §15126.6, an EIR need only address those alternatives that are actually capable of reducing or eliminating one or more significant physical environmental effects brought on by the project, as proposed. A comprehensive analysis of project alternatives, including the identification of the environmentally superior alternative, is provided in Chapter 6, Alternatives Analysis.

## 1.9 Availability of Draft EIR, Technical Appendices, and Administrative Record

The Draft EIR, Technical Appendices, and the Administrative Record for the Proposed Project are available at the County of Santa Ana, Public Works/OC Planning, 300 N. Flower Street, 1st Floor, Santa Ana, California.

This Draft EIR may be viewed on the County's website at:

http://www.ocplanning.net/CurrentProjects.aspx.

Reference copies are available for review at the Yorba Linda City Library, 18181 Imperial Highway.

# 2. Executive Summary

## 2.1 Project Location

The Proposed Project, known as Esperanza Hills, is located within unincorporated area of the County of Orange, east of San Antonio Road and north of Stonehaven Drive (Via del Agua) near the City of Yorba Linda (City). The site is north of Yorba Linda Boulevard and east of SR-90 (Imperial Highway). To the south and west lie existing residential communities previously approved and developed in the City of Yorba Linda, including Dominguez Ranch, Green Hills, Casino Ridge, Travis Ranch, and Yorba Linda Hills. The Project Site is bordered on the north and east by Chino Hills State Park. See Exhibit 2-1 - Project Vicinity Map.

## 2.2 Project Description

The Proposed Project is a residential development consisting of:

- A maximum of 340 single-family residential units on 468.9 acres of undeveloped land in unincorporated Orange County
- A maximum of 13.9 acres of active and passive parks
- 7 miles of trails (pedestrian, bicycle and equestrian) with linkages to existing trails and open space areas
- A maximum of 230 acres of open space
- Two underground water reservoirs
- Fuel modification areas
- Two estate lots
- Two options for access: 1) a primary connection going south to Stonehaven Drive, and 2) a primary connection going west from the community to Aspen Way. At this time, a final decision has not been made regarding which access option will be implemented.
- Continued oil production
- Grading of approximately 15 to 16 million cubic yards

A detailed description of the project is provided in Chapter 4, Project Description.

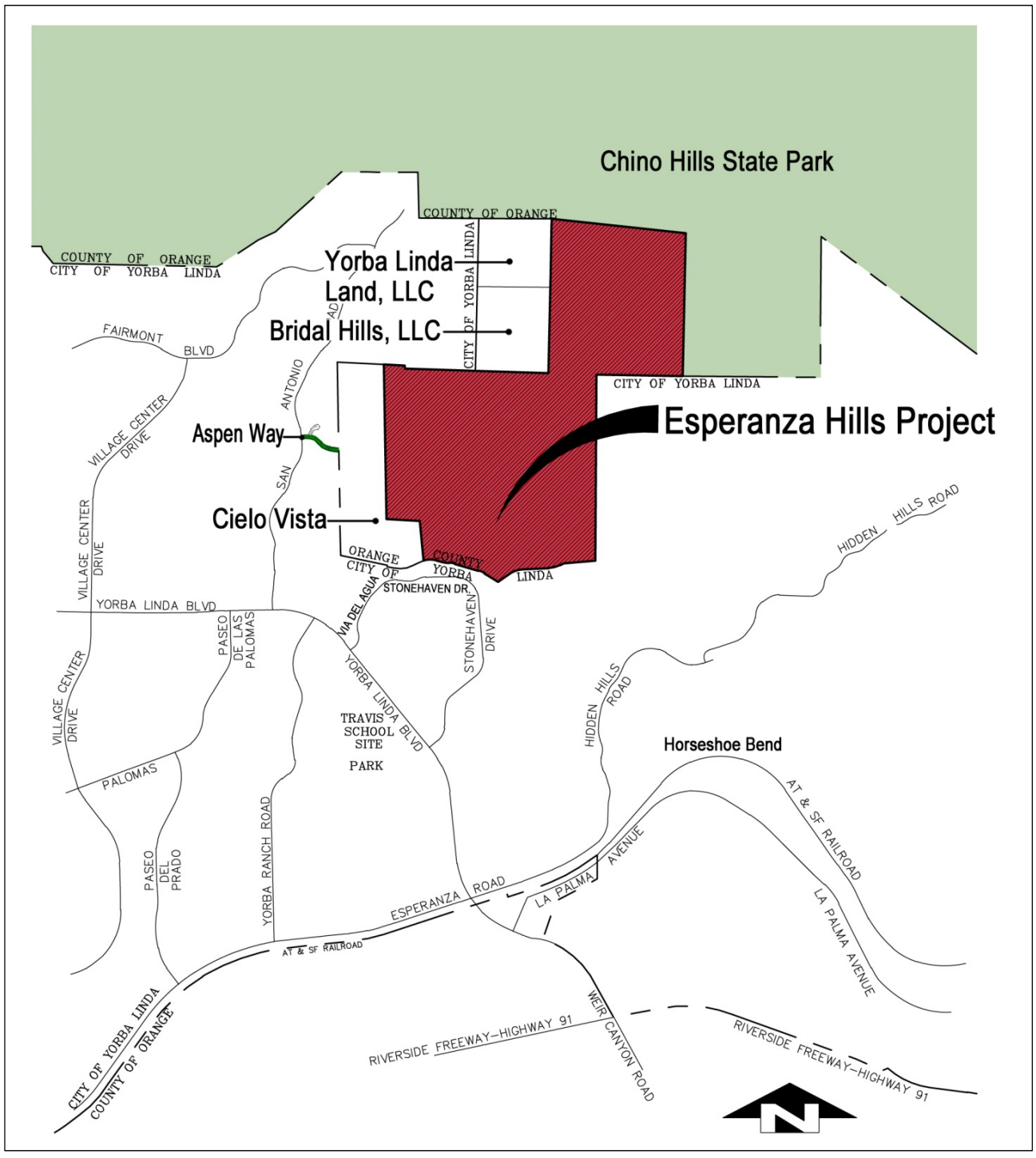


**Exhibit 2-1 - Project Vicinity Map**

## 2.3 Discretionary Actions

This Draft EIR is intended to provide complete and adequate CEQA coverage for all actions and approvals associated with ultimate development of the Proposed Project, including but not limited to:

- Certification of the Final Environmental Impact Report
- A General Plan Amendment to change the Land Use designation for the property from Open Space (5) to Suburban Residential (1B)
- Approval of a Specific Plan to replace the A1 (General Agriculture) and A1(O) (General Agriculture/Oil Production) zoning designations
- A Tentative Tract Map
- Resource Agency Permits (U.S. Army Corps of Engineers, California Department of Fish and Wildlife, Regional Water Quality Control Board)
- Anticipated possible future annexation to City of Yorba Linda
- Pre-Annexation and Municipal Services Agreement
- Subsequent development approvals consistent with the Specific Plan

## 2.4 Summary of Environmental Impacts

Chapter 5, Environmental Setting, Impacts, and Mitigation Measures provides a detailed analysis of the potential impacts of the Proposed Project related to aesthetics, air quality, biological resources, cultural resources, fire protection and evacuation, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, noise, population and housing, public services, recreation, transportation and traffic and utilities and service systems. Chapter 6, Alternatives Analysis, provides an analysis of several alternatives to the project as it is currently proposed. Chapter 7, Summary of Cumulative Impacts and Chapter 8, Growth-Inducing Impacts describe the potential for the Proposed Project to result in cumulative and growth-inducing impacts, respectively. Chapter 9, Inventory of Mitigation Measures, provides a complete list of mitigation measures proposed for the project under this Draft EIR. Chapter 10, Inventory of Unavoidable Adverse Impacts summarizes the potentially significant adverse impacts of the Proposed Project that cannot be avoided or mitigated to a level of "less than significant."

## 2.5 Matrix of Mitigation Measures

| Project Impacts | Mitigation Measures | | Level of Significance after Incorporation of Conditions of Approval and Mitigation Measures |
|---|---|---|---|
| **Aesthetics** | | | |
| The Proposed Project will permanently alter portions of the site through landform modification. The Project is designed to retain ridgelines whenever possible and includes development plan components and design features that will minimize impacts to aesthetics. Potential impacts from light and glare have been addressed with mitigation. | AE-1 | Prior to the issuance of building permits, the Project Applicant shall demonstrate that all exterior lighting has been designed and located so that all direct rays are confined to the property in a manner meeting the approval of the Manager, OC Planning, or designee. Lighting shall be designed to minimize visibility of light sources by directing lighting toward the on-site structures and not illuminating areas outside property boundaries. | With implementation of mitigation measures, impacts to aesthetics will remain less than significant. |
| **Air Quality** | | | |
| The Proposed Project, in conjunction with growth and development within the SCAB, would hinder conformance with the regional AQMP. Because the SCAB has been classified as a non-attainment air basin for compliance with the federal Clean Air Act, the Proposed Project will have an incremental impact on cumulative air quality conditions. Emissions modeling for the construction of the Proposed Project indicate that project emissions should remain below levels of significance for each of the air quality constituents for which the SCAB is currently in non-attainment. Mitigation Measures AQ-1, AQ-2, and AQ-3 are proposed to reduce potential construction-related impacts. No long-term operational impacts will occur with Project implementation. | AQ-1 | During construction, the Project Applicant shall ensure the use of enhanced control measures for diesel exhaust emissions to maintain NOX impacts at a less than significant level. These measures shall include:<br>• Utilize well-tuned off-road construction equipment<br>• During grading, require that contractors use Tier 3 on all heavy equipment (excavators, graders, and scrapers exceeding 100 HP rated power) if the entire project is graded at one time for NOX emissions, unless use of such mitigation is demonstrated to be technically infeasible for a given piece of equipment<br>• During grading, require that contractors employ oxidation catalysts during grading for excavation graders and scrapers exceeding 100 HP rated power if the entire project is graded at one time, unless use of such mitigation is demonstrated to be technically infeasible for a given piece of equipment.<br>• Enforce 5-minute idling limits for on-road trucks and off-road equipment | Mitigation requiring diesel emissions control measures will reduce impacts due to use of heavy equipment to a less than significant level. |
| | AQ-2 | During construction, the Project Applicant shall ensure that standard construction practices as set forth in the SCAQMD Handbook shall be implemented. | Adherence to SCAQMD construction practices will reduce potential impacts to a less than significant level. |

| Project Impacts | Mitigation Measures | | Level of Significance after Incorporation of Conditions of Approval and Mitigation Measures |
|---|---|---|---|
| | AQ-3 | During construction, the Project Applicant shall ensure that best management practices for dust control are implemented. These include:<br>• Apply soil stabilizers or moisten areas that are inactive for 96 hours or more.<br>• Prepare a high wind dust control plan<br>• Address previously disturbed areas if subsequent construction is delayed more than 96 hours<br>• Water exposed surfaces as needed to avoid visible dust leaving the construction site (typically three times per day)<br>• Wet down or cover all stockpiles with tarps at the end of each day or as needed<br>• Provide water spray during loading and unloading of earthen materials<br>• Minimize in-out traffic from construction zone<br>• Cover all trucks hauling dirt, sand or loose material or require all trucks to maintain at least two feet of freeboard<br>• Sweep streets daily if visible soil material is carried out from the construction site<br>• Use perimeter sandbags and wind fences for erosion control | Best Management Practices will reduce impacts related to dust control to a less than significant level. |
| **Biological Resources** | | | |
| The Proposed Project has the potential to result in impacts to walnut woodland and blue elderberry woodland in Blue Mud Canyon. | Bio-1 | Prior to the issuance of grading permits, the Project Applicant shall prepare a re-vegetation plan for mulefat scrub, black willow riparian forest, and blue elderberry woodland located within Blue Mud Canyon. The plan will also incorporate California black walnut into the plant palette to mitigate the loss of 0.48 or 0.22 acre of walnut woodland associated with Options 1 and Option 2, respectively. The plan shall be prepared by a qualified biologist for review and approval by the Manager of OC Planning. At a minimum, the plan shall include restoration of mulefat scrub and black willow riparian forest vegetation that also includes a black walnut component. The plan shall include replacement of habitat at a minimum a ratio of 1:1; responsibility and qualifications of the personnel to implement and supervise the plan; site selection; site preparation and planting implementation; schedule; maintenance plan/guidelines; monitoring plan; and long-term preservation. | With implementation of Mitigation Measure Bio-1, impacts to walnut woodland and blue elderberry woodland will be less than significant. |
| The Proposed Project has the potential to result in impacts to the intermediate mariposa lily. | Bio-2 | Prior to the issuance of grading permits, a detailed restoration program shall be prepared by a qualified biologist for approval by the County of Orange. The program shall provide for planting of 326 greenhouse-propagated individuals of intermediate mariposa lily in the Study Area within an undisturbed area of coastal sage scrub. This mitigation program will be considered successful if at least 80% of 326 flowering individuals, or 261 flowering individuals, are observed five years after planting. If success criteria are not met after five years, remedial measures shall include greenhouse propagation and planting of additional individuals on the Project Site. | With implementation of Mitigation Measure Bio-2, impacts to the intermediate mariposa lily will be less than significant. |
| The Proposed Project has the potential to result in impacts to Braunton's milk-vetch. | Bio-3 | Prior to the issuance of grading permits, a detailed restoration program shall be prepared by a qualified biologist for approval by the County of Orange. The program shall provide for planting of 400 greenhouse-propagated individuals of Braunton's milk-vetch in the Study Area within an undisturbed area of suitable habitat and soils, slope and exposure. This mitigation program will be considered successful if at least | With implementation of Mitigation Measure Bio-3, impacts to Braunton's milk-vetch will be less than significant. |

| Project Impacts | Mitigation Measures | Level of Significance after Incorporation of Conditions of Approval and Mitigation Measures |
|---|---|---|
| | 80% of 400 individuals, or 320 individuals, flower and set seed prior to senescence. If success criteria are not met prior to senescence of the planted individuals, remedial measures shall include greenhouse propagation and planting of additional individuals on the Project Site. | |
| The Proposed Project has the potential to impact vegetation occupied by least Bell's vireo, a state and federally listed endangered species. | Bio-4 Prior to the issuance of grading permits, the Project Applicant shall prepare a re-vegetation plan for mulefat scrub and black willow riparian forest located within Blue Mud Canyon. The plan will also incorporate California black walnut into the plant palette to mitigate the loss of walnut woodland as described in Mitigation Measure Bio-1. The plan shall be prepared by a qualified biologist for review and approval by the Manager of OC Planning. At a minimum, the plan shall include: restoration of mulefat scrub and black willow riparian forest vegetation at a ratio of 1:1; responsibility and qualifications of the personnel to implement and supervise the plan; site selection; site preparation and planting implementation; schedule; maintenance plan/guidelines; monitoring plan; and long-term preservation. | With implementation of Mitigation Measures Bio-4, Bio-5, and Bio-6, there would be a net increase of riparian habitat suitable for least Bell's vireo, and impacts would be less than significant. |
| | Bio-5 Prior to the issuance of grading permits, the Project Applicant shall include the following measures on the grading plan to be implemented with grading operations:<br>1. Prior to the commencement of clearing operations or other activities involving significant soil disturbance, all areas of mulefat scrub and black willow riparian forest habitat to be avoided shall be identified with temporary fencing or other markers that are clearly visible to construction personnel.<br>2. A USFWS-approved Biological Monitor shall be on-site during any clearing of mulefat scrub and black willow riparian forest. The Project Applicant shall advise the U.S. Fish & Wildlife Service at least 7 calendar days – but preferably 14 calendar days – prior to the clearing of mulefat scrub and black willow riparian forest. The Biological Monitor shall flush avian or other mobile species from habitat areas immediately prior to brush-clearing and earth-moving activities. It shall be the responsibility of the monitoring biologist to ensure that identified bird species are not directly impacted by brush-clearing and earth-moving equipment in a manner that also allows for construction activities to continue on a timely basis.<br>3. Following the completion of initial clearing activities, all areas of mulefat scrub and black willow riparian forest habitat to be avoided by construction equipment and personnel shall be marked with temporary fencing or other clearly visible, appropriate markers. No construction access, parking, or storage of equipment shall be permitted within such marked areas. | |
| | Bio-6 Prior to the issuance of grading permits, the Project Applicant shall prepare a Restoration Plan for mulefat scrub, black willow riparian forest, coast live oak riparian woodland, and other appropriate wetland/riparian habitats at an acreage ratio of 1:1 to be located within Blue Mud Canyon. The plan shall be prepared by a qualified biologist for review and approval by the Manager of OC Planning. The Restoration Plan shall include the following:<br>1. Impacts to living coast live oak trees within CDFW jurisdiction will be mitigated through planting liners or locally collected acorns within Blue Mud Canyon at the following ratios:<br>• For healthy trees to be removed for development:<br>• trees less than 5 inches diameter at breast height (DBH) should be replaced at 3:1 | |

| Project Impacts | Mitigation Measures | Level of Significance after Incorporation of Conditions of Approval and Mitigation Measures |
|---|---|---|
| | • trees between 5 and 12 inches DBH should be replaced at 5:1<br>• trees between 12 and 36 inches DBH should be replaced at 10:1<br>• trees greater than 36 inches DBH should be replaced at 20:1<br>• For damaged trees (including trees damaged by construction and fire damaged trees to be removed for development):<br>• trees less than 12 inches DBH should be replaced at 3:1<br>• trees greater than 12 inches DBH should be replaced at 5:1<br>• Impacts to trees that were killed by the 2008 Freeway Complex Fire do not require mitigation.<br>2. The sizes, condition, and total number of impacted trees will be determined after verification of the limits of CDFW jurisdiction and prior to issuance of any permit that results in ground disturbance. | |
| The Proposed Project will result in the fill of drainages within ACOE, CDFW, and RWQCB jurisdictions. | Bio-7 Prior to the issuance of grading permits, the Project Applicant shall prepare a Habitat Mitigation and Monitoring Program (HMMP). The HMMP shall be prepared by a qualified biologist for review and approval by the Manager of OC Planning. The HMMP shall include responsibility and qualifications of the personnel to implement and supervise the plan; site selection; site preparation and planting implementation; schedule; maintenance plan/guidelines; monitoring plan; and long-term preservation.<br>The Project Applicant shall be fully responsible for the implementation of the Habitat Mitigation and Monitoring Program until the restoration areas have met the success criteria outlined in the approved plan. The Manager of OC Planning shall have final authority over mitigation area sign-off. | Implementation of Mitigation Measures Bio-7 and Bio-8 will ensure that impacts to these jurisdictions will be reduced to less than significant. |
| | Bio-8 Prior to the issuance of any grading permit the Project Applicant shall include the following measures on the grading plan to be implemented with grading operations:<br>1. Prior to the commencement of clearing operations or other activities involving significant soil disturbance, all areas of ACOE and CDFW jurisdiction to be avoided shall be identified with temporary fencing or other markers that are clearly visible to construction personnel.<br>2. A USFWS-approved Biological Monitor shall be on-site during any clearing of riparian vegetation. The Project Applicant shall advise the US Fish & Wildlife Service at least 7 calendar days – but preferably 14 calendar days – prior to the clearing of riparian vegetation. The Biological Monitor shall flush avian or other mobile species from habitat areas immediately prior to brush-clearing and earth-moving activities. It shall be the responsibility of the monitoring biologist to ensure that identified bird species are not directly impacted by brush-clearing and earth-moving equipment in a manner that also allows for construction activities to continue on a timely basis.<br>3. Following the completion of initial clearing activities, all areas of ACOE and CDFW jurisdiction to be avoided by construction equipment and personnel shall be marked with temporary fencing or other clearly visible, appropriate markers. No construction access, parking, or storage of equipment shall be permitted within such marked areas. | |

| Project Impacts | Mitigation Measures | Level of Significance after Incorporation of Conditions of Approval and Mitigation Measures |
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| Removal of vegetation during grading has the potential to impact nesting birds. | Bio-9 Prior to the issuance of grading permits, the Project Applicant shall include the following condition on the grading plan for implementation during vegetation removal operations:<br>No vegetation removal shall occur between the dates of March 15 to August 31, unless a qualified biologist surveys the Project's impact area prior to disturbance to confirm the absence of active nests. If an active nest is discovered, vegetation removal within a particular buffer surrounding the nest shall be prohibited until nesting is complete; the buffer distance shall be determined by a qualified biologist (in consultation with the CDFW or the USFWS, if applicable) and in consideration of species sensitivity and existing nest site conditions. Limits of avoidance, which can be up to 300 feet for nesting raptors, shall be demarcated with flagging or fencing. The Biologist shall record the results of the recommended protective measures described above and shall submit a memo summarizing any nest avoidance measures to the Manager of OC Planning to document compliance with applicable state and federal laws pertaining to the protection of native birds, including nesting raptors. | Implementation of Mitigation Measure Bio-9 will reduce impacts to nesting birds to a less than significant level. |
| Construction of 340 residential units on undeveloped land will introduce residents to an area supporting sensitive vegetation and wildlife. Resident awareness is required to educate people about the unintended consequences to plants and wildlife. | Bio-10 Prior to the issuance of building permits, the Project Applicant shall prepare a resident Environmental Awareness Program to be reviewed and approved by the Manager of OC Planning. The Environmental Awareness Program is intended to increase awareness to residents of the sensitive plants, wildlife, and associated habitats that occur in the preserved open space areas. The intention of the program shall be to encourage active conservation efforts among the residents to help conserve the habitats in the preserved open space. The program shall address inadvertent impacts from the introduction of invasive plant species (including escapees), human intrusion, trash and debris, creation of ad hoc trails, domestic cats, and light pollution. At a minimum, the Environmental Awareness Program shall include the following components:<br>• Informational kiosks shall be constructed at entrance points to hiking and equestrian trails and at various locations along the fence line that separates the Project Site and the open space area to inform residents and trail users on the sensitive flora and fauna that rely on the habitats found within the preserved open space. The intent of these kiosks is to bring awareness to the sensitive plants, wildlife and associated habitats which occur in the area along with discouraging creation of ad hoc trails and trash and debris.<br>• The Project Applicant shall provide residents or the HOA for nearby subdivisions (if applicable) with a brochure that includes a list of plant species to avoid in residential landscaping to prevent the introduction of invasive plant species and impacts from human intrusion, light pollution and domestic cats to the surrounding natural communities. | The education of residents regarding sensitive plants and wildlife on the site will reduce impacts to less than significant with incorporation of Mitigation Measure Bio-10. |
| Least Bell's vireo is a state and federally listed endangered species. Riparian vegetation occupied by least Bell's vireo could be subject to impacts due to project grading and construction. | Bio-11 Prior to the issuance of grading permits the Project Applicant shall include the following measures on the grading plan to be implemented with grading operations:<br>• No clearing, grubbing, grading, or other construction activities shall occur within and in the vicinity of riparian habitat occupied by least Bell's vireo between March 15 and September 15, the breeding season of the least Bell's vireo, until the following requirements have been met:<br>1. A qualified biologist shall survey riparian areas that would potentially be subject to construction | Protection of least Bell's vireo during nesting season through restrictions on grading activities and noise will reduce impacts to less than significant. |

| Project Impacts | Mitigation Measures | Level of Significance after Incorporation of Conditions of Approval and Mitigation Measures |
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| | noise levels exceeding 60 decibels [dB(A)] hourly average for the presence of least Bell's vireo. Surveys for this species shall be conducted pursuant to the protocol survey guidelines established by the U.S. Fish & Wildlife Service within the breeding season prior to the commencement of construction. If the least Bell's vireo is present, then the following conditions must be met:<br>a. Between March 15 and September 15, no clearing, grubbing, or grading of occupied least Bell's vireo habitat shall be permitted. Areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist;<br>b. Between March 15 and September 15, no construction activities shall occur within any portion of the site where construction activities would result in noise levels exceeding 60 dB(A) hourly average at the edge of occupied least Bell's vireo habitat. An analysis showing that noise generated by construction activities would not exceed 60 dB(A) hourly average at the edge of occupied habitat must be completed by a qualified acoustician and/or qualified biologist (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) and approved by the U.S. Fish & Wildlife Service at least two weeks prior to the commencement of construction activities. Prior to the commencement of any construction activities during the breeding season, areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist;<br>c. If it is desired to conduct construction activities adjacent to habitat determined to be occupied by least Bell's vireo during pre-construction surveys, then at least two weeks prior to the commencement of construction activities, under the direction of a qualified acoustician and/or qualified biologist, noise attenuation measures (e.g., berms, walls) shall be implemented to ensure that noise levels resulting from construction activities will not exceed 60 dB(A) hourly average at the edge of habitat occupied by the least Bell's vireo. Concurrent with the commencement of construction activities and the construction of necessary noise attenuation facilities, noise monitoring shall be conducted at the edge of occupied area to ensure that noise levels do not exceed 60 dB(A) hourly average. If the noise attenuation techniques implemented are determined to be inadequate by the qualified acoustician and/or biologist, then the associated construction activities shall cease until such time that adequate noise attenuation is achieved or until the end of the breeding season (September 16).<br>Construction noise shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB(A) hourly average or to the ambient noise level of it already exceeds 60 dB(A) hourly average. If not, other measures shall be implemented in consultation with the biologist as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.] | |

| Project Impacts | Mitigation Measures | | Level of Significance after Incorporation of Conditions of Approval and Mitigation Measures |
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| | | 2. If least Bell's vireos are not detected during the protocol survey, the qualified biologist shall submit substantial evidence to the U.S. Fish & Wildlife Service that demonstrates whether or not mitigation measures such as noise walls are necessary between March 15 and September 15 as follows:<br>• If this evidence indicates the potential is high for least Bell's vireo to be present based on historical records or site conditions, then condition 1.c shall be adhered to as specified above.<br>• If this evidence concludes that no impacts to this species are anticipated, no further surveys or monitoring would be necessary. | |
| **Cultural Resources** | | | |
| No evidence of archaeological resources or human burial was discovered on the Project Site. However, the Proposed Project has the potential to disturb undiscovered archeological resources. | CR-1 | Prior to the issuance of any grading permit, a grading note shall be added to the grading plan that states: "If any unanticipated cultural resources, including human remains, are discovered during ground-disturbing activities; work in that location shall be temporarily diverted a minimum of 25 feet away until a County qualified archaeologist can evaluate the find. Recommendations by the archaeologist and as approved by the County of Orange Planning Manager shall be complied with for any further ground-disturbing work." | With implementation of Mitigation Measure CR-1, impacts to archaeological resources or human remains will be less than significant. |
| No paleontological resources have been previously documented within a one-mile radius. However, the Project has the potential to uncover such resources during construction. | CR-2 | Prior to the issuance of any grading permit, the Project Applicant shall prepare and submit to the Manager, OC Planning for review and approval a Paleontological Resources Mitigation Plan as detailed in the "Archaeological and Paleontological Resources Assessment Update" for the Esperanza Hills Project, dated January 2013, prepared by Cogstone. The Paleontological Resources Mitigation Plan shall include the following: 1) paleontological resources awareness training for all earthmoving personnel, 2) monitoring of excavations more than five feet below the current surface (not for shallow excavations), 3) adjustments by the principal paleontologist to monitoring requirements based on fossil yield, depth and location of impact, and 4) recovery and curation of fossils meeting the significance criteria established in the Paleontological Resources Mitigation Plan. | To ensure that no paleontological resources are impacted by the proposed development, Mitigation Measure CR-2 has been included here. Impacts will be reduced to less than significant. |
| **Geology and Soils** | | | |
| Design slopes steeper than 2:1 will not satisfy minimum grading code requirements and are likely to possess a slope stability hazard. | Geo-1 | Prior to issuance of building permits, the Project Applicant and the County hall ensure that geologic conditions underlying design slopes and those to remain natural in areas adjacent to the development perimeter shall be investigated and analyzed for gross stability in accordance with current geotechnical engineering practice. Investigation shall include areas where larger landslides are suspected to exist, mainly in natural slope areas bordering the development, including analysis of distribution and dimension regarding conditions of gross stability. | With implementation of Mitigation Measures Geo-1, Geo-2, and Geo-3, impacts due to slope stability will be less than significant. |

| Project Impacts | Mitigation Measures | Level of Significance after Incorporation of Conditions of Approval and Mitigation Measures |
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| | Geo-2 During grading, the Project Applicant and the County shall ensure that unstable areas be avoided or that design slopes determined to be grossly unstable be stabilized by construction of buttresses or stabilization fills, flattening gradients, lowering overall heights, improving stability through use of tie-back/grade-beam systems, use of geogrid, use of cement-treated-soil or similar supplemental stabilization measures or combinations of these methods. | |
| | Geo-3 During grading, the Project Applicant shall ensure that zones of weathered bedrock be removed from back cuts and/or areas upon which new fill is to be placed. | |
| There is a potential for primary fault rupture in areas where active strands of the Whittier Fault are present. Project access could follow the principal trace of the Whittier Fault, depending on the access option approved. | Geo-4 Prior to issuance of building permits, the Project Applicant shall ensure that construction across the trace of active faults and/or outside the limits of the setback zone will be avoided to the maximum extent practicable, and no residential lots are designed within the setback zone established for the Whittier Fault. Where access roads, retaining walls, bridge structures or structural fills are planned within the setback zone, the direction and magnitude of anticipated fault offset and severity of anticipated ground shaking shall be incorporated into the design. | No habitable structures are proposed inside the limits of the Earthquake Fault Zones. Mitigation Measures Geo-4 through Geo-7 will ensure that impacts related to fault rupture will be less than significant. |
| | Geo-5 Prior to issuance of building permits, the Project Applicant shall ensure that the design for improvements that cross the Whittier Fault should be minimal, and the trend in which crossings are made should be oriented as nearly perpendicular (20 degrees east of north) to the trend of the fault as possible. The prefabricated bridge structure spanning Blue Mud Canyon under Option 1 shall be positioned and designed to accommodate expected fault offset. The Project Applicant shall consider use of alternative geotechnical engineering technologies to minimize impacts to structures constructed above active fault strands. These may include the incorporation of geo-fabric materials into fill bodies to add to fill strength and/or select placement of gravel blankets within subgrade areas to diffuse shear forces relating to ground rupture. | |
| | Geo-6 Prior to issuance of building permits, the Project Applicant shall ensure that utility lines located in or near the Whittier Fault incorporate flexible joints into their design, to accommodate anticipated ground rupture in a right-lateral strike-slip sense. | |
| | Geo-7 Prior to issuance of building permits, the Project Applicant shall verify that the existing seismic setback zone margins are appropriate for encountered geologic conditions and, where changes are warranted, evaluate any impacts to design plan elements and assure any revisions to the margins are depicted on final plan sets. | |

| Project Impacts | Mitigation Measures | Level of Significance after Incorporation of Conditions of Approval and Mitigation Measures |
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| Without proper design, retaining walls with significant wall/slope heights may not meet minimum factors of safety for gross stability. | Geo-8 Prior to issuance of building permits, the County shall ensure that the Project Applicant has provided geotechnical investigations and engineering analyses to evaluate retaining wall design and stability, establish foundation design recommendations and determine conditions of gross and surficial stability of overall wall/slope combinations. In surficially unstable slopes where no remedial grading is permitted, wall foundations shall be strengthened to accommodate a potential loss of lateral support. Where natural slopes are grossly unstable, possibly due to the presence of a larger landslide, the slope shall be stabilized or buttressed through grading methods. Where grading is not permitted, structural stabilization shall be accomplished through the design of retaining walls and/or soldier pile walls, tie backs, or some combination of both. | Mitigation Measure Geo-8 will ensure that analyses and design recommendations for gross stability of retaining walls are performed and incorporated into the Project, reducing potential impacts to less than significant. |
| Surficial slope failures can occur within natural slopes abutting the development or within finished graded slopes. | Geo-9 Prior to issuance of building permits, the Project Applicant shall ensure that natural slope areas adjacent to development are analyzed for stability and estimated volumes of failure material determined. Setback zones or design of a bench in the upper slopes shall be employed to reduce the potential for failures to migrate into graded areas. Areas of rock creep influence shall require use of tie-backs and structural sheets to prevent this occurrence. | In order to reduce the potential for slope failure, Mitigation Measures Geo-9 and Geo-10 have been incorporated. Implementation of mitigation will reduce impacts to less than significant. |
| | Geo-10 Prior to issuance of building and grading permits, the Project Applicant shall ensure that the following methods are incorporated into the design to prevent slope failure:<br>• Where daylight fill lots lie adjacent to ascending natural slopes, building pad elevations shall be raised, and toe-of-slope catchment troughs have been designed into which the failure materials can accumulate. These areas should be designated as “common areas” and maintained by homeowners associations.<br>• In areas where a more significant volume of debris is expected, such as an area situated within the path of adjacent natural drainage swales, impact or deflection walls shall be installed.<br>• Use of design stabilization fills, which are typically the width of standard grading equipment, shall be used for surficially unstable cut or fill slopes. | |
| The Whittier Fault, which crosses the southerly portion of the Project site, could result in severe ground shaking from an earthquake. | Geo-11 During the conceptual design phase, the Project Applicant and the County shall ensure that no lots are designed with habitable structures within the fault hazard setback zone as determined in the Fault Study, and no building permits shall be applied for or granted for any habitable structures within the hazard fault setback zone in the future. Asymmetrical floor plans shall be avoided, because these kinds of buildings tend to twist in addition to shaking laterally. | Design of buildings in accordance with the current Uniform Building Code and observing fault hazard setback zones along with implementation of Mitigation Measure Geo-11 will reduce impacts to less than significant. |
| Design fills, including Canyon A and Canyon B, can be expected to settle under their own weight resulting in potential damage to design elements. | Geo-12 Prior to issuance of building permits, the Project Applicant shall demonstrate to the County that deep fills have undergone a cycle of “primary” settlement sufficient to allow safe construction. The Project Applicant may opt to employ supplemental geotechnical measures to minimize anticipated settlement time. Such measures could include vertical wick-drain installation, use of higher fill compaction standards, use of granular fill zones prone to less settlement, and/or placement of surcharge fills. | Implementation of Mitigation Measure Geo-12 will minimize potential impacts from deep fill settlement. |

| Project Impacts | Mitigation Measures | Level of Significance after Incorporation of Conditions of Approval and Mitigation Measures |
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| Differential fill settlement can occur where cut/fill boundaries exist between steep natural canyon removals and areas of mass cut. This impact is considered significant due to potential damage to conceptual design elements. | Geo-13 During construction, Project Applicant and the County shall ensure that appropriate conventional engineering measures are implemented to reduce impacts of excessive differential settlement in cut/fill transition areas as determined by the County building official. These measures can include a flattening of removal profiles to 2:1 or shallower, deepening over-excavation of building pads within zones of expected impacts, use of higher compaction standards, limiting construction of certain improvements within structural setback zones or construction of stiffened foundation systems including post-tension foundations caisson walls or mat slabs as determined feasible and appropriate. | Mitigation Measure Geo-13 will minimize the potential impact due to steep cut/fill transitions. |
| Compressible soils have the potential to pose a significant impact in development boundary areas where their removal is necessary to achieve lateral support for proposed fill slopes or daylight cut lots. | Geo-14 During grading, the Project Applicant and the County shall ensure that removal and re-compaction of compressible native soils shall be performed in areas of proposed structural fills to minimize settlement of new fill and/or prevent loss of lateral support. The limits of removals shall extend beyond conceptual plan boundaries and potentially beyond the limits of grading into areas to remain natural. Where no removals are permitted beyond the boundaries of design, engineered structures shall be installed such as pin piles to achieve proper slope stability. | Mitigation Measure Geo-14 is included to reduce potential impacts to less than significant related to new fill settlement and/or loss of lateral support. |
| Corrosive soils have the potential to weaken concrete and steel. | Geo-15 Prior to issuance of building permits, the County shall verify that testing has been conducted to evaluate the chemical character of fill soils. Results of such testing shall be used to formulate appropriate foundation design criteria to reduce the adverse effects of corrosive soils. | Mitigation Measure Geo-15 requires testing of soils to determine if they are corrosive. Implementation of this mitigation measure will reduce the impacts to a less than significant. |
| Expansive soils, when subjected to moisture, tend to swell and can transfer significant upward forces into overlying earth materials. | Geo-16 Prior to issuance of building permits, the County shall ensure that the Project Applicant has provided geotechnical studies to evaluate the occurrence and character of expansive clay soil on the Project Site. Based on the results of the studies, criteria for foundation design shall be formulated to reduce adverse effects such as selective grading methods including placement of adverse clay soils in deeper fill areas, or non-structural fill areas, and/or increasing the vertical distance between in-situ clayey bedrock and design structures through building pad over-excavation. Post grading studies and testing shall be conducted on finished building pads to verify the adequacy of foundation design. | Implementation of Mitigation Measure Geo-16 will reduce potential impacts of expansive soils to less than significant. |
| The potential for liquefaction could be significant within Canyon A and Canyon B where grading of roadway fill is proposed to support the access road for Option 2. | Geo-17 Prior to grading, the County shall ensure that the Project Applicant has conducted geotechnical investigations of recent alluvium deposits to evaluate the potential for liquefaction. Findings of such investigations shall be incorporated into the design of structures proposed in areas where there is a potential for liquefaction to occur. | Mitigation Measure Geo-17 is included to reduce potential impacts from liquefaction to less than significant. |
| Implementation of the conceptual design will increase the amount of subsurface groundwater related to landscape irrigation activities. | Geo-18 Prior to construction, the Project Applicant shall ensure that a network of subdrains and back-drains shall be installed in areas of expected groundwater or active seepage. | Implementation of Mitigation Measure Geo-18 will reduce potential impacts due to groundwater to a less than significant level. |

| Project Impacts | Mitigation Measures | Level of Significance after Incorporation of Conditions of Approval and Mitigation Measures |
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| Existing infrastructure including natural gas pipelines and electrical transmission lines/towers could be impacted during grading operations. | Geo-19 Prior to issuance of building permits, the County shall ensure that the Project Applicant has conducted geotechnical investigations and engineering analyses in areas where proposed roadways cross existing natural gas pipelines or transmission towers exist adjacent to proposed cut slopes and designed roadway crossings to avoid or minimize damage to these facilities. | Mitigation Measures Geo-19 requires analysis in areas where existing utilities could be impacted. Implementation of this mitigation will reduce impacts to less than significant. |
| **Greenhouse Gas Emissions** | | |
| Use of wood burning fireplaces will increase the level of greenhouse gas emissions | GHG-1 Prior to issuance of building permits for residential units, the County shall ensure that all fireplaces are gas rather than wood burning. | Elimination of wood-burning fireplaces will reduce impacts to less than significant. |
| Short-term construction and long-term operation impacts from greenhouse gas emissions will be significant. Reductions in emissions can be achieved with the implementation of mitigation strategies developed by the California Air Pollution Control Officers Association. | GHG-2 Prior to construction of project, the developer shall implement or develop a plan for implementation of one or more mitigation strategies for the reduction of greenhouse gas (GHG) emissions from the report "CEQA and Climate Change" prepared by the California Air Pollution Control Officers Association (CAPCOA) as updated in 2010. The total benefit of the mitigation strategies must result in a minimum 5% reduction in GHG emissions from the business-as-usual value. Alternative strategies not listed in the CAPCOA report may be used with approval of the Orange County Planning Director. The selected strategies, including measures for their long-term maintenance, must be described in a memo submitted to and approved by the County Planning Department prior to initial occupancy of any on-site facility. | Greenhouse gas emissions will remain significant and unavoidable. However, implementation of Mitigation Measures GHG-2 will reduce emissions to the level feasible. |
| **Hazards and Hazardous Materials** | | |
| The Project Site contains active and abandoned wells within the Project's southerly boundary area. The wells have the potential of releasing methane gas that would impact surrounding areas. | Haz-1 Prior to the issuance of building permits the Project Applicant shall provide a Combustible Gas/Methane Assessment Study for review and approval by the OCFA. The Project Applicant shall submit and obtain OCFA approval for a Methane Control Plan to control the release of combustible gas/methane from operation oil wells in the event that measurable quantity of methane gas is identified in the Combustible Gas/Methane Assessment Study. | With implementation of Mitigation Measure Haz-1, impacts related to potential release of methane gas will be less than significant. |
| Oil well operations have the potential of releasing hazardous contaminants that can impact surround soils and groundwater. | Haz-2 Prior to the issuance of grading permits the Project Applicant shall ensure that a Phase II ESA is prepared for review and approval by the Manager of OC Planning. The Phase II ESA shall identify the abandoned well locations, and any hidden pits or accumulations of drilling mud in the vicinity of the wells. The assessment shall include a review of available well logs and abandonment documentation in order to verify regulatory compliance of previously abandoned wells. In the event pits are encountered during the Phase II ESA investigation or during grading, the pits will be sampled for hazardous substances and will be disposed of at a certified hazardous waste facility. | Implementation of Mitigation Measure Haz-2 will ensure regulatory compliance for analysis of hazards related to abandoned wells, reducing impacts to less than significant. |
| Oil wells that have been abandoned must comply with regulations for the closure of wells. | Haz-3 Prior to the issuance of grading permits, the Project Applicant shall ensure that an RAP is prepared for the previously abandoned oil wells to address the appropriate measures consistent with state law. | Implementation of Mitigation Measures Haz-3 and Haz-4 will |

| Project Impacts | Mitigation Measures | Level of Significance after Incorporation of Conditions of Approval and Mitigation Measures |
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| | Haz-4 Prior to the closure of any existing oil wells, the Project Applicant shall ensure that the operators of the oil wells prepare an RAP to address appropriate measures for closure consistent with state law. | ensure that impacts related to closed and abandoned wells are less than significant. |
| The Project Site is within a Severe Fire Hazard Zone requiring coordination with OCFA for emergency evacuation and fire-fighting plans. | Haz-5 Prior to the issuance of any grading permit that results in the disturbance of any vegetation, the Project Applicant shall submit a Fire Master Plan for review and approval by the OCFA. The Fire Master Plan shall be based on the Esperanza Hills FPEP and shall contain details regarding evacuation roads, including road surface type, firefighting staging areas, emergency secondary access, turning radii, vegetation clearance buffers along roadways, exits, and locations of hydrants and reservoir. | Mitigation Measures Haz-5 and Haz-6 require evacuation, emergency access and firefighting plans and will reduce impacts to less than significant. |
| | Haz-6 Prior to the issuance of any occupancy permit, the Project Applicant shall submit a Community Evacuation Plan (CEP) for the Project for review by the OCFA and the OCSD and approved by the OCFA. The CEP will incorporate the information on community plans from the Orange County Office of Emergency Services and the San Diego Office of Emergency Services. The Esperanza Hills FPEP shall be the basis of the CEP, which shall include provisions for:<br>• Pre-fire planning and preparations<br>• Post-fire recovery actions<br>• Communications/registering with Alert OC (Orange County's Reverse 911 system and sign-up for cell phone/text notice)<br>• Prevention (maintenance of fuels around buildings, gutter and roof clearance, vent protection)<br>• Emergency contact numbers<br>• Annual evacuation training schedule<br>• Fire Prevention Measures during High Fire Danger and Red Flag Warning periods<br>• Annual review and update requirements<br>• Wildfire Emergency Evacuation Plan Details<br>• On-site partial relocation versus off-site evacuation<br>• Revisions/updates to the CEP shall be reviewed and approved by OCFA | |
| Due to the Project's location in a Severe Fire Hazard Zone, fuel modification zones are required by OCFA to provide fire resistant vegetation types and buffers to assist firefighting efforts. | Haz-7 Prior to the recordation of the final tract map, the Project Applicant shall record the deed restrictions for each residential lot. The deed restriction shall include any portion of the FMZs on the private lot, approved plant palettes, and prohibitions regarding combustible structures, including fencing and other accessory structures. Deed restrictions will run with the land and be conveyed to any subsequent owner of the private lot. | Implementation of Mitigation Measures Haz-7, Haz-8 and Haz-9 will ensure that fuel modification zones are established and homeowners are informed of the |

| Project Impacts | Mitigation Measures | Level of Significance after Incorporation of Conditions of Approval and Mitigation Measures |
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| | Haz-8 Prior to the recordation of the Final Tract Map for Lots 7, 8, 9, 224, 225, 236, 237, 253, 254, ad 278 in Option 1 and Lots 8, 9, 10, 224, 225, 236, 237, 253, 254, and 278 in Option 2 that include an FMZ that extends beyond the private lot or development, the Project Applicant shall obtain written legal permission in the form of a Fuel Modification Easement from any off-site landowners. The Fuel Modification Easement shall be recorded for each lot. In any situations where the FMZ extends into biological open space or other sensitive biological areas, or other areas controlled by the County and/or resource agencies, formal written permission shall be obtained from all applicable agencies. | requirement to maintain such areas with approved vegetation, reducing impacts to less than significant. |
| | Haz-9 Prior to the issuance of building permits, the Project Applicant shall prepare a Private Property Owners' Guide for fire-safe vegetation management, which shall be distributed by the Esperanza Hills HOA to each new home buyer. The Guide shall be based on the Orange County Fire Authority Vegetation Management Guidelines as approved in the Fuel Modification Plan approved by the OCFA. Periodic inspections by the OCFA shall be at the expense of the Esperanza Hills HOA. | |
| The community Homeowners' Association is responsible for establishing covenants, conditions, and restrictions related to provision and proper maintenance of Fuel Modification Zones to reduce impacts from fire hazards, because the Proposed Project is within a Severe Fire Hazard Zone. | Haz-10 Prior to the recordation of the final tract map, the Project Applicant shall submit the Project Covenants, Conditions, and Restrictions (CC&Rs) to the Manager of OC Planning for review and acceptance by County Counsel and will include:<br>• A reference to the Esperanza Hills FPEP to ensure compliance with the features with the plan. The HOA is required to enforce compliance with the Plan. Owners of private lots will be notified in the project's CC&Rs and property disclosures that they are prohibited from conducting any vegetation management activities outside their private property.<br>• Provisions for continuous maintenance of common areas by the Esperanza Hills Homeowners' Association and individual properties by owners. Maintenance refers to anything needed to maintain the fuel modification area in a fire safe condition as required by the OCFA, including periodic removal of undesirable, combustible vegetation; replacement of dead and dying fire-resistant plantings; maintenance of the operational integrity and programming of irrigation systems; and preservation of identification markers.<br>• A provision that the HOA is responsible for and has the authority to ensure long-term funding, and ongoing compliance with all provisions of the approved Fire Master Plan and Community Evacuation Plan, including vegetation planting, fuel modification, vegetation management, and maintenance requirements on all private lots, parks, common areas, roadsides, and open space under their control (if not considered biological open space). Any water quality basins, flood control basins, channels, and waterways should be kept clear of flammable vegetation, subject to the environmental restrictions.<br>• A provision that the HOA will annually fund and obtain an inspection and report from an OCFA-approved Wildland Urban Interface Fire Safety Inspector in June, certifying that vegetation management activities throughout the Project Site have been performed pursuant to the approved Fire Master Plan. | Implementation of Mitigation Measure Haz-10 will reduce impacts to less than significant regarding disturbance or improper planting in designated Fuel Modification Zones through education of homeowners and appropriate funding to provide inspections. |

| Project Impacts | Mitigation Measures | Level of Significance after Incorporation of Conditions of Approval and Mitigation Measures |
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| Effective fire-fighting will be impacted if adequate water and fire flow hydrant capability are not maintained. | Haz-11 Prior to the issuance of building permits, the Project Applicant shall submit to the Manager of OC Planning plans demonstrating a water system for the Project capable of handling the minimum fire flow storage of 1,500 gallons per minute for a 2-hour duration with a minimum residual pressure of 20 pounds per square inch. | Implementation of Mitigation Measures Haz-11 and Haz-12 will ensure that adequate water supply, hydrants, and water pressure are available for firefighting, reducing impacts to less than significant. |
| | Haz-12 Prior to issuance of building permits, the Project Applicant shall provide a plan that depicts the appropriate number of fire hydrants and their specific locations to be constructed for each phase of development for review and approval by the OCFA Fire Marshal. | |
| The Project has the potential to disturb sensitive biological areas due to establishing adequate fuel modification zones for fire protection. | Haz-13 Prior to ground disturbance in environmentally sensitive areas that contain sensitive habitat, cultural sites, riparian areas, biological buffer areas, detention basins, etc., the Project Applicant shall obtain written permission from the OC Planning Manager, and the appropriate resource agencies (e.g., the CDFW, the USFWS, and the ACOE) prior to any vegetation management activities occurring. | Implementation of Mitigation Measure Haz-13 will reduce impacts to less than significant related to coordination with agencies in order to establish appropriate Fuel Modification Zones. |
| The Project site is proposed as a gated community, thereby restricting access. | Haz-14 Prior to the issuance of any building permit for access gates the Project Applicant shall submit for review and approval by the OCFA access gate plans consistent with the applicable Fire Code, and all operated gates shall be equipped with emergency opening devices approved by the OCFA. | Mitigation Measure Haz-14 ensures that access will consistent with the Fire Code and gates can be accessed by emergency personnel, thereby reducing impacts to less than significant. |
| **Hydrology and Water Quality** | | |
| Project construction activities have the potential to degrade water quality. Through incorporation of project design features, best management practices, and standard conditions of approval, the surface runoff and drainage from the Project Site will comply with adopted regulatory requirements to ensure that water quality is not affected either during construction or under operational conditions. | No mitigation measures are required. However, Conditions of Approval are included as follows: | Conditions of Approval COA-1 through COA-9 will ensure that the Project is consistent with requirements of the County related to drainage, sewer, erosion and water quality, thereby reducing impacts to less than significant. |
| | COA-1 Prior to the issuance of grading permit, the Project Applicant shall submit the following drainage studies for approval by the County Manager, Permit Services:<br>1. A final drainage study of the project incorporating the Preliminary Drainage Report for Esperanza Hills Property drainage features pursuant to the approved development option; and<br>2. Detailed drainage studies indicating how the project grading, in conjunction with the drainage conveyance systems including applicable swales, channels, street flows, catch basins, storm drains, and flood water retarding, will allow building pads to be safe from inundation from rainfall runoff which may be expected from all storms up to and including the theoretical 100-year flood. | |
| | COA-2 Prior to the issuance of any certificates of use and occupancy, the Project Applicant shall not grant any new easements over any property subject to a requirement of dedication or irrevocable offer to the Orange County Flood Control District, unless such easements are expressly made subordinate to the easements to be offered for dedication to the County. Prior to granting any of said easements, the subdivider shall furnish a copy of the proposed easement to the County Manager, Permit Services for review and approval. | |

| Project Impacts | Mitigation Measures | Level of Significance after Incorporation of Conditions of Approval and Mitigation Measures |
|---|---|---|
| | COA-3 Prior to the recordation of a subdivision map (except for financing and conveyance purposes only), the Project Applicant shall participate in the applicable Master Plan of Drainage in a manner meeting the approval of the Manager, Permit Services, including payment of fees and the construction, or provide evidence of financial security (such as bonding), of the necessary facilities. The applicant shall enter into an agreement with the County of Orange concerning payment and reimbursement of Master Plan Drainage Fees to the City as a condition of any future annexation for drainage facilities transferred from OCPW to the City. | |
| | COA-4 Prior to the issuance of any grading or building permits, the Project Applicant shall demonstrate compliance under California's General Permit for Storm Water Discharges Associated with Construction Activity by providing a copy of the Notice of Intent submitted to the State Water Resources Control Board and a copy of the subsequent notification of the issuance of a Waste Discharge Identification Number; or other proof of filing in a manner meeting the satisfaction of the Manager, Permit Services. Projects subject to this requirement shall prepare and implement a SWPPP. A copy of the current SWPPP shall be kept at the Project Site and be available for County review on request. | |
| | COA-5 Prior to the issuance of any grading or building permit, the Project Applicant shall submit an Erosion and Sediment Control Plan (ESCP) in a manner meeting approval of the Manager, Permit Services, to demonstrate compliance with the County's NPDES Implementation Program and state water quality regulations for grading and construction activities. The ESCP shall identify how all construction materials, wastes, grading or demolition debris, and stockpiles of soil, aggregates, soil amendments, etc. shall be properly covered, stored, and secured to prevent transport into local drainages by wind, rain, or tracking. The ESCP shall also describe how the applicant will ensure that all BMPs will be maintained during construction of any future public right-of-ways. A copy of the current ESCP shall be kept at the Project Site and be available for County review on request. | |
| | COA-6 Prior to the issuance of any grading or building permits, the Project Applicant shall submit for review and approval by the Manager, Permit Services, a final WQMP specifically identifying BMPs that will be used on-site to control predictable pollutant runoff. The Project Applicant shall utilize the DAMP, the Model WQMP, and Technical Guidance Manual for reference, and the County's WQMP template for submittal. This final WQMP shall update the project's CWQMP based on the final design and include the following:<br>• Detailed site and project description<br>• Potential storm water pollutants<br>• Post-development drainage characteristics<br>• Low impact development (LID) BMP selection and analysis<br>• Structural and non-structural source control BMPs<br>• Site design and drainage plan (CWQMP BMP Exhibit)<br>• GIS coordinates for all LID and treatment control BMPs<br>• Operation and Maintenance (O&M) Plan that: (1) describes the long-term operation and maintenance requirements for BMPs identified in the BMP Exhibit; (2) identifies the entity that will be responsible | |

| Project Impacts | Mitigation Measures | Level of Significance after Incorporation of Conditions of Approval and Mitigation Measures |
|---|---|---|
| | for long-term operation and maintenance of the referenced BMPs; and (3) describes the mechanism for funding the long-term operation and maintenance of the referenced BMPs<br>The BMP map exhibit from the approved final WQMP shall be included as a sheet in all plan sets submitted for plan check and all BMPs shall be depicted on these plans. Grading and building plans must be consistent with the approved BMP map exhibit. | |
| | COA-7 Prior to the recordation of any subdivision map, the Project Applicant shall prepare Covenants, Conditions & Restrictions (CC&Rs) for review and acceptance by the Manager of Permit Services for the HOA, including a section for surface water quality protection and the following prohibited activity restrictions:<br>• Blowing, sweeping, or hosing of debris (e.g., leaf litter, grass clippings, litter) into storm drain inlets or other conveyances<br>• On-site fueling<br>• Dumping of any toxic substance or liquid waste on the pavement, on the ground, or toward a storm drain<br>• Use of pesticides if rain is expected<br>• Mixing or preparation of pesticides for application near storm drain inlets<br>• Allowing wash water to enter storm drain<br>The CC&Rs shall require the HOA to maintain the debris basins, detention/debris basin #3 and water quality basins on an annual basis in order to maintain flood protection associated with the design of the Project's drainage system. | |
| | COA-8 Prior to the issuance of a certificate of use and occupancy, the Project Applicant shall demonstrate compliance with the County's NPDES Implementation Program in a manner meeting the satisfaction of the Manager, OC Inspection:<br>• Demonstrate that all structural best management practices (BMPs) described in the BMP exhibit from the project's approved WQMP have been implemented, constructed and installed in conformance with approved plans and specifications;<br>• Demonstrate that the Project Applicant has complied with all non-structural BMPs described in the project's WQMP;<br>• Submit for review and approval, an Operations and Maintenance Plan for all structural BMPs (the plan shall become an attachment to the WQMP);<br>• Demonstrate that copies of the project's approved WQMP (with attached Operations and Maintenance Plan) are available for each of the initial occupants;<br>• Agree to pay for a Special Investigation from the County for a date 12 months after the issuance of a Certificate of Use and Occupancy for the project to verify compliance with the approved WQMP and Operations and Maintenance Plan;<br>• Demonstrate that the Project Applicant has recorded one of the following:<br>• a) The CC&Rs (that must include the approved Water Quality Management Plan and Operations and Maintenance Plan) for the project's HOA; | |

| Project Impacts | Mitigation Measures | Level of Significance after Incorporation of Conditions of Approval and Mitigation Measures |
|---|---|---|
| | • b) A water quality implementation agreement that has the approved Water Quality Management Plan and Operations and Maintenance Plan attached; or<br>c) The approved final Water Quality Management Plan and Operations and Maintenance Plan | |
| | COA-9 Prior to the issuance of grading permit, the Project Applicant shall record a grant of easement for on-site public storm water pipes to the Orange County Flood Control District. | |
| **Land Use and Planning** | | |
| The Proposed Project is consistent with the Orange County General Plan which allows areas designated as Open Space to be redesignated to residential to meet the County's housing needs. The Proposed Project is consistent with the Sphere of Influence Guidelines and the City of Yorba Linda General Plan. | No mitigation measures are required. | Less than significant |
| **Noise** | | |
| Short-term construction impacts are significant. However, compliance with the County noise ordinance, which exempts construction activity during specified days/hours, will reduce impacts. | N-1 During the construction phase, Project Applicant shall ensure that all construction activities shall be limited to the hours of 7:00 a.m. to 8:00 p.m. on weekdays and Saturdays with no construction permitted on national holidays or Sundays in compliance with the Orange County Noise Ordinance. High noise-producing activities should be scheduled between the hours of 8:00 a.m. and 5:00 p.m. to minimize disruption to sensitive uses. | Implementation of Mitigation Measures N-1 through N-6 will reduce impacts during construction to a less than significant level. |
| | N-2 During the construction phase, Project Applicant shall ensure that all construction and demolition equipment shall be fitted with properly operating and maintained mufflers. | |
| | N-3 During the construction phase, Project Applicant shall ensure that all noise-generating construction equipment and construction staging areas should be located as far as possible from existing residences. | |
| | N-4 During the construction phase, Project Applicant shall ensure that construction-related equipment, including heavy duty equipment, shall be turned off when not in use for more than 10 minutes. | |
| | N-5 Prior to construction, the Project Applicant shall prepare and submit to the County for approval a haul plan for construction-related traffic that limits impacts on residential development by avoiding such residential development areas where feasible. | |
| | N-6 During the construction phase, Project Applicant shall ensure that construction hours, allowable work days, and the telephone number of the job superintendent are clearly posted at all construction entrances to allow residents to contact the job superintendent. If the job superintendent receives a complaint, the superintendent shall investigate, take appropriate corrective action, and report the action taken to the appropriate reporting party. | |

| Project Impacts | Mitigation Measures | Level of Significance after Incorporation of Conditions of Approval and Mitigation Measures |
|---|---|---|
| Long-term operational impacts due to increased traffic are significant and unavoidable. Traffic noise levels exceed the perceptible +3 dB CNEL threshold, notwithstanding that County noise levels of 65 dB CNEL will not be exceeded and are, therefore, considered significant. | No mitigation measures are available to reduce the impact. | Noise impacts due to the perceptible +3 dB CNEL noise increase will remain significant and unavoidable. |
| **Population and Housing** | | |
| The Proposed Project would not result in significant impacts related to population and housing. Population estimates and provision of housing are within SCAG projections for County and City growth and additional housing is anticipated under the County's RHNA housing allocation. | No mitigation measures are required. | Less than significant |
| **Public Services** | | |
| Adequate police, fire, schools, parks, and libraries exist to serve the Proposed Project. Mitigation is included herein to ensure payment of fees related to fire department and school requirements. | PS-1 Prior to issuance of the grading permit, if deemed necessary by the Orange County Fire Authority, the Project Applicant shall enter into a Secured Fire Protection Agreement with the Orange County Fire Authority providing for payment of fair share fees for impacts to capital and infrastructure needs.<br>PS-2 Prior to issuance of building permits, the Project Applicant will be required to comply with Senate Bill 50 and pay the applicable school impact fees as adopted by the Placentia-Yorba Linda Unified School District. | With implementation of Mitigation Measures PS-1 and PS-2, adequate funding related to project impacts will be provided and impacts to public services will remain less than significant |
| **Recreation** | | |
| The Proposed Project will provide in excess of the County's Local Park Code requirement for park acreage related to new development. No cumulative impacts are anticipated. | No mitigation measures are required. | Less than significant |
| **Transportation and Traffic** | | |
| The Proposed Project has the potential to impact surrounding intersections. Recommended intersection and/or roadway improvements have been included as mitigation to accommodate future traffic volumes and maintain an acceptable level of service in addition to the requirement for payment of fair share fees to implement improvements. | T-1 For Option 1, prior to issuance of building permits, the Project Applicant shall contribute to the installation of a three-phase traffic signal at the Yorba Linda Boulevard/Via del Agua intersection in the event the Cielo Vista project is not constructed. The Project Applicant's fair share contribution shall be 39% with the proposed Cielo Vista project as part of the cumulative base traffic condition, and 46% without the Cielo Vista project. If the City does not implement the improvement, the impact will be significant and unavoidable.<br>T-2 Prior to issuance of building permits, the Project Applicant shall pay a 9% fair-share contribution for the following improvement at Yorba Linda Boulevard at Savi Ranch Parkway: Widen and re-stripe the westbound approach to provide an additional (third) westbound left-turn lane. | With implementation of Mitigation Measures T-1 through T-3, impacts to traffic will remain less than significant. |

| Project Impacts | Mitigation Measures | | Level of Significance after Incorporation of Conditions of Approval and Mitigation Measures |
|---|---|---|---|
| | T-3 | Prior to issuance of certificates of occupancy, Project Applicant shall pay a 9% fair-share contribution for the following improvement: extend the left-turn pocket along Yorba Linda Boulevard at Via del Agua from the existing 100 feet to 275 feet, with 11 feet in the transition area of the turn pocket to achieve 286 feet. However, the County cannot compel the City to implement such improvement. If the City does not implement the improvement, the impact will be significant and unavoidable. | |
| **Utilities and Service Systems** | | | |
| The Proposed Project will result in incremental increases in the demand for utilities and service systems. However, the demands are within the capacities of the service providers. Utilities and service systems such as water, electricity, gas, sewer, solid waste, telephone service, and cable service are not anticipated to experience significant impacts. | U-1 | Prior to issuance of building permits, the Project Applicant shall enter into a Development Agreement with the Yorba Linda Water District for the provision of water facilities and service. | With implementation of Mitigation Measures U-1 through U-6, coordination with service providers will occur and impacts to utilities and service systems will remain less than significant. |
| | U-2 | Prior to issuance of building permits, the Project Applicant shall enter into a Development Agreement with the Yorba Linda Water District for the provision of sanitary sewer facilities and service. | |
| | U-3 | Prior to issuance of building permits, project developer shall coordinate with Southern California Edison to identify the location of the connection to existing electric service lines based on the final determination of access via Option 1 or Option 2 and to protect existing transmission lines on the Project Site. | |
| | U-4 | Prior to issuance of building permits, project developer shall coordinate with Southern California Gas to identify the location of the connection to existing natural gas lines based on the final determination of access via Option 1 or Option 2. | |
| | U-5 | Prior to issuance of building permits, project developer shall coordinate with AT&T to identify the location of the connection to existing telephone service lines based on the final determination of access via Option 1 or Option 2. | |
| | U-6 | Prior to issuance of building permits, project developer shall coordinate with Time Warner Cable to determine the location of the connection to existing cable service lines based on the final determination of access via Option 1 or Option 2. | |

## 2.6 Impacts Found Not To Be Significant

Section 15128 of the CEQA Guidelines requires that an EIR identify those impacts found not to be significant in the Initial Study and EIR process. Those impacts must be identified accompanied by a brief explanation of why the impacts were found to be insignificant. The following impacts were found to be insignificant after completion of the Initial Study and NOP process.

**Table 2-6-1 Impacts Found Not To Be Significant**

| Environmental Issue | Basis for Dismissal From EIR Discussion |
|---|---|
| Agricultural Resources | The site was designated Agricultural in the County of Orange General Plan, which is a general designation for an area that is undeveloped and in an unincorporated area until such time as specific development is proposed. However, no farmland exists on or near the Project Site, and no farmland will be converted to non-agricultural use. There are no prime or other agricultural soils that exist on the site based on the USDA agricultural soils map for the County of Orange. Oil extraction operations located on the site will continue. The land use designation will be amended to Suburban Residential to allow residential development. No impacts will occur as a result of project implementation. |
| Mineral Resources | The site has not been designated as a mineral resource location in the Yorba Linda General Plan or the Orange County General Plan. Further, the property is not identified as a mineral resource site/location by the State of California, per the Yorba Linda General Plan Recreation/Resources Element. The two oil wells located in the southwest portion of the site may continue to operate on-site, pending the proposed development of the Cielo Vista project to the west. When the proposed Cielo Vista project receives approval of its proposed Area Plan, oil operators have the right to relocate the two oil wells to a drilling pad on the adjacent proposed Cielo Vista project, and will be required to cease production and abandon the wells pursuant to DOGGR regulations. Another well is located near the western boundary of the property owned by Yorba Linda Estates, LLC. There is litigation pending in Orange County Superior Court over the validity of the lease for that well. If the litigation is successful, the well will be abandoned at the expense of the current operator. If that lease is found to be valid, the well will continue to operate so long as it produces in accordance with the lease. The Proposed Project accommodates either the abandonment or the continued operation of the well as discussed in Section 5.7, Hazards and Hazardous Materials (beginning on page 5-275). |

# 3. Project History and Background

The Project Site, which is substantially undeveloped, is bordered by Chino Hills State Park on the north and east. To the south and west are existing residential communities previously approved and developed in the City of Yorba Linda (City), including Dominguez Ranch, Green Hills, Casino Ridge, Travis Ranch, and Yorba Linda Hills. The proposed Cielo Vista project, a proposed residential subdivision in the unincorporated County, lies adjacent to the Esperanza Hills site on the west and southwest.

The property is owned by three entities including Yorba Trails, LLC, Yorba Linda Estates LLC and the Nicholas/Long family trusts. Yorba Trails, LLC owns approximately 33 acres on the western portion of the project. Yorba Linda Estates, LLC owns approximately 279 acres in the center of the project, and the Nicholas/Long family owns approximately 157 acres that form the northeast portion of the project. The Project Site is part of a larger parcel commonly referred to in the City's General Plan (1993) as the Murdock Property. The Yorba Linda General Plan (Yorba Linda GP) envisioned the Murdock Property being developed in conjunction with 547 acres of City land into a golf course development. Those 547 acres of City land are now part of Chino Hills State Park.

The Yorba Linda GP identifies a range of housing units within its Sphere of Influence (SOI), including Esperanza Hills, calling for a density of one unit per acre. Exhibit 3-1 – Project Boundaries, Ownership depicts the property ownership overlaid on an aerial photograph.

Due to its unincorporated status, all discretionary permits allowing development of the property must be approved by the County and be consistent with the County of Orange General Plan and the County of Orange Zoning Code (2005). The Proposed Project is within the City's SOI and has therefore been designed to comply with the City's development policies wherever possible. An application was submitted to the County for project approval on August 23, 2012.

An SOI designates a city's probable future physical boundary and service area. An annexation occurs when a city incorporates additional territory into its boundary. The Orange County LAFCO is the responsible agency for annexations within the County of Orange. An application was submitted to the County for project approval on August 23, 2012.

The entire site was burned in the 2008 Freeway Complex Fire. The fire, which was fed by high winds, burned a total of 381 structures in Riverside and Orange counties.

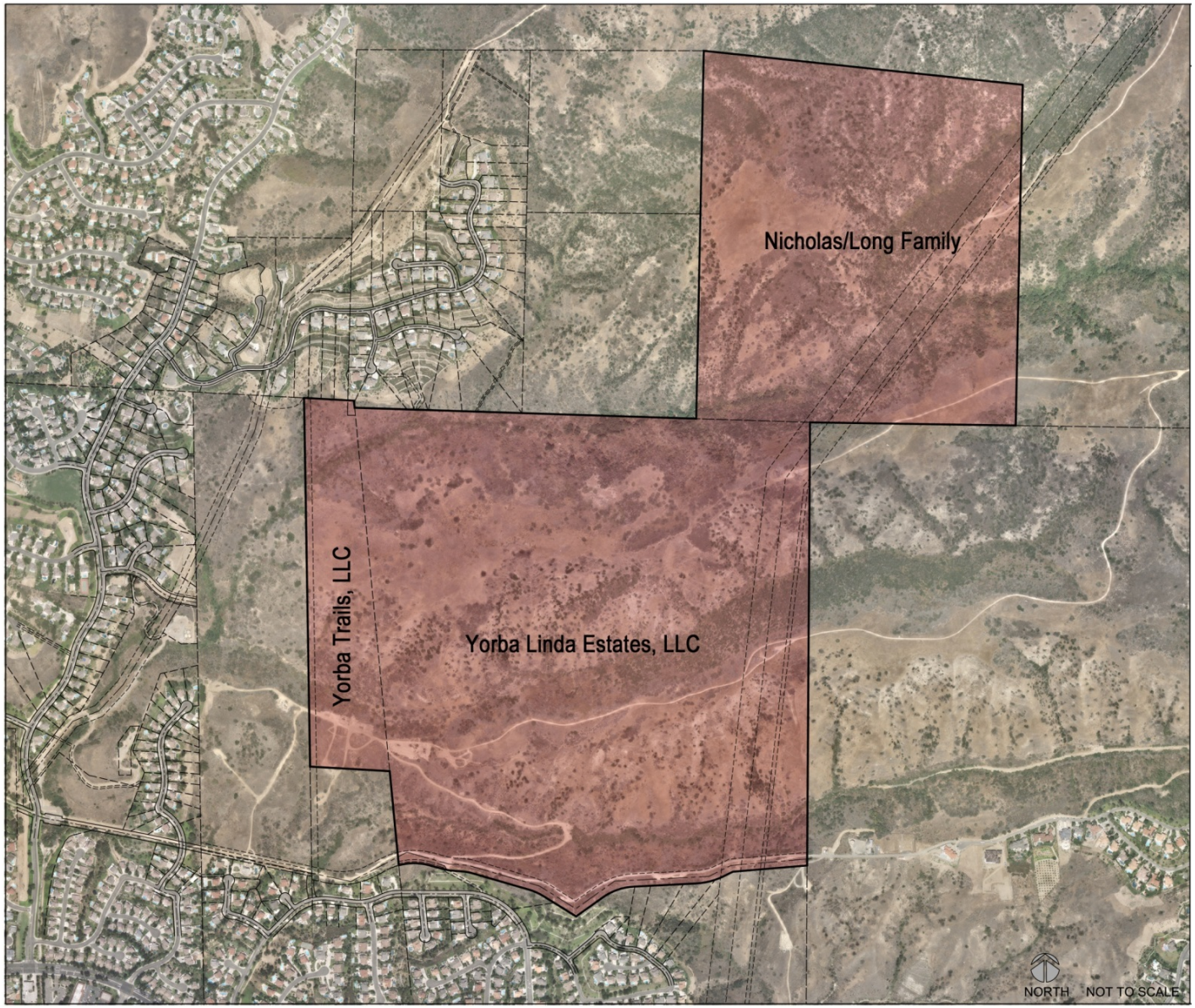



**Exhibit 3-1 – Project Boundaries, Ownership**

The Notice of Preparation (NOP) to prepare an Environmental Impact Report was distributed on December 22, 2012 for a 42-day public review period. The required 30-day review period was extended 12 days in consideration of the holiday season. The NOP was filed with the Orange County Clerk-Recorder's office, posted on the Project Site, and sent via U.S. mail to approximately 800 public agencies and interested parties. A public Scoping Meeting was held on January 31, 2013, and approximately 1,800 meeting notices were sent to agencies and interested parties. The Scoping Meeting was attended by approximately 120 individuals. Comments were solicited from the meeting attendees. A summary of the comments provided during the Scoping Meeting is included herein (Table 1-3-1, Summary of Scoping Meeting Comments beginning on page 2–3), along with a notation of where the issue is addressed in the DEIR.

# 4. Project Description

## 4.1 Project Location

The Proposed Project, known as Esperanza Hills, is located within unincorporated Orange County north of the SR-91 Freeway off Yorba Linda Boulevard, south and west of Chino Hills State Park, east and north of the Cielo Vista project (another proposed project within unincorporated Orange County), and adjacent to existing residential development within the adjacent City of Yorba Linda (City). The project is east of San Antonio Road and north of Stonehaven Drive (Via del Agua). The site is within the Orange County Local Agency Formation Commission (LAFCO) designated Sphere of Influence (SOI) for the City as depicted on Exhibit 4-1 – Sphere of Influence Map, City of Yorba Linda. This exhibit also depicts the regional location of the Project Site.

The Project Site is an irregular-shaped parcel bordered by land owned by the Amos Travis Trust to the west and the Virginia Simmons Trust to the southwest, which are part of the adjacent proposed development known as the Cielo Vista project. Below the project's southern border is an area dedicated as open space within the City. Property owned by the Friend family under the entity "Bridal Hills, LLC" borders the Proposed Project to the north and west, and property owned by Yorba Linda Land, LLC borders the Proposed Project to the northwest. North and east of the Proposed Project is Chino Hills State Park, which lies between developed land in Orange, San Bernardino, and Riverside counties. Existing residential communities to the south and west and previously developed in the City of Yorba Linda include Dominguez Ranch, Green Hills, Casino Ridge, Travis Ranch, and Yorba Linda Hills. Exhibit 2-1 - Project Vicinity Map (page 2-2) provides further detail regarding the project location.

## 4.2 Existing Conditions

Rolling hills characterize the Project Site, which ranges in elevation from approximately 600 feet above mean sea level (AMSL) at the southwest boundary to approximately 1,540 feet at the northern boundary of the property. The property supports a mix of habitats, including non-native grasslands with locally dominant stands of coastal sage scrub, chaparral, limited areas of riparian habitat and, historically, small stands of walnut and oak woodlands. Exhibit 4-3 through Exhibit 4-7 include photographs of the site as it currently exists. Exhibit 4-2 is a location key map depicting the location and direction from which the photographs were taken.

Four intermittent drainage areas are located in canyons on or near the site and are identified herein as Blue Mud Canyon, Canyon A, Canyon B and Canyon C. Blue Mud Canyon runs along the southern portion of the property in an east-west direction.

Canyon B crosses the western portion of the site (northern portion of the Yorba Trails property) and is currently used for hiking and equestrian purposes and extends north to the Bridal Hills, LLC land through the Yorba Linda Land, LLC land and then into Chino Hills State Park. The intermittent drainages and related site features are illustrated on Exhibit 4-8 – Physical Characteristics.

The Whittier Fault runs along the southern portion of the site. Testing shows that no northern fault traces extend into the development planning areas. The property has been utilized historically for animal grazing and is currently used for oil production (three working wells), water line transmission (Metropolitan Water District and Yorba Linda Water District), and energy transmission (Southern California Edison). Oil production is anticipated to continue on the Project Site at existing locations. Access to these existing uses is via dirt roads on the site off Stonehaven Drive. Exhibit 4-8 – Physical Characteristics depicts the location of the oil wells and utility easements.

Table 4-2-1 below depicts the existing land uses surrounding the Project Site.

**Table 4-2-1 Surrounding Land Uses**

| Location | Description |
|---|---|
| North | Chino Hills State Park |
| East | Chino Hills State Park |
| North/northwest | Yorba Linda Land, LLC and Bridal Hills, LLC |
| West | Amos Travis Trust Property (proposed Cielo Vista project) |
| Southwest | Virginia Simmons Trust property (proposed Cielo Vista project) |
| South | Dedicated open space (City of Yorba Linda) |

The entire Project Area was burned in the 2008 Freeway Complex Fire that occurred in the fall of 2008. The fire burned over 30,000 acres, with 381 structures lost or damaged, including 187 residences[1]. Because of the potential fire hazard represented by the wildland/open space areas in Chino Hills State Park along the northern and eastern boundaries of the Proposed Project, special fuel management practices have been incorporated into the project in addition to the standard fuel modification zones required by the Orange County Fire Authority (OCFA).

The Bridal Hills property adjacent to the Project Site is a reasonably foreseeable development and will gain access through the Proposed Project Site. Therefore, Bridal Hills has been included in the Project analysis.

[1] Orange County Fire Authority "After Action Report, Freeway Complex Fire, November 15, 2008," page 12; http://www.wildlandfire.com/docs/2008/lessons-learn/freeway-cplx-aar.pdf (accessed July 2013)

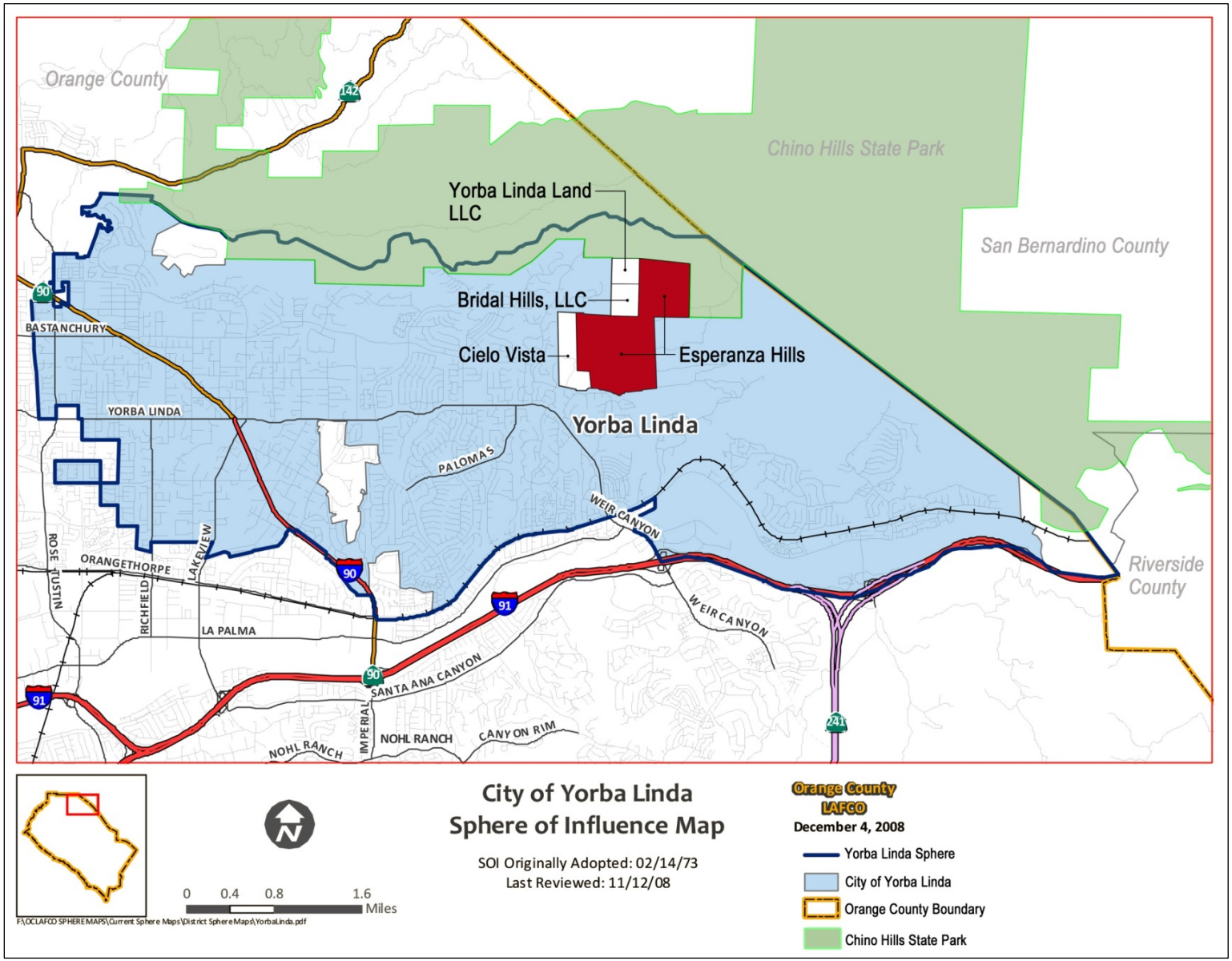



**Exhibit 4-1 – Sphere of Influence Map, City of Yorba Linda**

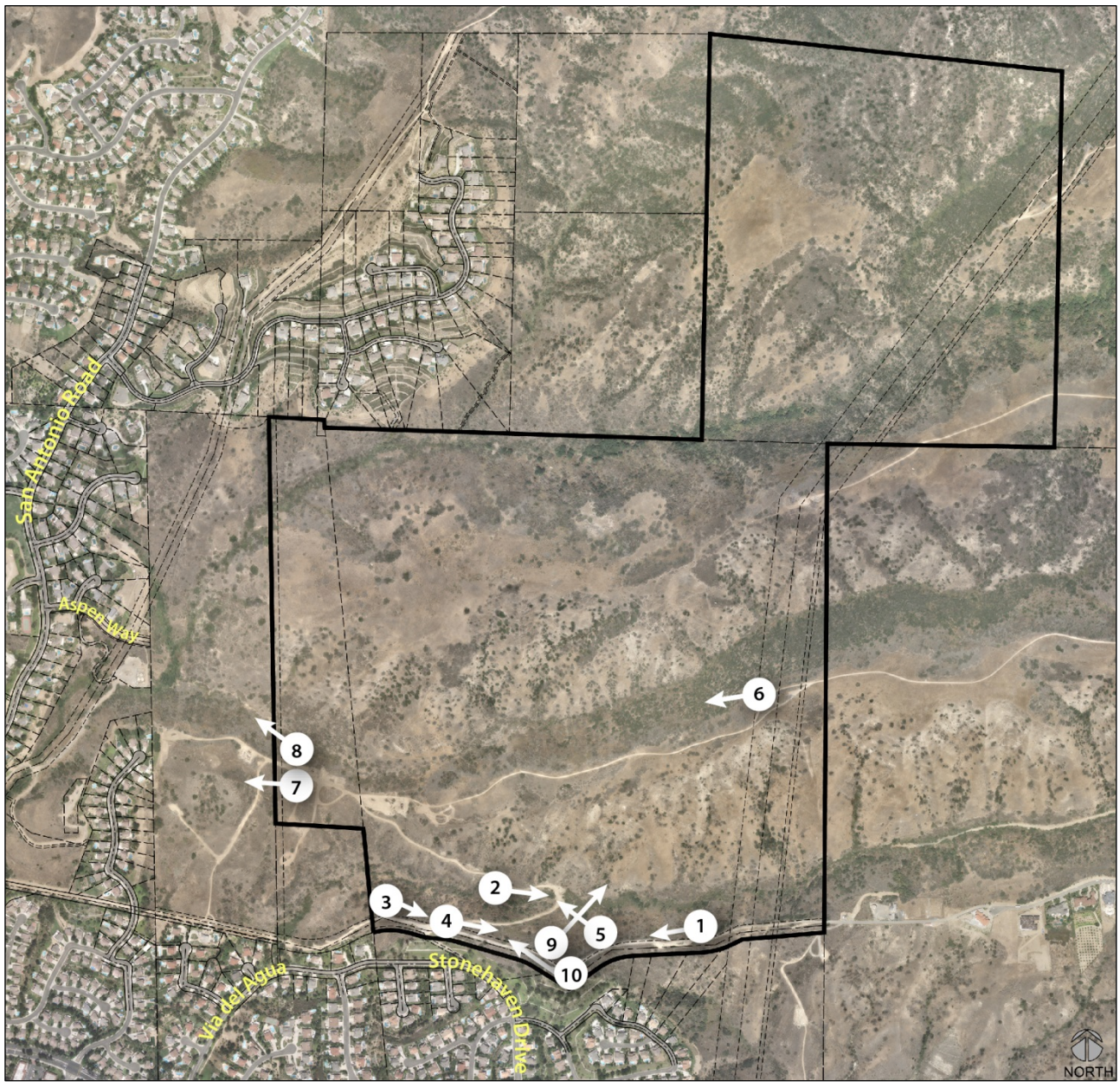



**Exhibit 4-2 – Photo Locations Key**

Photo 1 – View looking westerly towards City of Yorba Linda

Photo 2 – View looking easterly towards SCE transmission lines
and residences in Hidden Hills to the east of Chino Hills State Park

**Exhibit 4-3 – Site Photos 1 and 2**

Photo 3 – View looking easterly near access road off San Antonio Road

Photo 4 – View looking easterly towards SCE transmission lines

**Exhibit 4-4 – Site Photos 3 and 4**

Photo 5 – View looking northwesterly over access road
from Metropolitan Water District easement

Photo 6 – View looking southwesterly along Canyon C

**Exhibit 4-5 – Site Photos 5 and 6**

Photo 7 – View from Simmons property western border looking east toward Yorba Linda Estates property

Photo 8 – View from Simmons property western border looking west to Aspen Way

**Exhibit 4-6 – Site Photos 7 and 8**

Photo 9 – View of entrance from Yorba Linda Water District Road looking east to Hidden Hills

Photo 10 – View of entrance looking east toward Aspen Way

**Exhibit 4-7 – Site Photos 9 and 10**

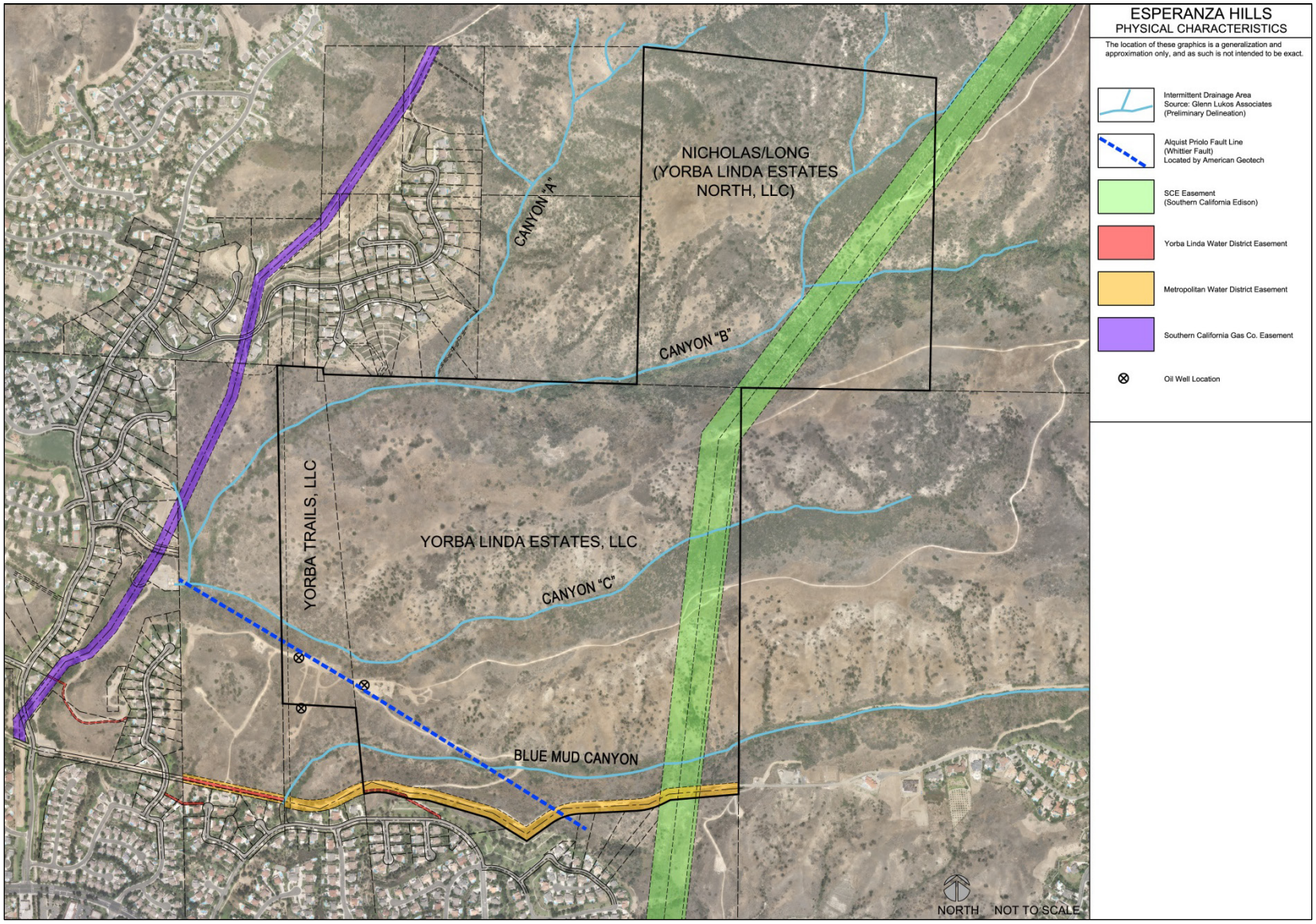



**Exhibit 4-8– Physical Characteristics**

# 4.3 Project Description

The Project Site contains a total area of approximately 468.9 acres and has been designed to provide a maximum of 340 residences in large-lot, low-density neighborhoods. Exhibit 4-9 – Conceptual Site Plan, Option 1 - Stonehaven Drive and Exhibit 4-10 – Conceptual Site Plan, Option 2 - Aspen Way depict the proposed development configuration under each option. Development will occur in two phases, with each phase being a distinct planning area. The planning areas are depicted on Exhibit 4-11 – Planning Areas. Table 4-3-1 below provides a development summary for the Proposed Project. Both Planning Areas are included for comparison.

**Table 4-3-1 Planning Area Statistics**

| Development | Gross Area (acres) | Dwelling Units per Acre | Number of Lots Option 1/Option 2 (DU) | Parks Option 1/Option 2 (acres) | Trails Option 1/Option 2 (feet) | Landscaped Slopes Option 1/Option 2 (acres) | Fuel Modification Option 1/Option 2 (acres) |
|---|---|---|---|---|---|---|---|
| Planning Area 1 | 310.00 | 0.71 | 212/218 | 6.35/5.37 | 28,116/31,371 | 91.1/81.77 | 34.39/39.81 |
| Planning Area 2 | 158.90 | 0.76 | 122 | 6.81 | 7,740 | 45.6 | 49.12 |
| Esperanza Hills | 468.90 | 0.73 | 334/340 | 13.16/12.18 | 35,856/39,111 | 135.8/126.6 | 83.51/88.93 |

Planning Area 1 provides up to 218 lots on 310 acres with minimum building pads that are 70 feet wide and 140 feet deep, and minimum lot size of approximately 12,000 square feet. Planning Area 1 contains four parks, a water reservoir, open space, existing natural open space, riparian areas, and a trail corridor linking to surrounding properties. Planning Area 1 is located on land owned by Yorba Linda Estates, LLC and Yorba Trails, LLC.

Planning Area 2 provides 122 units (including two estate lots) on 159 acres located at the higher elevation on the portion of the property owned by the Nicholas Long family. Minimum building pads are 90 feet wide and 110 feet deep. Planning Area 2 will contain five parks, an underground water reservoir, open space, existing natural open space, a trail system that connects to Canyon B the west, and two estate lots that have the opportunity for ancillary uses such as equestrian and/or viticulture.

Potential areas of off-site grading will be required to provide access connections to existing streets and emergency access roads, as well as to stabilize an existing landslide on the site's western boundary. At the time of this writing, the Project Applicant has not secured approval for the proposed off-site improvements for Option 2. An agreement between property owners must be entered into prior to issuance of permits allowing off-site improvements for Option 2.

## Residential

The residential areas will have an average lot size of 18,553 square feet. Lots range from 12,044 square feet to 39,354 square feet (exclusive of estate lots). The two estate lots in Planning Area 2 are custom building sites with their design theme to be determined by lot purchasers. The estate lots are 21.78 acres with a building pad limited to 2.65 acres and 2.08 acres with building pad limited to 1.11 acres. The Proposed Project is designed to cluster residential pads to maximize open space preservation and preserve the natural ridgelines and topography to the greatest degree possible, including all major ridgelines bordering Chino Hills State Park.

## Access

Two options for roadway access to the Proposed Project have been designed.

1. Option 1 would provide a primary connection going south to Stonehaven Drive following an existing dirt road that has been used for oil well and utility access purposes. A separate ingress/egress road for emergency purposes only would extend south along the western edge of the project through the adjacent Cielo Vista property. This access will pass through the adjacent Cielo Vista project via a 50-foot roadway and utility easement and may impact that project's lot design.
2. Option 2 would provide a primary connection going west from the site to Aspen Way, which then connects to San Antonio Road. This is the primary access that was contemplated in the 1993 Yorba Linda GP, but will require an access and grading easement over the Cielo Vista property or other legal entitlement. Option 2 provides a separate ingress/egress exit for emergency purposes only, exiting south from the Proposed Project to Stonehaven Drive and following the existing road currently used for oil well and utility access purposes.

The access options are detailed below in the Project Entry section of this chapter (page 4-19). Depending upon which access option is approved, the approximate acreages will be developed as follows:

1. 112 to 114 acres for useable residential pad area
2. 129 acres as natural open space
3. 13 acres with landscaped parks/water quality detention basins
4. 126 to 135 acres for landscaped and irrigated slopes

The remainder of the site acreage will be developed with streets, sidewalks, bench drains, water reservoirs, and associated uses.

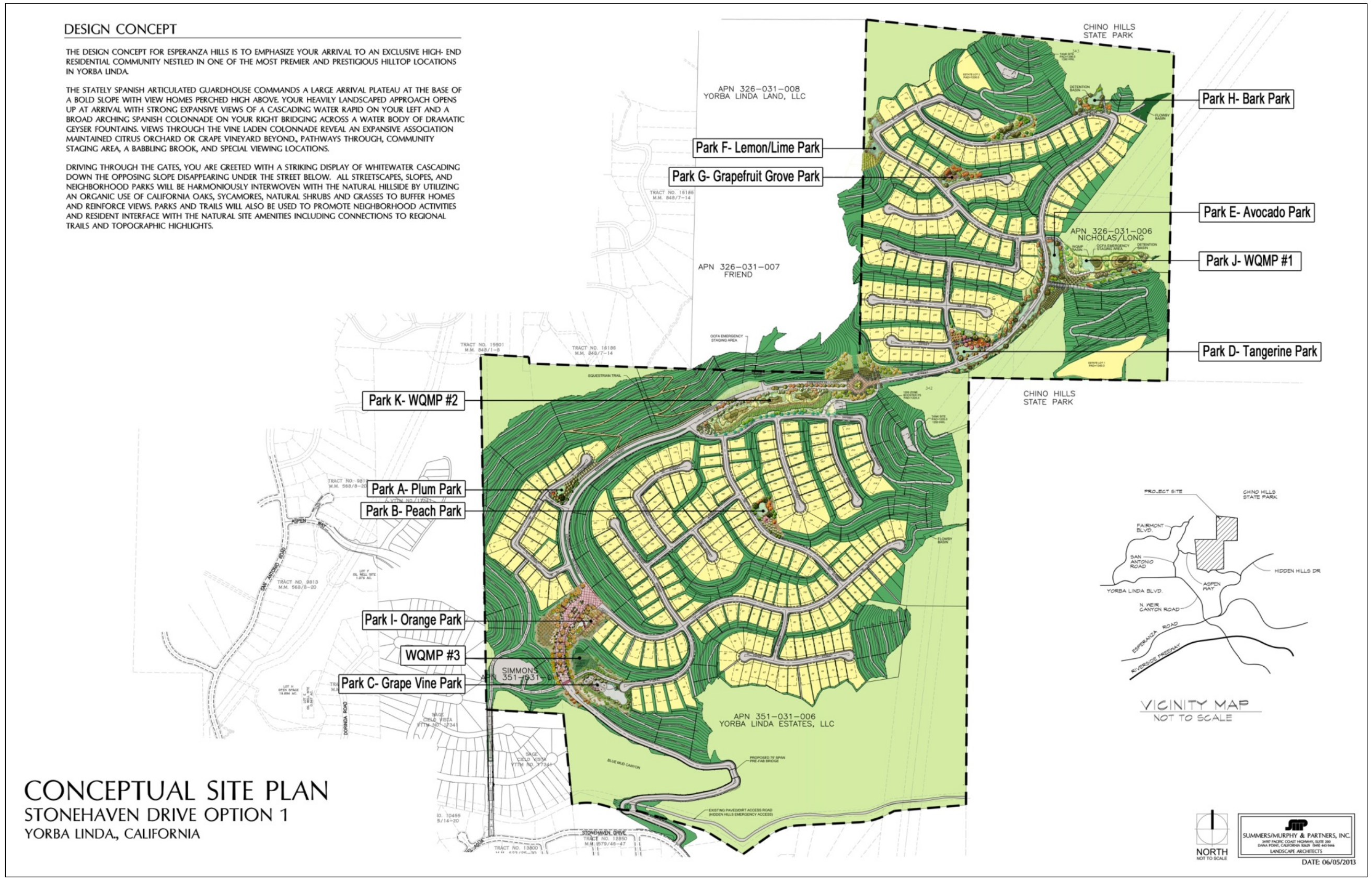



**Exhibit 4-9 – Conceptual Site Plan, Option 1 - Stonehaven Drive**

## DESIGN CONCEPT

THE DESIGN CONCEPT FOR ESPERANZA HILLS IS TO EMPHASIZE YOUR ARRIVAL TO AN EXCLUSIVE HIGH- END RESIDENTIAL COMMUNITY NESTLED IN ONE OF THE MOST PREMIER AND PRESTIGIOUS HILLTOP LOCATIONS IN YORBA LINDA.

THE STATELY SPANISH ARTICULATED GUARDHOUSE COMMANDS A LARGE ARRIVAL PLATEAU AT THE BASE OF A BOLD SLOPE WITH VIEW HOMES PERCHED HIGH ABOVE. YOUR HEAVILY LANDSCAPED APPROACH OPENS UP AT ARRIVAL WITH STRONG EXPANSIVE VIEWS OF A CASCADING WATER RAPID ON YOUR LEFT AND A BROAD ARCHING SPANISH COLONNADE ON YOUR RIGHT BRIDGING ACROSS A WATER BODY OF DRAMATIC GEYSER FOUNTAINS. VIEWS THROUGH THE VINE LADEN COLONNADE REVEAL AN EXPANSIVE ASSOCIATION MAINTAINED CITRUS ORCHARD OR GRAPE VINEYARD BEYOND., PATHWAYS THROUGH, COMMUNITY STAGING AREA, A BABBLING BROOK, AND SPECIAL VIEWING LOCATIONS.

DRIVING THROUGH THE GATES, YOU ARE GREETED WITH A STRIKING DISPLAY OF WHITEWATER CASCADING DOWN THE OPPOSING SLOPE DISAPPEARING UNDER THE STREET BELOW. ALL STREETSCAPES, SLOPES, AND NEIGHBORHOOD PARKS WILL BE HARMONIOUSLY INTERWOVEN WITH THE NATURAL HILLSIDE BY UTILIZING AN ORGANIC USE OF CALIFORNIA OAKS, SYCAMORES, NATURAL SHRUBS AND GRASSES TO BUFFER HOMES AND REINFORCE VIEWS. PARKS AND TRAILS WILL ALSO BE USED TO PROMOTE NEIGHBORHOOD ACTIVITIES AND RESIDENT INTERFACE WITH THE NATURAL SITE AMENITIES INCLUDING CONNECTIONS TO REGIONAL TRAILS AND TOPOGRAPHIC HIGHLIGHTS.

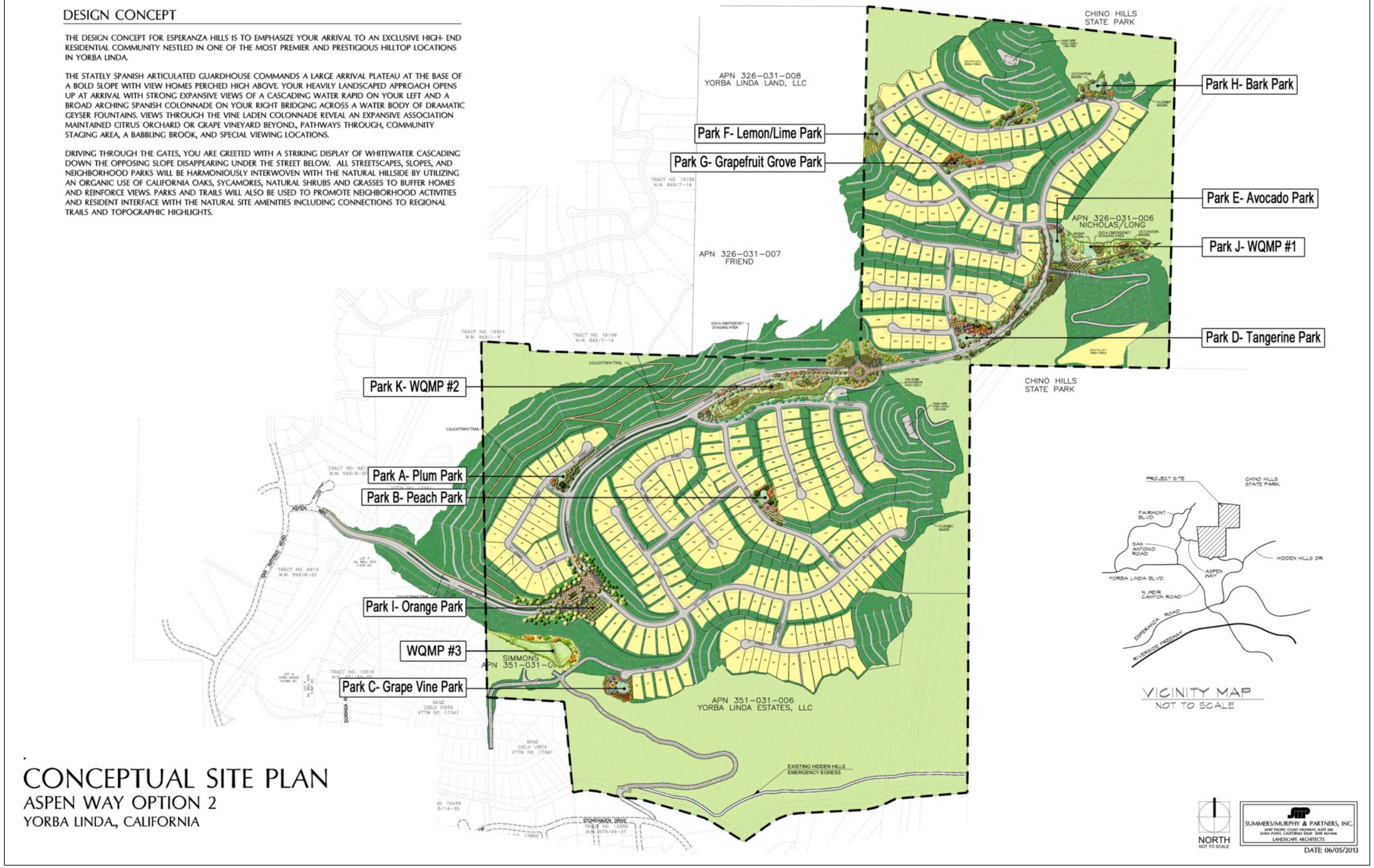



**Exhibit 4-10 – Conceptual Site Plan, Option 2 - Aspen Way**

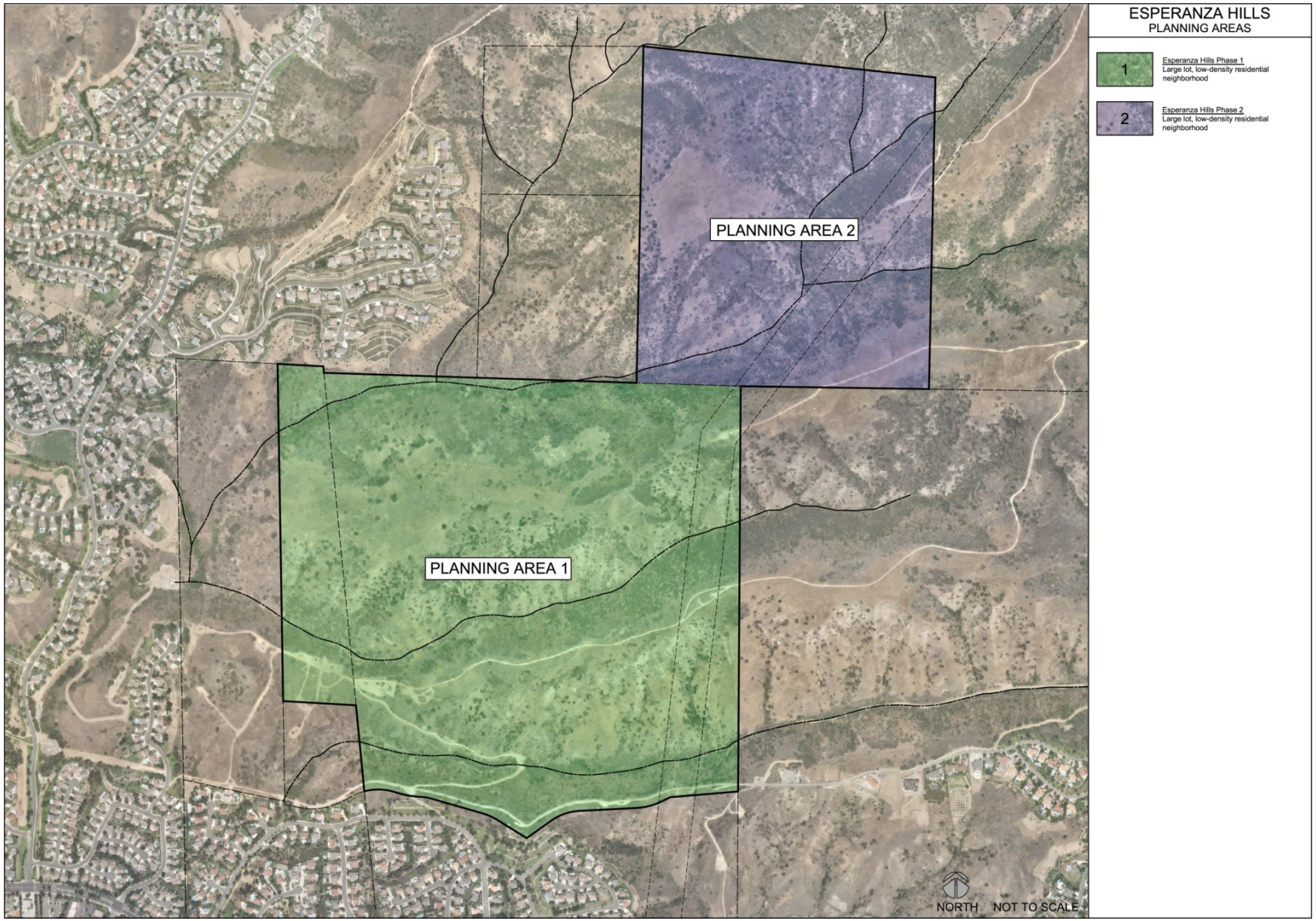



**Exhibit 4-11 – Planning Areas**

## Parks/Open Space

Eleven active and passive use parks will be provided throughout the neighborhoods. Two of the passive use parks are provided within the water quality management basins that have been designed as bio-retention facilities for the treatment and filtration of storm water runoff. The parks are identified on Exhibit 4-9 – Conceptual Site Plan, Option 1 - Stonehaven Drive and Exhibit 4-10 – Conceptual Site Plan, Option 2 - Aspen Way above. Each local park will have an agricultural design theme (e.g., orange, peach, plum, apricot). Certain of the parks will be developed for active recreational use such as turf fields, tot lots, picnic areas, and off-leash dog areas. Other areas are planned for passive use and will include access to the agriculturally themed parks. Hydromodification will be integrated with biological resources to incorporate useable space into several parks to maximize open space and water quality enhancements. The parks and open space will be privately maintained by a homeowners' association.

Portions of the open space area will be retained in natural open space to provide a buffer to adjacent subdivisions within the City, to ensure the preservation of the riparian corridors, and to preserve native habitat.

Additional open space (approximately 126 to 135 acres) will be created consisting of landscaped and irrigated slopes which does not include the 13.6 to 12.8 acres of landscaped active and passive parks and detention basins discussed above. The Esperanza Hills Homeowners' Association will be responsible for management of open space. Additional detail regarding the proposed parks is included in Section 5.13, Recreation.

## Trails

Approximately seven miles (35,856 linear feet) of trails will be provided within the boundaries of the Proposed Project and will be maintained by the Esperance Hills Homeowners' association. The trails will link to existing trail systems and provide access to Chino Hills State Park via the Old Edison Trail. The trails will allow hiking, equestrian, and bicycling access for residents and the public.

Three distinct trail systems are proposed within the Project Area. An equestrian trail system connects to an existing equestrian trail located just north of Aspen Way and extends north to Chino Hills State Park consistent with the Yorba Linda GP update for riding, hiking, and bikeway trails.

Table 4-3-2 below shows the range of lineal feet for each type of trail under access Option 1 and Option 2.

**Table 4-3-2 Trail Features**

| Item | Linear Feet (Option 1 – Stonehaven Drive) | Linear Feet (Option 2 - Aspen Way) |
|---|---|---|
| Multi-use trails – 8-foot-wide decomposed granite | 6,136 | 5,851 |
| Equestrian trails – 10-foot-wide decomposed granite | 11,588 | 15,248 |
| In-tract pedestrian walks – 5-foot-wide concrete | 18,132 | 18,012 |
| **Total trails** | **35,856** | **39,111** |

## Fuel Modification

The 2008 Freeway Complex Fire burned the Project Site and the surrounding area. Due to the project location within a Very High Fire Hazard Severity Zone (VHFHSZ), a Fuel Modification/Fire Protection plan has been developed identifying requirements for water supply, emergency access, emergency evacuation, and measures needed to enhance fire safety and reduce fire potential. The Proposed Project's developed areas will be surrounded by 170-foot fuel modification zones as further described in Section 5.7, Hazards and Hazardous Materials (beginning on page 5-275). The total fuel modification area will encompass approximately 83.5 to 88.9 acres.

In addition, the Proposed Project will incorporate two fire breaks in Blue Mud Canyon, a habitat restoration area, and installation of a California-friendly plant palette that provides greater resistance to fire while providing year-round color.

## Project Entry

The Proposed Project has been designed as a gated community. The internal roadway system has been designed for internal access, external emergency ingress/egress and continued access for existing users. Two options for access to the Project Site have been designed to address potential easement requirements with adjacent property owners and the original access location identified in the Yorba Linda GP. Under each option, the access road leading up to the guardhouse will be landscaped to include median planting and a citrus grove.

Option 1 would provide a primary connection going south to Stonehaven Drive following an existing dirt road that has historically been used for access purposes by the oil well operators, OCFA, the City of Yorba Linda, SCE, and Chino Hills State Park. A separate ingress/egress road for emergency purposes only extends south along the western edge of the project through the adjacent Cielo Vista project along an existing 50-foot-wide roadway and utility easement. Emergency access via this Option is depicted in Exhibit 4-12 – Circulation Plan (Emergency Ingress/Egress), Option 1 – Stonehaven Drive.

Option 2 would provide a connection going west from the Proposed Project to Aspen Way, connecting into San Antonio Road. This is the primary access contemplated in

the Yorba Linda GP. However, this access will require an access and grading easement over the adjacent Cielo Vista project or other legal entitlement. A separate ingress/egress for emergency purposes only exits south from the project to Stonehaven Drive as depicted in Exhibit 4-13 – Circulation Plan (Emergency Ingress/Egress), Option 2 – Aspen Way.

## Infrastructure

The Proposed Project is within the Yorba Linda Water District (YLWD) service area. The water improvements proposed will be designed and constructed in accordance with the YLWD standards and specifications. Two on-site underground reservoirs have been proposed and identified as the 1200 Zone Reservoir and the 1390 Zone Reservoir. The 1200 Zone Reservoir will have a capacity of approximately 0.70 million gallons and is located in the northwest portion of Planning Area 1. The 1390 Zone Reservoir will have a capacity of 0.40 million gallons and is located in the north portion of Planning Area 2.

The Proposed Project Site is located within the Santa Ana River Watershed. Four canyons traverse the site and convey the storm water drainage on- and off-site. A network of proposed storm drain systems utilizing above- and below-ground facilities will be used to treat, detain, and convey storm water flows where necessary across the site. A Water Quality Management Plan has been prepared for the Proposed Project and is further discussed in Section 5.8, Hydrology and Water Quality (beginning on page 5-341).

All new utility lines within the Project Site will be placed underground within private paved roadways and property within easements will be dedicated for public utility purposes.

There will be up to three cell towers located on-site – one tower near each underground water reservoir, and one tower near the southern entrance to the project from Stonehaven Drive. The cell towers will be camouflaged as landscape features resembling bushes or trees.

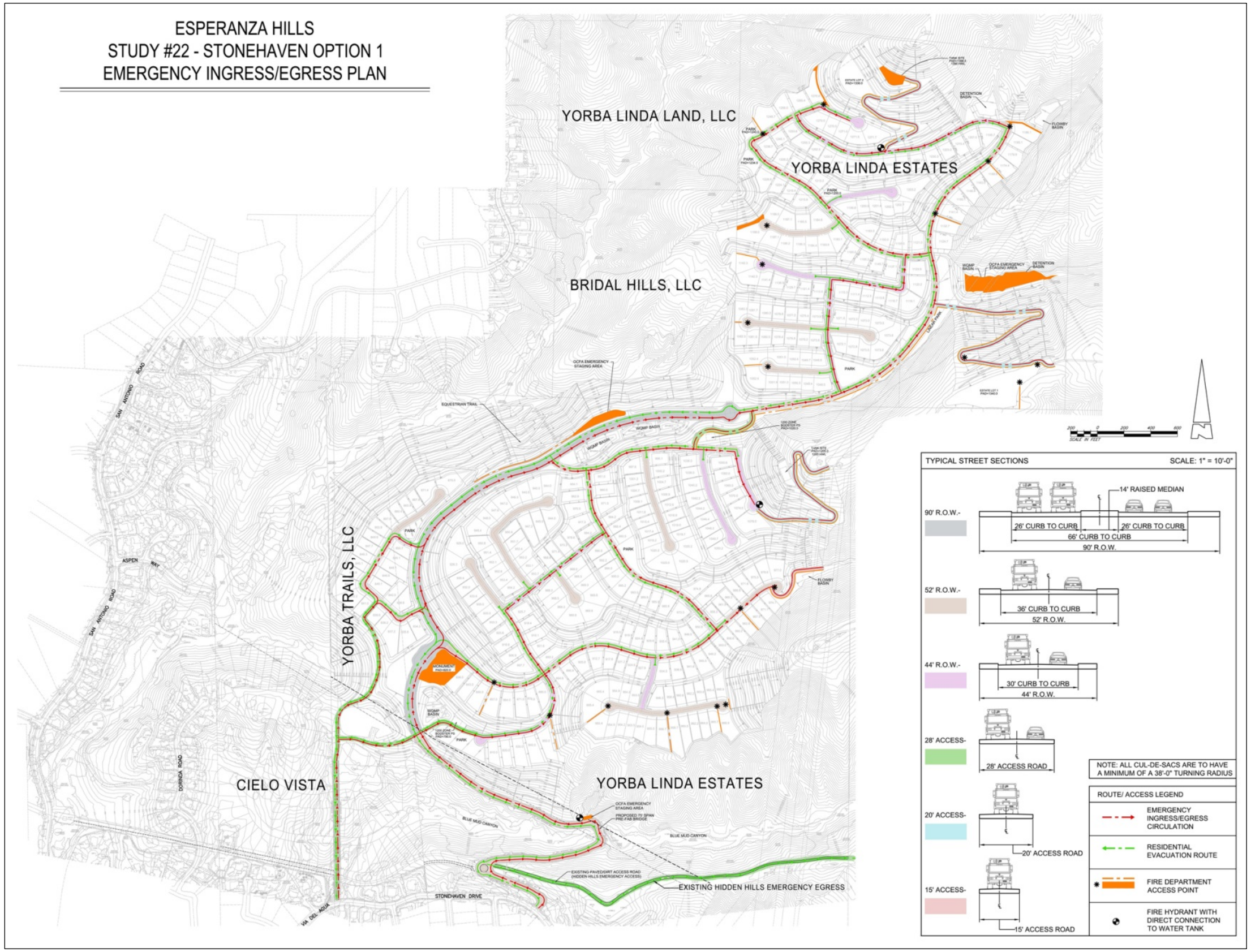



**Exhibit 4-12– Circulation Plan (Emergency Ingress/Egress), Option 1 – Stonehaven Drive**

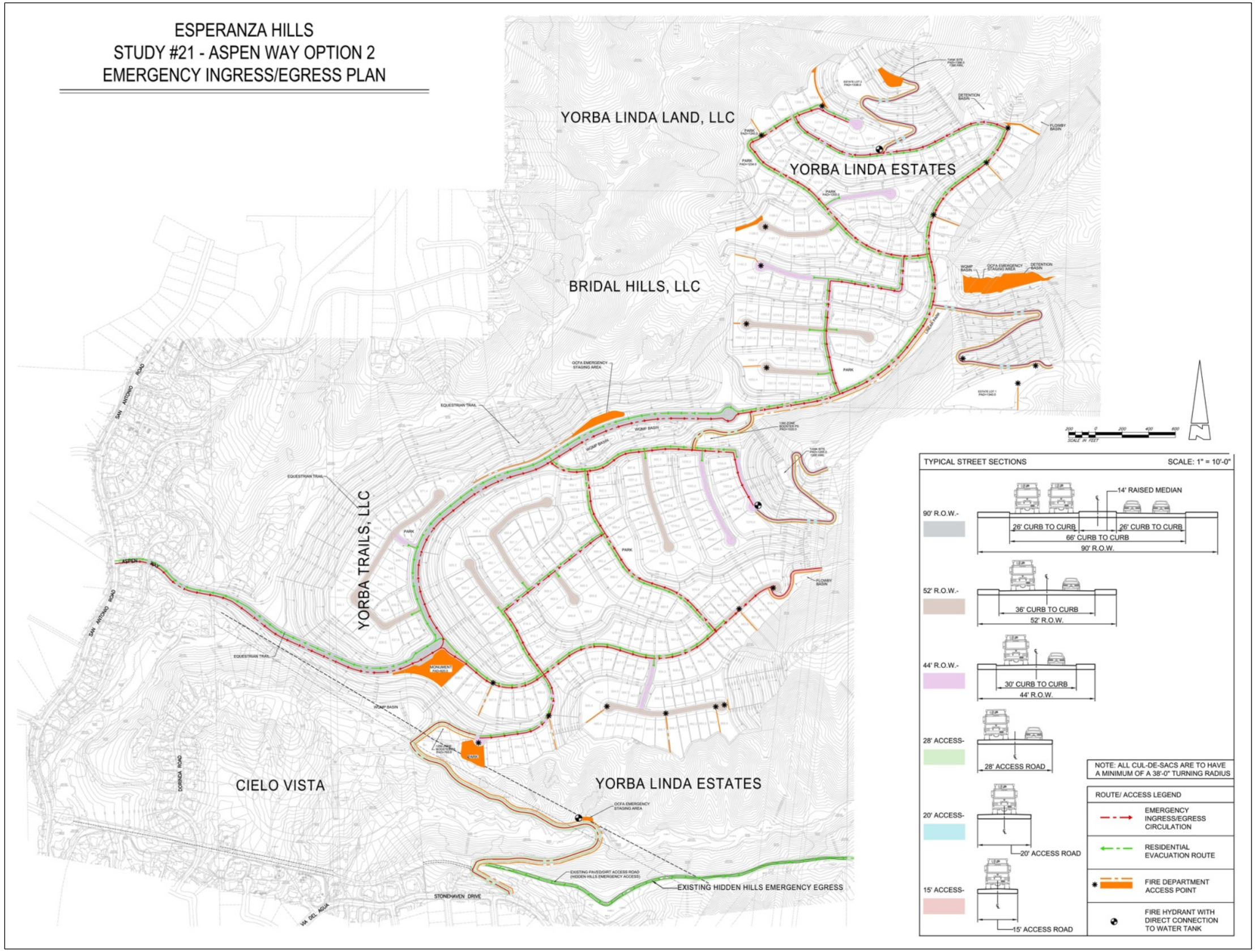



**Exhibit 4-13– Circulation Plan (Emergency Ingress/Egress), Option 2 – Aspen Way**

## 4.4 Environmental Features

The Proposed Project has been designed to maximize preservation of open space, native habitat, and riparian corridors. In addition to water quality/runoff management plan implementation measures, a storm drain system will convey runoff from the property into existing off-site facilities to prevent impacts to area drainages. The water quality management plan basins within two of the community parks have been designed as bio-retention facilities for the treatment and filtration of storm water runoff. In Blue Mud Canyon, non-native plants will be removed to enhance fire protection and encourage historic habitat revival. In other open space areas, the existing plant palette will be modified to promote regeneration of historic native habitat such as the black walnut trees, a habitat area for least Bell's vireo that currently occupies adjacent land. A California-friendly plant palette will be created to provide a mix of native and non-native vegetation.

Project lighting is designed to preserve views of the night sky. All lights will be designed and located so that direct light rays are confined to the project consistent with night sky lighting practices and to prevent light spill to the adjacent open space/habitat areas.

## 4.5 Specific Plan

The purpose and intent of a Specific Plan is to provide policies and regulations for a proposed development. The Esperanza Hills Specific Plan has been prepared to provide for the development of a low-density master planned community. The Specific Plan includes regulatory text and maps necessary to provide for the development, maintenance, and use of the Esperanza Hills property in compliance with the policies and programs of the County of Orange General Plan.

## 4.6 Construction Schedule

Project construction is anticipated to take one to two years for grading, and three to seven years for construction, and will include rough grading, relocation/cleanup of oil wells, trenching, foundation work, and construction of housing, parks, roadways, and reservoirs. Grading of the site will occur in two phases, with Planning Area 1, the first phase, taking six to ten months and Planning Area 2, the second phase, taking six to eight months. Grading for the Proposed Project will balance on-site. Therefore, no import or export of earth will be required through the existing residential communities. Construction of the subdivision could take six to ten months for the first phase and six to ten months for the second phase, or could occur over a several-year period. Construction of homes will occur in several phases, and an entire planning area will not be developed at one time.

Construction equipment will include trucks, bulldozers, graders, and concrete mixers. No structure demolition will be required, as the site is undeveloped and no buildings exist on the site. The construction phasing plan will identify equipment access and construction staging among other issues. Best management practices will be incorporated into the construction plans to minimize construction related impacts on surrounding uses.

## 4.7 Discretionary Approvals

This Environmental Impact Report is intended to provide complete and adequate California Environmental Quality Act (CEQA) coverage for all actions and approvals associated with ultimate development of the Proposed Project. The following approvals are required for project implementation.

### 4.7.1 County of Orange General Plan Amendment

The current General Plan Land Use designation for the property is Open Space (5). The Proposed Project would change the General Plan Land Use designation from Open Space (5) to Suburban Residential (1B) to allow for residential development. The Suburban Residential (1B) designation is described in the General Plan as: ". . . areas characterized by a wide range of housing types, from estates on large lots to attached dwelling units (townhomes, condominiums and clustered arrangements)." Building intensity for Suburban Residential ranges from 0.5 to 18.0 dwelling units per acre.

### 4.7.2 Adoption of a Specific Plan

The current zoning designation for the property is A1 General Agricultural and A1(O) General Agriculture/Oil Production. A Specific Plan is proposed to replace the existing A1 and A1(O) zoning designations and to regulate and guide development of the property. The Specific Plan will include detailed development regulations and design guidelines and will serve as the policy and regulatory document for future development.

### 4.7.3 Approval of a Vesting Tentative Tract Map

The approval or conditional approval of a vesting tentative map confers a vested right to proceed with development in substantial compliance with the ordinances, policies, and standards in effect at the time the vesting tentative map is approved or conditionally approved. One purpose of the vesting tentative tract map is to show the design and improvement of the proposed subdivision in relationship to the existing conditions and the adjacent properties. The Proposed Project will include preparation of a Vesting Tentative Tract Map (VTTM 17522).

## 4.8 Project Goals and Objectives

CEQA Guidelines §15124 requires an EIR to include a statement of objectives sought by the Proposed Project. This disclosure assists in developing the range of project alternatives to be investigated in the EIR, as well as providing a rationale for the adoption of a Statement of Overriding Considerations, if one must be adopted because of one or more significant unavoidable project-related impacts. Identified below are goals and objectives related to the Proposed Project.

- Create a low-density single-family development.
- Create a planned community of appropriate density and scale that respects the existing topography and natural backdrop of the Project Site.
- Create clustered residential neighborhoods buffered from adjacent development by abundant open space while preserving and enhancing permanent open space and habitat.
- Provide recreational opportunities for residents in the project vicinity for access to Chino Hills State Park from the west to Old Edison Trail.
- Design compatible land uses within the project and to surrounding areas.
- Preserve open space, natural landforms, and vegetation surrounding and within planned and developed residential areas.
- Preserve the northern and eastern ridgelines adjacent to Chino Hills State Park.
- Provide fire breaks, firefighting staging areas, access points, and emergency ingress/egress plans to enhance safety to the residents and surrounding community.
- Provide construction standards and requirements that meet or exceed Orange County Fire Authority requirements for communities bordered by wildland areas.
- Enhance the visual quality of the areas around the oil extraction operations to the extent that extraction operations are continued.
- Integrate hydromodification principles with biological resources to create bio-retention and bio-detention areas, passive parks and aesthetically pleasing landscape features.

## 4.9 Intended Uses of the EIR

1. Agencies that are expected to use the EIR in their decision making:

   - County of Orange as Lead Agency

2. Permits or other approvals that may be required to implement the project:

   - U.S. Fish & Wildlife (biological opinion consultation)
   - California Department of Fish and Wildlife (Streambed Alteration Agreement)
   - U.S. Army Corps of Engineers (Section 404 permit)
   - Regional Water Quality Control Board (401 certification)
   - Local Agency Formation Commission (LAFCO) (for potential annexation)
   - City of Yorba Linda (encroachment permits under Options 1 and 2; discretionary authority over access through City open space associated with Alternative Option 2A, potential annexation)

3. Subsequent use of the EIR:

   CEQA Guidelines §15182, Residential Projects Pursuant to a Specific Plan, provides that when an EIR on a Specific Plan has been prepared, no EIR or negative declaration need be prepared for a residential project undertaken pursuant to and in conformity to that Specific Plan if the project meets the requirements of §15182. Projects covered include land subdivisions, zoning changes, and residential planned unit developments. This exemption is subject to compliance with §15162, which requires a subsequent EIR or a supplement to an EIR if there are substantial changes to the project or its circumstances, or if new information of substantial importance becomes known.

   This EIR may be relied upon for all approval and permit actions related to development of the Proposed Project.

# 5. Environmental Setting, Impacts, and Mitigation Measures

## 5.1 Aesthetics

This section describes the existing aesthetics setting and the potential effects from the Proposed Project implementation on the site and its surrounding area. Aesthetics refers to visual considerations, including scenic resources, scenic vistas, changes in visual character, and lighting or glare. Aesthetics analysis (or visual resource analysis) is a process to assess logically visible changes and any anticipated viewer response to that change. Information in this section is based on visual simulations required by the County of Orange and prepared by the Project Applicant.

### 5.1.1 Existing Conditions

The Proposed Project is located in northeastern unincorporated Orange County, adjacent to Chino Hills State Park and a part of the Puente-Chino Hills range in southern California, which traverses Los Angeles, Riverside, and Orange counties. The Proposed Project is located adjacent to existing low-density housing tracts to the west and south within the City of Yorba Linda (City). The Project Site is within the City's Sphere of Influence (SOI). Over the past several decades, urbanization in the greater Los Angeles basin has extended through much of Orange County, including the City. Much of the City is developed with a mix of residential, commercial, open space, and a small amount of light industrial land uses at a suburban scale.

The Project Site serves as a visual edge that is predominantly undeveloped and made up of rolling hills and ravines that trend upwards in a northeasterly direction from Blue Mud Canyon, the southernmost of the four drainage areas subject to the jurisdiction of the Army Corps of Engineers (ACOE) located within the Project Site. The project elevation ranges from 600 feet above mean sea level (AMSL) at the south to 1,540 AMSL at the north. The San Juan Hill lookout, at an elevation of 1,781 feet, the highest point within Chino Hills State Park, lies approximately three-quarters of a mile to the east. The Project Site is separated from Chino Hills State Park by ridgelines to the east and north, which will remain undisturbed after development. The hills and ridges of Chino Hills State Park serve as the visual backdrop for the northerly portion of Orange County.

**Acronyms used in this section:**

| | |
|---|---|
| ACOE | Army Corps of Engineers |
| AMSL | above mean sea level |
| CEQA | California Environmental Quality Act |
| DEIR | Draft Environmental Impact Report |
| MWD | Metropolitan Water District |
| SOI | Sphere of Influence |
| YLWD | Yorba Linda Water District |

The Project Site was completely burned in the 2008 Freeway Complex Fire and now supports a diverse mix of habitats, including non-native grasslands with locally dominant stands of coastal sage scrub currently dominated by bush mallow and other fire followers and chaparral with limited areas of riparian habitat and walnut woodland, which were also affected by the fire. The Project Site also includes disturbed habitats characterized as ruderal and disturbed/developed areas. (Refer to the Section 5.3, Biological Resources of this DEIR, beginning on page 5-91, for a detailed description of existing conditions).

The southern portion of the Project Site is currently used for oil production (three working wells) and water line transmission (Metropolitan Water District (MWD) and Yorba Linda Water District (YLWD)). Energy transmission facilities traverse the easterly side of the Project Site and consist of overhead lines and tower structures (Southern California Edison). Access to these existing uses is provided via a graded dirt road from Stonehaven Drive that extends onto the Project Site and also into Chino Hills State Park. (Refer to Exhibit 4-8 – Physical Characteristics, page 4-10 above.)

The Project Site is viewed from several areas of the surrounding community, including from the SR-91 (Riverside) Freeway, a Caltrans-designated Scenic Highway and a County-designated Viewscape Corridor; Weir Canyon Road, a County-designated Viewscape Corridor south of SR-91; Stonehaven Drive to the south; portions of Chino Hills State Park; San Antonio Road to the west; Dorinda Drive to the west; Esperanza Drive to the south; and Casino Ridge, a residential subdivision, to the west and north of the Project Site. Directly to the south of the Project Site are existing single-family homes located in the City. These homes are located within the neighborhoods accessed by Stonehaven Drive and Via del Agua with potential views of the Project Site. To the east are existing single-family homes that are located along the ridges accessed by San Antonio Parkway, Dorinda Road, and Casino Ridge Road with potential views of the Project Site. Directly to the north and east is Chino Hills State Park with potential views of the Project Site from the South Ridge Trail, the Old Edison Trail, and the San Juan Hill lookout.

Light is generated by several sources in the surrounding community from street lights, vehicle headlights, and residential lighting. Under existing conditions no light is generated by the oil well operations located on the Project Site or from Chino Hills State Park. Glare is generated by sunlight reflecting off polished surfaces such as windows, paving, building surfaces, and windshields within the Proposed Project environs. Glare generated by the adjacent residential community is minimal to moderate. Under existing conditions, a minimum amount of glare is generated from the existing oil well operations on the Project Site and the overhead energy transmission lines. No significant glare is generated from Chino Hills State Park.

## 5.1.2 Regulatory Setting

### 1. County of Orange General Plan

The County of Orange General Plan Resources Element (Natural Resources Component) discusses the diverse combination of mountains, hills, flatlands, and shorelines within the County and states "major landforms, few in number, must be considered natural as well as aesthetic resources." The Natural Resources Component identifies the County's topographic resources and describes existing efforts to preserve these resources. Landforms in the Project Area are not specifically discussed within the General Plan Resources Element.

Goal 3 within the Natural Resources Component is to "manage wisely the County's landform resources." The Natural Resources Component Objective 3.1 states, "To minimize to the extent feasible the disruption of significant natural landforms in Orange County." Policy 5 of the Natural Resources Component states "to protect the unique variety of significant landforms in Orange County through environmental review procedures and community and corridor planning activities." The General Plan does not provide specific guidance with regard to aesthetics or design in the Project Area. The Natural Resources Component recognizes that "Landforms, simply by their nature, continually undergo alteration by natural or man-made forces."

The Natural Resources Component acknowledges that, "Though no formal landform management program exists, many programs do provide management, conservation, protection, and preservation of the natural environment in the public interest." The County's Grading Ordinance strictly regulates hillside grading with regard to soil stability. Cut and fill slopes are generally limited to a ratio of two horizontal to one vertical. At the County level, hillsides and other landform resources (e.g., watercourses) are addressed through community and corridor planning activities. These efforts are conducted at a scale appropriate for each resource concern.

The County of Orange Transportation Element, Scenic Highway Component "attempts to incorporate safety, utility, economy, and aesthetics into the planning, design and construction of scenic highways." The County's designated Scenic Highways have been divided into two categories: Viewscape Corridors and Landscape Corridors. The County has designated the SR-91 (Riverside) Freeway and Weir Canyon Road in the area of the Project Site as Viewscape Corridors (Exhibit 5-1 – Scenic Highway Plan, County of Orange). The Scenic Highway Component describes a Viewscape Corridor as "a route which traverses a corridor within which unique or unusual scenic resources and aesthetic values are found. This designation is intended to minimize the impact of the highway and land development upon the significant scenic resources along the route."

Goal 1 states "Preserve and enhance unique or special aesthetic and visual resources through sensitive highway design and the regulation of development within scenic corridors." Objective 1.1 states, "Protect and enhance the County's beauty, amenities and quality of life within the unincorporated areas." The Proposed Project is located approximately three miles from the SR-91 (Riverside) Freeway and Weir Canyon Road,

which runs south of the SR-91 Freeway, away from the Proposed Project. Although the Project Site is not adjacent to or within a Viewscape Corridor, it is potentially part of the long-range view from the SR-91 Freeway traveling eastbound and potentially a long-range view from portions of Weir Canyon Road.

## 2. City of Yorba Linda

### a. General Plan

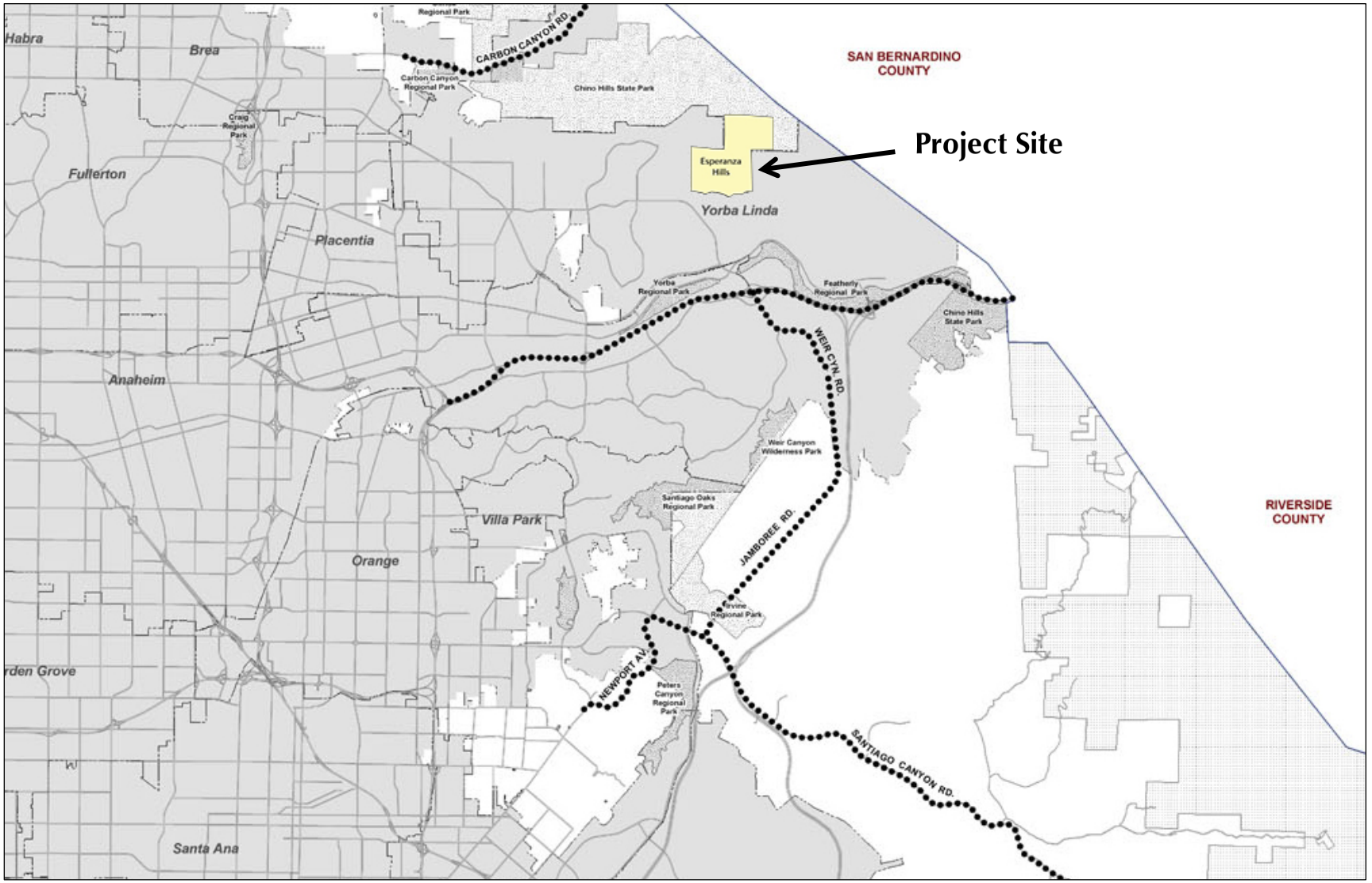
The Yorba Linda General Plan (GP) states:

> Protection of the hillside areas is obtained by insuring that development minimizes soil erosion, slide damage, flood problems, severe alteration of natural landform, or scarring. It is the intent to encourage a sensitive form of development while still allowing for residential uses which complement the natural and visual character of the City and its hillsides.

The Yorba Linda GP establishes the following applicable policies related to aesthetics and light and glare:

- Land Use Element Goal 8: Low density residential development in the hillside areas which protects the unique natural and topographic character.
- Land Use Element Policy 8.1: Target lower densities to hillside areas with yield based on slope severity and stability, topographic conditions, and natural resource protection and other environmental conditions.
- Land Use Element Policy 8.2: Reduce the total yield of development if grading, habitat preservation, slope stabilization, drainage, etc. standards cannot be met.
- Land Use Element Policy 8.3: Uphold current development standards for determination of yield and regulation of quality within hillside areas.
- Land Use Element Goal 9: Preservation and enhancement of the natural setting of the City
- Land Use Element Policy 9.2: Protect the scenic and visual qualities of hillside areas and ridgelines
- Land Use Element Policy 9.3: Ensure that land uses within designated and proposed scenic corridors are compatible with scenic enhancement and preservation.

The City has not designated any highways or roadways as scenic corridors in the Circulation Element of the Yorba Linda GP.




Source: Orange County General Plan 2005, Chapter IV, Transportation Element; http://ocplanning.net/civicax/filebank/blobdload.aspx?BlobID=8588

**Exhibit 5-1 – Scenic Highway Plan, County of Orange**

### b. Zoning Code

The City of Yorba Linda Zoning Code includes regulations for hillside development to protect visual resources. These regulations are found in Chapter 18.30 Hillside Development, Grading, and Fire Protection. This chapter of the Zoning Code provides standards and guidelines for hillside development. The "Site Design Principles" section states; "Most of the hillside sites are highly visible from distant locations. Therefore, views of the site from the neighborhood and other off-site locations should be given careful consideration."

The standards and guidelines address grading, retaining walls, building location to ridgelines, landscape materials, and building colors. This section of the zoning code also includes a regulation for development adjacent to Chino Hills State Park that states: "Within viewscape of Chino Hills State Park for any proposed residential development that is determined to be viewed from any point within Chino Hills State Park, the grading and landscaping plans shall include, for each lot so determined to be viewed, specific measures, including height limits, setbacks, landscaping, berms, and/or other measures which will assure that any structure built on the lot will not be viewed from Chino Hills State Park or otherwise be screened to the extent feasible."

## 3. Chino Hills State Park General Plan

The Chino Hills State Park General Plan discusses the aesthetics value of long-range views from the state park and particularly from the lookout on San Juan Hill. The general plan discusses the value of acquiring ridge tops to protect the views within the park. The general plan acknowledges that, due to the park's proximity to urban environments, existing utility easements such as transmission towers and gas lines have a negative visual impact to the park. Chino Hills State Park is divided into two types of management zones based primarily on the degree of natural, cultural, and aesthetics resources value and sensitivity, and secondarily on recreational, visitor service, and management needs, and ecological and geographical parameters. The Project Site is adjacent to the Natural Open Space Zone. The Natural Open Space Zone protects natural, cultural, and aesthetics resources, and at the same time allows for recreational opportunities at the park. The zone generally has less biological sensitivity than the Core Habitat Zone but contains patches of higher resource sensitivity within its boundaries that will receive greater protection (refer to Exhibit 5-2 – Chino Hills State Park Map).

The Aesthetics section of the Chino Hills State Park General Plan establishes a goal to, "Protect scenic features from man-made intrusions and preserve the visitor's experience of the natural landscape by minimizing adverse impacts to aesthetic resources." To implement this goal the general plan includes this guideline, "Ridgeline and knoll developments outside the park that adversely affect significant views will be discouraged. The Department will work with park neighbors and local government to review and plan adjacent developments in a manner that protects views."

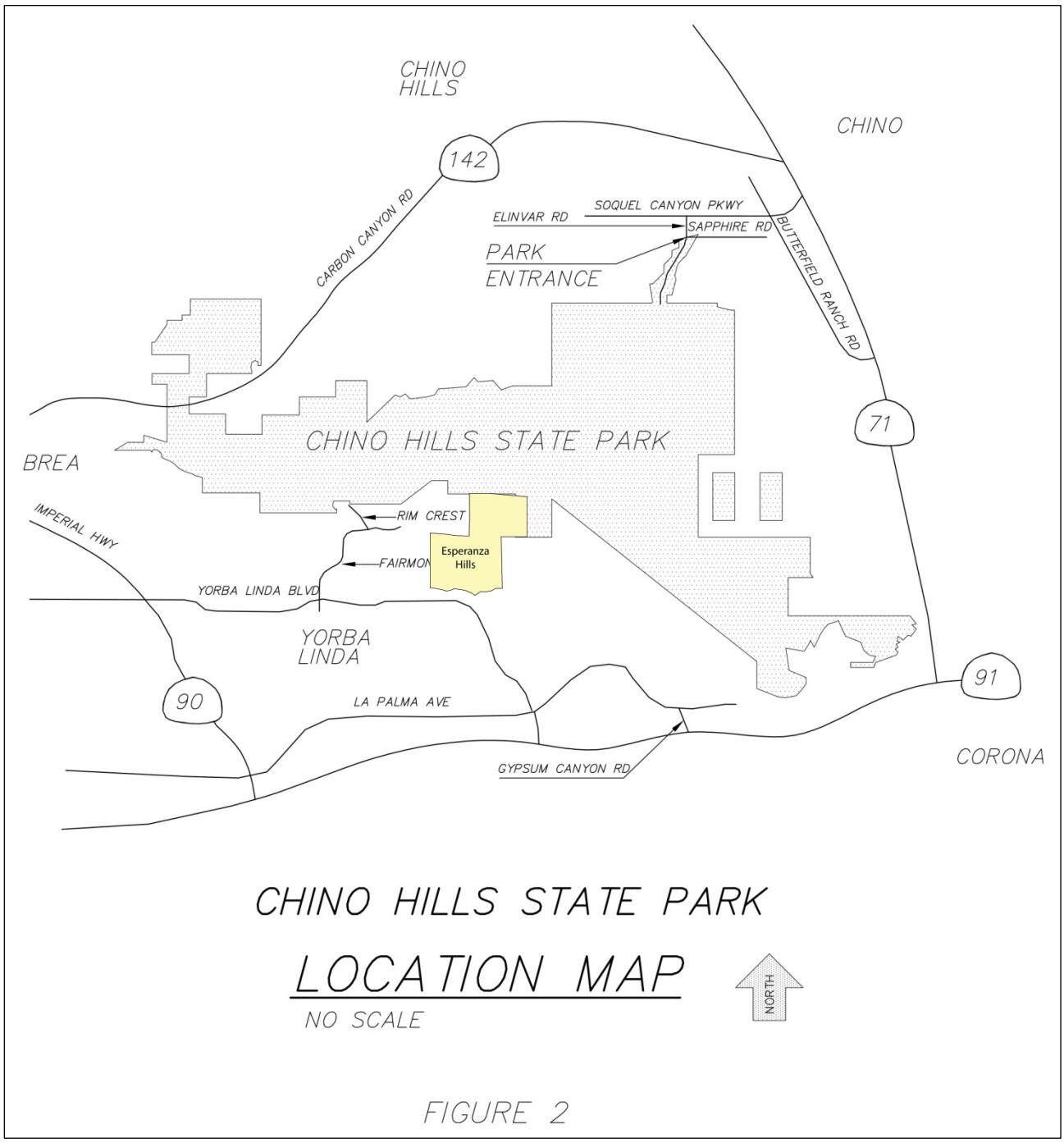



**Exhibit 5-2 – Chino Hills State Park Map**

A guideline concerning impact from artificial lighting from adjacent development states: "The Department will cooperate with park neighbors and local government agencies to minimize the intrusion of artificial light into the night scene, recognizing that darkness and the night sky play significant roles in the overall visitor experience. Artificial outdoor lighting within the park will be limited to basic safety requirements and shielded when and where possible."

The Natural Resources section of the Chino Hills State Park General Plan establishes a goal to, "Establish, maintain, and protect buffers adjacent to Chino Hills State Park" and establishes guidelines to work with adjacent land owners, neighbors, and local jurisdictions to provide for necessary buffers adjacent to park boundaries. Land uses outside park boundaries can cause significant impacts on parklands including impact from artificial light.

## 4. California Scenic Highway Program

California Scenic Highways are classified as "eligible" or "officially designated." The status of a California Scenic Highway changes from "eligible" to "officially designated" when the local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation (Caltrans) for scenic highway approval, and receives notification from Caltrans that the highway has been "officially designated" as a scenic highway. When a city or a county nominates an eligible scenic highway for official designation, it must identify and define the scenic corridor of the highway. The agency must also adopt ordinances to preserve the scenic quality of the corridor or document such regulations that already exist in various portions of local codes. These ordinances make up the scenic corridor protection program.

Minimum requirements for scenic corridor protection include:

- Regulation of land use and density of development;
- Detailed land and site planning;
- Control of outdoor advertising (including a ban on billboards);
- Careful attention to and control of earthmoving and landscaping; and
- Careful attention to design and appearance of structures and equipment.

The SR-91 (Riverside) Freeway from the SR-55 Freeway to Weir Canyon Road is officially designated as a California Scenic Highway. The SR-91 Freeway east of Weir Canyon Road to the Orange County border is designated as "eligible" to be designated as a California Scenic Highway. Caltrans describes the views from this freeway to include residential and commercial development with intermittent riparian and chaparral vegetation. The City has not adopted a scenic corridor protection program.

### 5.1.3 Thresholds of Significance

For the purposes of this DEIR, the thresholds of significance for evaluation project impacts are based upon suggested criteria from the CEQA Environmental Checklist found within Appendix G of the CEQA Guidelines. The project would result in a significant impact if it would:

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

### 5.1.4 Project Impacts Prior to Mitigation

This section presents a discussion of the potential aesthetics impacts associated with the development of the proposed planned community. The impact analysis is based on qualitative assessments and computer-generated photo simulations prepared for the Proposed Project. Project design features aimed at reducing aesthetics impacts have been incorporated into the Proposed Project and are detailed herein.

The Project proposes two access options:

- Option 1 has 334 residential lots and provides access from Stonehaven Drive approximately 325 feet east of Devonport Circle with emergency fire access provided via Stonehaven Drive approximately 130 feet northeast of Via de la Roca, which currently services the surrounding hillside area.
- Option 2 has 340 residential lots and provides access from Aspen Way and emergency fire access via Stonehaven Drive approximately 325 feet east of Devonport Circle.

When referring to the Project in general, 340 residential lots are noted as the maximum number of units. In cases where project impacts are different between the two options, the option impacts are both described. The Proposed Project will be constructed in two phases. Planning Area 1, located on the lower elevations of the Project Site will be constructed with its associated access roads and water supply as Phase 1; and Planning Area 2, located on the upper elevations of the Project Site will be constructed as Phase 2 with its associated roadways and water supply. Exhibit 4-11– Planning Areas (page 4-17) shows the boundaries of Phase 1 and Phase 2.

Two of the existing oil well operation areas located near the southern project boundary may remain after completion of the Proposed Project, but are subject to abandonment and relocation to a designated drilling pad on the proposed Cielo Vista project, under the terms of an agreement between the Cielo Vista developers and owners and Santa Ana Canyon Development, the operator of the oil wells. The

existing transmission towers and lines will remain on the eastern side of the Proposed Project Site. The Proposed Project Site also includes two new water reservoir tanks that are located underground, as well as underground water transmission lines for MWD and YLWD. Service roads will be paved to the electrical and water transmission lines, as well as the water reservoirs. To the extent that any of the existing oil wells remain, they will be accessed primarily by paved roads, although some graded dirt roads may remain for short distances. The electrical transmission lines will continue to be accessed primarily by graded dirt roads that will originate from paved access roads to the Proposed Project.

Implementation of the Proposed Project will change the aesthetics character of the area by permanently altering portions of the site through landform modification and building, as analyzed in this section. The project design has taken into consideration existing topography by clustering and terracing building pads to minimize grading and preserve open space. The proposed site grading will consist of cutting, filling, and re-contouring the natural terrain to create new roadways, useable park areas, slope areas, retention basins, open space, and residential lot areas. (Refer to Exhibit 5-3 – Conceptual Site Plan/Grading, Option 1 and Exhibit 5-4 – Conceptual Site Plan/Grading, Option 2.)

Large areas of open space have been preserved or designated as fuel modification zones, which minimizes the visual impact of the proposed low-density residential community to the existing adjacent neighborhoods within the City and the adjacent Chino Hills State Park. Most of the open space within the Esperanza Hills Specific Plan serves as a buffer between existing subdivisions so that no existing residents will have homes built adjacent to their backyards, either infringing on their privacy or obstructing their views. Additional open space is preserved to the east of the site in Blue Mud Canyon leading into Chino Hills State Park. The Proposed Project is designed to retain ridgelines whenever possible to minimize impacts to viewsheds. The northern and eastern ridgelines adjacent to Chino Hills State Park have been preserved, as well as the southernmost ridgeline to the south of Blue Mud Canyon, as depicted in Exhibit 4-11 – Planning Areas (page 4-17) in the Project Description section of this DEIR. To reduce grading and landform alteration, the design of the Proposed Project uses the alignment of existing service roadways on the site whenever possible in the design of Option 1 and Option 2.

The Proposed Project includes development plan components and design features with the intent of minimizing aesthetics impacts. These Project design features reflect the basic intent of the development plan - to provide a mix of high-quality residential, recreation, and open space uses in harmony with the surrounding community while minimizing impacts to the ridgelines and natural character of the site.


**Exhibit 5-3 – Conceptual Site Plan/Grading, Option 1**


**Exhibit 5-4 – Conceptual Site Plan/Grading, Option 2**

A three-dimensional depiction for each access option is illustrated within the Specific Plan and included in this DEIR as Exhibit 5-5 – Esperanza Hills, Option 1 and Exhibit 5-6 – Esperanza Hills, Option 2. Depending upon the access option selected, the project will have from 12.18 to 13.16 acres of active and passive parks, which will be available to pedestrian, bicycle, or equestrian access from existing or proposed trails. When the Project is completed, it will have approximately 62% Open Space. Natural open space of approximately 140 to 150 acres consists primarily of existing canyons with intermittent water flow, ridgelines, and other undisturbed natural space. In Blue Mud Canyon, a mitigation area will be created to promote regrowth of the black walnut trees that flourished there prior to the 2008 Freeway Complex Fire, and irrigation will be installed to promote growth of mulefat and willows to create a habitat for least Bell's vireo, a bird on the federal endangered species list that has been found to live to the west of the site. On the north side of Blue Mud Canyon, a trail will be installed to permit access to the Chino Hills State Park at the Old Edison Trail. The plant palette around the trail will be California friendly, consisting of low water fire resistant plants that will provide year round color.

The open space areas also include a 170-foot fuel modification zone that surrounds the developed areas, which will be maintained by the HOA. The first 20 feet of each zone will be a non-combustible construction zone located on the lot (Zone A). The second 50 feet will be an irrigated zone (Zone B) that is planted with drought-tolerant, deep-rooted, moisture-retentive material. The third 50 feet will be a dry zone characterized by a 50% thinning of native shrubs (Zone C). The fourth zone is a dry zone with 30% thinning of native shrubs (Zone D). Refer to Exhibit 5-7 – Conceptual Fuel Modification Plan, Option 1 and Exhibit 5-8 – Conceptual Fuel Modification Plan, Option 2

The Proposed Project includes development standards that provide a framework for implementation of the Project objectives. These standards will assure: 1. high quality community appearance, 2. compatibility of development with surrounding existing developments, and 3. alteration of the landform and development of structures while ensuring public health, safety, and welfare. The development standards establish land uses, minimum lot size, building heights, and setback requirements.

The Proposed Project includes design guidelines pertaining to the Proposed Project's community structure, community visual appearance, walls and fences, community furnishings, and landscape community furnishings. An objective of the community structure is to have a neighborhood architectural design that reflects the character of the surrounding area and the southern California region. Community visual appearance guidelines provide that home colors be selected to be consistent with the surrounding natural landscape and with the color value of the specific hue close to the immediate landscape.

Colors used on the homes visible from outside the Proposed Project will be predominantly earth tones, such as browns, ochers, sepias, and grays. The community visual appearance guidelines in the proposed Specific Plan provide that native and architecturally thematic plant material will be used to establish entry monuments,

signage, walls, fences, and hardscape elements, complementing and evoking the same respect for the surrounding natural environment. All streetscapes, slopes, and neighborhood parks will be harmoniously interwoven with the natural hillside by utilizing trees, naturalized shrubs, and grasses that are drought tolerant and considerate of long-term maintenance needs, also utilizing a California friendly plant palette. The main entry roads will have landscaping in the middle, and will be landscaped on the sides; in certain locations there will be multi-use trails for hiking, biking, and equestrian uses. The parks will have themes and will include fruit trees characteristic of the historic agricultural production of Orange County, such as avocados, grapes, grapefruits, peaches, and oranges. The Water Quality Management Basins are designed to have plant palettes to promote bio-retention while also providing attractive landscape features.

The Walls and Fences subsection of Section 11.3, The Guidelines, in the Esperanza Hills Specific Plan establishes that the access road to the Project from Stonehaven Drive to the main gate will include plantable Verdura retaining walls in which vegetation will provide an aesthetically enhanced "green" wall to blend with the natural terrain. Cascading vines and ground covers will be integrated throughout the plantable wall pockets along with opportunities for additional planting at the top of the wall and the toe of wall. Evergreen/flowering color will provide contrast and variety. An alternative to the Verdura plantable walls in steep areas would be a Shotcrete retaining wall in which a shear retaining wall will be covered in a naturalistic-colored concrete that would be detailed by skilled craftsmen to mimic naturally occurring rock outcroppings and would provide planting pockets for vegetation to complement the natural landscape (Exhibit 5-9 – Wall Examples).

To the extent that any oil wells remain on-site, screen walls will be constructed to mitigate views of the tanks and the drilling rigs, thereby providing an aesthetically improved view.

The Proposed Project includes design features, for example, to ensure that all mechanical equipment is screened from view and painted to blend into the surrounding, and to prohibit roof-mounted air conditioning equipment in order to reduce noise and glare from equipment from off-site views of the Project Site.

The Proposed Project includes design features for landscape community furnishings in order to harmoniously interweave all streetscapes, slopes, and neighborhood parks with the natural hillside by utilizing a variety of California oaks, sycamores, natural shrubs, and grasses to buffer homes and reinforce views. The Proposed Project includes design features to reduce light pollution and glare by eliminating excessive light levels in outdoor lighting design and hooding light fixtures to minimize visibility of light sources. Street lights will be designed to minimize light pollution while still meeting minimum safety requirements. All lights shall be designed and located so that direct light rays shall be confined to the Project consistent with night sky lighting practices.


**Exhibit 5-5 – Esperanza Hills, Option 1**


**Exhibit 5-6 – Esperanza Hills, Option 2**

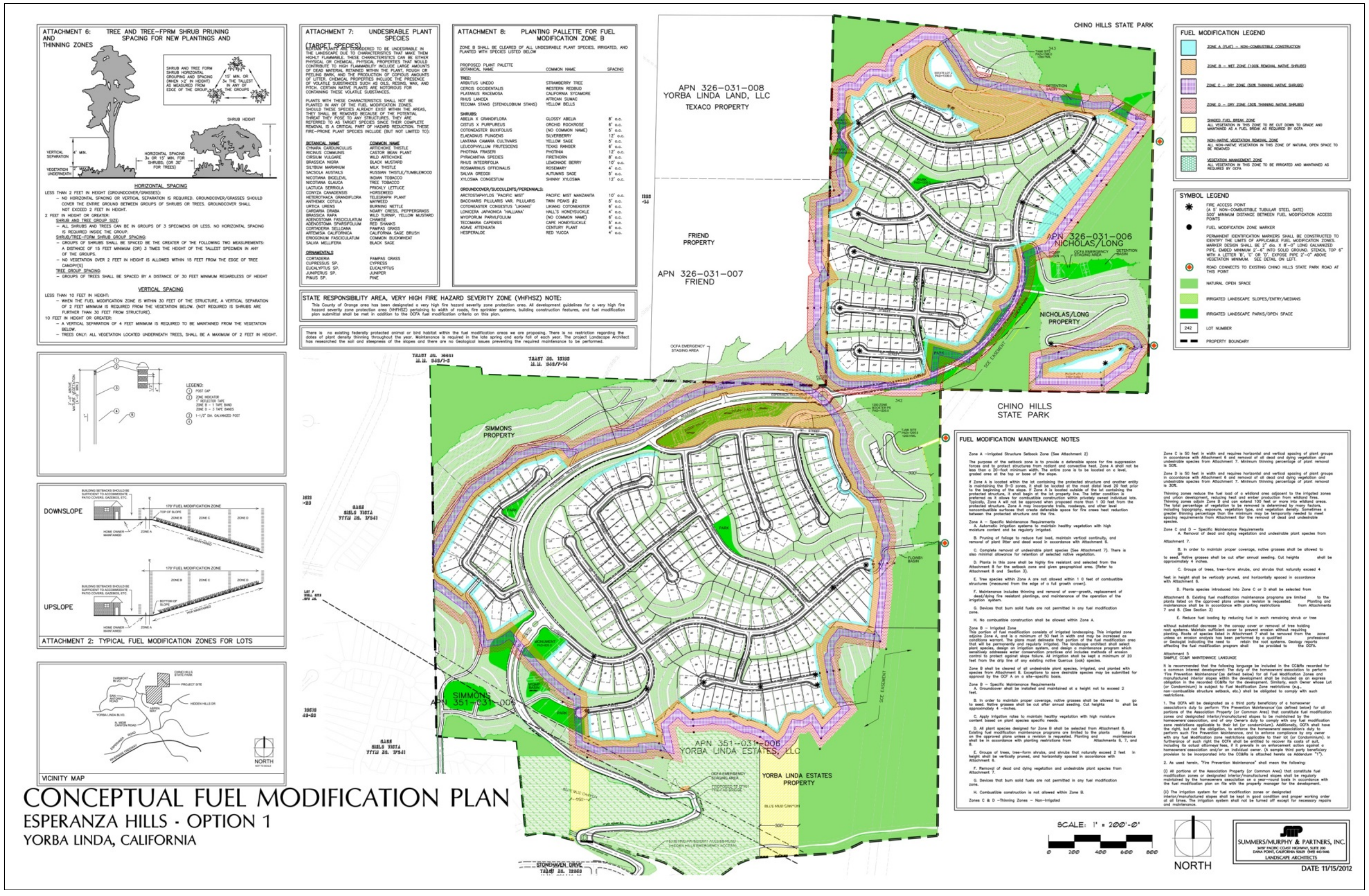



**Exhibit 5-7 – Conceptual Fuel Modification Plan, Option 1**

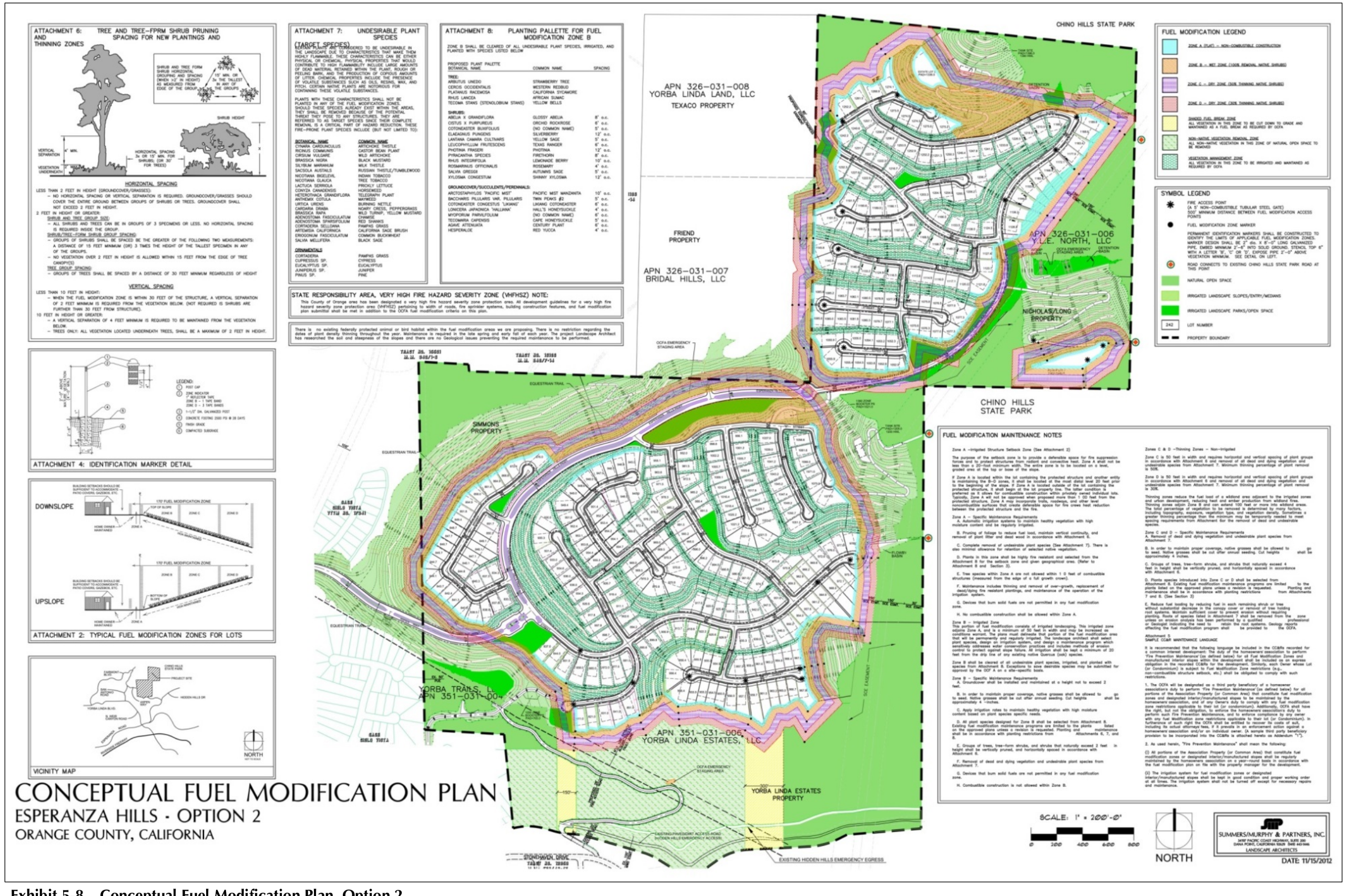
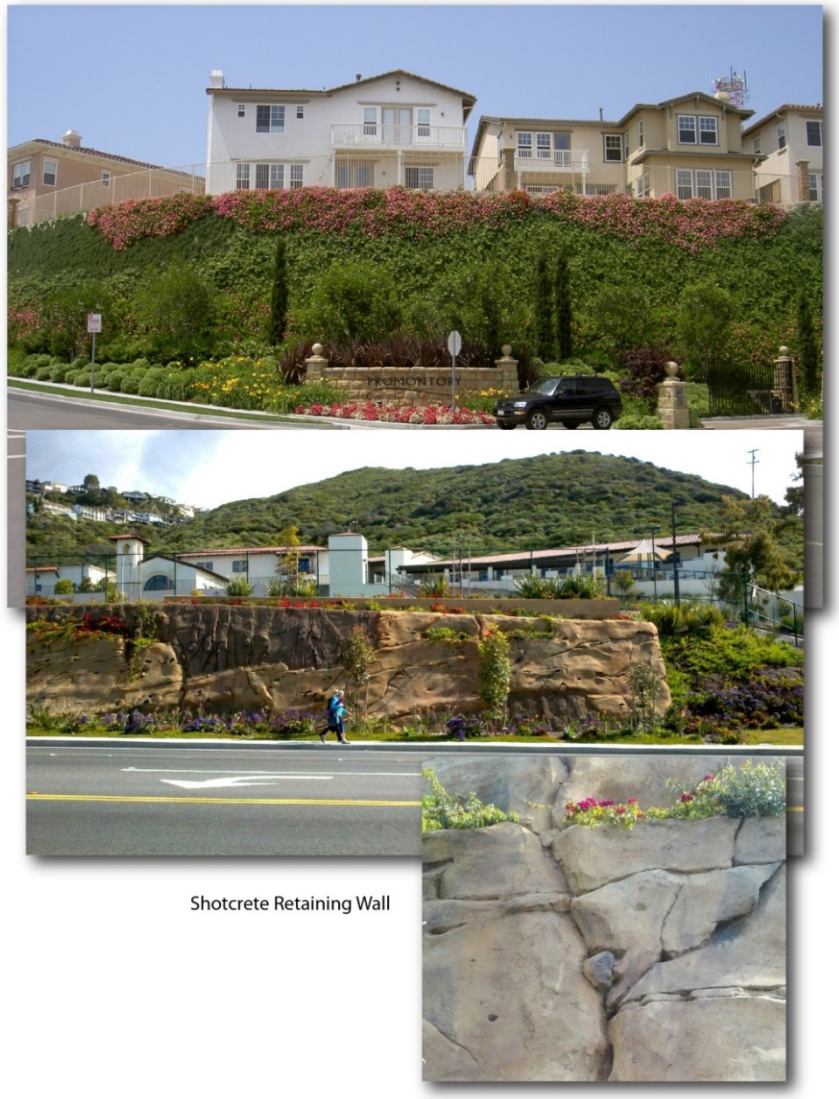



**Exhibit 5-8 – Conceptual Fuel Modification Plan, Option 2**


Verdura Retaining Wall



Shotcrete Retaining Wall

**Exhibit 5-9 – Wall Examples**

## 1. Methodology

Visual simulations have been prepared to depict what the Proposed Project will look like when viewed from off-site locations. Twelve distinct locations were chosen from near and distant viewpoints to represent the change in the visual quality of the site. The project shown on the visual simulations represents Option 1 and Option 2 if any portion of the option was visible from the viewpoint. All existing off-site foreground elements, such as trees, are selected and placed to screen the model as appropriate.

## 2. Short-Term Impacts

Construction of the Proposed Project is planned in two major phases. Planning Area 1, which will be constructed and developed first, contains four parks, an underground water reservoir, open space, existing natural open space, riparian areas, and a trail corridor linking the Project Site to surrounding properties and the Chino Hills State Park. Planning Area 2 is located at a higher elevation on the property. It contains five parks, an underground water reservoir, open space, existing natural open space, a trail system that connects to the canyon to the west, and two estate lots that have the potential for ancillary uses such as equestrian and/or viticulture. Planning Area 2 will be graded and constructed after completion of the mass grading for Planning Area 1.

While completion of construction may take longer due to market conditions, it is anticipated that mass grading and infrastructure installation for Planning Area 1 will take approximately six to ten months to complete, and mass grading and infrastructure installation for Planning Area 2 will take approximately six to eight months to complete. The Proposed Project is planned to take approximately three to seven years from the start of construction to complete build out, depending upon market conditions.

Exposed grading surfaces, construction debris, construction equipment, truck traffic, and stockpiled materials may adversely impact views of the site on a temporary basis. Dirt would be stockpiled, and equipment for grading activities would be stored at various locations on the site. The Project Applicant is required to coordinate these locations with the grading contractor and the County of Orange Subdivision and Grading Services during the various construction phases of the Proposed Project.

Construction areas will be visible from surrounding land uses including construction vehicles, construction storage bins and office trailer, construction fencing, slope stabilization materials, areas cleared of vegetation, and graded areas. Mass grading and construction of infrastructure will result in the greatest impacts. When there is disturbance due to grading, landscaping will be installed upon completion of grading activity. However, due to the short-term nature of construction and required coordination with the County of Orange, potential construction-related impacts are not anticipated to be significant.

## 3. Long-Term Impacts

Long-term impacts to aesthetics are those associated with the project upon completion of all project construction phases. The construction will permanently alter some views of the site as discussed below. To help evaluate view impacts, current technology has been used to create existing and proposed condition visual simulations. Twelve views of the site were selected that represent the appearance of the project generally available from public view areas. Exhibit 5-10 provides a key map identifying the location of the 12 views. Exhibit 5-11 through Exhibit 5-22 provide the existing and proposed views for the Proposed Project, which are discussed below.

- **View 1** (Exhibit 5-11) shows the existing view and a simulated view that includes the Proposed Project as seen from the eastbound travel lane of the SR-91 Freeway just east of Lakeview Road in the City of Anaheim looking northeasterly towards the Project Site. This location is approximately three miles from the Project Site. This section of SR-91 is a designated State Scenic Highway and County of Orange Scenic Highway – Viewscape Corridor. As depicted in the simulated view of the Proposed Project from the View 1 location, the existing freeway sound wall along the north side of the freeway blocks all distant views, including the Project Site. As depicted in the simulated view of the Proposed Project from the View 1 location, the Proposed Project has no impact on aesthetics as visible from the View 1 location.
- **View 2** (Exhibit 5-12) shows the existing view and a simulated view that includes the Proposed Project as seen from the eastbound travel lane of the SR-91 Freeway just east of Fairmont Boulevard in the City of Anaheim looking northeasterly towards the Project Site. This section of SR-91 is a Caltrans-designated Scenic Highway and a County-designated Scenic Highway – Viewscape Corridor. This scenic view of the Puente-Chino Hills range with hillside development in the cities of Yorba Linda and Anaheim is visible to motorists from this vantage. As depicted in the simulated view of the Proposed Project as seen from the View 2 location, the Project Site is visible in the distance clustered in the existing canyons and below the Chino Hills ridgelines. There is no substantial adverse effect to the Scenic Highway or Scenic Highway – Viewscape Corridor from the Proposed Project, because the intervening ridge limits views of the lower Project Area, while the higher ridges above the Project Site remain intact. The distant view of the Project Site is similar to other hillside developments east of the Project Site located along the ridges of the Hidden Hills community.

  As viewed from this location, the Proposed Project will create a potential new light and glare source not present in the existing condition. The Proposed Project incorporates night sky design features to reduce light pollution and glare. With the implementation of Mitigation Measure AE-1 (page 5-62) all direct rays from exterior lighting are required to be confined to the Project Site. The Proposed Project will not substantially degrade the existing visual character or the quality of the site from the View 2 location, because with adherence to the proposed development regulations, the effects of on-site exterior lighting would be minimized substantially by the shielding and the distance.

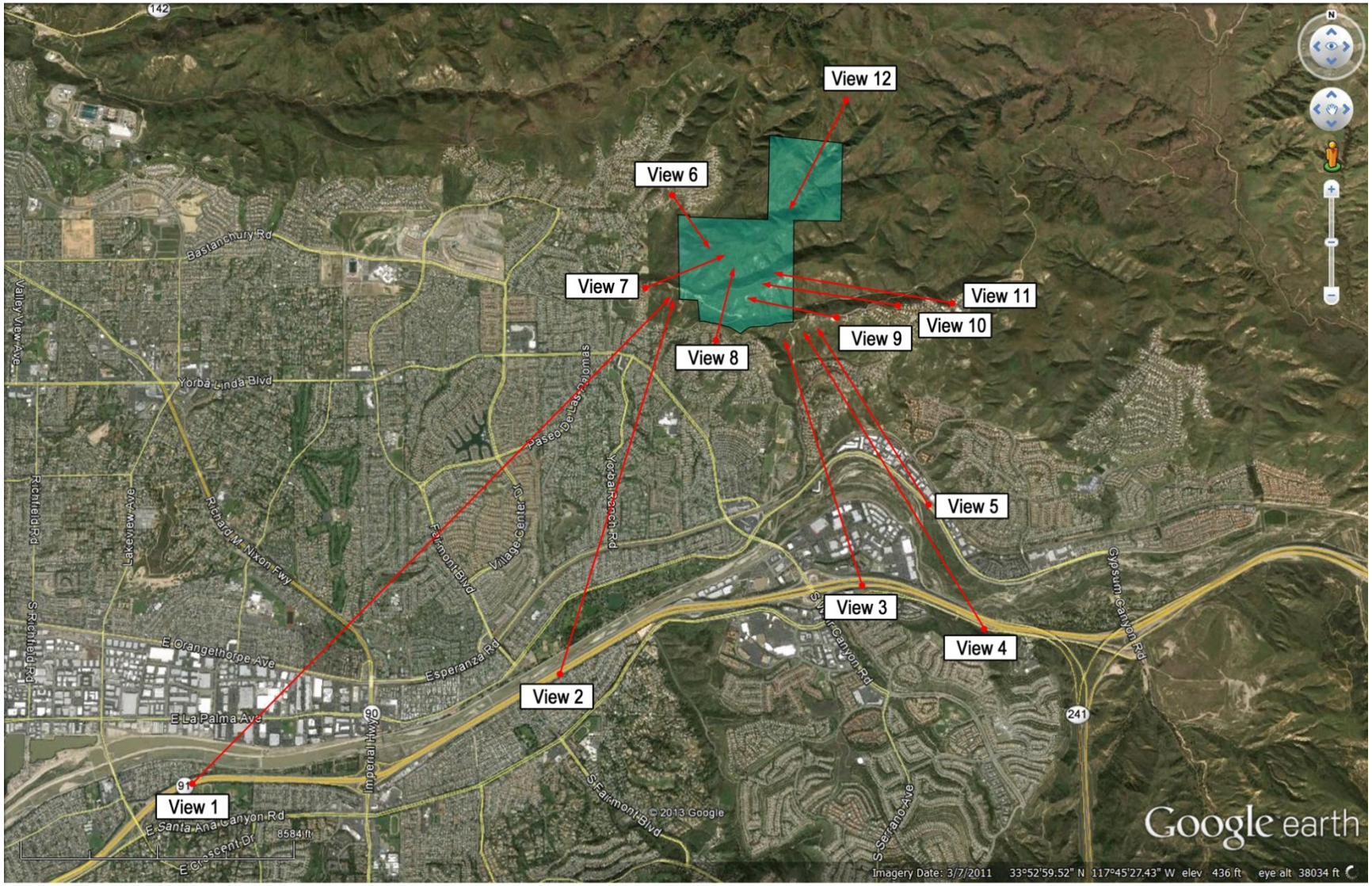



**Exhibit 5-10 – Key Map Identifying Location of 12 View Simulations**


Existing view


Simulated view with the proposed Esperanza Hills development

**Exhibit 5-11 – View 1**


Existing view


Simulated view with the proposed Esperanza Hills development

**Exhibit 5-12 – View 2**

- **View 3** (Exhibit 5-13) shows the existing view and a simulated view that includes the Proposed Project from the eastbound travel lane of the SR-91 Freeway just east of Weir Canyon Road (approximately three miles from the site) in the City of Anaheim looking northerly towards the Project Site. The homes along Hidden Hills Road and on the terraced streets off Granaby Drive are seen in the foreground. This section of the SR-91 Freeway is eligible for Scenic Highway status and is a County-designated Scenic Highway – Viewscape Corridor. As depicted in the simulated view of the Proposed Project as seen from the View 3 location, the Proposed Project Site is visible by motorists in the distance along the Project Site ridgeline with the higher ridge of the Chino Hills rising above the Project Site.

  As depicted in the simulated view of the Proposed Project from the View 3 location, the Proposed Project will create a potential new light and glare source not present in the existing condition. The Proposed Project incorporates night sky design features to reduce light pollution and glare. With implementation of Mitigation Measure AE-1 (page 5-62) all direct rays from exterior lighting are required to be confined to the Project Site. The distant view of the Proposed Project from the scenic highway does not substantially damage views from the scenic highway or substantially degrade the existing visual quality or character of the site or the surroundings, because the scale of the development is substantially diminished due to the distance from this view location. Furthermore, the Proposed Project is consistent with the surrounding developments, and the higher ridges remain prominent and are not compromised by the proposed development. With adherence to the proposed development regulations, aesthetics impacts related to this area of the Proposed Project will be less than significant from this location.

- **View 4** (Exhibit 5-13) shows existing and proposed views of the Proposed Project taken from the eastbound travel lane of SR 91 between Weir Canyon Road and the SR-241 toll road in the City of Anaheim looking northwesterly towards the Project Site. This section of SR-91 is eligible for Caltrans-designated Scenic Highway status and is a County-designated Scenic Highway – Viewscape Corridor. As depicted in View 4, the lower portion of the Proposed Project is visible by motorists in the distance along the Project Site ridge top that is below the higher ridges of the Chino Hills range. The upper portion of the Project Site is blocked from view by intervening ridges. As depicted the photograph of the existing view as seen from the View 4 location, other hillside developments are visible from this vantage point, which is located along the ridgelines of the Chino Hills.

  As viewed from this location, the Proposed Project will create a potential new light and glare source not present in the existing condition. The Proposed Project incorporates night sky design features to reduce light pollution and glare. With the implementation of Mitigation Measure AE-1 (page 5-62) all direct rays from exterior lighting are required to be confined to the Project Site. Similar to View 3, the distant view of the Proposed Project from the View 4 location does not substantially damage views from the eligible Scenic Highway or substantially

degrade existing visual quality or character of the site or the surroundings. The Project consists of low-density single-family residences. The Specific Plan Design Guidelines establish regulations providing building colors that will be predominantly earth tones designed to blend with the background natural vegetation, a grading design that preserves the natural ridgelines, design features to reduce light pollution and glare by incorporating night sky lighting practices, screening of building equipment and utility boxes, and using non-reflective building glass and wall materials. With adherence to the proposed development regulations, aesthetics impacts related to this area of the Proposed Project will be less than significant from this view location.

- **View 5** (Exhibit 5-15) shows the existing view and a simulated view of the Proposed Project taken from La Palma Drive at the intersection of Via Lomas De Yorba Lane in the City of Yorba Linda looking northwesterly towards the Project Site. As depicted in the simulated view as seen from the View 5 location, the Proposed Project is not visible from this viewpoint. The Project Site is located entirely behind the intervening ridgeline. There is no visual project impact from this view location.
- **View 6** (Exhibit 5-16) shows the existing view and a simulated view that includes the Proposed Project from Casino Ridge Road near the intersection of Hollow Ridge Court in the City of Yorba Linda looking southeast onto Planning Area 1 within the Proposed Project Site. As depicted in the simulated view of the Proposed Project as seen from the View 6 location, Planning Area 1 is visible from this vantage point. The residential structures located on "R" Street through "V" Street are sited below the Project ridgelines. The residential structures along "M" Street, "N" Street, and "O" Street, with elevations ranging from 930 AMSL to 965 AMSL, are visible along the Project ridge, but remain below higher ridgelines in the near and distant background. In this portion of the view, rooftops are clearly visible above the Project Site's ridgeline. The Proposed Project's terraced and landscaped slopes are visible on the left of the view.

  As viewed from this location, the Proposed Project will create a potential new light and glare source not present in the existing condition. The Proposed Project incorporates night sky design features to reduce light pollution and glare. With implementation of Mitigation Measure AE-1 (page 5-62) all direct rays from exterior lighting are required to be confined to the Project Site. Although development within Planning Area 1 of the Proposed Project is visible from the View 6 location, it does not substantially degrade the existing visual character or quality of the site and its surroundings in that the existing landform of upward-trending slopes remains the dominant visual amenity in the view. All development within the Planning Area is located below the major ridgelines and will not block distant vistas from this view location. With adherence to the proposed development regulations, aesthetics impacts related to this area of the Proposed Project will be less than significant from this view location.


Existing view


Simulated view with the proposed Esperanza Hills development

**Exhibit 5-13 – View 3**


Existing view


Simulated view with the proposed Esperanza Hills development

**Exhibit 5-14 – View 4**


Existing view


Simulated view with the Proposed Esperanza Hills development

**Exhibit 5-15 – View 5**


Existing view


Simulated view with the Proposed Esperanza Hills development

**Exhibit 5-16 – View 6**

- **View 7** (Exhibit 5-17) shows the existing view and a simulated view of the Proposed Project from the end of Dorinda Road in the City of Yorba Linda looking easterly towards the Project Site. As depicted in the simulated view of the Proposed Project from the View 7 location, Planning Area 1 is visible from this vantage point. Residential structures trend upward following the slope with a majority of the structures located below the Project's ridgelines. Residential structures located at the end of "V" Street are viewed above the ridgeline in front of the SCE transmission towers. To the extreme left of the simulated view showing the Proposed Project as seen from the View 7 location, existing Casino Ridge homes are visible at the top of the ridge above the Proposed Project residential structures. The manufactured slopes within Planning Area 1, which rise above the proposed residential development, have been terraced and landscaped, and are visible from this vantage point.

  As viewed from this location, the Proposed Project will create a potential new light and glare source not present in the existing condition. The Proposed Project incorporates night sky design features to reduce light pollution and glare. With the implementation of Mitigation Measure AE-1 (page 5-62) all direct rays from exterior lighting are required to be confined to the Project Site. Although some development within Planning Area 1 is visible from the View 7 location, it does not substantially degrade the existing visual character or quality of the site and its surroundings, because the existing landform of upward-trending slopes remains. With adherence to the proposed development regulations, aesthetics impacts related to this area of the project will be less than significant from this view location.

- **View 8** (Exhibit 5-18) shows the existing view and a simulated view that includes the Proposed Project from the end of Devonport Court in the City of Yorba Linda looking northerly towards the Project Site. As depicted in the simulated view of the Proposed Project from the View 8 location, Planning Area 1 is visible from this vantage point. A majority of the residential structures that are visible from this vantage point are sited below the upward-trending slope with residential structures located at the end of "O" Street at an elevation of 970 AMSL visible above the Proposed Project ridgeline to the left in the simulated view of the Proposed Project as seen from the View 8 location. Residential structures located to the right in the simulated view at the end of "J" Street are viewed above the Project ridgeline.

  As viewed from the View 8 location, the Proposed Project will create a potential new light and glare source not present in the existing condition. The Proposed Project incorporates night sky design features to reduce light pollution and glare. With the implementation of Mitigation Measure AE-1 (page 5-62) all direct rays from exterior lighting are required to be confined to the Project Site. Although the Proposed Project is visible from the View 8 location, it does not substantially degrade the existing visual character or quality of the site and its surroundings in that the existing landform of upward-trending slopes remains. With adherence to the proposed development regulations, aesthetics impacts related to this area of the Proposed Project will be less than significant from this view location.

- **View 9** (Exhibit 5-19) shows the existing view and a simulated view that includes the Proposed Project from the cul-de-sac at the end of Green Crest Drive in the City of Yorba Linda looking westerly towards the Project Site. As depicted in the

simulated view of the Proposed Project as seen from the View 9 location, the Project Site is not visible from this vantage point. The Project Site is behind the intervening ridgeline. There is no visual project impact from this view location.

- **View 10** (Exhibit 5-20) shows the existing view and a simulated view that includes the Proposed Project from the back yard of a residence at the end of Fairwood Circle in the City of Yorba Linda looking westerly towards the Project Site. As depicted in the simulated view of the Proposed Project as seen from the View 10 location, the Project Site is not visible from this vantage point. The Project Site is behind the intervening ridgeline and below the visible energy transmission lines. There is no visual project impact from this view location.
- **View 11** (Exhibit 5-21) shows an existing view and a simulated view of the Proposed Project from Hidden Hills Road near the intersection of Hidden Glen Lane in the City of Yorba Linda looking westerly towards the Project Site. As depicted in the simulated view of the Proposed Project as seen from the View 11 location, the Project Site is not visible from this vantage point. The Project Site is behind the intervening ridgeline. There is no visual project impact from this view location.
- **View 12** (Exhibit 5-22) shows an existing view and a simulated view of the Proposed Project from the scenic vista on top of San Juan Hill in Chino Hills State Park looking southwesterly towards the Project Site. Estate Lot 1 in Planning Area 2 at an elevation of 1,340 AMSL is visible from this vantage point. As depicted in the simulated view of the Proposed Project as seen from the View 12 location, although the structures associated with Estate Lot 1 are visible, the structures are viewed against the distant ridgeline of the Santa Ana Mountains along with urban development and the SR 91 Freeway in the distance. Also visible in the simulated view are a few residential structures located in Planning Area 1 below the ridge at the intersection of "S" Street and "U" Street with an elevation of approximately 1,039 AMSL.

  As viewed from the View 12 location, the Proposed Project will create a potential new light and glare source not present in the existing condition. The Proposed Project incorporates night sky design features to reduce light pollution and glare. The photograph showing the Proposed Project from the View 12 location depicts the potential for a main residence structure and a guesthouse on one of the estate lots. With the implementation of Mitigation Measure AE-1 (page 5-62), all direct rays from exterior lighting are required to be confined to the Project Site and are designed to not spill into off-site areas within Chino Hills State Park. Although Estate Lot 1 in Planning Area 2 is visible from the View 12 location, it does not substantially degrade the existing visual character or quality of the site and its surroundings in that the existing landform of downward-trending slopes remains and the development of the project will not substantially block distant vistas. The Chino Hills State Park General Plan includes a guideline to discourage ridgeline developments that affect views from the Park and encourages cooperation with developers to protect views to the extent feasible. With adherence to the proposed development regulations, aesthetics impacts related to this area of the project will be less than significant from this view location.


Existing view


Simulated view with the proposed Esperanza Hills development

**Exhibit 5-17 – View 7**


Existing view


Simulated view with the Proposed Esperanza Hills development

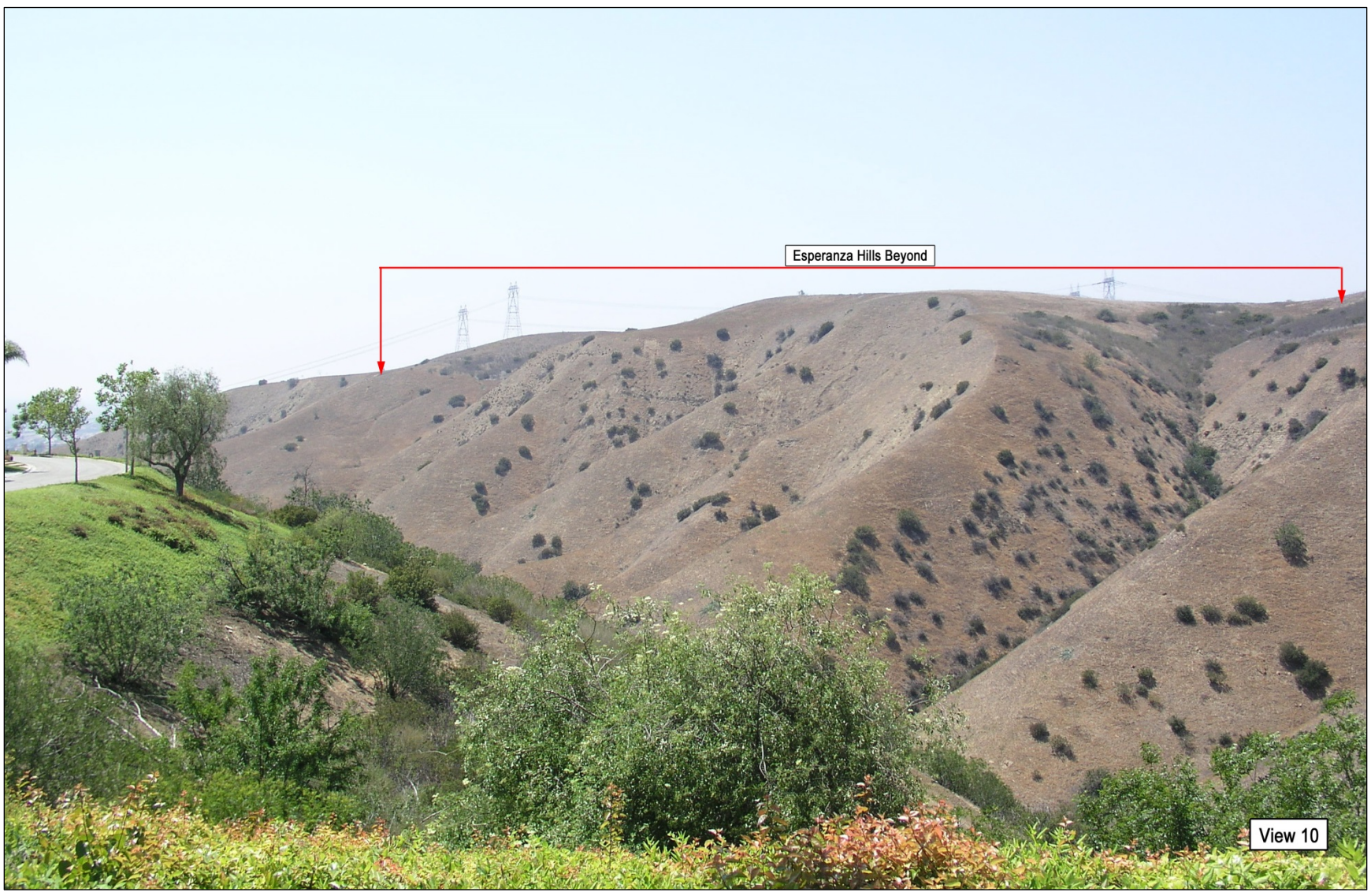
**Exhibit 5-18 – View 8**


Existing view


Simulated view with the proposed Esperanza Hills development

**Exhibit 5-19 – View 9**


Existing view




Simulated view with the proposed Esperanza Hills development

**Exhibit 5-20 – View 10**


Existing view


Simulated view with the proposed Esperanza Hills development

**Exhibit 5-21 – View 11**


Existing view


Simulated view with the proposed Esperanza Hills development

**Exhibit 5-22 – View 12**

The following is a summary of potential aesthetics resources impacts associated with the development of the Proposed Project. Mitigation measures are provided where appropriate.

### 1) Visual Character

Section 10, Development Standards and Section 11, Design Guidelines of the Esperanza Hills Specific Plan provide regulations and development standards for the Proposed Project's residential uses, which will be recorded as Covenants, Conditions and Restrictions on the property and enforced by the Homeowners Association Board of Directors and Design Review Committee. These sections set forth permissible land uses and residential densities, as well as development standards such as setbacks, building heights, site coverage, landscaping, and screening with which future development must comply. The Design Guidelines also establish regulations for home colors that soften the appearance of the homes that are visible from outside the Proposed Project. Home colors will be selected to be consistent with the surrounding natural landscape and with the color value of the specific hue close to the immediate landscape. Colors on the homes visible from outside the Proposed Project will be predominantly earth tones, such as browns, ochers, sepias, and grays. The Design Guidelines establish night sky regulations to reduce light pollution and glare by reducing light levels and directing rays to on-site surfaces.

The Proposed Project, as designed, is not anticipated to have significant impact on or degrade existing visual character or quality of the site and its surroundings, because the existing landform of upward-trending slopes is preserved, distant views to the major ridgelines and other important visual amenities are preserved, and design features have been incorporated into the Proposed Project to soften the appearance of the homes visible from outside the Project. Home colors designated in the Esperanza Hills Specific Plan will be selected to be consistent with the surrounding natural landscape and with the color value of the specific hue close to the immediate landscape. Colors on the homes visible from outside the Project will be predominantly earth tones such as browns, ochres, sepias, and grays. The Proposed Project consists of 62% open space with approximately 140 to 150 acres of primarily hills, canyons, ridgelines, and other undisturbed natural space that lessens the visual impact of the Project. The Proposed Project is consistent with existing surrounding low-density residential development, which consists of single-family one- and two-story homes on large lots, and provides abundant open space with fuel modification zones. Therefore, the Project's aesthetics impacts related to scenic vistas will be less than significant.

### 2) Light and Glare

As the Project Site currently does not generate any night time light source, development of the project will create new light sources that will increase light and glare in the immediate vicinity as well as from distant vistas. Residential development on the subject property will also incrementally increase the amount of light shed into the night sky. Street lights will be provided along Esperanza Hills Road that will light the

roadway for safety purposes. Spillover into the surrounding area will be prevented by use of light fixtures that are shielded downward.

The Proposed Project will introduce new sources of light and glare to the area. Potential impacts from light and glare are directly related to the level of urbanization within the Project Site and the design of the individual residential structures. New light sources will include safety and security lighting and ornamental lighting for individual dwellings. New glare sources from light reflecting off building windows will be eliminated by incorporation of a Project Design Feature to reduce potential glare by requiring all buildings to use non-reflective glass. The Proposed Project's parks, trails, and open space areas, such as detention/debris basins and fuel modification zones, as well as water storage tank facilities, may be illuminated, but such areas will comply with dark sky guidelines. By design, virtually all sources of light will illuminate a surrounding area to some degree. The degree of illumination varies, depending on the candlepower of the light source, the height of the light, the presence of barriers or obstructions, and the type and design of the light source.

The proposed lighting would be an extension of the existing lighting in surrounding neighborhoods and would be consistent with surrounding low-density developed areas. Although the proposed lighting could be considered adverse to existing residents, who do not currently experience lighting on the hillside, the proposed lighting would not create any light spillage onto nearby residential areas with the implementation of Mitigation Measure AE-1 (page 5-62). This mitigation measure will prevent unnecessary light on surrounding properties and to ensure on-site lighting is directed towards the appropriate use. This potential impact will be minimized to the greatest extent possible. Landscaping is proposed to mitigate potential headlight glare from automobiles traveling along the local street network. The main entrance road into the Proposed Project will be located between the two planning areas and not readily visible outside the Proposed Project once vehicles enter the main gate. Project aesthetics impacts related to light and glare with mitigation will be less than significant.

### 3) County of Orange General Plan-Scenic Highway

The Proposed Project will be part of the urban fabric from a long-range view of the foothills of Chino Hills from the SR-91 Freeway and portions of Weir Canyon Road. The Proposed Project, as designed, is not anticipated to have significant impacts on the SR-91 Freeway (a Caltrans-designated Scenic Highway and a County-designated Scenic Highway – Viewscape Corridor), because the Project is viewed as part of the Chino Hills range with urban development on the lower slopes and a protected ridgeline above the developed area. The Proposed Project is not located within a scenic vista corridor; therefore, development of the Proposed Project will not impact significant scenic resources. Project impacts on aesthetics related to scenic vistas will be less than significant.

### 4) City of Yorba Linda General Plan

The Proposed Project as designed is substantially consistent with the Yorba Linda GP as it pertains to aesthetics impacts. An analysis of the project's consistency with the Yorba Linda GP goals and policies is provided below using relevant criteria and policies for the level of information provided in the Specific Plan.

- *Land Use Element Goal 8: Low density residential development in the hillside areas which protects the unique natural and topographic character.*

  The Proposed Project has been designed at an average density of .73 dwelling unit per acre. This density is lower than and consistent with the adjacent residential neighborhoods in the City, which average more than 1 dwelling unit per acre, with the exception of Casino Ridge, which is lower than 1 dwelling unit per acre, with an average of 0.74 dwelling unit per acre. The Proposed Project's low density, combined with clustering of development areas, results in preservation of the site's landform and topographic character of upward-trending slopes and canyons. Project impacts to aesthetics are consistent with the Yorba Linda GP and will be less than significant.

- *Land Use Element Goal 9: Preservation and enhancement of the natural setting of the City*

  The project design has taken into consideration existing topography by clustering and terracing building pads to minimize grading and preserve open space. Depending on the access option selected, the Proposed Project consists of approximately 62% open space, including approximately 140 to 150 acres of natural undisturbed vegetation, approximately 85 acres of fuel modification zones, and approximately 7 miles of trails. The Proposed Project has been designed to enhance the natural landforms of upward-trending hillsides and canyons with sensitive contour grading and landscaped retaining walls. The Proposed Project protects the scenic and visual qualities of the hillside area and ridgelines by incorporating design features that set forth permissible land uses and residential densities, as well as requirements such as setbacks, building heights and site coverage, landscaping, and screening. Design features have been incorporated into the project to soften the appearance of the homes visible from outside the property. Incorporation the design features and Mitigation Measure AE-1 (page 5-62) prevents unnecessary light on surrounding properties and ensures that on-site lighting is directed towards the appropriate use. The Project will be in substantial conformance with the Yorba Linda GP Goals and Policies for aesthetics impacts.

### 5) Yorba Linda Zoning Ordinance

The Proposed Project, as designed, is in substantial conformance with the Yorba Linda Zoning Ordinance, which establishes standards and guidelines that address grading,

retaining walls, building location to ridgelines, landscape materials, and building colors.

The Yorba Linda Zoning Ordinance also includes a regulation for development adjacent to Chino Hills State Park that states:

> Within viewscape of Chino Hills State Park for any proposed residential development that is determined to be viewed from any point within Chino Hills State Park, the grading and landscaping plans shall include, for each lot so determined to be viewed, specific measures, including height limits, setbacks, landscaping, berms, and/or other measures that will assure that any structure built on the lot will not be viewed from Chino Hills State Park or otherwise be screened to the extent feasible. (§18.30.040.E, Standards and guidelines)

As depicted in the simulated view of the Proposed Project from the View 12 location (Exhibit 5-22, page 5-55), the structures associated with Estate Lot 1 and a few homes located on "S" Street and "U" Street are visible from the San Juan Hills Lookout within Chino Hills State Park. Mitigation Measure AE-1 (page 5-62 below) has been incorporated into the Proposed Project to reduce light and glare, and Project Design Features have been implemented to reduce visual impact of the Proposed Project by restricting building height to 35 feet, using home colors that are consistent with the surrounding natural landscape, requiring non-reflective glass, screening buildings' mechanical equipment and above-ground utility equipment, and using non-reflecting wall materials and landscaping. Because the Orange County Fire Code prohibits combustible landscaping within 20 feet of residential structures and restricts the size and type of landscaping in fuel modification zones, the Project Design Features described above will minimize the potential impacts to aesthetics, which will be less than significant.

## 5.1.5 Project Design Features

The Project has been designed to minimize visual impacts and to achieve consistency with the surrounding residential developments. The following Project Design Features have been incorporated into the project to reduce visual impact.

PDF 1 Density – The average density of the project is .73 dwelling units per acre. This is considered a low-density residential project that is consistent with the adjacent neighborhoods in the City, which protects the unique natural and topographic character.

PDF 2 Building Height – The maximum building height for all residential lots is 2 stories and 35 feet.

PDF 3 Open Space – 62% of the Project Site is natural opens space, fuel modification zone, retention basin, parks, and trails.

PDF 4 Color of Homes – In addition to grading concepts, landscaping and color will be utilized to soften the appearance of the homes visible

from outside the Proposed Project. Home colors will be selected to be consistent with the surrounding natural landscape and with the color value of the specific hue close to the immediate landscape. Colors on the homes visible from outside Esperanza Hills will be predominantly earth tones, such as browns, ochres, sepias, and grays.

PDF 5 Landscaping – The landscape plan includes native and architecturally thematic plant material used to establish entry monuments, signage, walls, fences, and hardscape elements complementing and evoking the same respect for the surrounding natural environment. All streetscapes, slopes, and neighborhood parks will be harmoniously interwoven with the natural hillside by utilizing trees, naturalized shrubs, and grasses that are drought tolerant and considerate of long-term maintenance needs. Pedestrian connections and residential streets will offer canopy trees and flowering accent trees to provide shade, while open spaces will host informal plant and tree groupings and large evergreen shrubs. Selected plant material will complement the scale of the architecture. View opportunities will be considered from the neighborhoods to the surrounding landscape, enhancing views outside the immediate Project limits wherever possible.

PDF 6 Equipment – Air conditioners, heating, cooling, and ventilating equipment, and all other mechanical, lighting, or electrical devices shall be operated to minimize disturbance to adjacent and neighboring occupants, and shall be screened, shielded, and/or sound buffered from surrounding properties and streets. No roof-mounted air conditioning units will be allowed.

PDF 7 Utilities – Above-ground utility boxes, telephone boxes, water lines, backflow preventers, cable boxes, or similar structures within public view shall be screened and painted to blend into surrounding areas. Satellite dishes shall be placed to minimize visual impact and painted to match surrounding areas.

PDF 8 Walls and Fencing – Walls that are viewed from the street may be of masonry block construction or vinyl fence material consistent with the architectural style of the home. Homeowner privacy fencing shall not exceed six feet in height. Other privacy fencing shall be made of durable, synthetic material, block, or wrought iron. Wall or fences shall not exceed 42 inches in height in any required front yard setback.

PDF 9 Grading – The Proposed Project shall conform to the Orange County Grading Ordinance.

PDF 10 Glare – Building structures shall use non-reflective glass.

## 5.1.6 Mitigation Measures

AE-1 Prior to the issuance of building permits, the Project Applicant shall demonstrate that all exterior lighting has been designed and located so that all direct rays are confined to the property in a manner meeting the approval of the Manager, OC Planning, or designee. Lighting shall be designed to minimize visibility of light sources by directing lighting toward the on-site structures and not illuminating areas outside property boundaries.

## 5.1.7 Level of Significance after Mitigation

The Proposed Project, as designed, will not have a substantial adverse effect on a scenic vista as seen from the SR-91 Freeway (a Caltrans-designated Scenic Highway), the surrounding residential neighborhoods of Yorba Linda, or Chino Hills State Park. Implementation of Mitigation Measure AE-1 to reduce light and glare, and Project Design Features PDF 1 through PDF 10 will reduce visual impact with 62% open space, low-density development, restricting building height to 35 feet, using home colors that blend with the natural landscape, using non-reflective glass, screening building's mechanical equipment and above-ground utility equipment, and using non-reflecting wall materials and landscaping. The Proposed Project, as designed, and with implementation of Mitigation Measure AE-1 and Project Design Features PDF 1 through PDF 10, will result in less than significant impacts to any scenic vistas.

The Proposed Project will not substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a designated Scenic Highway. The Proposed Project will be part of the urban fabric from a long-range view of the foothills of Chino Hills from the SR-91 Freeway and portions of Weir Canyon Road. The Proposed Project, with Mitigation Measure AE-1 to reduce light and glare and Project Design Features PDF 1 through PDF 10, will not to have a significant impact on the SR-91 Freeway (a Caltrans-designated Scenic Highway and a County-designated Scenic Highway – Viewscape Corridor), because the project is viewed as part of the Chino Hills range with urban development on the lower slopes and a natural ridgeline above the developed area. The Proposed Project is not located within a scenic vista corridor and, therefore, development of the Project will not impact significant scenic resources. There are no historic buildings, significant trees, or rock outcroppings located within the Project Site. With implementation of Mitigation Measure AE-1 and Project Design Features PDF 1 through PDF 10, the Proposed Project's impact on scenic resources will be less than significant.

The Proposed Project, as designed, will not substantially degrade the existing visual character or quality of the site and its surroundings. The Proposed Project consists of low-density single-family development with 62% open space that has been designed to preserve the upper ridgelines and topography and be compatible with the surrounding residential neighborhoods of Yorba Linda. Project Design Features have been incorporated into the Proposed Project to reduce impacts. With implementation of Mitigation Measure AE-1 and Project Design Features PDF 1 through PDF 10 the

Proposed Project's impact on the existing visual character or quality of the site and its surroundings is less than significant.

The Proposed Project will not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area, because the Proposed Project, as designed, is a low-density single-family development with 62% open space and incorporates Project Design Features to reduce light and glare by regulating building colors to blend with the natural background, using non-reflecting glass and wall materials, screening building equipment and utility boxes, and restricting building height to 35 feet. Mitigation Measure AE-1 has been incorporated into the Proposed Project, which requires all direct light rays to be confined to development within the Project Site. With implementation of Mitigation Measure AE-1 and Project Design Features PDF 1 through PDF 10, impacts related to the creation of a new source of light and glare affecting daytime or nighttime views will be less than significant.

### 5.1.8 Cumulative Impacts

The Proposed Project, in combination with the proposed Cielo Vista project currently under review by the County of Orange, would permanently alter the Project Area from predominantly open space to low-density residential with roadways, trails, parks, and natural open space. Development of this area will add to the urbanization of Orange County and the City, and will bring urbanization closer to Chino Hills State Park. Both projects are consistent with the existing urban development pattern of the Chino Hills, in which development is located on the lower slopes with the upper ridgelines and slopes preserved as natural landforms. There is no additional construction proposed to the north or east of the Project Site or the proposed Cielo Vista project. Potential aesthetics impacts for the Project Site are minimized or avoided through the Proposed Project's design (i.e., project design features). In addition, potential light and glare impacts are mitigated to a less than significant level. Potential cumulative aesthetics impacts generated by both projects in the vicinity will be substantially mitigated on a project-by-project basis through compliance with visual resources policies; therefore, the cumulative impact to aesthetics is reduced to a level of less than significant.

Construction of the Proposed Project and the proposed Cielo Vista project may have a significant effect on cumulative impacts of light and glare. The Proposed Project's impact on light and glare has been mitigated to a level of less than significant. Impacts of light and glare will be substantially mitigated on a project-by-project basis through implementation of mitigation measures and project design features such as those listed above; therefore, the cumulative impact to light and glare is less than significant.

## 5.1.9 Unavoidable Adverse Impacts

### 1. Short-Term

No significant short-term impacts are anticipated to occur.

### 2. Long-Term

Following implementation of the recommended mitigation measure and the Project Design Features, long-term aesthetics impacts associated with on-site development and remaining oil production activities will be reduced to less than significant levels.

With implementation of the recommended mitigation measure, potential significant light and glare impacts would be reduced to less than significant levels.

# 5.2 Air Quality

This section analyzes the potential air quality impacts associated with the Proposed Project in terms of short-term (construction) impacts and long-term (operational) impacts. Information in this section is based on the "Air Quality and Greenhouse Gas Emissions Impact Analysis" (Air Quality Analysis) prepared by Giroux & Associates (Giroux) dated July 2013. The complete Air Quality Analysis, including appendices, is included herein as Appendix C.

## 5.2.1 Existing Conditions

### 1. Climate

The Project Site is located in the South Coast Air Basin (SCAB). The Basin is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean and high mountains. The climate in the SCAB is determined by its terrain and geographical location and is dominated by the strength and position of the semi-permanent high pressure center over the Pacific Ocean near Hawaii. The climate, including the Project Area, is described as a Mediterranean-type climate characterized by long, warm summers and moderate winters with moderate precipitation and a maritime influence resulting in a marine layer and a temperature inversion layer.

**Acronyms used in this section:**

| | |
|---|---|
| AAQS | Ambient Air Quality Standards |
| AQMD | Air Quality management District |
| AQMP | Air Quality Management Plan |
| ASF | age sensitivity factor |
| BACM | best available control measure |
| CAAA | Clean Air Act Amendments |
| CARB | California Air Resources Board |
| CEQA | California Environmental Quality Act |
| CO | carbon monoxide |
| DPM | diesel particulate matter |
| EPA | Environmental Protection Agency |
| LST | localized significance thresholds |
| RACM | reasonably available control measure |
| SCAB | South Coast Air Basin |
| SCAG | Southern California Association of Governments |
| SCAQMD | South Coast Air Quality Management District |
| SIP | State Implementation Plan |
| TAC | toxic air contaminants |

#### a. Temperature

The average temperature varies little throughout the SCAB, averaging 62°F. High temperatures in the Project Area average 75°F during the summer and 65.5°F during the winter. Low temperatures average 62.2°F during summer nights and 48.6°F during winter nights.

#### b. Winds

Winds in the vicinity display several characteristics. Summer daytime winds are generally from the south in the morning and the west in the afternoon. The warm air during spring and early summer lifts most of the pollution produced on an average day and moves it through the mountain passes.

Late summer and winter months see a less pronounced flushing effect due to the lower wind speeds and early off-shore winds. Pollutants are trapped in the valleys of the region due to this stagnation.

When high pressure occurs over the region, a hot, dry, and gusty "Santa Ana Winds" condition occurs from the north and northeast across the basin. The average summer daytime wind speed in the Project Area is between seven and nine miles per hour. During winter nights, when the ocean temperatures are warmer than the land temperature, an offshore wind of three to five miles per hour is created. Under normal conditions, the light, average wind speeds limit the capability to disperse air contaminants horizontally. The net effect is that any locally generated air pollutants will be carried offshore at night and inland by day.

Adequate daytime ventilation speed typically does not allow for stagnation of air pollutants in the Project Area. Moderate onshore breezes carry locally generated emissions eastward toward Chino Hills or across northern Orange County and up Santa Ana or Carbon Canyons towards western San Bernardino and Riverside counties. Daytime air quality problems occur when winds shift into the northwest and the sea breeze is replaced by airflow across substantial pollution generation areas of southwestern Los Angeles County. Occasional unhealthful smog levels near the Project Site during the summer and early fall are the result of slower nighttime winds drifting seaward across the air basin, allowing for stagnation of pollution. However, during the night the density of vehicular sources in the upwind area is generally low enough to minimize any major air pollution problems. The Air Quality Analysis determined that air pollution episodes, if any, are due mainly to pollutants transported into the area rather than any locally generated emissions.

### c. Temperature Inversions

Temperature inversions result when the daytime onshore flow of marine air is capped by a dome of warm air that acts like a lid over the basin. Temperature inversions may be ground-based or elevated. Ground-based inversions are most severe during clear, cold early winter mornings when very little air mixing or turbulence occurs, generally breaking down by mid-morning. The height of the base of the inversion is known as the "mixing height." This height changes depending on atmospheric conditions; however, the top of the inversion remains constant. This lack of mixing results in high concentrations of primary pollutants accumulating near major roadways where relatively higher emissions occur. Elevated inversion layers, conversely, result from a variety of meteorological phenomena. Elevated inversion layers restrict vertical mixing of air, forming a restrictive upper boundary. Dispersion of air pollutants is unrestricted below an elevated inversion layer.

As the ocean air moves inland, pollutants are continually added from below without any dilution from above. This layer slows down in inland valleys and

undergoes photochemical transformations due to sunlight, creating unhealthful levels of smog (ozone). Ozone typically occurs in high concentrations in late spring, summer, and early fall when light winds, low mixing height, and increased sunlight combine, resulting in ozone production. Smog effects are less significant when there is no inversion layer or when winds average 15 miles per hour or greater.

Nighttime inversions, especially during the winter, form as cool air pools in low elevations while the upper air remains warm. Shallow radiation inversions are formed that trap pollutants near intensive traffic sources such as freeways, forming localized effects called "hot spots."

Pollutants generated by stationary and mobile sources mix with less contaminated air beneath the inversion layer and will become more concentrated unless the inversion breaks down. When strong inversions are formed on cool winter nights, carbon monoxide (CO) generated by automobile exhaust becomes concentrated. Generally, the highest levels of CO are produced during the months of November through February.

## 2. Baseline Air Quality

The South Coast Air Quality Management District (SCAQMD) Anaheim monitoring station, which is the nearest station to the Proposed Project, was used to determine existing and probable future levels of air quality in the Project Area. The station measures regional pollution levels (smog) and primary vehicular pollution levels near busy roadways (carbon monoxide, nitrogen oxides). Pollutants such as $PM_{10}$ and $PM_{2.5}$ are also monitored. A six-year air quality monitoring summary (2006-2011) is found in Table 5-2-1 below. The Project Site is vacant land that currently contributes minimally to air quality impacts. The Air Quality Analysis provides the following conclusions regarding air quality trends based on the table.

- Photochemical smog (ozone) levels occasionally exceed standards. The 1-hour state standard and the 8-hour state and federal ozone standard have been exceeded an average of 1% of all days in the past six years. Years 2009, 2010 and 2011 demonstrate progressively improved ozone levels in the area. While ozone levels are still high, they are much lower than 10 to 20 years ago.
- Respirable dust ($PM_{10}$) levels occasionally exceed the state standard on approximately 6% of measured days. As with ozone, the frequency of violations has noticeably decreased in 2009-2011. The less stringent federal $PM_{10}$ standard was violated once in 2007 during a wildfire event.
- The federal ultra-fine particulate ($PM_{2.5}$) standard of 35 $\mu g/m^3$ has been exceeded about 2% of measurement days in the last six years. Similarly, 2009-2011 have been the "cleanest" years on record.

- More localized pollutants such as carbon monoxide, nitrogen oxides, etc. are very low near the Project Site. These pollutants can be naturally dispersed to reduce localized vehicular air pollutants such as $NO_X$ or CO without any threat of violating applicable ambient air quality standards (AAQS).

While complete attainment of every standard is not imminent, the steady improvement trend suggests that such attainment could occur within the reasonably near future.

**Table 5-2-1 Air Quality Monitoring Summary (2006-2011)**

| Pollutant/Standard | Number of Days Standards Were Exceeded and Maximum Levels During Such Violations (entries shown as ratios = samples exceeding standard/samples taken) | | | | | |
|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
| **Ozone** | | | | | | |
| 1-hour > 0.09 ppm (state standard) | 6 | 2 | 2 | 0 | 1 | 0 |
| 8-hour > 0.07 ppm (state standard) | 5 | 7 | 10 | 2 | 1 | 1 |
| 8--hour > 0.075 ppm (federal standard) | 3 | 1 | 5 | 1 | 1 | 0 |
| Maximum 1-hour concentration (ppm) | 0.113 | 0.127 | 0.105 | 0.093 | 0.104 | 0.088 |
| Maximum 8-hour concentration (ppm) | 0.089 | 0.100 | 0.086 | 0.077 | 0.088 | 0.072 |
| **Carbon Monoxide** | | | | | | |
| 1-hour > 20. ppm (state standard) | 0 | 0 | 0 | 0 | 0 | 0 |
| 8-hour > 9. ppm (state and federal standard) | 0 | 0 | 0 | 0 | 0 | 0 |
| Maximum 1-hour concentration (ppm) | 4.5 | 3.6 | 4.1 | 3.2 | 3.0 | 2.7 |
| Maximum 8-hour concentration (ppm) | 2.9 | 2.9 | 3.4 | 2.7 | 2.0 | 2.1 |
| **Nitrogen Dioxide** | | | | | | |
| 1-hour > 0.18 ppm (state standard) | 0 | 0 | 0 | 0 | 0 | 0 |
| Maximum 1-hour concentration (ppm) | 0.114 | 0.086 | 0.093 | 0.068 | 0.073 | 0.074 |
| **Inhalable Particulates ($PM_{10}$)** | | | | | | |
| 24-hour > 50 $\mu g/m^3$ (state standard) | 7/55 | 6/59 | 3/58 | 1/56 | 0/57 | 2/57 |
| 24-hour > 150 $\mu g/m^3$ (federal standard) | 0/55 | 1/59 | 0/58 | 0/56 | 0/57 | 0/57 |
| Maximum 24-hour concentration ($\mu g/m^3$) | 103. | 488.* | 61. | 62. | 43. | 53. |
| **Ultra-Fine Particulates ($PM_{2.5}$)** | | | | | | |
| 24-hour > 35 $\mu g/m^3$ (federal standard) | 7/314 | 14/336 | 5/304 | 4/334 | 0/331 | 2/365 |
| Maximum 24-hour concentration ($\mu g/m^3$) | 56.2 | 79.4 | 67.8 | 64.5 | 31.7 | 39.2 |

*wildfire event

Source: South Coast Air Quality Management District, Anaheim Station (3176)

## 5.2.2 Regulatory Setting

The SCAQMD and the California Air Resources Board (CARB) are the principal agencies charged with managing air quality within the SCAB. The SCAQMD establishes and enforces regulations for stationary (non-mobile) sources of air pollution within the SCAB. The CARB is responsible for controlling motor vehicle emissions, establishing legal emissions rates for new vehicles, and the vehicle inspection program.

### 1. Ambient Air Quality Standards (AAQS)

To gauge the significance of the air quality impacts of the Proposed Project, those impacts, together with existing background air quality levels, must be compared to the applicable ambient air quality standards. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare of those people most susceptible to further respiratory distress. This group, called "sensitive receptors," includes asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. National AAQS were established in 1971 for six pollution species with states retaining the option to add other pollutants, require more stringent compliance, or include different exposure periods. The federal Clean Air Act Amendments (CAAA) of 1990 required that the Environmental Protection Agency (EPA) review all national AAQS in light of known health effects. The EPA was charged with modifying existing standards or initiating new standards where appropriate. EPA subsequently developed standards for chronic ozone exposure (8+ hours per day) and for very-small-diameter particulate matter ($PM_{2.5}$). New national AAQS were adopted on July 17, 1997.

Because the State of California had established AAQS several years before the federal action, and because of unique air quality problems introduced by the restrictive dispersion meteorology, there is a considerable difference between state and national clean air standards. Table 5-2-2 below describes the health effects of the major criteria pollutants and lists sources and primary effects for each. The standards currently in effect in California and the national standards are shown in Table 5-2-3, respectively.

**Table 5-2-2 Health Effects of Major Criteria Pollutants**

| Pollutants | Sources | Primary Effects |
|---|---|---|
| Carbon Monoxide (CO) | • Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust<br>• Natural events, such as decomposition of organic matter | • Reduced tolerance for exercise<br>• Impairment of mental function<br>• Impairment of fetal development<br>• Death at high levels of exposure<br>• Aggravation of some heart diseases (angina) |
| Nitrogen Dioxide ($NO_2$) | • Motor vehicle exhaust<br>• High temperature stationary combustion<br>• Atmospheric reactions | • Aggravation of respiratory illness<br>• Reduced visibility<br>• Reduced plant growth<br>• Formation of acid rain |
| Ozone ($O_3$) | • Atmospheric reaction of organic gases with nitrogen oxides in sunlight | • Aggravation of respiratory and cardiovascular diseases<br>• Irritation of eyes<br>• Impairment of cardiopulmonary function<br>• Plant leaf injury |
| Lead (Pb) | • Contaminated soil | • Impairment of blood function and nerve construction<br>• Behavioral and hearing problems in children |
| Fine Particulate Matter ($PM_{10}$) | • Stationary combustion of solid fuels.<br>• Construction activities.<br>• Industrial processes.<br>• Atmospheric chemical reactions. | • Reduced lung function<br>• Aggravation of the effects of gaseous pollutants<br>• Aggravation of respiratory and cardio respiratory diseases<br>• Increased cough and chest discomfort<br>• Soiling<br>• Reduced visibility |
| Fine Particulate Matter ($PM_{2.5}$) | • Fuel combustion in motor vehicles, equipment, and industrial sources<br>• Residential and agricultural burning<br>• Industrial processes<br>• Also, formed from photochemical reactions of other pollutants, including $NO_X$, sulfur oxides, and organics | • Increases respiratory disease<br>• Lung damage<br>• Cancer and premature death<br>• Reduces visibility and results in surface soiling |
| Sulfur Dioxide ($SO_2$) | • Combustion of sulfur-containing fossil fuels<br>• Smelting of sulfur-bearing metal ores<br>• Industrial processes | • Aggravation of respiratory diseases (asthma, emphysema)<br>• Reduced lung function<br>• Irritation of eyes<br>• Reduced visibility<br>• Plant injury<br>• Deterioration of metals, textiles, leather, finishes, coatings, etc. |

Source: California Air Resources Board, 2002

## Table 5-2-3 Ambient Air Quality Standards

| Pollutant | Averaging Time | California Standards [1] | | National Standards [2] | | |
|---|---|---|---|---|---|---|
| | | Concentration [3] | Method [4] | Primary [3,5] | Secondary [3,6] | Method [7] |
| Ozone ($O_3$) | 1 Hour | 0.09 ppm (180 µg/m$^3$) | Ultraviolet Photometry | — | Same as Primary Standard | Ultraviolet Photometry |
| | 8 Hour | 0.070 ppm (137 µg/m$^3$) | | 0.075 ppm (147 µg/m$^3$) | | |
| Respirable Particulate Matter ($PM_{10}$) | 24 Hour | 50 µg/m$^3$ | Gravimetric or Beta Attenuation | 150 µg/m$^3$ | Same as Primary Standard | Inertial Separation and Gravimetric Analysis |
| | Annual Arithmetic Mean | 20 µg/m$^3$ | | — | | |
| Fine Particulate Matter ($PM_{2.5}$) | 24 Hour | — | — | 35 µg/m$^3$ | Same as Primary Standard | Inertial Separation and Gravimetric Analysis |
| | Annual Arithmetic Mean | 12 µg/m$^3$ | Gravimetric or Beta Attenuation | 15 µg/m$^3$ | | |
| Carbon Monoxide (CO) | 1 Hour | 20 ppm (23 mg/m$^3$) | Non-Dispersive Infrared Photometry (NDIR) | 35 ppm (40 mg/m$^3$) | — | Non-Dispersive Infrared Photometry (NDIR) |
| | 8 Hour | 9.0 ppm (10 mg/m$^3$) | | 9 ppm (10 mg/m$^3$) | — | |
| | 8 Hour (Lake Tahoe) | 6 ppm (7 mg/m$^3$) | | — | — | |
| Nitrogen Dioxide ($NO_2$)[8] | 1 Hour | 0.18 ppm (339 µg/m$^3$) | Gas Phase Chemilumin-escence | 100 ppb (188 µg/m$^3$) | — | Gas Phase Chemilumin-escence |
| | Annual Arithmetic Mean | 0.030 ppm (57 µg/m3) | | 0.053 ppm (100 µg/m$^3$) | Same as Primary Standard | |
| Sulfur Dioxide ($SO_2$)[9] | 1 Hour | 0.25 ppm (655 µg/m$^3$) | Ultraviolet Fluorescence | 75 ppb (196 µg/m$^3$) | — | Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method) |
| | 3 Hour | — | | — | 0.5 ppm (1300 µg/m3) | |
| | 24 Hour | 0.04 ppm (105 µg/m$^3$) | | 0.14 ppm (for certain areas)[9] | — | |
| | Annual Arithmetic Mean | — | | 0.030 ppm (for certain areas)[9] | — | |
| Lead[10,11] | 30 Day Average | 1.5 µg/m$^3$ | Atomic Absorption | — | — | High Volume Sampler and Atomic Absorption |
| | Calendar Quarter | — | | 1.5 µg/m$^3$ (for certain areas)[11] | Same as Primary Standard | |
| | Rolling 3-Month Average | — | | 0.15 µg/m$^3$ | | |
| Visibility Reducing Particles[12] | 8 Hour | See footnote 12 | Beta Attenuation and Transmittance through Filter Tape | No National Standards | | |
| Sulfates | 24 Hour | 25 µg/m$^3$ | Ion Chromatography | | | |
| Hydrogen Sulfide | 1 Hour | 0.03 ppm (42 µg/m$^3$) | Ultraviolet Fluorescence | | | |
| Vinyl Chloride[10] | 24 Hour | 0.01 ppm (26 µg/m$^3$) | Gas Chromatography | | | |

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m$^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98% of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent

| Pollutant | Averaging Time | California Standards [1] | | National Standards [2] | | |
|---|---|---|---|---|---|---|
| | | Concentration [3] | Method [4] | Primary [3,5] | Secondary [3,6] | Method [7] |

relationship to the reference method" and must be approved by the U.S. EPA.

8. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
9. On June 2, 2010, a new 1-hour $SO_2$ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 $SO_2$ national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
10. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
11. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µtg/$m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
12. In 1989, the ARB converted the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: California Air Resources Board, 6/7/2012

## 2. Federal Clean Air Act Amendments

The federal Clean Air Act Amendments of 1990 required that the EPA review all national AAQS in light of currently known health effects, including modifying existing standards or promulgating new standards where appropriate. EPA subsequently developed standards for chronic ozone exposure (8+ hours per day) and for very small diameter particulate matter ($PM_{2.5}$). New national AAQS were adopted in 1997 for these pollutants.

In response to continuing evidence that ozone exposure at levels just meeting federal clean air standards is demonstrably unhealthful, EPA proposed a further strengthening of the 8-hour standard. Draft standards were published in 2010 with an 8-hour standard of 0.065 ppm. Environmental organizations generally approved of the proposal; however, most manufacturing, transportation, or power generation groups opposed the new standard as economically unwise in an uncertain fiscal climate. In recognition of the fact that a stronger ozone standard could adversely impact employment, the draft proposal was placed on indefinite hold. EPA did propose and adopt a revised annual $PM_{2.5}$ standard that may require a revision to the basin-wide fine particulate attainment plan.

As part of EPA's 2002 consent decree on clean air standards, a further review of airborne particulate matter (PM) and human health was initiated. A substantial modification of federal clean air standards for PM was promulgated in 2006. Standards for $PM_{2.5}$ were strengthened, a new class of PM in the 2.5- to 10-micron size was created, some $PM_{10}$ standards were revoked, and a distinction between rural and

urban air quality was adopted. In December 2012, the federal annual standard for $PM_{2.5}$ was reduced from 15 µg/m$^3$ to 12 µg/m$^3$ which matches the California AAQS. The severity of the basin's non-attainment status for $PM_{2.5}$ may be increased by this action and thus require accelerated planning for future $PM_{2.5}$ attainment. The Clean Air Act defines "non-attainment" as a locality where air pollution levels persistently exceed national AAQS.

## 3. California Air Resources Board

In 2002, the CARB recommended adoption of the statewide $PM_{2.5}$ standard that is more stringent than the federal standard. This recommendation was based on evaluation of the most current data on the health effects of inhalation of fine particulate matter. However, the state standard does not have a specific attainment planning requirement such as a federal clean air standard. The state requirement is for continued progress towards attainment.

In 2005, CARB extensively evaluated health effects of ozone exposure and adopted a new state standard for an 8-hour ozone exposure which aligned with the federal 8-hour standard. The state 8-hour standard of 0.07 parts per million (ppm) is more stringent than the federal standards of 0.075 ppm. As with the $PM_{2.5}$ standard, there is no specific attainment deadline. State jurisdictions are required to make progress towards attaining state standards, but there are no consequences of non-attainment. At the same time, CARB adopted an annual state standard for nitrogen dioxide ($NO_2$) which is more stringent than the federal standard.

A new federal one-hour standard for $NO_2$ was adopted in 2010 that is more stringent than the existing state standard. Based on air quality monitoring data in the SCAB, the CARB has requested the EPA to designate the basin as "in attainment" for this standard. The federal standard for sulfur dioxide ($SO_2$) was also recently revised. However, with minimal combustion of coal and mandatory use of low sulfur fuels in California, $SO_2$ is typically not a problem pollutant.

## 4. Air Quality Management Plan

The federal CAAA of 1977 required that designated agencies in any area of the nation not meeting national clean air standards must prepare a plan demonstrating the steps that would bring the area into compliance. The SCAB was unable to meet deadlines for ozone, nitrogen dioxide, carbon monoxide, or $PM_{10}$. The agencies designated by the Governor to develop regional air quality plans within the SCAB are the SCAQMD and the Southern California Association of Governments (SCAG). The first Air Quality Management Plan (AQMP) was adopted by these agencies in 1979. However, attainment forecasts were overly optimistic and the Plan was revised several times.

The federal CAAA of 1990 required that all states with air-sheds with "serious" or worse ozone problems submit a revision to the State Implementation Plan (SIP). Over the past decade, revisions and amendments to the SIP have been approved. The most current attainment emissions forecast for ozone precursors – i.e., reactive organic

gases (ROG) and oxides of nitrogen ($NO_X$) and for carbon monoxide (CO) and particulate matter are shown in Table 5-2-4. Substantial reductions of ROG, $NO_X$ and CO are forecast to continue throughout the next several decades. $PM_{10}$ and $PM_{2.5}$ are forecast to slightly increase unless new particulate control programs are implemented.

**Table 5-2-4 South Coast Air Basin Emissions Forecasts**

| Pollutant | Emissions per Day (tons) | | | |
|---|---|---|---|---|
| | 2008 [a] | 2010 [b] | 2015 [b] | 2020 [b] |
| $NO_X$ | 917 | 836 | 667 | 561 |
| ROG | 632 | 596 | 545 | 525 |
| CO | 3,344 | 3,039 | 2,556 | 2,281 |
| $PM_{10}$ | 308 | 314 | 328 | 340 |
| $PM_{2.5}$ | 110 | 110 | 111 | 113 |

[a] 2008 base year
[b] With current emissions reduction programs and adopted growth forecasts.
Source: California Air Resources Board, California Emissions Projection Analysis Model, 2009

In 2003, the AQMD adopted an updated AQMP, which was approved by the EPA in 2004. The AQMP outlined the air pollution measures needed to meet federal health-based standards for ozone by 2010 and for particulates by 2006. The AQMP was based on the federal one-hour ozone standard, which was revoked late in 2005 and replaced by an 8-hour federal standard, which action initiated a new air quality planning cycle.

Re-designation of the air basin as non-attainment for the 8-hour ozone standards resulted in a new attainment plan being developed. The plan shifted most of the one-hour ozone standard attainment strategies to the 8-hour standard. The attainment date was changed from 2010 to 2021. The plan includes strategies for ultimately meeting the federal $PM_{2.5}$ standard.

Because projected attainment by 2021 requires control technologies that do not yet exist, the SCAQMD requested a voluntary "bump-up" from a "severe non-attainment" area to an "extreme non-attainment" designation for ozone, allowing a longer time for the technologies to develop. Without attainment, EPA would have been required to impose sanctions on the region if the bump-up had not been approved. In April 2010, EPA approved the change in designation to "extreme," thus setting a later attainment deadline. This reclassification also requires the air basin to adopt even more stringent emissions controls.

In other air quality attainment plan reviews, EPA has disapproved part of the SCAB $PM_{2.5}$ attainment plan included in the AQMP. EPA has stated that the current attainment plan relies on $PM_{2.5}$ control regulations that have not yet been approved or implemented. It is expected that a number of rules that are pending approval will remove the identified deficiencies. If these issues are not resolved within the next several years, federal funding sanctions for transportation projects could result. The

recently adopted 2012 AQMP being readied for CARB submittal to EPA as part of California's SIP is expected to remedy identified $PM_{2.5}$ planning deficiencies.

The federal CAAA requires that non-attainment air basins have EPA-approved attainment plans in place. This requirement includes the federal one-hour ozone standard even though that standard was revoked approximately seven years ago. There was no approved attainment plan for the one-hour federal standard at the time of revocation. However, the SCAQMD is legally required to develop an AQMP for the long-since-revoked one-hour federal ozone standard.

Projects such as the proposed Esperanza Hills do not directly relate to the AQMP in that there are no specific air quality programs or regulations governing general development. However, the SCAQMD does not favor designating regional impacts as less than significant simply because the proposed development is consistent with regional growth projections. Air quality impact significance for the Proposed Project was, therefore, analyzed on a project-specific basis.

### 5.2.3 Thresholds of Significance

The State of California encourages local agencies to adopt their own thresholds, but it is not required. The County of Orange utilizes the thresholds of significance found in Appendix G of the CEQA Guidelines for air quality, which states:

> 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:
>
> a) Conflict with or obstruct implementation of the applicable air quality plan?
> b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?
> 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)?
> d) Expose sensitive receptors to substantial pollutant concentrations?
> e) Create objectionable odors affecting a substantial number of people?

Air quality impacts can be categorized as either primary or secondary. Primary pollutant impacts can generally be evaluated directly in comparison to appropriate clean air standards. Violations of these standards where they are currently met, or a measurable worsening of an existing or future violation, would be considered a significant impact.

Secondary pollutants, by comparison, require time to transform from a more benign form to a more unhealthful contaminant. The impact occurs regionally far from the source. Analysis of significance of such emissions is based on a specified amount of emissions (e.g., pounds, tons) even though there is no way to translate those emissions directly into a corresponding ambient air quality impact.

In addition to the Appendix G thresholds listed above, the SCAQMD has established significance thresholds based on Section 182(e) of the federal Clean Air Act that identify levels of volatile organic gases from stationary sources operating in extreme non-attainment regions for ozone at 10 tons per year. These established values were converted into threshold levels of pounds per day for the construction and operational phases of a project. The SCAQMD states that any project located in the SCAB having daily emissions from direct and indirect sources that exceed the emissions thresholds should be considered significant.

Table 5-2-5 below depicts threshold levels for direct construction emissions and indirection operations emissions.

**Table 5-2-5 Daily Emissions Thresholds**

| Pollutant | Construction (pounds per day) | Operations (pounds per day) |
|---|---|---|
| ROG | 75 | 55 |
| $NO_X$ | 100 | 55 |
| CO | 550 | 550 |
| $PM_{10}$ | 150 | 150 |
| $PM_{2.5}$ | 55 | 55 |
| $SO_X$ | 150 | 150 |
| Lead | 3 | 3 |

Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.

Additional significance thresholds identified by SCAQMD are:

- Project could interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation.
- Project could result in population increases within the regional statistical area which would be in excess of that projected in the AQMP and in other than planned locations for the project's build-out year.
- Project could generate vehicle trips that cause a CO hot spot.

The 1993 SCAQMD CEQA Handbook also identifies various secondary significance criteria related to toxic, hazardous, or odorous air contaminants. No secondary impact indicators are associated with short-term or long-term project conditions. Recently adopted policies for $PM_{2.5}$ emissions require the gradual conversion of on-road delivery fleets and off-road heavy equipment to low-$NO_X$ and low-$PM_{2.5}$ emissions alternatives, or the use of "clean" diesel if the emissions are demonstrated to be as low as those required by Tier 4 standards. Because health risks from toxic air contaminants (TACs) are cumulative over an assumed 70-year lifespan, measurable off-site public health risk from diesel TAC exposure would occur for only a brief construction portion of a project's lifetime, and only in dilute quantity.

## 2. Sensitive Receptors

The Air Quality Analysis combined the existing background air quality levels and potential impacts from the Proposed Project and then compared the results to the applicable air quality standards. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare, particularly for those people most susceptible to further respiratory distress. These population groups include asthmatics, the elderly, very young children, people already weakened by other disease or illness and persons engaged in strenuous work or exercise and are called, collectively, sensitive receptors. Healthy adults can generally tolerate occasional exposure to air pollutant levels considerably above the minimum standards before adverse effects result. However, recent research has shown that chronic exposure to ozone (the primary ingredient in photochemical smog) may lead to adverse respiratory health even at concentrations close to the ambient standard.

As previously noted, sensitive receptors include young children, the elderly and the acutely and chronically ill, especially those with cardio-respiratory disease. Residential areas are considered to be sensitive to air pollution exposure because they may be occupied for extended periods and residents may be outdoors when exposure is highest. Schools are also considered to be sensitive receptors. Air quality impacts are analyzed relative to this population group with the greatest sensitivity to air pollution exposure.

Several development options are being considered for this project, each with a different main access roadway. Proximity to access/egress roadways for access Option 1 and access Option 2 is shown below:

| Option | Access Roadway | Distance to Closest Home |
|---|---|---|
| 1 | Stonehaven Drive | 50 feet to receiver |
| 2 | Aspen Way | 50 feet to receiver |

## 3. Localized Significance Thresholds

Localized significance thresholds (LSTs) are analysis parameters developed by SCAQMD to evaluate ambient air quality on a local level in addition to the more regional emissions-based thresholds of significance. LSTs were developed in response to the SCAQMD Governing Board's Environmental Justice Enhancement Initiative 1-4. The LST methodology was provisionally adopted in October 2003 and formally approved by SCAQMD's Mobile Source Committee in February 2005.

Use of an LST analysis for a project is optional. LSTs are only applicable to the following criteria pollutants: oxides of nitrogen ($NO_X$), carbon monoxide (CO) and particulate matter ($PM_{10}$ and $PM_{2.5}$). Daily thresholds are 100 pounds $NO_X$, 500 pounds CO, 150 pounds $PM_{10}$, and 55 pounds $PM_{2.5}$. The primary source of possible LST impact for the Proposed Project would be during construction.

## 5.2.4 Project Impacts Prior to Mitigation

Local air quality impacts/emissions are usually divided into short-term and long-term impacts. Short-term impacts are normally the result of demolition, construction, or grading operations. Long-term impacts are associated with the built-out condition of the Proposed Project and are the result of day-to-day operation and maintenance, use of consumer products, natural gas use, and vehicle trips associated with residents, visitors, and employees.

### 1. Construction Emissions

Construction emissions are difficult to quantify since the exact type and amount of equipment that will be used or the acreage that may be disturbed on any given day is not known with any reasonable certainty. The emphasis in environmental documents relative to construction activity emissions impacts has therefore been to minimize the emissions as fully as possible through comprehensive mitigation, even if the exact amount of emissions cannot be precisely quantified.

Dust is typically the primary concern during construction of new homes and infrastructure but because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions." Because of the inherent uncertainty in the predictive factors for estimating fugitive dust generation, regulatory agencies typically use one universal "default" factor based on the area disturbed assuming that all other input parameters into emission rate prediction fall into midrange average values. Average daily $PM_{10}$ emissions during site grading and other disturbance average about 10 pounds per acre. This estimate presumes the use of "reasonably available control measures." The SCAQMD requires the use of "best available control measures" for fugitive dust from construction activities which can reduce fugitive dust emissions to 1 to 2 pounds per day per acre disturbed.

Current research in particulate-exposure health suggests that the most adverse effects derive from ultra-small diameter particulate matter comprised of chemically reactive pollutants such as sulfates, nitrates, or organic material. A national clean air standard for particulate matter of 2.5 microns or smaller was adopted in 1997. $PM_{2.5}$ emissions are estimated to comprise 10% to 20% of $PM_{10}$.

Construction activities also generate many larger particles with shorter atmospheric residence times than the fine particles that remain suspended semi-indefinitely. This dust is comprised mainly of large diameter inert silicates that are chemically non-reactive and are readily filtered out by human breathing passages. The dust particles create more of a soiling nuisance as they settle on cars, furniture or landscape foliage than an adverse health hazard. Under normal wind conditions, the deposition distance of most soiling nuisance particulates is less than 100 feet from the source. Most adjacent sensitive receptors are further than 100 feet from the Proposed Project construction site perimeter. Existing uses closer than 100 feet will only have construction activities in close proximity for a short period of time.

In addition to dust, exhaust emissions will result from the operation of on-site and off-site heavy equipment. Because the types and numbers of equipment will vary, emissions cannot be quantified with certainty. Two grading options were evaluated for the Proposed Project, each requiring varying amount of grading based on a conservative travel distance, because it is anticipated that most export hauling will occur in close proximity to development areas. No earthworks are anticipated to require on-road hauling. The estimated volume of earthworks is shown in Table 5-2-6 below. Distance from the borrow site to the center of the development site is indicated in the table. The grading quantities and haul distance indicated below were modeled to determine all construction emissions associated with project grading.

**Table 5-2-6 Earthworks Quantities and Distance Estimates**

| Option | Borrow Site (Bridal Hills) | Distance to Borrow Site |
|---|---|---|
| 1 | 286,700 cubic yards | 1,000 feet |
| 2 | 730 cubic yards | 1,700 feet |

While project build-out will depend strongly on market demand, it was assumed that each project construction task would be continuous and sequential for purposes of the Air Quality Analysis. This provides a worst case air quality scenario, as daily emissions would be higher than if they were spread out over a longer period of time.

The model used to calculate construction and operational emissions is CalEEMod which was developed by SCAQMD for residential land use projects. The model calculates the daily maximum and the annual average emissions for criteria pollutants as well as total or annual GHG emissions, which are discussed further in Section 5.6, Greenhouse Gas Emissions (beginning on page 5-257). The CalEEMod 2011.1.1 computer model was used to calculate emissions from the prototype construction equipment fleet and schedule anticipated by CalEEMod for a residential land use consisting of 378 residential units. This includes 340 units in the Proposed Project and 38 potential units in the adjoining Bridal Hills, LLC parcel. The 38 units are not included in the Proposed Project, but it is reasonable to assume that they will be built in the future. By adding the units, a worst case analysis can be presented.

Table 5-2-7 below shows CalEEMod's default equipment fleet with the addition of several scrapers and a grader to the grading phase to ensure an accurate and conservative analysis. Activity duration estimates were provided by the Project Applicant. CalEEMod defaults are included in the Appendix C of the Air Quality Analysis (Appendix C to this DEIR).

**Table 5-2-7 CalEEMod Equipment Fleet**

| | |
|---|---|
| Clearing (120 days) | 4 Tractors/loaders/backhoes<br>3 Dozers |
| Grading (260 days) | 2 Excavators<br>1 Dozer<br>2 Graders<br>6 Scrapers<br>2 Tractors/loaders/backhoes |
| Construction (1,000 days) | 1 Crane<br>3 Forklifts<br>1 Generator set<br>3 Tractors/loaders/backhoes<br>1 Welder |
| Paving (120 days) | 2 Pavers<br>2 Paving equipment<br>2 Rollers |

Using the equipment fleet indicated above as a worst case scenario required dust mitigation measures which have been included in the mitigation section herein. However, it is unlikely that all equipment will be in use at the same time. The mitigation measures applied to construction equipment for the "with mitigation" scenario include the best available construction management practices.

The CalEEMod construction model demonstrated the unmitigated and mitigated emissions for an assumed eight-year construction scenario as shown in Table 5-2-8 and Table 5-2-9 below. It should be noted that the application of some mitigation measures have trade-offs in pollutant reductions and, therefore, may result in increases of some pollutants (CalEEMod User Guide, SCAQMD, February 2011, pages 34-35). Therefore, in some cases, the mitigated emissions for CO are slightly higher than unmitigated emissions.

In September 2010, CARB announced that its methods used to estimate the load factors for off-road equipment were incorrect and led to an overestimate of emissions by a factor of 33%. CARB is currently revising the model, which has not yet been released. Therefore, the off-road equipment emissions load factors were adjusted in CalEEMod to account for a 33% reduction attributable to the overestimation of load factors.

One model run for each of the two development options was prepared. Emissions associated with Option 1 are presented in Table 5-2-8, and emissions associated with Option 2 are provided in Table 5-2-9. Only the first two years, where grading is assumed to occur, vary to account for the different grading scenarios. The model runs used consistent amounts of 735 cubic yards per day for grading. In addition, the modeling assumed the following:

- Option 1 – 16-cubic-yard trucks equating to 46 round trips per day based on the total grading amount
- Option 2 – Less than 1 truck trip per day based on the grading amount

**Table 5-2-8 Construction Activity Emissions, Option 1**

| | Maximum Daily Emissions (pounds per day) | | | | | |
|---|---|---|---|---|---|---|
| **Maximal Construction Emissions** | **ROG** | **$NO_X$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| 2014 | | | | | | |
| Unmitigated | 15.6 | 128.2 | 69.7 | 0.1 | 21.1 | 12.4 |
| Mitigated | 12.2 | 59.6 | 81.9 | 0.1 | 12.8 | 6.3 |
| 2015 | | | | | | |
| Unmitigated | 14.8 | 118.4 | 66.5 | 0.1 | 20.6 | 8.2 |
| Mitigated | 12.1 | 58.5 | 80.6 | 0.1 | 12.7 | 2.8 |
| 2016 | | | | | | |
| Unmitigated | 3.9 | 24.0 | 25.9 | 0.1 | 3.5 | 1.4 |
| Mitigated | 3.9 | 24.0 | 25.9 | 0.1 | 3.5 | 1.4 |
| 2017 | | | | | | |
| Unmitigated | 3.6 | 21.9 | 25.0 | 0.1 | 3.3 | 1.2 |
| Mitigated | 3.6 | 21.9 | 25.0 | 0.1 | 3.3 | 1.2 |
| 2018 | | | | | | |
| Unmitigated | 3.3 | 20.0 | 24.2 | 0.1 | 3.2 | 1.1 |
| Mitigated | 3.3 | 20.0 | 24.2 | 0.1 | 3.2 | 1.1 |
| 2019 | | | | | | |
| Unmitigated | 3.1 | 18.3 | 23.5 | 0.1 | 3.1 | 0.9 |
| Mitigated | 3.1 | 18.3 | 23.5 | 0.1 | 3.1 | 0.9 |
| 2020 | | | | | | |
| Unmitigated | 44.7 | 16.7 | 22.9 | 0.1 | 2.9 | 1.1 |
| Mitigated | 44.7 | 16.7 | 22.9 | 0.1 | 2.9 | 1.1 |
| 2021 | | | | | | |
| Unmitigated | 44.6 | 1.6 | 2.8 | 0.0 | 0.5 | 0.1 |
| Mitigated | 44.6 | 1.6 | 2.8 | 0.0 | 0.5 | 0.1 |
| **SCAQMD Thresholds** | **75** | **100** | **550** | **150** | **150** | **55** |

Source: CalEEMod.2011.1.1 output in appendix *[to Air Quality and Greenhouse Gas Emissions Impact Analysis dated July 12, 2013]*, includes on-road materials delivery as well as construction crew commuting

**Table 5-2-9 Construction Activity Emissions, Option 2**

| | Maximum Daily Emissions (pounds per day) | | | | | |
|---|---|---|---|---|---|---|
| **Maximal Construction Emissions** | **ROG** | **$NO_X$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| 2014 | | | | | | |
| Unmitigated | 14.9 | 122.2 | 64.2 | 0.1 | 20.8 | 12.4 |
| Mitigated | 11.5 | 53.7 | 76.4 | 0.1 | 9.7 | 6.3 |
| 2015 | | | | | | |
| Unmitigated | 14.1 | 112.4 | 61.4 | 0.1 | 12.6 | 8.1 |
| Mitigated | 11.4 | 52.4 | 75.7 | 0.1 | 4.7 | 2.7 |
| 2016 | | | | | | |
| Unmitigated | 3.9 | 24.0 | 25.9 | 0.1 | 3.5 | 1.4 |
| Mitigated | 3.9 | 24.0 | 25.9 | 0.1 | 3.5 | 1.4 |
| 2017 | | | | | | |
| Unmitigated | 3.6 | 21.9 | 25.0 | 0.1 | 3.3 | 1.2 |
| Mitigated | 3.6 | 21.9 | 25.0 | 0.1 | 3.3 | 1.2 |
| 2018 | | | | | | |
| Unmitigated | 3.3 | 20.0 | 24.2 | 0.1 | 3.2 | 1.1 |
| Mitigated | 3.3 | 20.0 | 24.2 | 0.1 | 3.2 | 1.1 |
| 2019 | | | | | | |
| Unmitigated | 3.1 | 18.3 | 23.5 | 0.1 | 3.1 | 0.9 |
| Mitigated | 3.1 | 18.3 | 23.5 | 0.1 | 3.1 | 0.9 |
| 2020 | | | | | | |
| Unmitigated | 44.7 | 16.7 | 22.9 | 0.1 | 2.9 | 1.1 |
| Mitigated | 44.7 | 16.7 | 22.9 | 0.1 | 2.9 | 1.1 |
| 2021 | | | | | | |
| Unmitigated | 44.6 | 1.6 | 2.8 | 0.0 | 0.5 | 0.1 |
| Mitigated | 44.6 | 1.6 | 2.8 | 0.0 | 0.5 | 0.1 |
| **SCAQMD Thresholds** | **75** | **100** | **550** | **150** | **150** | **55** |

Source: CalEEMod.2011.1.1 output in appendix *[to Air Quality and Greenhouse Gas Emissions Impact Analysis dated July 12, 2013]*, includes on-road materials delivery as well as construction crew commuting

As shown in the tables, equipment emissions could exceed the SCAQMD thresholds for $NO_X$ during project grading. The assumption that the entire site will be graded at once is speculative since phasing will be driven by market demand. However, the use of new or recently retrofit diesel equipment could reduce daily $NO_X$ emissions to less than significant levels. Mitigation measures are included herein to reduce emissions for either Option 1 or Option 2.

## 2. Sensitive Receptors

Construction equipment exhaust contains carcinogenic compounds within the diesel exhaust particulates. The toxicity of diesel exhaust is evaluated relative to a 24-hour per day, 365 days per year, 70-year lifetime exposure. The SCAQMD does not generally require the analysis of construction-related diesel emissions relative to health risk due to the short period for which the majority of diesel exhaust would occur, specifically during the grading phase and over a period of several months.

Giroux and Associates prepared a Health Risk Assessment (Assessment) to evaluate construction-related emissions. The Assessment is for Option 1 Project access, which

has the largest quantity of soil movement of the access options and, therefore, represents the worst case emissions from truck hauling and heavy machinery to move the earthworks. The following table depicts the thresholds for such pollutants.

**Table 5-2-10 Risks and Hazards Construction-Related Significance Thresholds**

| Pollutant | Construction-Related Threshold |
|---|---|
| Risks and hazards | Increased cancer risk of >10.0 in a million |
| TACs (toxic air contaminants) and $PM_{2.5}$ | Increased non-cancer risk of >1.0 Hazard Index (Chronic or Acute) |
| Individual project | Ambient $PM_{2.5}$ increase: >0.3 µg/m$^3$ annual average |

The health risk assessment consisted of a screening-level individual cancer analysis to determine the maximum $PM_{2.5}$ concentration from diesel exhaust. This concentration was combined with the diesel particulate matter (DPM) exposure unit risk factor to calculate the inhalation cancer risk from project-related construction activities at the closest sensitive receptor. The EPA AERSCREEN air dispersion model was used to evaluate concentrations of DPM and $P_{2.5}$. This is a single source model that provides a maximum one-hour ground level concentration.

Combustion emissions from construction equipment would be generated during Project construction and could expose adjacent sensitive receptors to DPM and other toxic air contaminants. DPM exhaust emissions for on-site Project construction from off-road heavy equipment were calculated using the CalEEMod 2013.2.2 computer model, which estimated all construction activities over approximately eight years, excluding weekends and holidays.

The predicted maximum one-hour DPM concentration is 0.085 µg/m$^3$ resulting from on-site total project DPM emissions of 0.96 tons. The hourly to annual scaling factor is 0.1. AERSCREEN output indicates that project construction will produce a maximum annual DPM concentration of 0.085 µg/m$^3$. This is less than the individual project $PM_{2.5}$ significance threshold of 0.3 µg/m$^3$.

The excess individual cancer risk factor for DPM exposure is approximately 300 in one million per 1 µg/m$^3$ of lifetime exposure. Recent research has determined that young children are substantially more sensitive to DPM exposure risk. If exposure occurs in the first several years of life, an age sensitivity factor (ASF) of 10 should be applied. For toddlers through mid-teens, the ASF is 3. The DPM exposure risk from construction exhaust thus depends on the age of the receptor population as shown below.

**Table 5-2-11 Age Sensitivity Factor Thresholds**

| Age Group | Excess Cancer Risk* |
|---|---|
| Infants | 3.0 in 1 million |
| Children | 0.9 in 1 million |
| Adults | 0.3 in 1 million |

*DPM (µg/m$^3$) * ASF * 300 x $10^{-6}$/70 years

As indicated, the maximum individual cancer risk would be below the ten in one million significance threshold and, therefore, no impacts to sensitive receptors would occur with the Proposed Project. Since there is no risk under Option 1 conditions, which represents the worst case for the amount of grading and heavy equipment use, no analysis was performed for other access options. The model output for the analysis is included with the Assessment in Appendix C.

The Proposed Project will be phased over a grading period of at least two years. Health risk analyses are typically assessed over a 9-, 30- or 70-year time frame due to the lack of health risk associated with such a brief exposure.

### 3. Localized Significance Thresholds (Construction Phase)

Parameters for localized significance thresholds (LSTs) were developed by SCAQMD to evaluate ambient air quality on a local level. LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor. The SCAQMD has published LST pollutant concentration data for 1, 2 and 5 acres sites for varying distances. CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily soil disturbance activity possible for each piece of equipment. Table 5-2-12 below was used to determine the maximum daily disturbed-acreage for comparison to LSTs.

**Table 5-2-12 Maximum Daily Disturbed Acreage**

| Equipment Type | Acres per 8-hour-day |
|---|---|
| Tractors | 0.5 |
| Graders | 0.5 |
| Rubber tired dozers | 0.5 |
| Scrapers | 1 |

Using the equipment identified in Table 5-2-12 above, the Proposed Project will result in a maximum of 7.5 acres per day disturbed during peak construction grading activity (1 dozer × 0.5 + 2 graders × 0.5 + 6 scrapers × 1 = 7.5 acres disturbed). CalEEMod calculates emissions based on the number of equipment hours and the maximum daily soil disturbance activity possible for each piece of equipment.

The SCAQMD screening tables for construction disturbance of five acres and less can be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required. If emissions exceed the LST screening value for a five-acre site, then dispersion modeling must be conducted. Use of the five-acre site model would result in more stringent LSTs since emissions would occur in a more concentrated area and closer to the nearest sensitive receptors than would be likely with the Proposed Project.

The residential use nearest to the closest project residential lot is approximately 600 feet (200 meters). LST screening tables are available for 25, 50, 100, 200, and 500 meter source-receptor distances. Only on-site construction activity is considered in the LST analysis. Construction emissions in the CalEEMod output files do not include sources such as on-road haul, worker commuting, or vendor delivery emissions, which are included herein in the microscale impact analysis. Table 5-2-13 below depicts the thresholds and emissions (pounds per day) for the LST analysis.

**Table 5-2-13 Localized Significance Thresholds and Project Emissions**

| | Localized Significance Thresholds and Project Emissions (pounds per day) | | | |
|---|---|---|---|---|
| | CO | $NO_X$ | $PM_{10}$ | $PM_{2.5}$ |
| LST Thresholds (5 acres/200 meters) | 3,605 | 249 | 78 | 34 |
| Max On-Site Emissions | | | | |
| Option 1 | | | | |
| Unmitigated | 70 | 128 | 21 | 12 |
| Mitigated | 81 | 60 | 13 | 6 |
| Option 2 | | | | |
| Unmitigated | 64 | 122 | 21 | 12 |
| Mitigated | 76 | 54 | 10 | 6 |

CalEEMod Output in appendix *[to Air Quality and Greenhouse Gas Emissions Impact Analysis dated July 12, 2013]* (maximum mitigated emissions from on-site construction)

As seen above, LST impacts for the maximum daily construction activities for Option 1 and Option 2 are less than significant. Since LST thresholds will not be exceeded for the more conservative concentrated 5-acre disturbance assumption, they would also not be exceeded if the same emissions are dispersed over a larger project area.

## 4. Operational Emissions

The Proposed Project will generate 3,617 average daily trips (ADT). Residential uses also generate small quantities of area source emissions derived from organic compounds from consumer products, natural gas use, and landscape maintenance. The contribution of these sources is relatively small.

In the table below, operation emissions were calculated using CalEEMod 2011.1.1 for assumed project build-out year of 2018. Actual project build-out will likely not occur until 2020-2021. CalEEMod assumes that mobile source emissions will become cleaner in the future due to technology and fuel formulation improvements. Therefore, use of 2018 as a build-out year represents a worst case scenario. Build-out occurring in subsequent years will have lower associated operational emissions.

The calculations assume there will be no wood-burning fireplaces in order to minimize smoke and unburned hydrocarbon emissions. With wood-burning fireplaces, ROG emissions could exceed operational thresholds. Therefore, no wood-burning fireplaces were used in the Air Quality Analysis.

**Table 5-2-14 Proposed Residential Daily Operational Impacts**

| Source | Operational Emissions (pounds per day) | | | | | |
|---|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
| Area | 16.6 | 0.4 | 31.8 | 0.0 | 0.6 | 0.6 |
| Energy | 0.5 | 4.0 | 1.7 | 0.0 | 0.3 | 0.3 |
| Mobile | 15.6 | 35.4 | 148.1 | 0.3 | 37.6 | 2.3 |
| **Total** | **32.6** | **39.8** | **181.7** | **0.3** | **38.6** | **3.2** |
| SCAQMD Threshold | 55 | 55 | 550 | 150 | 150 | 55 |
| Exceeds Threshold? | no | no | no | no | no | no |

Source: CalEEMod Output in appendix [to Air Quality and Greenhouse Gas Emissions Impact Analysis dated July 12, 2013]

Mitigation has been included in Section 5.6, Greenhouse Gas Emissions (beginning on page 5-257) to ensure use of gas rather than wood-burning fireplaces. With use of gas-burning hearths and the elimination of wood-burning fireplaces, project development will not exceed the SCAQMD recommended threshold levels and operational emissions will be less than significant.

## 5. Microscale Impact Analysis

CO is a localized gas that dissipates very quickly under normal meteorological conditions. As such, CO concentrations decrease substantially as distance from the source (intersection) increases. Since exhaust fumes from vehicles are the primary source of CO, there is a relationship between traffic/circulation congestion and CO impacts. Intersections are areas of the highest CO concentrations and have the potential to create pockets of elevated levels of CO which are called "hot spots."

Even though the SCAB has been classified a non-attainment area, the SCAQMD has demonstrated in the CO attainment redesignation request to EPA that there are no "hot spots" – i.e., locations where emission concentrations expose individuals to elevated risks of adverse health effects – anywhere in the SCAB. However, a CO screening analysis was performed at all intersections within the Project Area that were included in the project traffic analysis. One-hour CO concentrations were calculated on the sidewalks adjacent to those intersections. Calculations were made for existing traffic and future timeframes for the morning and evening peak hours.

The significance of localized project impacts depends on whether the project would cause substantial concentrations of CO. The project-related mobile-source emissions would have significant impacts if they exceed the California one-hour and eight-hour CO standards which are:

- 1-hour = 20 ppm
- 8-hour = 9 ppm

Calculations were made for existing and future conditions during morning and evening peak hours. Combining future project built-out traffic with existing conditions represents a worst-case analysis. The results of the microscale (emissions that typically range from 1 to 999 µm – 1 mm) impact analysis are shown for Option 1 and

Option 2 under 1-hour and 8-hour periods. The results are depicted in Table 5-2-15 for the 1-hour concentration and Table 5-2-16 for the 8-hour concentration.

**Table 5-2-15 One-Hour CO Concentrations**

| Intersections | 1-Hour CO Concentrations, including 2.7 ppm background concentration (parts per million) | | | | | |
|---|---|---|---|---|---|---|
| **Option 1** | **Existing No Project** | **Existing + Option 1** | **2020 No Project** | **2020 + Option 1** | **Future No Project** | **Future + Option 1** |
| AM Peak Hours | | | | | | |
| Yorba Linda Boulevard/ | | | | | | |
| Las Palomas | 3.4 | 3.5 | 3.2 | 3.2 | 3.0 | 3.0 |
| San Antonio Road | 3.5 | 3.6 | 3.2 | 3.3 | 3.1 | 3.1 |
| Yorba Ranch | 3.5 | 3.6 | 3.2 | 3.3 | 3.1 | 3.1 |
| La Palma | 4.0 | 4.1 | 3.7 | 3.7 | 3.4 | 3.5 |
| PM Peak Hours | | | | | | |
| Yorba Linda Boulevard/ | | | | | | |
| Las Palomas | 3.5 | 3.6 | 3.2 | 3.3 | 3.0 | 3.1 |
| San Antonio Road | 3.5 | 3.6 | 3.3 | 3.3 | 3.1 | 3.1 |
| Yorba Ranch | 3.6 | 3.6 | 3.3 | 3.3 | 3.1 | 3.2 |
| La Palma | 4.3 | 4.4 | 3.8 | 3.9 | 3.7 | 3.7 |
| **Option 2** | **Existing No Project** | **Existing + Option 2** | **2020 No Project** | **2020 + Option 2** | **Future No Project** | **Future + Option 2** |
| AM Peak Hours | | | | | | |
| Yorba Linda Boulevard/ | | | | | | |
| Las Palomas | 3.4 | 3.5 | 3.2 | 3.2 | 3.0 | 3.0 |
| San Antonio Road | 3.5 | 3.6 | 3.2 | 3.3 | 3.1 | 3.1 |
| Yorba Ranch | 3.5 | 3.5 | 3.2 | 3.3 | 3.1 | 3.1 |
| La Palma | 4.0 | 4.1 | 3.7 | 3.7 | 3.4 | 3.5 |
| PM Peak Hours | | | | | | |
| Yorba Linda Boulevard/ | | | | | | |
| Las Palomas | 3.5 | 3.6 | 3.2 | 3.3 | 3.0 | 3.1 |
| San Antonio Road | 3.5 | 3.7 | 3.3 | 3.3 | 3.1 | 3.1 |
| Yorba Ranch | 3.6 | 3.6 | 3.3 | 3.3 | 3.1 | 3.1 |
| La Palma | 4.3 | 4.4 | 3.8 | 3.8 | 3.7 | 3.7 |

**Table 5-2-16 Eight-Hour CO Concentrations**

| Intersections | 8-Hour CO Concentrations, including 2.1 ppm background concentration (parts per million) | | | | | |
|---|---|---|---|---|---|---|
| **Option 1** | **Existing No Project** | **Existing + Option 1** | **2020 No Project** | **2020 + Option 1** | **Future No Project** | **Future + Option 1** |
| Yorba Linda Boulevard/ | | | | | | |
| Las Palomas | 2.6 | 2.6 | 2.4 | 2.4 | 2.3 | 2.3 |
| San Antonio Road | 2.6 | 2.6 | 2.4 | 2.5 | 2.3 | 2.3 |
| Yorba Ranch | 2.6 | 2.6 | 2.4 | 2.5 | 2.3 | 2.4 |
| La Palma | 4.0 | 4.1 | 3.7 | 3.7 | 3.4 | 3.5 |
| **Option 2** | **Existing No Project** | **Existing + Option 2** | **2020 No Project** | **2020 + Option 2** | **Future No Project** | **Future + Option 2** |
| Yorba Linda Boulevard/ | | | | | | |
| Las Palomas | 2.6 | 2.6 | 2.4 | 2.4 | 2.3 | 2.3 |
| San Antonio Road | 2.7 | 2.7 | 2.4 | 2.5 | 2.3 | 2.3 |
| Yorba Ranch | 2.6 | 2.6 | 2.4 | 2.5 | 2.3 | 2.3 |
| La Palma | 3.0 | 3.0 | 2.7 | 2.7 | 2.6 | 2.6 |

As shown in the tables above, the existing peak one-hour local CO background level in 2011 was 3.5 ppm. Under existing conditions with the addition of the Proposed Project, maximum one-hour concentration is estimated to be 4.4 ppm, which is well below the one-hour standard of 20 ppm. The maximum ambient 8-hour CO concentration in 2011 was 3.0 ppm. Maximum with-project 8-hour CO concentration is 3.0 ppm, which is well below the 9 ppm significance threshold. Therefore, microscale air quality impacts are not significant.

## 5.2.5 Mitigation Measures

### a. Short-Term Impacts (Construction)

Project-related air quality impacts were shown to be potentially significant during project grading due to off-road diesel equipment $NO_X$ emissions. $PM_{10}$ (fugitive dust and equipment exhaust soot) emissions are predicted to remain below the SCAQMD CEQA significance threshold. However, the anticipated duration for construction and the large volume of earthworks requires the use of best management practices for dust control. To further minimize potential impacts, during construction and grading activities the construction contractor shall ensure that standard construction practices set forth in the SCAQMD Handbook shall be implemented.

AQ-1 During construction, the Project Applicant shall ensure the use of enhanced control measures for diesel exhaust emissions to maintain $NO_X$ impacts at a less than significant level. These measures shall include:

- Utilize well-tuned off-road construction equipment
- During grading, require that contractors use Tier 3 on all heavy equipment (excavators, graders, and scrapers exceeding 100 HP rated power) if the entire

project is graded at one time for $NO_X$ emissions, unless use of such mitigation is demonstrated to be technically infeasible for a given piece of equipment
- During grading, require that contractors employ oxidation catalysts during grading for excavation graders and scrapers exceeding 100 HP rated power if the entire project is graded at one time, unless use of such mitigation is demonstrated to be technically infeasible for a given piece of equipment.
- Enforce 5-minute idling limits for on-road trucks and off-road equipment

AQ-2 During construction, the Project Applicant shall ensure that standard construction practices as set forth in the SCAQMD Handbook shall be implemented.

AQ-3 During construction, the Project Applicant shall ensure that best management practices for dust control are implemented. These include:

- Apply soil stabilizers or moisten areas that are inactive for 96 hours or more.
- Prepare a high wind dust control plan
- Address previously disturbed areas if subsequent construction is delayed more than 96 hours
- Water exposed surfaces as needed to avoid visible dust leaving the construction site (typically three times per day)
- Wet down or cover all stockpiles with tarps at the end of each day or as needed
- Provide water spray during loading and unloading of earthen materials
- Minimize in-out traffic from construction zone
- Cover all trucks hauling dirt, sand or loose material or require all trucks to maintain at least two feet of freeboard
- Sweep streets daily if visible soil material is carried out from the construction site
- Use perimeter sandbags and wind fences for erosion control

### b. Long Term (Operational) Impacts

With incorporation of the following mitigation measure, operational emissions would not exceed respective SCAQMD significance thresholds.

## 5.2.6 Level of Significance after Mitigation

The SCAQMD and the CARB are the agencies responsible for the management of air quality impacts within the South Coast Air Basin. The SCAB has been designated as a non-attainment area for compliance with the Federal Clean Air Act. However, the Proposed Project will not conflict with or obstruct implementation of the applicable air quality plan.

As shown in the analysis herein, project construction or operational emissions will not exceed the SCAQMD recommended thresholds levels and, therefore, will not violate any air quality standard or contribute substantially to an existing or project air quality violation. Short-term construction-related emissions are anticipated to remain below

thresholds but could result in a cumulative net increase in pollutants if the adjacent proposed Cielo Vista project is constructed concurrently.

Distance attenuation from the nearest sensitive receptors will lessen potential impacts from short-term construction or long-term operation of the Proposed Project. Mitigation measures have been included to ensure that emissions and dust from construction operations are minimized to the extent feasible. Other than short-term impacts from construction operations, the Proposed Project will not create objectionable odors, as only residential uses will be developed.

### 5.2.7 Cumulative Impacts

Because the SCAB has been classified as a non-attainment air basin for compliance with the federal Clean Air Act, the Proposed Project will have an incremental impact on cumulative air quality conditions. Emissions modeling for the construction of the Proposed Project indicate that the project emissions would remain below levels of significance for each of the air quality constituents for which the SCAB is currently non-attainment. Therefore, the project would not significantly add to the cumulative impacts or increases in the non-attainment criteria pollutants in the SCAB. The Proposed Project, when combined with the proposed adjacent Cielo Vista project, is not anticipated to result in cumulative impacts to air quality, because the anticipated emissions, with mitigation, are well below the established thresholds.

### 5.2.8 Unavoidable Adverse Impacts

Project impacts related to short-term construction and long-term operation will remain below the SCAQMD thresholds. No unavoidable adverse impacts will occur related to air quality.

# 5.3 Biological Resources

The section analyzes the Proposed Project's impacts on the various biological resources located in and surrounding the Project Site. This section is based on the "Biological Technical Report for the 504-Acre Esperanza Hills Specific Plan Property" dated March 2013 (revised June 2013, July 2013, and November 2013), prepared by Glenn Lukos Associates, Inc. (Appendix D to this DEIR). Field studies were conducted for the Proposed Project and off-site areas as listed below. Study results and analysis are included in Section 5.3.4, Project Impacts Prior to Mitigation (beginning on page 5-139).

- The Project Site, outlined in black on Exhibit 5-23 – Vicinity Map, consists of approximately 468.9-acre area.
- The off-site impact area, outlined in red on Exhibit 5-23, consists of an additional 35.26 acres outside the Project Site on which off-site improvements required for the implementation of the Proposed Project will be constructed. These off-site improvements include access roads and utility connections.
- The Study Area consists of the Project Site, and the off-site impact area and covers approximately 504.20 acres. Surveys for biological resources were conducted over the entire 504.20-acre Study Area. Refer to Exhibit 5-23.

An initial round of surveys was conducted in spring of 2007, with additional surveys conducted during spring of 2008 and spring of 2010, following the 2008 Freeway Complex Fire. Finally, reconnaissance-level surveys were conducted in spring and winter 2012 and spring, winter, and summer 2013 to update conditions on the site from those observed in 2010.

**Acronyms used in this section:**

| | |
|---|---|
| ACOE | U.S. Army Corps of Engineers |
| BCC | Birds of Conservation Concern |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| CNDDB | California Nature Diversity Database |
| CRPR | California Rare Plant Ranks |
| DEIR | Draft Environmental Impact Report |
| FESA | Federal Endangered Species Act |
| FPS | Fully Protected Species |
| HOA | homeowners' association |
| MBTA | Migratory Bird Treaty Act |
| OHWM | Ordinary High Water Mark |
| PCE | Primary Constituent Element |
| RWQCB | Regional Water Quality Control Board |
| SSC | Species of Special Concern |
| USFWS | United States Fish and Wildlife Service |
| USGS | U.S. Geological Survey |

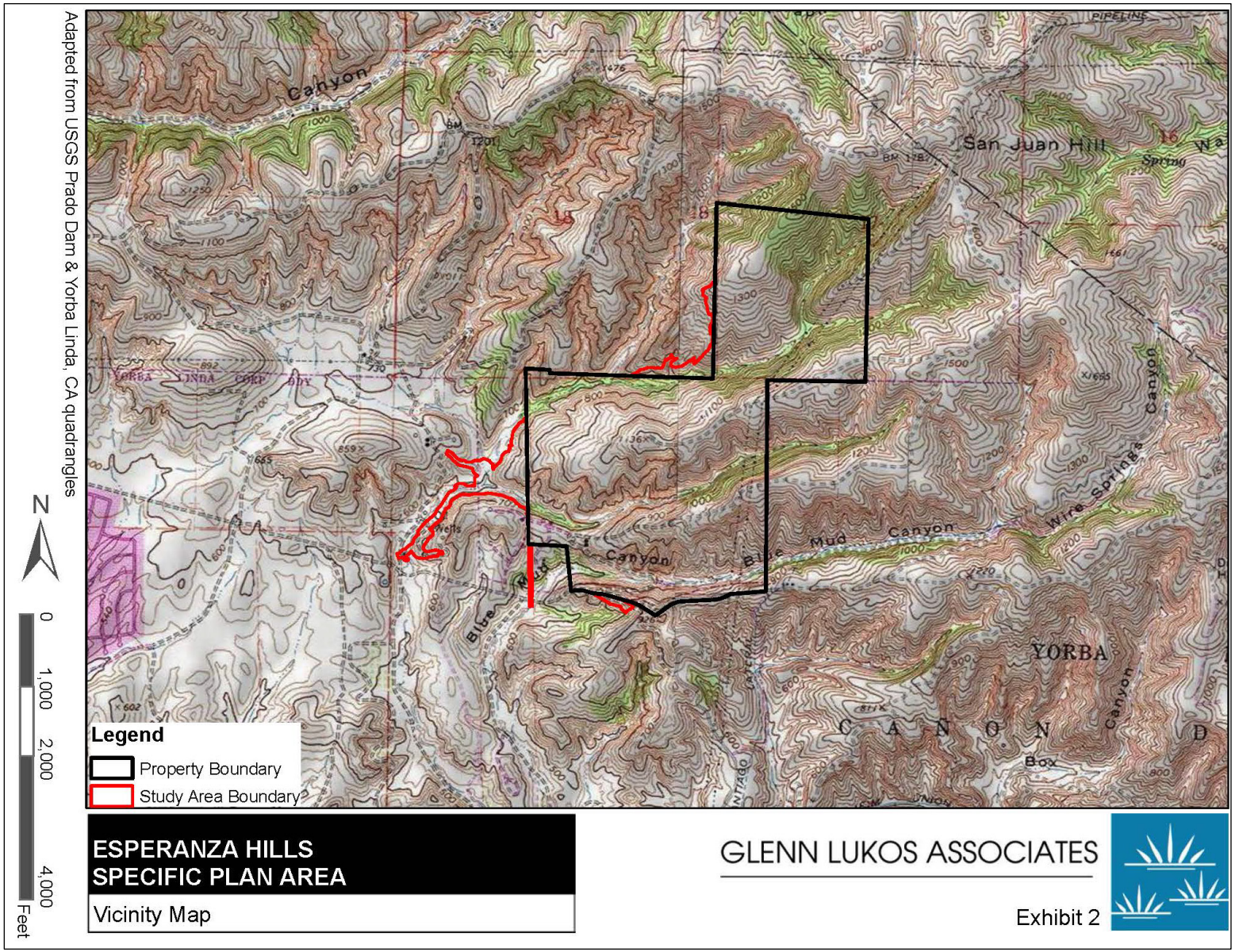



**Exhibit 5-23 – Vicinity Map**

The field studies focused on a number of primary objectives that would comply with CEQA requirements: 1) general reconnaissance surveys and vegetation mapping according to the Orange County Habitat Classification System); 2) general floristic surveys; 3) general wildlife surveys; 4) habitat assessments for special-status plants; 5) habitat assessments and focused surveys for special-status animals; 6) delineation of state and federal waters, including wetlands and riparian areas, and 7) a protocol of focused gnatcatcher survey conducted from May to June 2013. Observations of all plant and wildlife species were recorded during each of the above-mentioned survey efforts. The Biological Technical Report is included as Appendix D of this DEIR.

The table below provides a summary of studies conducted in the Study Area.

**Table 5-3-1 Site Surveys, 2007-2013**

| Survey Date | Survey Type | Weather |
|---|---|---|
| March 20, 2007 | California gnatcatcher survey #1 | Overcast |
| March 26, 2007 | Vegetation mapping; Focused plant survey | Clear skies |
| March 27, 2007 | California gnatcatcher survey #2 | Scattered clouds |
| April 3, 2007 | California gnatcatcher survey #3 | Overcast |
| April 4, 2007 | Vegetation mapping; Focused plant survey | Clear skies |
| April 10, 2007 | Least Bell's Vireo survey #1; California gnatcatcher survey #4 | Isolated clouds |
| April 17, 2007 | California gnatcatcher survey #5 | Clear skies |
| April 20, 2007 | Least Bell's Vireo survey #2 | Overcast |
| April 30, 2007 | Least Bell's Vireo survey #3 | Overcast |
| May 4, 2007 | Vegetation mapping; Focused plant survey | Clear skies |
| May 9, 2007 | California gnatcatcher survey #6 | Overcast |
| May 11, 2007 | Least Bell's Vireo survey #4 | Clear skies |
| May 21, 2007 | Least Bell's Vireo survey #5; Willow flycatcher survey #1 | Overcast, isolated rain showers |
| May 31, 2007 | Least Bell's Vireo survey #6 | Overcast |
| June 1, 2007 | Willow flycatcher survey #2 | Overcast |
| June 10, 2007 | Least Bell's Vireo survey #7 | Overcast |
| June 29, 2007 | Willow flycatcher survey #3 | Clear skies |
| July 3, 2007 | Vegetation mapping; Focused plant survey | Clear skies |
| July 8, 2007 | Willow flycatcher survey #4 | Clear skies |
| July 13, 2007 | Least Bell's Vireo survey #8; Willow flycatcher survey #5 | Scattered clouds |
| August 17, 2007 | Jurisdictional Delineation | Clear skies |
| August 21, 2007 | Jurisdictional Delineation Focused plant survey | Clear skies |
| August 22, 2007 | Jurisdictional Delineation | Clear skies |
| March 22, 2008 | Focused plant survey | Clear skies |
| May 24, 2008 | Focused plant survey | Overcast |
| February 27, 2010 | Avian Survey | Overcast |
| July 28, 2012 | Avian Survey | Clear skies |
| December 28, 2012 | Vegetation Mapping | Clear skies |
| January 9, 2013 | Jurisdictional Delineation Vegetation Mapping | Clear skies |
| January 11, 2013 | Jurisdictional Delineation Vegetation Mapping | Clear skies |
| February 7, 2013 | Jurisdictional Delineation Vegetation Mapping | Overcast |
| February 11, 2013 | Jurisdictional Delineation Vegetation Mapping | Overcast |
| February 22, 2013 | Jurisdictional Delineation | Clear skies |
| May 9, 2013 | California gnatcatcher survey #6 | Isolated clouds |
| May 16, 2013 | California gnatcatcher survey #6 | Overcast |
| May 23, 2013 | California gnatcatcher survey #6 | Overcast |
| May 30, 2013 | California gnatcatcher survey #6 | Overcast |
| June 6, 2013 | California gnatcatcher survey #6 | Overcast |
| June 13, 2013 | California gnatcatcher survey #6 | Overcast |
| July 12, 2013 | Jurisdictional Delineation | Scattered clouds |

The Study Area drainages are identified by Drainage Areas A through G as depicted on Exhibit 5-24 – Study Area Drainages. These drainages are further discussed in Section 5.8, Hydrology and Water Quality (beginning on page 5-341 of this DEIR).

After a habitat assessment was conducted through the studies detailed above, a literature search for special status plant species was conducted. Species were evaluated based on three factors: 1) species identified by the California Nature Diversity Database (CNDDB) and the California Native Plant Society as occurring (either currently or historically) on or in the vicinity of the property, 2) any other special status plants that are known to occur within the vicinity of the property, or for which potentially suitable habitat occurs on-site, and 3) previous botanical reports from studies conducted on the property.

Based on sufficient habitat, several plants were targeted for focused plant surveys during the 2007 and 2010 field seasons. These include Allen's pentachaeta, Brand's phacelia, Braunton's milk-vetch, Catalina mariposa lily, chaparral nolina, intermediate mariposa lily, many-stemmed dudleya, Robinson's peppergrass, small flowered microseris, small-flowered morning glory, southern California walnut, and vernal barley. Table 4-2 of the Biological Technical Report (Appendix D of this DEIR) provides a list of special-status plants evaluated for the Study Area.

## 5.3.1 Existing Conditions

The Study Area consists of a diverse range of habitat use types, including coastal sage scrub, chaparral, and riparian habitats, as well as disturbed habitats such as ruderal vegetation and disturbed/developed land. The southern portion of the Study Area contains oil wells, oil extraction equipment, and service roads. Due to the high human use of the southern portion of the Study Area, there is a predominance of non-native vegetation and disturbed lands when compared to the relatively undisturbed northern portion of the Study Area.

The Study Area is dominated by ridges and associated canyons that support riparian habitat. Four drainages occur on the Project Site, as depicted on the U.S. Geological Survey (USGS) topographic map and shown on Exhibit 5-23 (page 5-92). Elevation for the Study Area ranges from approximately 550 feet above mean sea level (AMSL) at the southwest boundary to 1,540 feet AMSL at the north boundary. The Study Area is bordered by Blue Mud Canyon and Stonehaven Drive to the south, Chino Hills State Park to the north and east, and the proposed Cielo Vista project and residential areas adjacent to San Antonio Road to the west. The property immediately north, east, and west of the Study Area is partially open space and residential development, while property bordering the southern boundary is residential development.

This section describes the existing condition of plants and animals found or potentially found on the Study Area prior to and after the 2008 Freeway Complex Fire with respect to federal, state, and county regulations for biological resources.

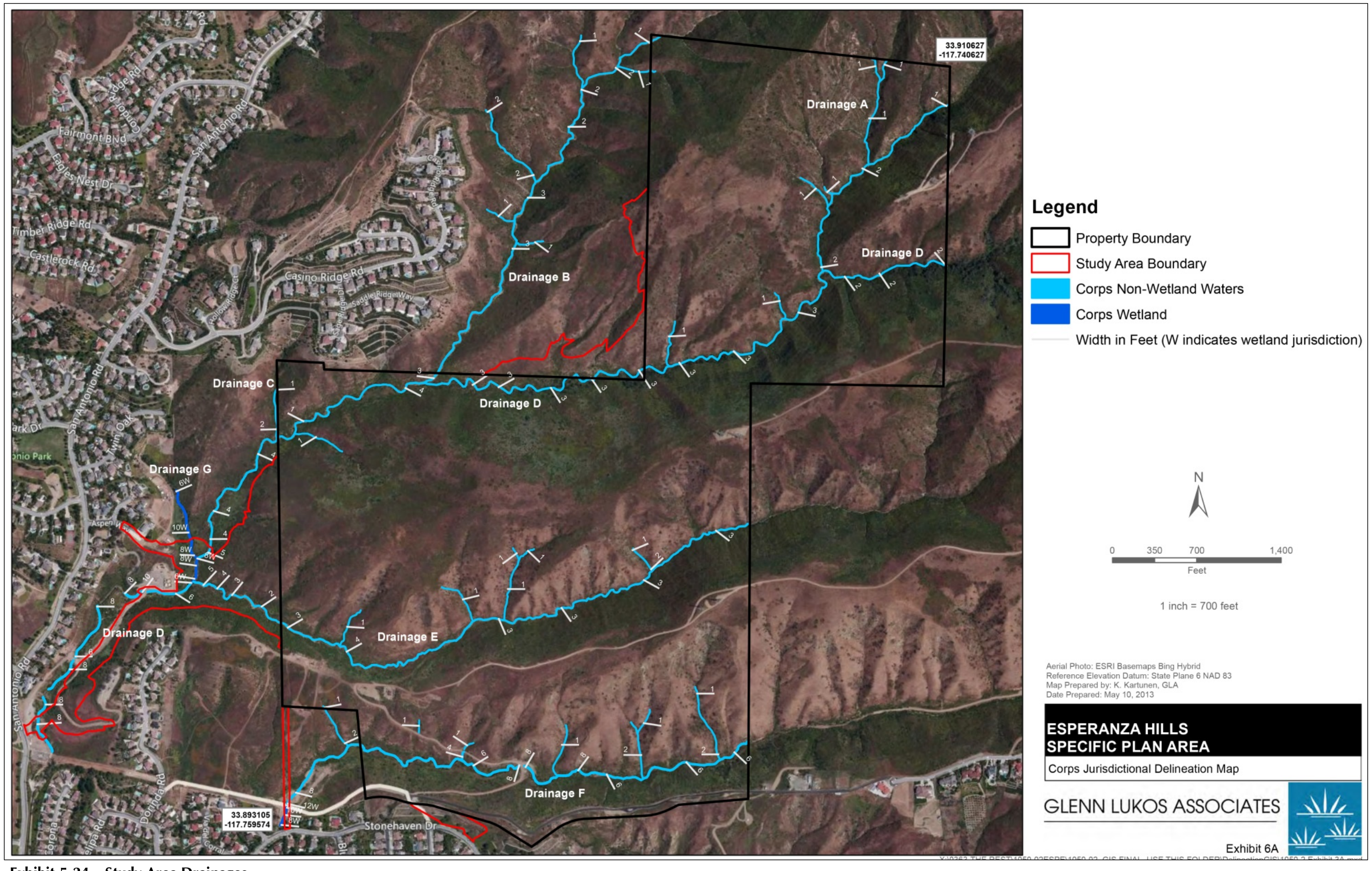



**Exhibit 5-24 – Study Area Drainages**

## 2. Plant Communities

### a. Conditions Pre- and Post-Freeway Complex Fire

The 2008 Freeway Complex Fire burned the entire Project Site. Prior to 2008, the coastal sage scrub habitats within the Study Area exhibited a diverse suite of species. The disturbed coastal sage scrub within the Study Area supported a similar species composition with a substantial component of non-native plant shrubs and herbaceous species. Additionally, the Study Area supported numerous blue elderberry, coast live oak, and California black walnut trees, many of which were damaged and a few of which were killed by the fire. Finally, the riparian canopy species (e.g., black willow, red willow, arroyo willow, and mulefat) observed at Drainages G and F were burned, which substantially narrowed the band of native riparian trees and large shrubs associated with these drainages; however, by the summer of 2013, when jurisdictional delineation was updated, the riparian habitat was largely recovered.

Post-fire succession varies among habitat types, with some habitats exhibiting signs of reverting to their pre-fire condition, which will still require a number of years. Other habitats may never return to their pre-fire condition and instead may transition to a new habitat type, such as coastal sage scrub converting to non-native grassland. Under either scenario, the early post-fire successional stage consists of fire-following species that require the seed bank (seeds that are dormant in the soil) to be heated/ burned, and/or weedy species that are able to quickly reproduce and fill the open niches left by the destroyed vegetation. The Study Area is currently in an early post-fire successional stage, and habitat recovery will vary according to a number of factors. It is presumed that the habitats within the Study Area will return to pre-fire conditions eventually; however, such conversion will take one to two decades. Individual trees, including upland and, to a lesser extent, riparian species, killed by the fire will not regrow, and recruitment and growth of new saplings to maturity will take several years. Additionally, given that locally dominant patches of bush mallow were present on the Project Site prior to the fire, it is possible that not all coastal sage scrub colonized by bush mallow post-fire will revert to coastal sage scrub. Site visits in spring 2010, spring 2012, and winter, spring, and summer 2013 confirmed that, while vegetation in some areas was following a typical trajectory for recovery, many of the affected areas remain dominated by bush mallow.

## b. Vegetation

Sixteen associations were identified within eight vegetation/land use types. Table 5-3-2 below provides a summary of vegetation types/land uses and the corresponding acreage. Exhibit 5-25 – Vegetation Map provides locations that correspond with the table below. Photographs depicting the various vegetation types are found as Exhibit 4, Site Photographs, in the Biological Technical Report in Appendix D of this DEIR. As already noted, the 2008 Freeway Complex Fire burned the Study Area. Habitat recovery varies according to a number of factors. The habitat mapping depicted on Exhibit 5-25 is generally consistent with vegetation/land use types present prior to the 2008 Freeway Complex Fire, as it is presumed that most habitats will eventually recover to pre-fire conditions. The descriptions of each vegetation/land use type in Table 5-3-2 detail pre-fire conditions.

**Table 5-3-2 Summary of Vegetation/Land Use Types for Study Area**

| Vegetation/Land Use Type | Total in Study Area (acres) | Percent of Total Study Area |
|---|---|---|
| **Coastal Sage Scrub** | **45.88** | **9.1** |
| California Sagebrush Scrub | 24.21 | 4.8 |
| Disturbed California Sagebrush Scrub | 10.32 | 2.0 |
| Purple Sage Scrub | 10.14 | 2.0 |
| Sagebrush-Monkeyflower Scrub | 1.21 | 0.2 |
| **Ecotonal Habitats** | **129.45** | **25.7** |
| Coastal Sage /Chaparral Ecotone | 95.02 | 18.9 |
| Sumac Savannah | 34.43 | 6.8 |
| **Chaparral Habitats** | **124.38** | **24.7** |
| Toyon/Sumac Chaparral | 122.63 | 24.3 |
| Sumac/Elderberry Chaparral | 1.75 | 0.3 |
| **Woodland Habitats** | **36.61** | **7.3** |
| California Walnut Woodland | 6.37 | 1.3 |
| Blue Elderberry Woodland | 23.88 | 4.7 |
| Southern Coast Live Oak Forest | 6.36 | 1.3 |
| **Riparian Habitats** | **5.34** | **1.0** |
| Mulefat Scrub | 1.93 | 0.3 |
| Black Willow Riparian Forest | 0.19 | 0.3 |
| California Walnut/Mulefat Scrub | 2.70 | 0.5 |
| Southern Willow Scrub | 0.52 | 0.1 |
| **Grassland Habitats** | **136.10** | **27.0** |
| Annual Grassland | 136.10 | 27.0 |
| **Disturbed Habitats** | **15.93** | **3.2** |
| Ruderal | 15.93 | 3.2 |
| **Developed Land** | **10.51** | **2.0** |
| Graded Areas/Paved Roads | 10.17 | 2.0 |
| Ornamental Vegetation | 0.28 | 0.1 |
| Detention Basin | 0.06 | 0.01 |
| **Total Vegetation/Land Use Acreage** | **504.20** | **100** |

Note: Data reflects pre-2008 Freeway Complex Fire conditions

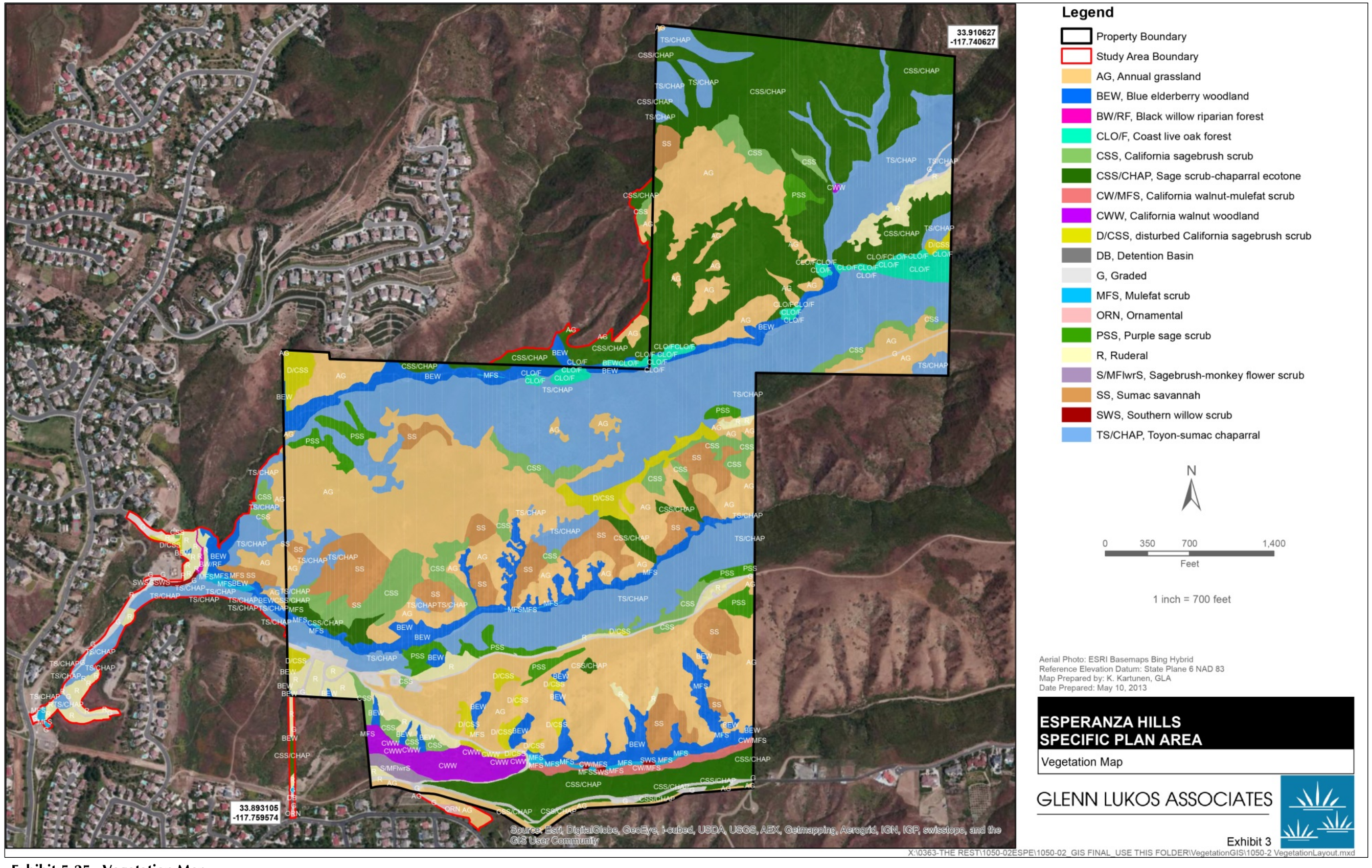



**Exhibit 5-25– Vegetation Map**

1. **Coastal Sage Scrub Habitats** – Prior to the 2008 Freeway Complex Fire, coastal sage scrub habitat occupied approximately 45.88 acres of the Study Area. Four associations (plant communities) of coastal sage scrub were identified: California sagebrush scrub, disturbed California sagebrush scrub, purple sage scrub, and sagebrush-monkey flower scrub. A brief description of each association in the pre-fire conditions is provided below and includes acreages and the dominant plant species observed along with description in the current post-fire conditions.

    a. **California Sagebrush Scrub** - Approximately 24.21 acres of the Study Area supported California sagebrush scrub. The majority of the California sagebrush scrub was identified in the southeastern portion of the Study Area; however, smaller areas of California sagebrush scrub were found throughout. The California sagebrush scrub on-site was commonly observed adjacent to areas supporting non-native/native grasslands. Surveys in 2007, prior to the 2008 Freeway Complex Fire, found that the dominant plant species observed within the California sagebrush scrub consists of California sagebrush and black sage, and occasional individuals of California buckwheat, Menzies' goldenbush, and California encelia. The understory includes non-native grasses and herbs, including red brome, ripgut, and tocalote.

    Surveys in April 2012 and January through June 2013 found that the majority of California sagebrush scrub was dominated by bush mallow, which occurs in near monocultural stands (areas vegetated with only a single plant species) on large portions of the site. Currently, areas previously mapped as California sagebrush scrub are largely dominated by bush mallow, laurel sumac (which has re-sprouted following the fire), and deer weed (another fire follower).

    b. **Disturbed California Sagebrush Scrub** - Approximately 10.32 acres of the Study Area supported disturbed California sagebrush scrub. The disturbed California sagebrush scrub is similar in composition to the California sagebrush scrub, except that the diversity of native species is lower and the number of non-native species is higher. Disturbed California sagebrush scrub was found throughout the entire Study Area and was commonly observed adjacent to areas supporting non-native/native grasslands. During surveys conducted in 2007, prior to the 2008 Freeway Complex Fire, the dominant plant species observed within the disturbed California sagebrush scrub consisted of California sagebrush, black sage, California buckwheat, and California encelia, The disturbed California sagebrush scrub contains a large non-native component that includes grasses such as ripgut grass, soft chess, and red brome.

Surveys in April 2012 and January 2013 found that the majority of disturbed California sagebrush scrub was dominated by bush mallow, which occurs in near-monocultural stands on large portions of the site. Over time, the abundance of bush mallow will diminish with a corresponding increase in species that were dominant in the pre-fire condition; however, such conversion will take one to two decades. Currently, areas previously mapped as disturbed California sagebrush scrub are largely dominated by bush mallow, laurel sumac and deer weed.

c. **Purple Sage Scrub** - Approximately 10.14 acres of the Study Area supported purple sage scrub, all of which occurred on-site. The purple sage scrub was observed in the southern portion of the Project Site with the exception of one polygon in the northern portion. The purple sage scrub observed on-site was commonly found adjacent to California sagebrush scrub, coastal sage scrub/chaparral ecotone, and toyon/sumac chaparral. During surveys conducted in 2007, prior to the 2008 Freeway Complex Fire, the dominant plant species observed within the purple sage scrub consisted mostly of purple sage. Other components of the purple sage scrub included white sage, giant wildrye, bush lupine, black sage, coyote bush, poison oak, and fuchsia flowered gooseberry. The purple sage scrub contained scattered blue elderberry, toyon, and lemonade berry.

   Surveys in April 2012 and January through June 2013 found that the majority of purple sage scrub was dominated by bush mallow, which occurs in near monocultural stands on large portions of the site. Over time, the abundance of bush mallow will diminish with a corresponding increase in species that were dominant in the pre-fire condition; however, such conversion will take one to two decades. Currently, areas previously mapped as purple sage scrub are largely dominated by bush mallow.

d. **Sagebrush-Monkeyflower Scrub** - Approximately 1.21 acres of the Study Area supported sagebrush-monkeyflower scrub, all of which occurred on-site. The sagebrush-monkeyflower scrub was observed on north-facing slopes within the southern portion of the Study Area in close proximity to the coastal sage/chaparral ecotone.

   Prior to the 2008 Freeway Complex Fire, the dominant plant species observed within the sagebrush-monkeyflower scrub were California sagebrush, bush monkeyflower, Menzies' goldenbush, giant wildrye, poison oak, purple sage, fuchsia-flowered gooseberry, and black sage. The sagebrush-monkeyflower scrub contained scattered blue elderberry, some of which were killed by the fire. A number of the elderberry trees that were killed by the fire have not regenerated,

while toyon and lemonade berry, which re-sprout following fire, are recovering. A significant portion of this habitat is now dominated by bush mallow.

2. **Ecotonal Habitats** - Ecotonal habitats (areas of transition between two plant communities) occupy approximately 129.45 acres of the Project Site. Two associations were identified: coastal sage scrub/chaparral, and sumac savannah. A brief description of each association is provided below. Following the 2008 Freeway Complex Fire, these habitats, much like the coastal sage scrub associations, support a significant component of bush mallow.

   a. **Coastal Sage Scrub/Chaparral** - Approximately 95.02 acres of the Study Area supported coastal sage scrub /chaparral ecotone. This ecotone was commonly observed on north-facing slopes but was observed on all aspects throughout the entire Project Site. This ecotone is difficult to define, as it contains elements from coastal sage scrub and chaparral.

      Prior to the 2008 Freeway Complex Fire, the dominant plant observed within the coastal sage scrub/chaparral ecotone consisted of laurel sumac, toyon, lemonade berry, and blue elderberry. The stands of chaparral were intermixed with areas containing coastal sage scrub species, which consists of black sage, purple sage, chaparral bush mallow, coyote bush, California sagebrush, giant wildrye, and Menzies' goldenbush. Surveys in April 2012 and January through June 2013 found this habitat dominated by bush mallow, with the majority of blue elderberry killed by the fire, and the laurel sumac re-sprouted.

   b. **Sumac Savannah** - Approximately 34.43 acres of the Study Area supported sumac savannah. The sumac savannah was commonly observed on south-facing slopes within areas supporting non-native/native grasslands. Areas mapped as sumac savannah contain the same understory species as the non-native/native grasslands but have a scattered cover of laurel sumac with occasional individuals of blue elderberry.

      The dominant species observed within sumac savannah consist of laurel sumac, and various native and non-native grassland and ruderal species including ripgut grass, soft chess, foxtail grass, purple needlegrass, tree tobacco, horehound, Italian wildrye, English wildrye, Russian thistle, summer mustard, black mustard, slender wild oats, common wild oats, dove weed, telegraph weed, and sweet fennel. Most individuals of laurel sumac have re-sprouted following the fire, and this community is generally consistent in species composition with the pre-fire conditions.

3. **Chaparral Habitats** - Chaparral habitats occupied approximately 124.38 acres of the Study Area. Two associations were identified: toyon/sumac chaparral and sumac/elderberry chaparral. A brief description of each association is provided below.

    a. **Toyon/Sumac Chaparral** - Approximately 122.63 acres of the Study Area supported toyon/sumac chaparral. This community was commonly observed on the north-facing slopes of the Study Area. Prior to the 2008 Freeway Complex Fire, the toyon/sumac community was characterized by a dominance of evergreen chaparral species including toyon, laurel sumac, lemonade berry, holly-leaved redberry, blue elderberry, poison oak, and southern honeysuckle. Following the fire, these areas exhibit dense areas of bush mallow with toyon and laurel sumac recovering due to the ability to re-sprout following fire. Additionally, most of the blue elderberry trees were damaged, and some were killed by the fire.

    b. **Sumac/Elderberry Chaparral** – Approximately 1.75 acres of the Study Area support sumac/elderberry chaparral. This community occurs along Drainage D, where it intergrades with blue elderberry woodland and is differentiated from the blue elderberry woodland by a clear dominance of the laurel sumac. Other species include the bush mallow and a variety of non-native grasses and forbs (broad leaf herbs).

4. **Woodland Habitats** - Woodland habitats occupy approximately 36.61 acres of the Study Area. Three woodland associations were identified: California walnut woodland, blue elderberry woodland, and southern coast live oak forest. A brief description of each association is provided below and includes acreages and the dominant plant species observed.

    a. **California Walnut Woodland** - Prior to the 2008 Freeway Complex Fire, approximately 6.37 acres of the Study Area supported California walnut woodland, all of which occurred on-site. This community was observed in the southern portion of the Study Area, is restricted to Blue Mud Canyon, and was closely associated with California sagebrush-monkeyflower scrub, blue elderberry woodland, and the coastal sage scrub /chaparral ecotone. The California walnut woodland is considered a special-status habitat by California Department of Fish and Wildlife (CDFW). Prior to the fire, the California walnut woodland within the Study Area was dominated by the California walnut. Other species associated with this community consist of giant wildrye, bush monkeyflower, laurel sumac, toyon, lemonade berry, poison oak, chaparral nightshade, coyote bush, purple sage, and less commonly California sagebrush. The majority of the walnut trees within the Study Area burned in the 2008

Freeway Complex Fire, and based on surveys in January through June 2013, many appear to have been damaged, and a few killed by the fire, with the damaged trees exhibiting some signs of regrowth, including some crown sprouting. Additionally, bush mallow now dominates some portions of this habitat, and toyon and laurel sumac have re-sprouted.

b. **Blue Elderberry Woodland** - Prior to the 2008 Freeway Complex Fire, approximately 23.88 acres of the Study Area supported blue elderberry woodland. This community was commonly observed on the lower slopes of hillsides, within the drier reaches of the riparian areas, and on terraces adjacent to drainage courses. Component species within blue elderberry woodland include blue elderberry, albeit at a low density of approximately 10 trees per acre, laurel sumac, which is often co-dominant or dominant in these areas, coyote bush, giant wildrye, poison oak, California walnut (restricted to Blue Mud Canyon and limited areas along Drainage D), sweet fennel, southern honeysuckle, poison hemlock, chaparral nightshade, stinging nettle, and fuchsia flowered gooseberry. The blue elderberry woodland is considered a special-status habitat by CDFW although it is not clear that, as currently listed in the CNDDB, it would apply to the blue elderberry habitat on the site. For additional discussion refer to Section 5.3.1.3, Special Status Habitats (page 5-109).

   Based on surveys conducted in January 2013, it appears that greater than half of the blue elderberry trees on the site were damaged. A smaller number were killed by the 2008 Freeway Complex Fire, especially those within the lower and off-site portions of the canyon that contain Drainage D, where it appears that the majority of the elderberry trees were damaged by the fire. These areas now support dense stands of bush mallow with individuals of re-sprouting laurel sumac and toyon. Many of the damaged elderberry trees have also begun to re-sprout. Nevertheless, this community was substantially degraded by the fire.

c. **Southern Coast Live Oak Forest** - Prior to the 2008 Freeway Complex Fire approximately 6.36 acres of the Study Area was vegetated with southern coast live oak forest. Based on surveys in January of 2013, it is estimated that approximately 50% of the oak trees were killed by the fire, with about 50% of the oaks exhibiting partial re-sprouting and otherwise in poor condition. The southern coast live oak forest is dominated by coast live oak. Other plant species within this community consisted of blue elderberry (most of which were damaged, and a few killed, by the fire) along with laurel sumac, holly-leaved redberry, and giant wildrye, which have re-

sprouted since the fire, and sweet fennel, a non-native invasive species that has proliferated since the fire.

A very small portion of the southern coast live oak forest occurs within the jurisdictional boundaries of the CDFW pursuant to §1600 of the *California Fish and Game Code*; however, the majority of this vegetation type occurs outside the CDFW jurisdiction and is not considered a riparian habitat.

5. **Riparian Habitats** - Prior to the 2008 Freeway Complex Fire, riparian habitats occupied approximately 5.34 acres of the Study Area. Four associations were identified: mulefat scrub, black willow riparian forest, southern willow scrub, and California walnut/mulefat scrub. The 2008 Freeway Complex Fire burned a significant portion of the riparian vegetation, and although it is recovering, the widths of the swath of riparian trees and shrubs associated with each drainage area are roughly half of what they were in their pre-fire condition, and many areas are now dominated instead by poison hemlock and tree tobacco. A brief description of each association is provided below and includes acreages and the dominant plant species observed.

   a. **Mulefat Scrub** - Approximately 1.93 acres of the Study Area supported mulefat scrub. This community was observed in localized patches along drainages. This community was mapped in the southeastern portion of the Project Area and is commonly intermixed with black willow riparian forest and blue elderberry woodland. Prior to the fire, the mulefat scrub community was dominated by mulefat, blue elderberry, poison oak, California walnut, coyote bush, chaparral bush mallow, poison hemlock, sweet fennel, giant wildrye, common cocklebur, common sow thistle, mugwort, stinging nettle, rabbitsfoot grass, and common celery.

      Since the fire, the mulefat has partially returned, but many areas previously vegetated with mulefat are now stands of dense poison hemlock and tree tobacco. Additionally, the blue elderberry and California walnut were damaged, and a few killed by the fire, but the damaged trees are beginning to re-sprout.

   b. **Black Willow Riparian Forest** - Prior to the 2008 Freeway Complex Fire, approximately 0.19 acre of the Study Area supported black willow riparian forest, all of which was located outside the Project Site. The black willow riparian forest was mapped in the southeastern portion of the Study Area adjacent to residential housing and existing oil facilities. Much of the black willow riparian forest was associated with drainages and was considered to be CDFW jurisdictional, as discussed in Section 5.3.2, Regulatory Setting. Other areas of black willow riparian forest were outside the bed and banks of the drainage

features, and therefore outside CDFW jurisdictional boundaries. Prior to the fire, the black willow riparian forest was dominated by black willow, red willow, arroyo willow, blue elderberry, mulefat, poison oak, poison hemlock, castor bean, fuchsia flowered gooseberry, mugwort, hoary nettle, stinging nettle, sweet fennel, prickly sow thistle, yerba mansa, and water cress.

Following the fire, the willows have largely recovered, although some areas previously vegetated with willows are now stands of dense poison hemlock and tree tobacco. Additionally, individuals of blue elderberry and California walnut were damaged or killed by the fire, though as observed, many have re-sprouted and exhibit signs of regrowth and recovery.

c. **Southern Willow Scrub** - Prior to the 2008 Freeway Complex Fire, approximately 0.52 acre of the Study Area was dominated by southern willow scrub. This community was mapped in the eastern portion of Blue Mud Canyon (Drainage F) and the southern portion of Drainage D. Southern willow scrub is classified as a sensitive natural community by CDFW. These relatively small areas of southern willow scrub contained dense thickets of willow species, including arroyo willow, in addition to mulefat, and blue elderberry. Understory species include poison oak and California mugwort.

   Following the fire, the willows and mulefat have partially returned, but many areas previously vegetated with willows and mulefat are now stands of dense poison hemlock and tree tobacco. Additionally, many individuals of blue elderberry were killed or damaged by the fire, though as observed, many have re-sprouted and exhibit signs of regrowth and recovery.

d. **California Walnut/Mulefat Scrub** - Prior to the 2008 Freeway Complex Fire, approximately 2.70 acres of the Study Area supported California walnut/mulefat scrub. This community was mapped within Blue Mud Canyon (Drainage F) in the southeastern portion of the Project Site. The California walnut/mulefat scrub was dominated by California walnut and mulefat. Other plant species within this community were poison oak, hoary nettle, blue elderberry, toyon, and holly-leaved redberry. Following the fire, the mulefat has partially returned, but many areas previously vegetated with mulefat are now stands of dense poison hemlock and tree tobacco. Additionally, the blue elderberry and the California walnut were largely damaged or killed by the fire, though as observed, many have re-sprouted and exhibit signs of regrowth and recovery.

6. **Grassland Habitats** - Grassland habitat occupies approximately 136.10 acres of the Study Area. One association was identified: annual grasslands. A brief description of the non-native/native grassland habitat is provided below.

   **Annual Grassland** - Approximately 136.10 acres of the Study Area supports annual grassland. This community was mapped on hilltops, ridgelines, and south-facing slopes throughout the Project Site. The annual grassland community is dominated by non-native grasses. Many of the non-native grasses found on-site are considered to be a naturalized species in southern California. Dominant grasses include ripgut brome, soft chess, Italian wildrye, English wildrye, fox-tail grass, African fountain grass, slender wild oats, and common wild oats. Dominant forbs mapped in the annual grassland community are Russian thistle, summer mustard, black mustard, tocalote, bur clover, horehound, and telegraph weed. The species composition of the annual grasslands was largely unchanged by the 2008 Freeway Complex Fire.

7. **Disturbed Habitats** - Disturbed habitats occupy approximately 15.93 acres of the Study Area. One association was identified: ruderal vegetation. A brief description of provided below.

   **Ruderal Vegetation** - Approximately 15.93 acres of the Study Area consists of ruderal vegetation. The majority of ruderal vegetation was mapped in the southern portion of the Study Area. A small area of ruderal vegetation was mapped in the northeast portion of the Project Site. This vegetation type was typically observed adjacent to roads and oil extraction equipment, and less commonly adjacent to riparian areas. The dominant ruderal vegetation consists of summer mustard, black mustard, tree tobacco, horehound, calabazilla, Russian thistle, wild radish, salt heliotrope), telegraph weed, tocalote, and artichoke thistle.

8. **Developed Land** - Approximately 10.51 acres of the Study Area consists of developed lands. A brief description of the developed lands within the Project Site is provided below.

   a. **Graded Areas** - Approximately 10.17 acres of the Study Area consists graded areas. Areas within the Study Area mapped as graded consist of dirt roads and pads for oil equipment. The majority of the areas mapped as graded were observed in the southern portion of the Study Area. Two areas containing service roads used to maintain power lines were mapped in the northeastern portion of the Project Site. Although vegetation was not commonly associated with the graded areas, numerous ruderal species were observed adjacent to the service roads and within the oil pad areas.

b. **Ornamental Vegetation** - Approximately 0.28 acre of the Study Area supports ornamental vegetation, all of which occurs off-site. One small area of ornamental vegetation was observed in the eastern portion of the Study Area adjacent to residential housing. The ornamental vegetation observed on-site consists of Aleppo pine, acacia, Hottentot fig, sweet alyssum, Peruvian pepper tree, and myoporum.

c. **Detention Basin** - Approximately 0.06 acre of the off-site portion of the Study Area consists of a constructed earthen detention basin vegetated with species including rabbitsfoot grass, bristly ox-tongue, water beard grass and southern cattail. The basin is owned by the Metropolitan Water District and appears to be subject to regular maintenance.

## 3. Special Status Habitats

Three special status plant communities were observed within the Study Area: southern willow scrub, California walnut woodland, and blue elderberry woodland. Refer to Exhibit 5-25 – Vegetation Map (page 5-99 above) for locations of these special status habitats.

Global and state rankings refer to the relative rarity of vegetation types as classified by the CDFW. Vegetation types are ranked on a scale of 1 to 5, with 1 being the most rare/insecure and 5 being the least. Rankings of 1 and 2 generally indicate a high to moderate degree of rarity/insecurity, a ranking of 3 indicates a low degree of rarity/insecurity, and ranks of 4 or 5 indicate that populations are secure and not rare. The global rank is an overall ranking throughout the range of the vegetation type, while the state rank refers to the relative rarity in California only. The second number, Threat Code Extension, after the state rank is the threat rank, with .1 being very threatened, .2 being threatened, and .3 meaning no threats are known. A detailed description of California Rare Plant Ranks (CRPR) and Threat Code Extensions is provided in the Biological Technical Report (Appendix D in this DEIR) along with Table 3-1, California Rare Plant Ranks 1,2,3, and 4, and Threat Code Extensions. Rank and threat code are provided below for each special status habitat.

It should be noted that for the Study Area, none of the coastal sage scrub habitat types, which include California sagebrush scrub (G5S5), disturbed California sagebrush scrub (G5S5), purple sage scrub (G4S4), and sagebrush-monkeyflower scrub (G5S5), are considered special status, both because the global and state rankings indicate that they are secure and not rare, and because they generally exhibit a high degree of disturbance resulting from the 2008 Freeway Complex Fire.

### a. California Walnut Woodland

California walnut woodland was observed within the Study Area and occurs in one contiguous polygon in the southern portion of the Study Area; however, the majority of the trees were damaged, and a few killed, by the 2008 Freeway Complex Fire. Approximately 6.37 acres of California walnut woodland was observed within the Study Area. California walnut woodland has a global ranking of G2 and a state ranking of S2.1, indicating that between 2,000 and 10,000 acres of this habitat remain throughout its global and state range, and that it is "very threatened." Although a substantial number of the walnut trees within the Study Area were damaged, the walnut woodland is showing signs of recovery and is treated as a special-status habitat, even with the loss of function associated with fire.

### b. Southern Willow Scrub

Southern willow scrub was observed in three small areas within the eastern portion of Blue Mud Canyon (Drainage F). Approximately 0.52 acre of southern willow scrub was observed. Southern willow scrub has a global ranking of G3 and a state ranking of 2.1, indicating that between 10,000 and 50,000 acres of this habitat occur within its global range and that between 2,000 and 10,000 acres of this habitat remain within its state range, and that it is "very threatened."

### c. Blue Elderberry Woodland

Blue elderberry woodland was observed within the Study Area and occurs on the lower slopes of hillsides and within the drier sections of the riparian areas; however, large numbers of the trees were damaged, and a few killed, by the 2008 Freeway Complex Fire (Exhibit 5-25 – Vegetation Map, page 5-99 above). Approximately 23.88 acres of blue elderberry woodland was observed within the Study Area. Blue elderberry woodland has a global ranking of G3 and a state ranking of S3, indicating that between 10,000 and 50,000 acres of this habitat remain throughout its global and state range.

Currently, the CNDDB does not include a description of this habitat. Blue elderberry is a common shrub or small tree that occurs in a large variety of habitats throughout its range and most certainly occupies well over 50,000 acres when the variety of habitats it occupies is taken into account. The CNDDB currently lists the following:

*Sambucus nigra* (Blue elderberry stands) Alliance G3 S3 *63.410.00
Elderberry Savanna G2 S2.1 CTT63440CA[2]
*Sambucus nigra* *63.410.01
*Sambucus nigra - Heteromeles arbutifolia* *63.410.03
*Sambucus nigra / Leymus condensatus* *63.410.02

[2] According to Holland (1986) Elderberry savannah occurs in northern California, in the Sacramento and northern San Joaquin valleys, extending as far south as Merced County. This community does not occur in southern California.

As noted in the description above, the blue elderberry on the site occurs in low to moderated densities with laurel sumac as co-dominant or in some cases in larger numbers than the elderberry. While both toyon (*H. arbutifolia*) and giant wild rye are present, they are not dominants or co-dominants and only in very limited numbers in this habitat on the site. Because there are no monocultural (single species) stands of blue elderberry on the site and because the habitat is generally co-dominated or dominated by species such as laurel sumac, it is not clear that this habitat should be treated as a special-status habitat. Nevertheless, impacts to this community, though highly degraded will be treated as significant and mitigated accordingly.

## 4. Special Status Plants Observed

Special-status plants were evaluated for the Study Area through habitat assessments and focused surveys to determine whether suitable habitat was present to support the species. Three special status plant species were observed within the Study Area during 2010 surveys: Braunton's milk-vetch, Catalina mariposa lily, and intermediate mariposa lily. One special status plant species, southern California walnut, was observed within the Study Area during the 2007, 2010, 2012, and 2013 survey seasons. Two special status plant species, Catalina mariposa lily and small flowered microseris, were documented within the Study Area during botanical surveys conducted by Campbell BioConsulting, Inc. from 1997 to 2002 (Exhibit 5-26 – Special Status Biological Resources Map).

All five special-status plants are discussed in detail below.

1. Braunton's milk-vetch *(Astragalus brauntonii)* is a perennial herb designated as a CRPR List 1B.1 species, is federally listed as endangered, and is not state listed. The species is known to occur in Los Angeles, Orange, Riverside, and Ventura counties. Braunton's milk-vetch occurs mainly in chaparral, coastal scrub, and valley and foothill grasslands in recently burned or disturbed areas in sandstone soil with carbonate layers from 4 to 640 meters in elevation. Approximately 400 individuals of Braunton's milk-vetch were detected during focused surveys in 2010. A survey conducted on January 9, 2013 found many of the dried remains of the plants still intact; however, all individuals of this short-lived perennial had expired.

2. Catalina mariposa lily *(Calochortus catalinae)* is a perennial herb designated as a CRPR List 4 species but is not federally or state listed. This species is known from Los Angeles, Ventura, and Orange counties as well as the Channel Islands. Catalina mariposa lily occurs mostly in open grasslands and has been documented in the Chino-Puente Hills. Surveys completed from 1997 to 2002 by Campbell BioConsulting reported observing approximately 445 Catalina mariposa lilies scattered throughout the site. Catalina lily plants were also observed during 2010 surveys. During 2007 surveys, when many dried capsules believed to be remnants

from previous years' Catalina lily blooms were observed in grassland areas within the northern portion of the Study Area, negative survey results were thought to be an outcome of the extreme dry conditions experienced throughout southern California, and it was predicted that the 445 plants reported by Campbell BioConsulting thought to be dormant on-site would most likely flower during a later season in wetter conditions. 2010 survey results are evidence of the accurate prediction that the Study Area will support Catalina mariposa lily during non-drought conditions.

3. Intermediate mariposa lily *(Calochortus weedii var. intermedius)* is a bulbiferous herb designated as a CRPR List 1B.2 species but is not federally or state listed. This species is found in Los Angeles, Orange, Riverside, and San Bernardino counties. Intermediate mariposa lily occurs mainly in chaparral, coastal scrub, and valley and foothill grasslands in rocky, calcareous soils from 345 feet to 2,805 feet in elevation. Approximately 326 individuals of intermediate mariposa lily were detected during focused surveys in 2010.

4. Southern California walnut *(Juglans californica)* is a perennial deciduous tree species designated as a CRPR List 4 species but is not federally or state listed. Woodlands dominated by southern California walnut are designated as "rare" by CDFW. This species is endemic to California and is known to occur in Los Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara, and Ventura counties in chaparral, coastal sage scrub, and in coast live oak woodland from 164 feet to 2,953 feet in elevation. Southern California walnut was detected during focused surveys in 2007. However, the 2008 Freeway Complex Fire damaged a large percentage of the walnut trees, and killed a few, within the Study Area.

5. Small flowered microseris *(Microseris douglasii var. platycarpa)* is an annual herb designated as a CRPR List 4 species (plants of limited distribution) but is not federally or state listed. Small flowered microseris is known in Los Angeles, Riverside, and Orange counties and is restricted to clay soils. During focused surveys conducted by Campbell BioConsulting in 1998, 10 individuals of small flowered microseris were observed. These plants were located along the old Edison spur road, approximately 75 feet west to the Southern California Edison 500 kV towers. No small flowered microseris were observed during the 2007 or 2010 surveys. The negative survey results in 2007 are thought to be an outcome of the extreme dry conditions experienced throughout southern California that year, and the 10 plants reported by Campbell BioConsulting were thought to be dormant on-site and would most likely flower when wetter conditions were present. However, small flowered microseris was not detected in 2010, and has not been detected in any surveys since, so it is not known if the population is surviving in the Study Area.

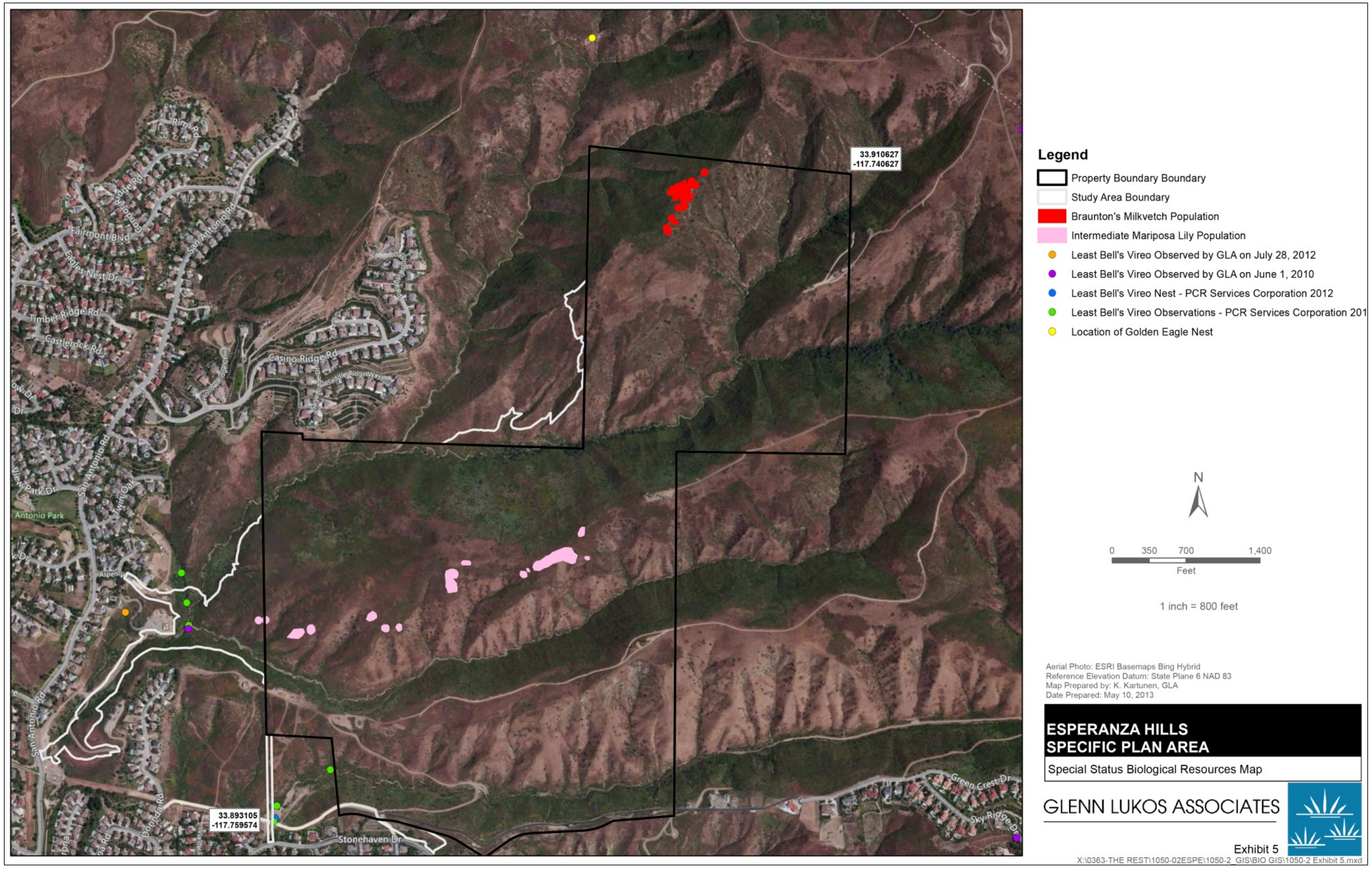



**Exhibit 5-26– Special Status Biological Resources Map**

## 5. Wildlife

### a. Special Status Wildlife

Species were evaluated based on two factors, including: 1) species identified by the CNDDB as occurring (either currently or historically) on or in the vicinity of the property, and 2) any other special status animals that are known to occur within the vicinity of the property, or for which potentially suitable habitat occurs on-site. Table 4-3 of the Biological Technical Report (Appendix D of this DEIR) provides a list of special-status animals evaluated for the Study Area with information on species name, status, habitat requirements, and potential for occurrence. The following is a summary of the special status animal evaluation results.

1. **Special-Status Birds** – Focused surveys were conducted for three special status birds with the potential to occur on-site: coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher. The three special status birds are discussed below.

    a. Coastal California Gnatcatcher Survey Results - Glen Lukos Associates (GLA) biologists detected no California gnatcatchers on the Project Site during any of the surveys from 2008 through the winter of 2013. However, to ensure that gnatcatchers were not on-site, a focused protocol gnatcatcher survey was completed in 2013. As noted in the vegetation descriptions above, the coastal sage scrub on the site is heavily dominated by black and purple sage and is suboptimal for the gnatcatcher, thus explaining the lack of detection over this fairly large site. The complete coastal California gnatcatcher survey report is provided as Appendix C of the Biological Technical Report in Appendix D of this DEIR. In addition, focused surveys for the coastal California gnatcatcher during the 2002 survey season conducted by Campbell BioConsulting Inc. had negative results, and no gnatcatchers were observed in other site visits from 2006 through 2013, or in any studies conducted by other biologists for adjacent properties, as noted in the Biological Technical Report.

    b. Least Bell's Vireo Survey Results - GLA biologists did not observe least Bell's vireo during focused surveys in 2007; however, this species was observed feeding during other biological surveys in 2010 and 2012 at the west end of the Study Area in the location and immediate vicinity of potential off-site impacts. Additionally, PCR Services Corporation (PCR), a biological consulting firm, observed least Bell's vireo, including one least Bell's vireo nest, during 2012 focused surveys at the adjacent Cielo Vista property, as noted in the Biological Technical Report.

    c. Southwestern Willow Flycatcher Survey Results - GLA biologists detected two willow flycatchers during the second willow flycatcher

survey period (June 1, 2007) on the Project Site. Because willow flycatchers were not detected during the last three surveys, results indicate that these willow flycatchers were migrants and did not attempt to establish nesting territories on-site. Based on these studies, GLA concluded that the Project Site is not occupied by the endangered southwestern willow flycatcher. The complete southwestern willow flycatcher survey report is found as Appendix D of the Biological Technical Report in Appendix D of this DEIR. GLA's conclusions took into account a focused survey for the southwestern willow flycatcher during the 2002 survey season conducted by Campbell BioConsulting Inc., which also determined that no willow flycatcher were present.

2. **Special-Status Wildlife – Observed** - Ten special status wildlife species, as designated by CDFW and/or USFWS, were observed within the Study Area: Cooper's hawk, golden eagle, grasshopper sparrow, least Bell's vireo, northern harrier, peregrine falcon, sharp-shinned hawk, southern California rufous-crowned sparrow, yellow-breasted chat, and yellow warbler. These ten special status animal species are discussed in detail below.

    1. Cooper's hawk *(Accipiter cooperii)* is a CDFW-designated Watch List species when nesting. This species occurs primarily in riparian areas and oak woodlands, and most commonly in moist upland canyons. This species is also known to use urban areas, occupying trees among residential and commercial development and using utility poles as perches. Cooper's hawk was observed foraging within the Study Area, and has low potential to nest within the off-site riparian areas. No nests have ever been observed on the Study Area.

    2. Golden eagle *(Aquila chrysaetos)* is a CDFW-designated Watch List species when nesting and wintering, and is a Fully Protected Species (FPS). This species occurs in rolling foothills, mountain areas, sage-juniper flats, and deserts, and winters and nests in cliff-walled canyons. A golden eagle was seen foraging on-site, and a nest was observed north of the site on a cliff face within Chino Hills State Park prior to the 2008 Freeway Complex Fire. However, no suitable nesting or wintering habitat is present on-site, as there are no cliff faces within the site that provide suitable platforms for nesting. The location of the observed golden eagle nest is depicted on Exhibit 5-26 – Special Status Biological Resources Map (page 5-113). A subsequent visit to the former location of the nest in May 2013 revealed that the nest is no longer active, and GLA biologists concluded that it was probably destroyed in the 2008 Freeway Complex Fire.

3. Grasshopper sparrow *(Ammodramus savannarum)* is a CDFW-designated Species of Special Concern (SSC) when nesting. It occurs in dense grasslands on rolling hills and lowland plains, in valleys, and on hillsides on lower mountain slopes. This species favors native grasslands with a mix of grasses, forbs, and scattered shrubs, and is loosely colonial when nesting. A single grasshopper sparrow was observed within the Study Area near eastern boundary by GLA in 2013, with additional individuals observed outside the eastern Study Area boundary.

4. Least Bell's vireo *(Vireo bellii pusillus)* is a state and federally listed endangered species. It occurs in dense riparian habitats with a stratified canopy, including southern willow scrub, mulefat scrub, and riparian forest. GLA biologists did not observe least Bell's vireo during focused surveys in 2007; however, this species was observed feeding during other biological surveys in 2010. Additionally, this species was detected by PCR Services Corporation during surveys in 2012 within the off-site impact areas on the proposed Cielo Vista project. The areas of observed least Bell's vireo are depicted on Exhibit 5-26 – Special Status Biological Resources Map (page 5-113).

5. Northern harrier *(Circus cyaneus)* is CDFW SSC when nesting, but is a common, often abundant, winter visitor throughout California from September through April. Characteristically, this hawk inhabits marshlands, coastal salt water and freshwater, but often forages over grasslands and fields. It glides and flies low over open habitats searching for prey. Northern harrier was observed foraging on-site, but would not nest on-site, as this species is not known to breed in southern California.

6. Peregrine falcon *(Falco peregrinus)* is a CDFW-designated FPS and a USFWS-designated Bird of Conservation Concern (BCC). In California this species inhabits coastal areas and inland mountains. This species is a very uncommon breeding resident and uncommon as a migrant or as a winter resident. Peregrine falcon was seen foraging on-site; however, no suitable sites for nesting occur on the site.

7. Sharp-shinned hawk *(Accipiter striatus)* is a CDFW Watch List species. This species occurs in southern California as a wintering species, foraging in woodlands and scrub habitats. Sharp-shinned hawk was observed foraging on-site and would only occur as a winter visitor, as this species does not breed in southern California.

8. Southern California rufous-crowned sparrow *(Aimophilia ruficeps canescens)* is a CDFW Watch List species. This subspecies of the rufous-crowned sparrow is a resident species of southern California on the slopes of the Transverse and Coastal ranges from Los Angeles County south to Baja California Norte, and occurs on grass-covered hillsides, coastal sage scrub, and chaparral. Southern California rufous-crowned sparrow was detected foraging on-site.

9. Yellow-breasted chat *(Icteria virens)*, which is a CDFW Species of Concern, is a migratory songbird that breeds in riparian habitats in southern California. This species exhibits habitat requirements similar to least Bell's vireo. Suitable habitat typically consists of multi-layered riparian scrub or willow woodland corridors along flowing streams. The yellow breasted chat was not detected during 2007 or 2010 surveys. However, this species was detected by PCR during surveys in 2012 within the off-site impact areas.

10. Yellow warbler (*Setophaga petechia*), which is a CDFW SSC and a USFWS BCC, is a migratory songbird that breeds in riparian habitats in southern California. This species exhibits habitat requirements similar to the yellow-breasted chat and the least Bell's vireo. Suitable habitat typically consists of multi-layered riparian scrub or willow woodland corridors along flowing streams. The yellow warbler was observed in the western portion of the Study Area during focused surveys for special-status riparian birds.

3. **Special-Status Wildlife – Potential to Occur but Not Detected** - Special Status Wildlife Species with the potential to occur on-site were evaluated based on the presence of potentially suitable habitat (e.g., California sagebrush scrub, chaparral, and riparian). These species were not detected during habitat assessments, biological surveys, and vegetation mapping as listed in Exhibit 5-26– Special Status Biological Resources Map (page 5-113 above) but are discussed here in more detail.

1. Coast horned lizard is designated as a CDFW SSC, but is not federally or state listed. This species inhabits coastal sage scrub and chaparral habitats associated with sandy, rocky, or shallow soils that support native harvester ants. The San Diego horned lizard has never been detected on-site.

2. Coast patch-nosed snake has been designated a CDFW SSC. This snake inhabits sandy flats and rocky open areas in coastal sage scrub and chaparral. The coast patch-nosed snake has never been detected on-site.

3. Loggerhead shrike is a CDFW SSC and a USFWS BCC that occurs in open fields with scattered trees, open woodland, and scrub. This

species is fairly common throughout open habitats in southern California. The loggerhead shrike has never been detected on-site.

4. Long-eared owl, which is a CDFW SSC, is a resident that breeds in riparian habitats and oak thickets in southern California. The long-eared owl has never been detected on-site.

5. Northern red-diamond rattlesnake is designated as a CDFW SSC but is not federally or state listed. This species occurs in chaparral, woodland, grassland, and desert areas from San Bernardino County southward along both sides of the peninsular ranges and Santa Ana Mountains to Baja California. This species uses rocks, rodent burrows, and dense vegetation for cover. The northern red-diamond rattlesnake has never been detected on-site.

6. Orange-throated whiptail is a CDFW SSC. This lizard is known from coastal sage scrub, chaparral, and valley-foothill hardwood habitats of San Bernardino, Riverside, Los Angeles, Orange, and San Diego counties. It prefers washes and other sandy areas with patches of brush and rocks. The orange-throated whiptail has never been detected on-site.

7. Pallid bat is a CDFW SSC. Day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of coast redwoods and giant sequoias, bole cavities of oaks, exfoliating Ponderosa pine and valley oak bark, deciduous trees in riparian areas, and fruit trees in orchards), and various human structures such as bridges (especially wooden and concrete girder designs), barns, porches, bat boxes, and human-occupied as well as vacant buildings. They forage over open shrub-steppe grasslands, oak savannah grasslands, open Ponderosa pine forests, talus slopes, gravel roads, lava flows, fruit orchards, and vineyards. This species is not expected to roost within the Study Area, but may occasionally occur for foraging only. The pallid bat has never been detected on-site.

8. Prairie falcon is a CDFW FPS and a USFWS BCC. This species nests in cliffs or rocky outcrops, forages in open valleys and agricultural fields, and is known from desert and arid interior areas of coastal counties, but is an uncommon resident in southern California. The prairie falcon has never been detected on-site.

9. Vaux's swift, which is a CDFW SSC, is a migratory songbird that breeds in old-growth forests in the Sierra Nevada and from northern California to Washington. This species feeds on insects on the wing, typically over lakes, rivers, or riparian areas. The Vaux's swift has never been detected on-site.

10. Western mastiff bat is a CDFW SSC. Western mastiff bat is primarily a cliff-dwelling species, where maternity colonies of 30 to several hundred (typically fewer than 100) roost generally under exfoliating rock slabs (e.g., granite, sandstone, or columnar basalt). It has also been found in similar crevices in large boulders and buildings. Roosts are generally high above the ground, usually allowing a clear vertical drop of at least three meters below the entrance for flight. In California, it is most frequently encountered in broad open areas. Its foraging habitat includes dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas. This species is not anticipated to roost within the Study Area but has a low potential to occur for foraging only. The western mastiff bat has never been detected on-site.

11. Western yellow bat is a CDFW SSC. Individuals usually roost in trees, hanging from the underside of a leaf. They are commonly found in the southwestern United States roosting in the skirt of dead fronds in native and non-native palm trees, and have also been documented roosting in cottonwood trees. At least some individuals or populations may be migratory, although some individuals appear to be present year-round, even in the northernmost portion of their range. Capture sites are often associated with natural and non-natural water features in open grassy areas and scrub, as well as canyon and riparian situations. Captures are also reported over swimming pools, lawns in residential areas, and orchards. This species may forage within the Study Area, but is not expected to roost. The western yellow bat has never been detected on-site.

6. **Raptor Use** - The Study Area provides potentially suitable foraging and breeding habitat for a number of raptor species, including special status raptors. However, there was no evidence of nesting raptors on the site, and raptor foraging was not observed to be common on the site, with the exception of foraging by red-tailed hawks, which regularly visit the site. Although a few special status species were observed foraging within the Study Area, including Cooper's hawk, golden eagle, northern harrier, peregrine falcon, and sharp-shinned hawk, foraging by these species was infrequent, and the Study Area does not provide an important location for raptor foraging, especially given that raptors can utilize the extensive habitat at the adjacent Chino Hills State Park.

7. **Nesting Birds – Existing Conditions** - The Study Area supports trees, shrubs, and ground cover that provide suitable habitat for nesting migratory birds. Impacts to nesting birds are prohibited under the Migratory Bird Treaty Act (MBTA) and the *California Fish and Game Code*.

8. **Wildlife Movement – Existing Conditions** - The Study Area contains habitat that supports a number of species of invertebrates, amphibians, reptiles, birds, and mammals, and movement on a local scale occurs throughout the surrounding vicinity as well as within the Study Area. The home range and average dispersal distance of many of these species may be entirely contained within the Study Area and its immediate vicinity, although individuals may occasionally move outside the Study Area to expand or disperse from their natal territories.

    a. Regional Wildlife Movement - From a regional perspective for wildlife movement, the Study Area abuts an area of privately owned open space along the western boundary of the Study Area, and is contiguous with open space connecting to Chino Hills State Park (to the north and east). The Study Area is situated immediately south and west of Chino Hills State Park, and 1.5 miles north of the Santa Ana River. The Study Area is also 4.5 miles north of Warner and Conrock Basins (Orange County Water District recharge facilities), 4.5 miles southeast of the Carbon Canyon Dam, and 5.4 miles northwest of Sierra Peak (Cleveland National Forest). Due to the past urbanization of the region, large open space areas in the immediate vicinity of the Study Area are limited to Chino Hills State Park and the Santa Ana River. The Study Area is bounded by residential development to the south. Residential development also exists to the west by a narrow area of open space, which is proposed as a residential development known as Cielo Vista. Thus, the Study Area serves as a "dead end" or "cul-de-sac" for the movement of larger mammals that require larger home range areas and dispersal distances or dense vegetative cover from the north and east through the Study Area, but no movement of large species with large ranges would occur to/from the south and west due to existing urban development. However, smaller, urban-adapted species (e.g., raccoon, skunk, coyote, and birds) are expected to move through the Study Area. Although the Study Area provides habitat for small wildlife and may support movement on a local scale, it does not function as a regional wildlife movement corridor, because it does not connect two or more habitat patches due to the surrounding development.

    b. Chino Hills State Park Wildlife Corridors - The Chino Hills State Park General Plan (1999) includes a lengthy discussion of wildlife corridors within Chino Hills State Park north of the Study Area. As stated in the General Plan, there are three importation corridors that connect Chino Hills State Park with adjacent projected open space: Coal Canyon, Sonome and Tonner Canyons, and the Prado Basin.

        1. The Coal Canyon Corridor connects Chino Hills State Park and surrounding Puente-Chino Hills on the north to the Cleveland

National Forest and the Santa Ana Mountains on the south. This corridor extends roughly west to southeast within Chino Hills State Park boundaries through Brush and Water Canyons. It does not traverse the Study Area nor does it connect the Study Area to adjacent habitat areas.

2. The Sonome and Tonner Canyon corridors link Chino Hills State Park with open space areas in Puente and Whittier Hills north and west of Chino Hills State Park. These corridors also do not traverse the Study Area or connect it to adjacent habitat areas.

3. The Prado Basin corridor links Chino Hills State Park with habitat within Prado Basin and the upper reaches of the Santa Area River to the east. Again, this corridor does not traverse the Study Area or connect it to adjacent habitat areas.

9. **Coastal California Gnatcatcher Critical Habitat Area** - The Study Area falls entirely within Unit 9 of the existing critical habitat for coastal California gnatcatcher designated by the USFWS. However, no coastal California gnatcatcher were detected within the Study Area during multiple protocol surveys dating from March 2007 through June 2013 as shown in Exhibit 5-26 – Special Status Biological Resources Map (page 5-113) or on prior focused coastal California gnatcatcher studies dating back to 2002. Additionally, primary constituent elements (PCEs) for coastal California gnatcatcher are severely reduced or lacking due to the high degree of disturbance to coastal sage scrub habitats following the 2008 Freeway Complex Fire.

10. **Jurisdictional Delineation of Wetlands and Waters of the United States – Existing Conditions** – Potential jurisdictional areas were field checked for the presence of definable channels and/or wetland vegetation, soils, and hydrology. Suspected wetland habitats within the Study Area were evaluated using the methodology set forth in the U.S. Army Corps of Engineers 1997 "Wetlands Delineation Manual," the 2008 "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region," and the 2008 "Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States." The USDA Natural Resources Conservation Service (NRCS) indicates the soil types occurring in the Study Area as depicted on Exhibit 5-27 – Soils Map. None of the soil units are identified as hydric in the NRCS publication, "Hydric Soils of the United States," or in the local hydric soils list for Orange County, California.

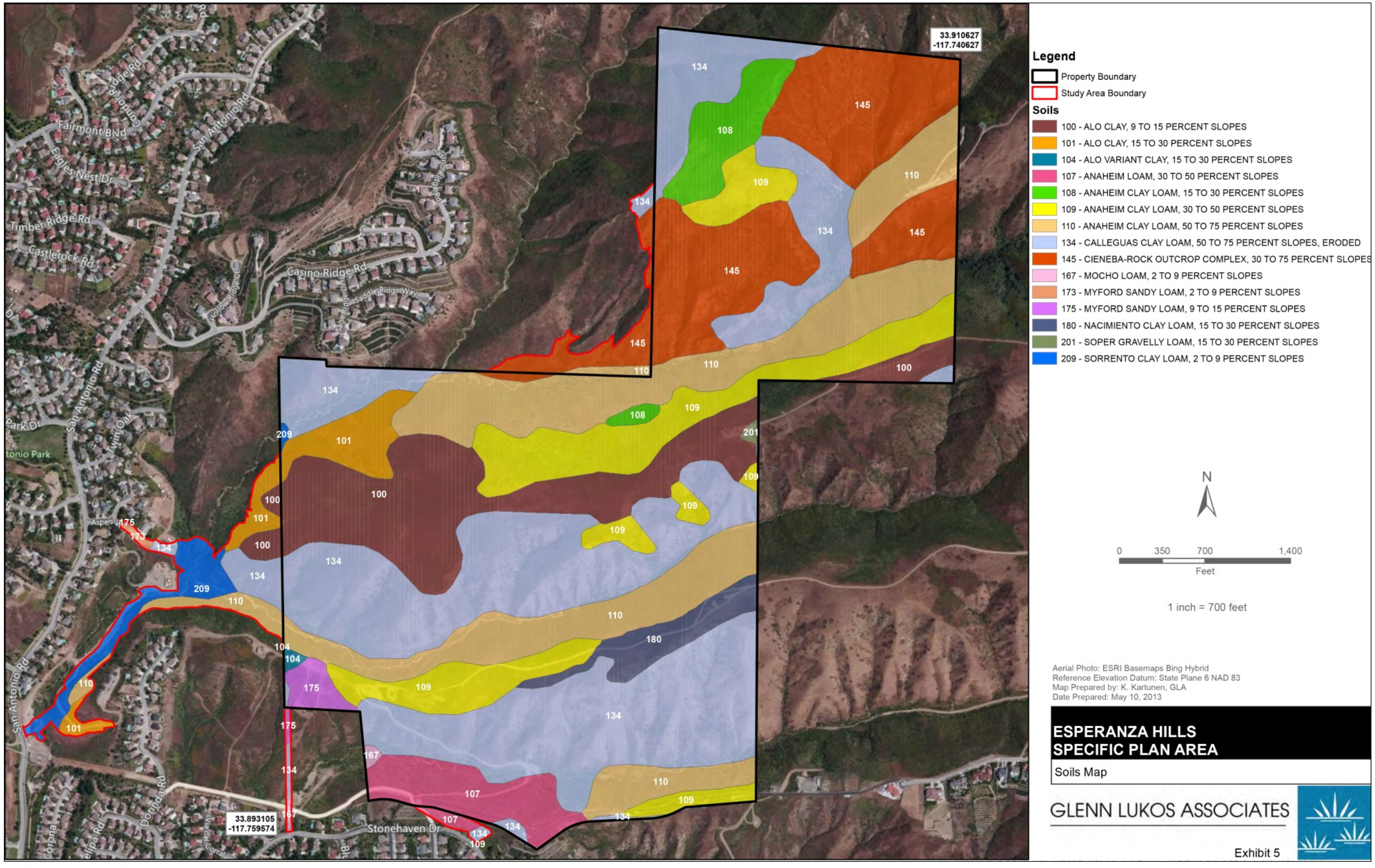



**Exhibit 5-27 – Soils Map**

a. Corp Jurisdiction - The Study Area contains 2.08 acres of waters, of which 0.19 acres consist of wetlands. All of the drainages, with the exception of Drainage G and the off-site portion of Drainage D, which exhibit intermittent flows, are ephemeral, meaning that they are non-relatively permanent waters (non-RPWs). There are seven main drainage systems within the Project Area (A through G). Drainages D, E, F, and G and their tributaries are the main features on-site. All of these drainages exhibit signs of an OHWM, which is indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, and/or the presence of litter and debris. The drainages potentially subject to U.S. Corps of Engineers (ACOE) jurisdiction are depicted on Exhibit 5-28 – ACOE Jurisdictional Delineation Map.

A summary of ACOE jurisdiction of drainage areas in the Study area is below in Table 5-3-3 below.

**Table 5-3-3 Total ACOE Jurisdiction**

| | Total Study Area | | | |
|---|---|---|---|---|
| Drainage | Non-Wetlands Waters (acres) | Wetlands (acres) | ACOE Jurisdiction (acres) | Linear Length (feet) |
| A | 0.12 | 0.0 | 0.12 | 3,630 |
| B | 0.01 | 0.0 | 0.01 | 281 |
| C | 0.001 | 0.0 | 0.001 | 14 |
| D | 0.61 | 0.13 | 0.74 | 9,409 |
| E | 0.47 | 0.0 | 0.47 | 7,563 |
| F | 0.68 | 0.02 | 0.70 | 6,076 |
| G | 0.0 | 0.04 | 0.04 | 187 |
| **Total** | **1.89** | **0.19** | **2.08** | **27,161** |

1. Drainage A - ACOE jurisdiction associated with Drainage A totals approximately 5,227 square feet (0.12 acre), none of which consists of wetlands. Drainage A is located in the northeastern portion of the Project Area and is tributary to Drainage D, which traverses the site and then exits the property to the southwest. Drainage A flows from north to south for approximately 3,630 linear feet before confluence with Drainage D. The OHWM associated with this drainage system varies in width from one to two feet. Drainage A exhibits an OHWM that is indicated by the presence of shelving, debris wrack, and/or destruction of terrestrial vegetation.

   The banks of Drainage A are generally vegetated with toyon-sumac chaparral. In general Drainage A is characterized by a dominance of evergreen chaparral species, including toyon,

laurel sumac, lemonade berry, holly-leaved redberry, poison oak, and southern honeysuckle.

2. Drainage B - ACOE jurisdiction within the Study Area associated with Drainage B totals approximately 436 square feet (0.01 acre), all of which occur on-site. None of Drainage B consists of wetlands. From where it enters the site, Drainage B flows from the north to south for approximately 281 linear feet to the confluence with Drainage D. The OHWM associated with this drainage system varies in width from one to two feet and is indicated by the presence of shelving, debris wrack, and/or destruction of terrestrial vegetation.

   In general, Drainage B is characterized by a dominance of bush mallow, coyote bush, laurel sumac, giant wild rye, poison oak, sweet fennel, southern honeysuckle, poison hemlock, chaparral nightshade, stinging nettle, and fuchsia flowered gooseberry.

3. Drainage C - ACOE jurisdiction associated with Drainage C totals approximately 44 square feet (0.001 acre), none of which consist of wetlands. Drainage C is located in the northwestern portion of the Project Area and is tributary to Drainage D as noted above. This drainage system flows from the north to south for approximately ±415 linear feet, straddling the property line such that only 14 linear feet are actually located within the Study Area. The OHWM in this drainage system averages approximately two feet in width. Drainage C exhibits an OHWM that is indicated by the presence of shelving, debris wrack, and/or destruction of terrestrial vegetation.

   The banks of Drainage C generally support a mix of native scrub species and herbaceous weedy species including laurel sumac, poison oak, sweet fennel, southern honeysuckle, poison hemlock, chaparral nightshade, and California sagebrush.

4. Drainage D - ACOE jurisdiction associated with Drainage D within the Study Area totals approximately 0.74 acre, of which approximately 0.13 acre consists of wetlands. Drainage D is located in the north-central portion of the Project Site and traverses the site flowing east to west before exiting the property at the western edge of the site and extending to the limits of the Study Area at San Antonio Road. This Drainage extends for 9,409 linear feet through the Study Area. The OHWM in this drainage system varies in width from one to five feet within the project boundaries. Drainage D exhibits an OHWM that is indicated by the presence of shelving, debris wrack, and/or destruction of terrestrial vegetation.

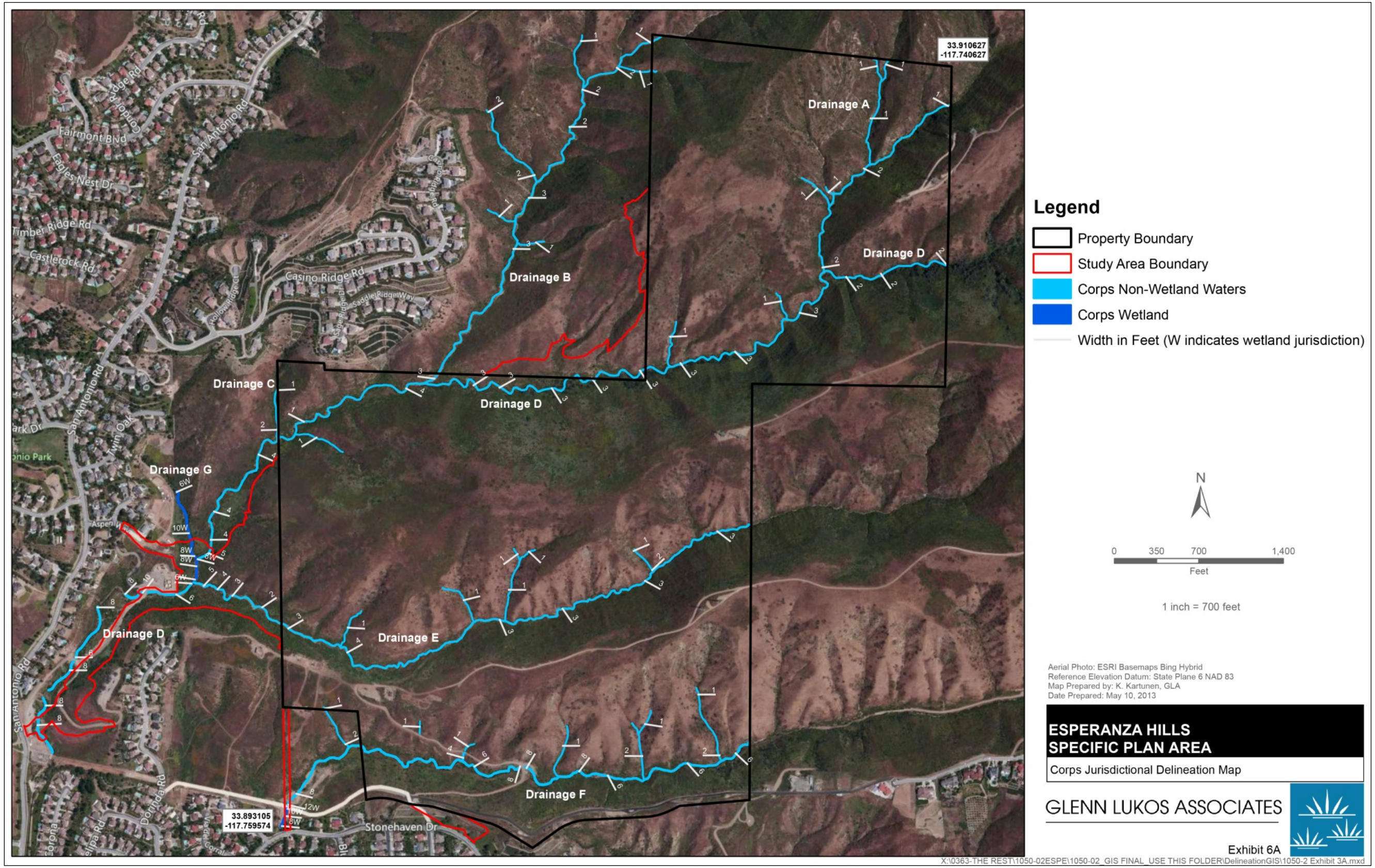



**Exhibit 5-28– ACOE Jurisdictional Delineation Map**

Drainage D generally contains coast live oak riparian forest as well as several small areas of mulefat scrub. The extreme southern portion of Drainage D, which is within off-site portions of the Study Area, is characterized by black willow riparian forest. In general, Drainage D is characterized by a dominance of bush mallow, coyote bush, laurel sumac, giant wildrye, poison oak, sweet fennel, southern honeysuckle, poison hemlock, chaparral nightshade, mulefat, coast live oak, stinging nettle, and fuchsia flowered gooseberry. Within the southernmost portion of Drainage D, black willow and arroyo willow with areas immediately adjacent exhibit high levels of disturbance due to dense stands of non-native species such as poison hemlock that is mixed with other non-native invasive species such as castor bean and tree tobacco.

The reach of Drainage D in the vicinity of the off-site access road right-of-way connection to San Antonio Road consists of an intermittent drainage that varies in width from eight to ten feet with an earthen bank and bottom that exhibits small cobbles. The channel is mostly unvegetated, with limited small patches of southern cattail, and non-natives such white watercress and African umbrella sedge. The banks support southern arroyo willow forest dominated by black willow, occasional arroyo willow, and mulefat. Large areas of the bank and adjacent terrace exhibit substantial disturbance and are dominated by non-natives such as poison hemlock, castor bean, summer mustard, sweet fennel, and tree tobacco.

5. Drainage E - ACOE jurisdiction associated with Drainage E totals approximately 0.47 acre, none of which consists of wetlands. Drainage E is located in the southern portion of the Project Area and converges with Drainage G, as noted above. This drainage system flows from east to west for approximately 7,563 linear feet before its confluence with Drainage G. The OHWM varies in width from one to five feet as indicated by the presence of shelving, debris wrack, and/or destruction of terrestrial vegetation.

   The banks of Drainage E are vegetated with scrub and non-native grasses including bush mallow, a few surviving blue elderberry, coyote bush, laurel sumac, giant wild rye, poison oak, sweet fennel, poison hemlock, chaparral nightshade, mulefat, and fuchsia flowered gooseberry.

6. Drainage F (Blue Mud Canyon) - ACOE jurisdiction associated with Drainage F totals approximately 0.70 acre), of which 0.02 acre consists of wetlands. The ACOE jurisdictional wetland associated with Drainage F is within the off-site portion of the Study Area and is associated with a small debris basin. Drainage F is located in the southern portion of the Project Area and extends from the east to west for approximately 6,076 linear feet before exiting the Study Area at the southwest corner. The OHWM in this drainage system, including on-site and off-site sections, varies in width from 1 to 25 feet. Drainage F exhibits an OHWM that is indicated by the presence of shelving, debris wrack, and/or destruction of terrestrial vegetation.

   Drainage F is generally vegetated with mulefat scrub, remnant California walnut woodland (most were killed by the 2008 Freeway Complex Fire), California walnut woodland/mulefat scrub, and limited amounts of blue elderberry woodland (also largely killed by the fire). In general Drainage F is characterized by a dominance of bush mallow, limited areas of Arroyo willow, mulefat, coyote bush, laurel sumac, giant wildrye, poison oak, sweet fennel, stinging nettle, and fuchsia flowered gooseberry.

7. Drainage G - ACOE jurisdiction associated with Drainage G is all in the off-site portion of the Study Area and could be affected by development of an emergency access road connecting to the existing Aspen Way cul-de-sac. Drainage G totals approximately 0.04 acre, all of which consists of jurisdictional wetlands. Drainage G is located in the western portion of the Study Area. The drainage flows from the north to south for approximately 187 linear feet and is tributary to Drainage D, which is noted above. The OHWM in this drainage system varies in width from six to ten feet. Drainage G supports an OHWM consisting of shelving, debris wracks, and/or destruction of terrestrial vegetation. It should be noted that the primary hydrological input for Drainage G is constant, year-round urban runoff flows from the residential development immediately west of Drainage G located off San Antonio Road, which supports the riparian forest habitat and wetlands downstream of the urban runoff discharge point.

   Drainage G is generally vegetated with black willow riparian forest. In general Drainage G is characterized by a dominance of black willow, arroyo willow, mulefat, common celery, sweet

fennel, blue elderberry, coyote bush, mugwort, and poison hemlock.

### b. Regional Water Quality Control Board – Santa Ana Region Jurisdiction

None of the on-site drainages were determined to be intrastate/isolated waters outside ACOE jurisdiction; therefore, these drainages do not need to be addressed separately pursuant to the Porter-Cologne Water Quality Control Act and are therefore not subject to Section 401 certification by the Regional Board.

### c. California Department of Fish and Wildlife Jurisdiction

CDFW jurisdiction associated with the Study Area totals approximately 4.15 acres, of which 2.57 acres consist of vegetated riparian habitat. All of the drainage systems support the presence of a bed, a bank, and/or a channel. Descriptions of CDFW jurisdictional areas and associated vegetation drainage are listed above and for further details in the Biological Technical Report (Appendix D of this DEIR). Table 5-3-4 below summarizes CDFW jurisdiction for on-site and off-site areas. The boundaries of CDFW jurisdiction are depicted on Exhibit 5-29 – CDFW Jurisdictional Delineation Map.

**Table 5-3-4 Total CDFW Jurisdiction within the Study Area**

| | Total Study Area | | | |
|---|---|---|---|---|
| Drainage | Unvegetated Drainage (acres) | Riparian Drainage (acres) | Total CDFW Jurisdiction (acres) | Linear Length (feet) |
| A | 0.12 | 0.0 | 0.12 | 3,630 |
| B | 0.01 | 0.0 | 0.01 | 281 |
| C | 0.001 | 0.0 | 0.001 | 14 |
| D | 0.41 | 1.89 | 2.30 | 9,409 |
| E | 0.42 | 0.13 | 0.55 | 7,563 |
| F | 0.62 | 0.51 | 1.13 | 6,076 |
| G | 0.0 | 0.04 | 0.04 | 187 |
| **Total** | **1.58** | **2.57** | **4.15** | **27,160** |

## 5.3.2 Regulatory Setting

The Proposed Project is subject to state and federal regulations associated with a number of regulatory programs. These programs often overlap and were developed to protect natural resources, including: state- and federally listed plants and animals; aquatic resources including rivers and creeks, ephemeral streambeds, wetlands and areas of riparian habitat; other special-status species that are not listed as threatened or endangered by the state or federal governments; and other special-status vegetation communities.

The following is a discussion of the federal and state endangered species acts as they apply to the Proposed Project.

## 1. Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973 defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under provisions of the FESA[3] it is unlawful to "take" any listed species. "Take" is defined in as: "...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."[4] Further, the United States Fish and Wildlife Service (USFWS), has interpreted the terms "harm" and "harass" to include certain types of habitat modification that result in injury to or death of species as forms of "take." However, these interpretations are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks permission from a federal agency for an action that could affect a federally listed plant and animal species, the property owner and agency are required to consult with USFWS. Section 9(a)(2)(b) of the FESA addresses the protections afforded to listed plants.

## 2. California Endangered Species Act

The California Endangered Species Act (CESA) defines an "endangered species" as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease." The state defines a "threatened species" as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not currently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this section. Any animal determined as rare on or before January 1, 1985 is a threatened species." "Candidate species" are defined as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list." Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the CDFW. Unlike the FESA, the CESA does not list invertebrate species.

[3] *United States Code*, Title 16 §1531

[4] Federal Endangered Species Act, *United States Code*, Title 16, §1532(19)

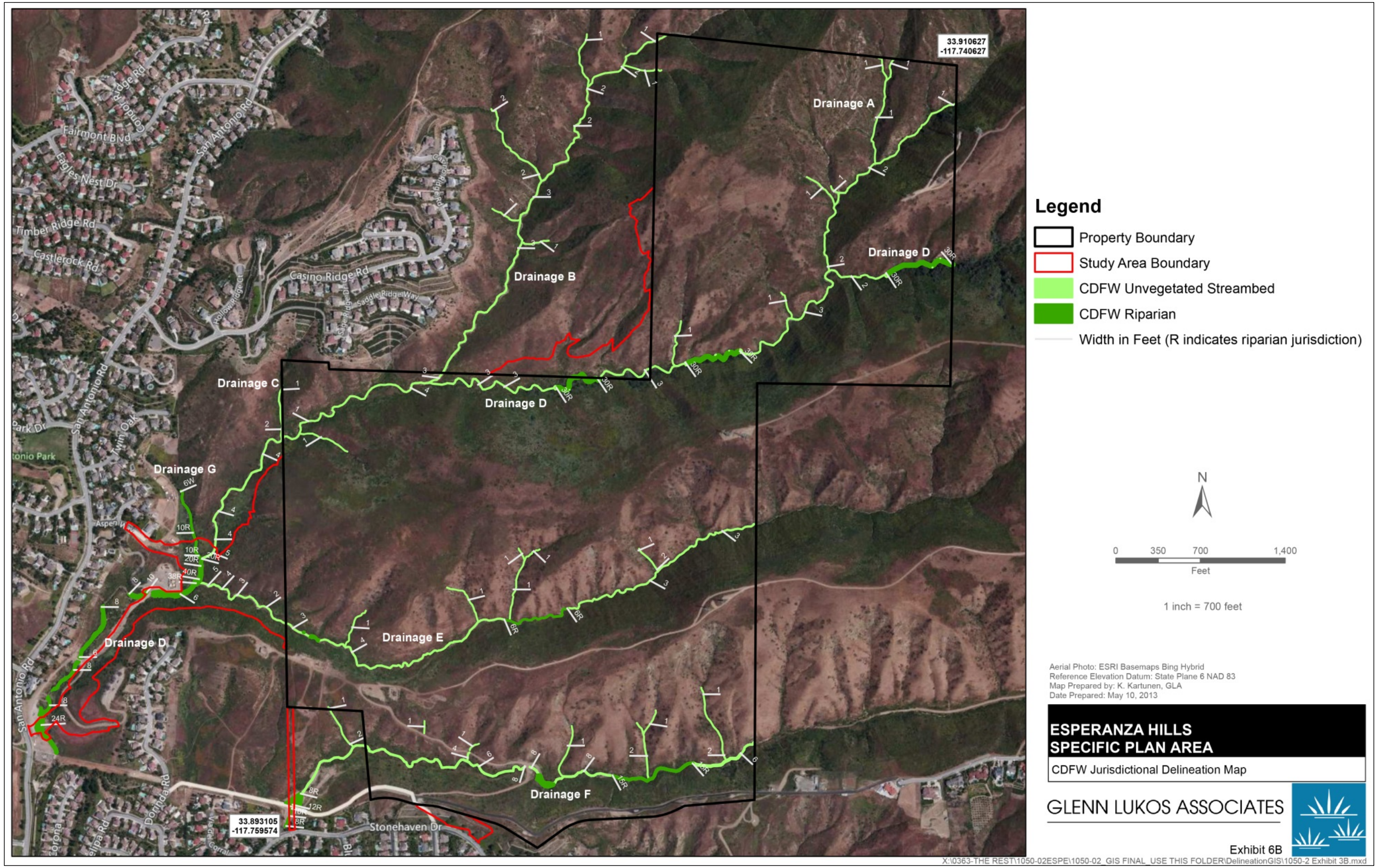



**Exhibit 5-29– CDFW Jurisdictional Delineation Map**

*California Fish and Game Code*, Article 3, §§2080-2085, addresses the taking of threatened, endangered, or candidate species by stating; "No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided." Under the CESA, "take" is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Exceptions authorized by the state to allow "take" require permits or memoranda of understanding and can be authorized for endangered species, threatened species, or candidate species for scientific, educational, or management purposes and for take incidental to otherwise lawful activities. *California Fish and Game Code*, §1901 and §1913 provide that notification is required prior to disturbance.

### 3. State and Federal Take Authorizations for Listed Species

Federal or state authorizations of impacts to or incidental take of a listed species by a private individual or other private entity would be granted in one of the following ways:

- Section 7 of the FESA stipulates that any federal action that may affect a species listed as threatened or endangered requires a formal consultation with USFWS to ensure that the action is not likely to jeopardize the continued existence of the listed species or result in destruction or adverse modification of designated critical habitat.[5]
- In 1982, the FESA was amended to give private landowners the ability to develop Habitat Conservation Plans (HCP) pursuant to Section 10(a) of the FESA. Upon development of an HCP, the USFWS can issue incidental take permits for listed species where the HCP specifies at minimum, the following: (1) the level of impact that will result from the taking, (2) steps that will minimize and mitigate the impacts, (3) funding necessary to implement the plan, (4) alternative actions to the taking considered by the Project Applicant and the reasons such alternatives were not chosen, and (5) such other measures that the Secretary of the Interior may require as being necessary or appropriate for the plan.
- Sections 2090-2097 of the CESA require that the state lead agency consult with the CDFW on projects with potential impacts on state-listed species. These provisions also require the CDFW to coordinate consultations with USFWS for actions involving federally listed as well as state-listed species. In certain circumstances, Section 2080.1 of the *California Fish and Game Code* allows the CDFW to adopt the federal incidental take statement or the 10(a) permit as its own based on its findings that the federal permit adequately protects the species under state law.

[5] 16 U.S.C. §1536(a)(2)

## 4. Coastal California Gnatcatcher Critical Habitat Area

The Study Area falls entirely within Unit 9, one of 15 geographic units of a 513,650-acre area that covers areas of Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties, of the existing critical habitat for coastal California gnatcatcher designated by the USFWS. Critical habitat identifies specific areas that are essential to the conservation of a listed species and, with respect to areas within the geographic range occupied by the species that may require special management considerations or protection. The PCEs for the coastal California gnatcatcher are those habitat components that are essential for the primary biological needs of foraging, nesting, rearing of young, intra-species communication, roosting, dispersal, genetic exchange, or sheltering. All areas designated as critical habitat for the coastal California gnatcatcher contain one or more of the PCEs. Critical Habitat designations do not apply to private property; however, where "federalization" of a project occurs through involvement of a federal agency, the Critical Habitat designation would apply to the federal action. In this instance, the potential federal action would be the issuance of a Section 404 permit from the ACOE authorizing the discharge of fill into the drainages during project grading. If the ACOE asserts jurisdiction over some or all of the drainages, a Section 7 Consultation with USFWS could be required between the ACOE and the USFWS with the Project Applicant involved as an interested party, if the ACOE determines that the project would result in "adverse modification" of critical habitat. If such consultation should occur, and the USFWS finds that the Proposed Project would result in adverse modification of Critical Habitat, the USFWS would likely require mitigation for impacts to coastal sage scrub and potentially to chaparral and riparian habitats, all of which are considered PCEs for the California gnatcatcher, or physical and biological features of a landscape that a species needs to survive and reproduce. The extent of the mitigation would be based on the extent of coastal sage scrub and other areas that potentially meet the PCE definitions for coastal California gnatcatcher.

## 5. Army Corps of Engineers

Pursuant to Section 404 of the Clean Water Act, the ACOE regulates the discharge of dredged and/or fill material into waters of the United States. The term "waters of the United States" is defined in ACOE regulations[6] as:

(1) 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 which are subject to the ebb and flow of the tide;
(2) All interstate waters including interstate wetlands;
(3) 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 or destruction of which could affect foreign commerce including any such waters:

[6] *Code of Federal Regulations*, Title 33, §328.3(a)

(i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
(ii) From which fish or shell fish are or could be taken and sold in interstate or foreign commerce; or
(iii) Which are used or could be used for industrial purpose by industries in interstate commerce...

(4) All impoundments of waters otherwise defined as waters of the United States under the definition;
(5) Tributaries of waters identified in paragraphs (a)(1)-(4) of this section;
(6) The territorial seas;
(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a)(1)-(6) of this section.

Pursuant to Section 404 of the Clean Water Act, the term "wetlands" (a subset of "waters of the United States") is defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support ... a prevalence of vegetation typically adapted for life in saturated soil conditions."[7] The methodology set forth in the ACOE's 1987 Wetland Delineation Manual and the Arid West Supplement generally requires that, in order to be considered a wetland, the vegetation, soils, and hydrology of an area exhibit at least minimal hydric characteristics.

## 6. California Department of Fish and Wildlife (CDFW)

Pursuant to the *California Fish and Game Code*,[8] the CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. CDFW defines a "stream" (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." CDFW's definition of "lake" includes "natural lakes or manmade reservoirs."

CDFW jurisdiction within altered or artificial waterways is based upon the value of those waterways to fish and wildlife. CDFW jurisdictional limits closely mirror those of the ACOE. Exceptions are CDFW's exclusion of isolated wetlands (those not associated with a river, a stream, or a lake), the addition of artificial stock ponds and irrigation ditches constructed on uplands, and the addition of riparian habitat supported by a river, a stream, or a lake regardless of the riparian area's federal wetland status.

[7] *Code of Federal Regulations*, Title 33, §328.3(b)
[8] *California Fish and Game Code*, Division 2, Chapter 6, §§1600-1603

### 7. Regional Water Quality Control Board

All of the drainages within the Study Area are tributary to downstream navigable waters and as such are subject to Regional Water Quality Control Board (Regional Board) jurisdiction under Section 401 of the Clean Water Act, pursuant to the California Porter-Cologne Water Quality Control Act. There are no isolated drainages within the Study Area.

## 5.3.3 Thresholds of Significance

Environmental impacts relative to biological resources are assessed using impact significance threshold criteria, which reflect the policy statement contained in CEQA, *California Public Resources Code* §21001(c). Accordingly, the California Legislature has established it to be the policy of the State of California:

> Prevent the elimination of fish or wildlife species due to man's activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities…

For the purposes of this DEIR, the thresholds of significance for evaluating project impacts on biological resources are based upon the CEQA checklist of the County of Orange. The project would result in a significant impact if it would:

a) 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 the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

b) 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 California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

c) 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.

d) 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.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

### 5.3.4 Project Impacts Prior to Mitigation

The following discussion examines the potential impacts to plant and wildlife resources that may occur as a result of implementation of the Proposed Project. Project-related impacts can occur in two forms, direct and indirect. Direct impacts are considered to be those that involve the loss, modification, or disturbance of plant communities, which in turn, directly affects the flora and fauna of those habitats. Direct impacts also include the destruction of individual plants or wildlife, which may also directly affect regional population numbers of a species or result in the physical isolation of populations, thereby reducing genetic diversity and population stability.

Other impacts, such as loss of foraging habitat, can occur, although these areas or habitats are not directly removed by project development – i.e., indirect impacts. Indirect impacts can also involve the effects of increases in ambient levels of noise or light, unnatural predators (e.g., domestic cats and other non-native animals), competition with exotic plants and animals, and increased human disturbance such as hiking and dumping of green waste on-site. Indirect impacts may be associated with the subsequent day-to-day activities associated with such things as project build-out, including increased traffic use, permanent concrete barrier walls or chain link fences, and exotic ornamental plantings that provide a local source of seed, which may be short-term and long-term in their duration. These impacts are commonly referred to as "edge effects" and may result in a slow replacement of native plants by exotics, changes in the behavioral patterns of wildlife, reduced wildlife diversity, and abundances in habitats adjacent to project sites. The potential for significant adverse effects, either directly or through habitat modifications, on any special-status plant, animal, or habitat that could occur as a result of project development are discussed below.

Two options for roadway access to the Proposed Project have been designed.

1. Option 1 would provide a primary connection going south to Stonehaven Drive following an existing dirt road that has been used for oil well and utility access purposes. A separate ingress/egress road for emergency purposes only would extend south along the western edge of the project through the adjacent Cielo Vista property.
2. Option 2 would provide a primary connection going west from the site to Aspen Way, which then connects to San Antonio Road. Option 2 provides a separate ingress/egress exit for emergency purposes only, exiting south from the Proposed Project to Stonehaven Drive and following the existing road currently used for oil well and utility access purposes.

Each option has a unique impact footprint due to the different grading designs. This analysis presents Option 1 and Option 2 as they differ. It is anticipated that the Proposed Project will obtain permits from the following regulatory agencies: ACOE, Section 404 Permit; CDFW, 1600 Permit; and County of Orange/RWQCB, National Pollution Discharge Elimination System (NPDES) Permit.

## 1. Impact to Vegetation Associations

### a. Option 1

Permanent impacts to vegetation communities associated with Option 1 account for approximately 336.50 acres of the Study Area. Table 5-3-5 below summarizes permanent and temporary impacts associated with Project implementation.

**Table 5-3-5 Summary of Impacts to Vegetation Associations/Cover Types, Option 1**

| Vegetation/Land Use Type | Total in Study Area (acres) | Total Impacts (acres) | Percent Impacted (%) |
|---|---|---|---|
| **Coastal Sage Scrub** | 45.88 | 33.35 | 73 |
| California Sagebrush Scrub | 24.21 | 20.20 | 83 |
| Disturbed California Sagebrush Scrub | 10.32 | 5.61 | 54 |
| Purple Sage Scrub | 10.14 | 7.53 | 74 |
| Sagebrush-Monkeyflower Scrub | 1.21 | 0.01 | 1 |
| **Ecotonal Habitats** | 129.45 | 90.68 | 70 |
| Coastal Sage Scrub/Chaparral Ecotone | 95.02 | 65.42 | 69 |
| Sumac Savannah | 34.43 | 25.26 | 73 |
| **Chaparral Habitats** | 124.38 | 87.01 | 70 |
| Toyon/Sumac Chaparral | 122.63 | 85.26 | 70 |
| Sumac/Elderberry Chaparral | 1.75 | 1.75 | 100 |
| **Woodland Habitats** | 36.61 | 17.46 | 47 |
| California Walnut Woodland | 6.37 | 0.48 | 8 |
| Blue Elderberry Woodland | 23.88 | 11.37 | 48 |
| Southern Coast Live Oak Forest | 6.36 | 5.61 | 88 |
| **Riparian Habitats** | 5.34 | 0.29 | 5 |
| Mulefat Scrub | 1.93 | 0.24 | 12 |
| Black Willow Riparian Forest | 0.19 | 0.0 | 0 |
| California Walnut/Mulefat Scrub | 2.70 | 0.05 | 2 |
| Southern Willow Scrub | 0.52 | 0.0 | 0 |
| **Grassland Habitats** | 136.10 | 98.21 | 72 |
| Annual Grassland | 136.10 | 98.21 | 72 |
| **Disturbed Habitats** | 15.93 | 4.12 | 26 |
| Ruderal | 15.93 | 4.12 | 26 |
| **Developed Land** | 10.51 | 5.38 | 51 |
| Graded Areas/Paved Roads | 10.17 | 5.04 | 50 |
| Ornamental Vegetation | 0.28 | 0.28 | 100 |
| Detention Basin | 0.06 | 0.06 | 100 |
| **Total Vegetation/Land Use Acreage** | **504.20** | **336.50** | **67** |

### b. Option 2

Permanent impacts to vegetation communities associated with Option 2 account for approximately 340.19 acres of the Study Area. Table 5-3-6 below summarizes permanent and temporary impacts associated with Project implementation.

**Table 5-3-6 Summary of Impacts to Vegetation Associations/Cover Types, Option 2**

| Vegetation/Land Use Type | Total in Study Area (acres) | Total Impacts (acres) | Percent Impacted (%) |
|---|---|---|---|
| **Coastal Sage Scrub** | **45.88** | **33.12** | **72** |
| California Sagebrush Scrub | 24.21 | 21.06 | 87 |
| Disturbed California Sagebrush Scrub | 10.32 | 4.51 | 44 |
| Purple Sage Scrub | 10.14 | 7.53 | 74 |
| Sagebrush-Monkeyflower Scrub | 1.21 | 0.02 | 2 |
| **Ecotonal Habitats** | **129.45** | **91.07** | **70** |
| Coastal Sage Scrub/Chaparral Ecotone | 95.02 | 65.24 | 69 |
| Sumac Savannah | 34.43 | 25.83 | 75 |
| **Chaparral Habitats** | **124.38** | **90.40** | **73** |
| Toyon/Sumac Chaparral | 122.63 | 88.65 | 72 |
| Sumac/Elderberry Chaparral | 1.75 | 1.75 | 100 |
| **Woodland Habitats** | **36.61** | **19.46** | **53** |
| California Walnut Woodland | 6.37 | 0.22 | 3 |
| Blue Elderberry Woodland | 23.88 | 13.63 | 57 |
| Southern Coast Live Oak Forest | 6.36 | 5.61 | 89 |
| **Riparian Habitats** | **5.34** | **0.983** | **18** |
| Mulefat Scrub | 1.93 | 0.79 | 41 |
| Black Willow Riparian Forest | 0.19 | 0.19 | 100 |
| California Walnut/Mulefat Scrub | 2.70 | 0.003 | 0.1 |
| Southern Willow Scrub | 0.52 | 0 | 0 |
| **Grassland Habitats** | **136.10** | **96.23** | **71** |
| Annual Grassland | 136.10 | 96.23 | 71 |
| **Disturbed Habitats** | **15.93** | **4.68** | **29** |
| Ruderal | 15.93 | 4.68 | 29 |
| **Developed Land** | **10.51** | **4.24** | **40** |
| Graded Areas/Paved Roads | 10.17 | 3.90 | 36 |
| Ornamental Vegetation | 0.28 | 0.28 | 100 |
| Detention Basin | 0.06 | 0.06 | 100 |
| **Total Vegetation/Land Use Acreage** | **504.20** | **340.183** | **67** |

## 2. Impacts to Special-Status Habitats

### a. Option 1

1. California Walnut Woodland - Under Option 1, approximately 0.48 acre of the 6.37 acres of California walnut woodland would be impacted. The California walnut woodland within the Study Area was burned in the 2008 Freeway Complex Fire, and a majority of the walnut trees were damaged and a few were killed by the fire. As such, the habitat within the Study Area is highly disturbed and does not exhibit habitat values typical of intact California walnut woodland. Nevertheless, because this habitat is a

G2S2, impacts to this habitat associated with Option 1 would be significant without mitigation.

2. Southern Willow Scrub - Under Option 1, southern willow scrub would be fully avoided, and as such no significant impacts to southern willow scrub would be associated with Option 1.

3. Blue Elderberry Woodland - Under Option 1, approximately 13.63 acres of the 23.88 acres of blue elderberry woodland would be impacted. The Blue elderberry woodland within the Study Area was burned in the 2008 Freeway Complex Fire. More than half the elderberry trees were damaged and many were killed by the fire. It is not clear that the CNDDB ranking of G3S3 applies to the blue elderberry habitat on the Study Area, and while this habitat type is relatively secure as a G3S3 species (low degree of rarity globally and not threatened at the state level, and that more than half of the elderberry trees are dead or damaged, impacts associated with Option 1 would be significant before mitigation.

   As noted above in Section 5.3.1.3, Special Status Habitats (page 5-109), none of the coastal sage scrub habitat types, which include California sagebrush scrub (G5S5), disturbed California sagebrush scrub (G5S5), purple sage scrub (G4S4), and sagebrush-monkeyflower scrub (G5S5), are considered special status both because the global and state rankings indicate that they are secure and not rare, and because they generally exhibit a high degree of disturbance resulting from the Freeway Complex Fire. As such, impacts associated with Option 1 would be less than significant.

### b. Option 2

1. California Walnut Woodland - Under Option 2, approximately 0.22 acre of the 6.37 acres of California walnut woodland would be impacted. The California walnut woodland within the Study Area was burned in the 2008 Freeway Complex Fire, and a majority of the walnut trees were damaged, and a few were killed by the fire. As such, the walnut woodland within the Study Area is highly disturbed and does not exhibit habitat values typical of intact California walnut woodland. Nevertheless, because this habitat is a G2S2, impacts to this habitat associated with Option 2 would be potentially significant without mitigation.

2. Southern Willow Scrub - Under Option 2, southern willow scrub would be fully avoided, and as such no significant impacts to southern willow scrub would be associated with Option 2.

3. Blue Elderberry Woodland - Under Option 2, approximately 18.33 acres of the 31.28 acres of blue elderberry woodland would be impacted. The blue elderberry woodland within the Study Area was burned in the 2008 Freeway Complex Fire, and more than half the elderberry trees were killed

or damaged by the fire. It is not clear that the CNDDB ranking of G3S3 applies to the blue elderberry habitat in the Study Area, and while this habitat type is relatively secure as a G3S3 species (low degree of rarity globally and not threatened at the state level), and that more than half the elderberry trees were damaged or killed, impacts associated with Option 2 would be significant without mitigation.

As noted above in Section 5.3.1.3, Special Status Habitats (page 5-109), none of the coastal sage scrub habitat types, which include California sagebrush scrub (G5S5), disturbed California sagebrush scrub (G5S5), purple sage scrub (G4S4), and sagebrush-monkeyflower scrub (G5S5), are considered special status both because the global and state rankings indicate that they are secure and not rare, and because they generally exhibit a high degree of disturbance resulting from the Freeway Complex Fire. As such, impacts associated with Option 2 would be less than significant.

### 3. Impacts to Special-Status Plant Resources

As previously stated, five special status plant species – Braunton's milk-vetch, Catalina mariposa lily, intermediate mariposa lily, southern California walnut, and small flowered microseris – were documented within the Study Area (refer to Exhibit 5-30 – Vegetation Map, Option 1 Impact Map and Exhibit 5-31– Vegetation Map, Option 2 Impact Map. Impacts to these species are the same for Option 1 and Option 2, and are discussed below.

1. Braunton's milk-vetch *(Astragalus brauntonii)* is a perennial herb designated as a CRPR List 1B.1 species (plant seriously endangered in California), and is federally listed as endangered. Approximately 400 individuals of Braunton's milk-vetch were detected during focused surveys in 2010, all of which would be impacted by Option 1 and Option 2 as. As Braunton's milk-vetch is a CRPR List 1B.1 species (plants that are seriously rare, threatened, or endangered in California and elsewhere, with over 80% of occurrences threatened/high degree and immediacy of threat), and is federally listed as endangered, impacts would be potentially significant without mitigation.

2. Catalina mariposa lily *(Calochortus catalinae)* is a perennial herb designated as a CRPR List 4 species (plant of limited distribution/a watch list) but is not federally or state listed. This species is known from Los Angeles, Ventura, and Orange counties, as well as the Channel Islands. Surveys completed from 1997 to 2002 by Campbell BioConsulting reported observing approximately 445 Catalina mariposa lilies scattered throughout the site. Catalina lily plants were also observed by GLA during 2010 surveys. Under Option 1 and Option 2, Catalina mariposa lily would be impacted. However, given that Catalina mariposa lily is a List 4 species, impacts to 445 plants would not constitute a substantial adverse effect, and therefore would be less than significant.

3. Intermediate mariposa lily *(Calochortus weedii var. intermedius)* is a bulbiferous herb designated as a CRPR List 1B.2 species (plant fairly endangered in California and elsewhere, with 20-80 percent of occurrences threatened). Approximately 326 individuals of intermediate mariposa lily were detected during focused surveys in 2010, all of which would be impacted by Option 1 and Option 2. Because intermediate mariposa lily is a CRPR List 1B.2 species, impacts would be potentially significant without mitigation.

4. Southern California walnut *(Juglans californica)* is a perennial deciduous tree species designated as a CRPR List 4 species (plant of limited distribution/watch list) but is not federally or state listed. Southern California walnut was detected during focused surveys in 2007. However, the majority of the walnut trees within the Study Area were damaged, and a few were killed, in the 2008 Freeway Complex Fire. Impacts to the dead and damaged trees would not be significant. Under Option 1 or Option 2, some live trees may be impacted; however, given that southern California walnut is a List 4 species, impacts to the remaining live and damaged trees would not constitute a substantial adverse effect, and therefore would be less than significant.

5. Small flowered microseris *(Microseris douglasii var. platycarpha)* is an annual herb designated as a CRPR List 4 species (plants of limited distribution/watch list). During focused surveys conducted by Campbell BioConsulting in 1998, 10 individuals of small flowered microseris were observed. These plants were located along the old Edison spur road, approximately 75 feet west to the SCE 500-kV towers. No small flowered microseris were observed during the 2007 or 2010 surveys. Given that the 10 individuals detected in 1998 were not detected during multiple subsequent surveys, and that impacts to 10 individuals of a CRPR List 4 would not constitute a substantial adverse effect, under Option 1 or Option 2, any potential impacts to small-flowered microseris would be less than significant.

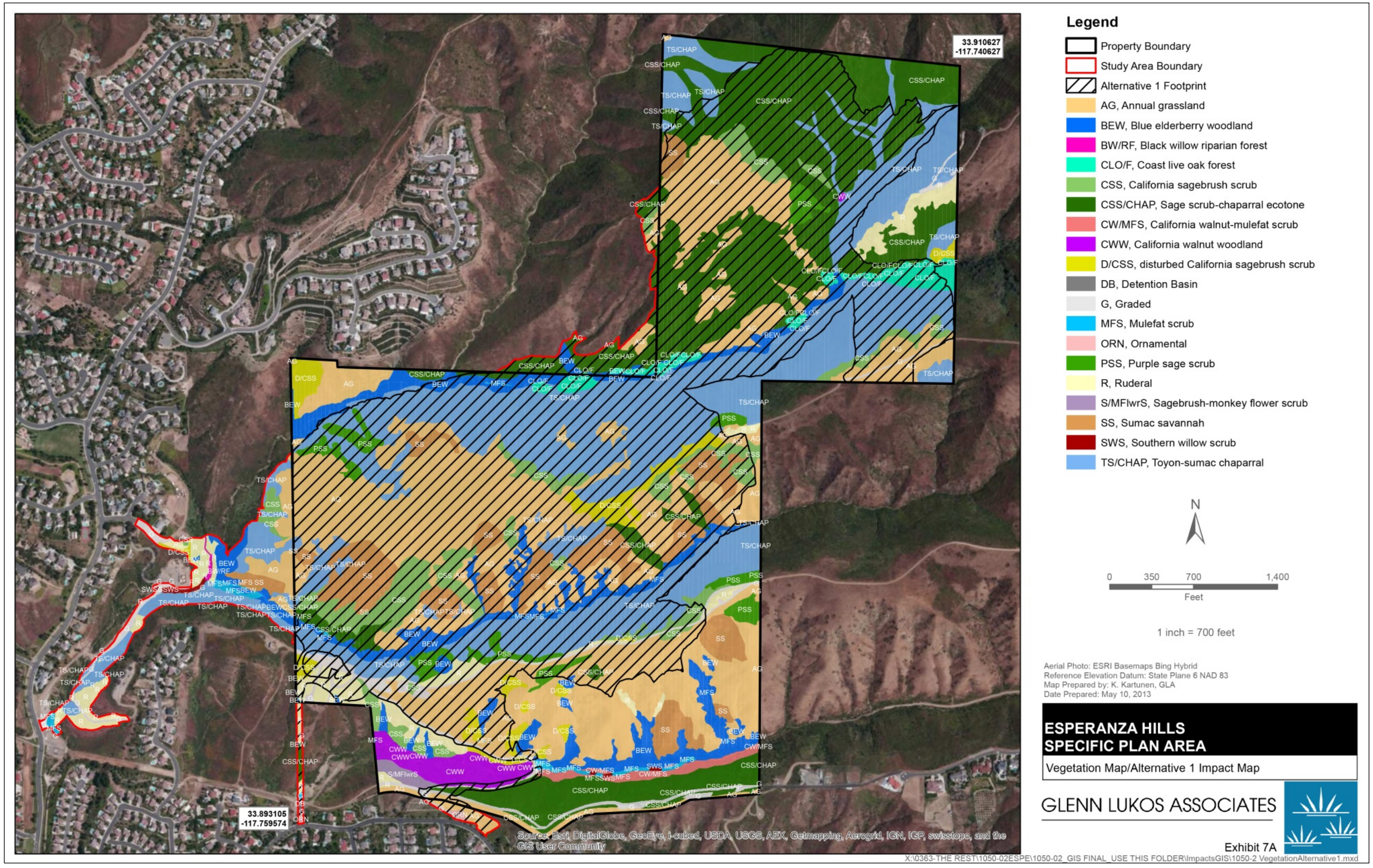



**Exhibit 5-30– Vegetation Map, Option 1 Impact Map**

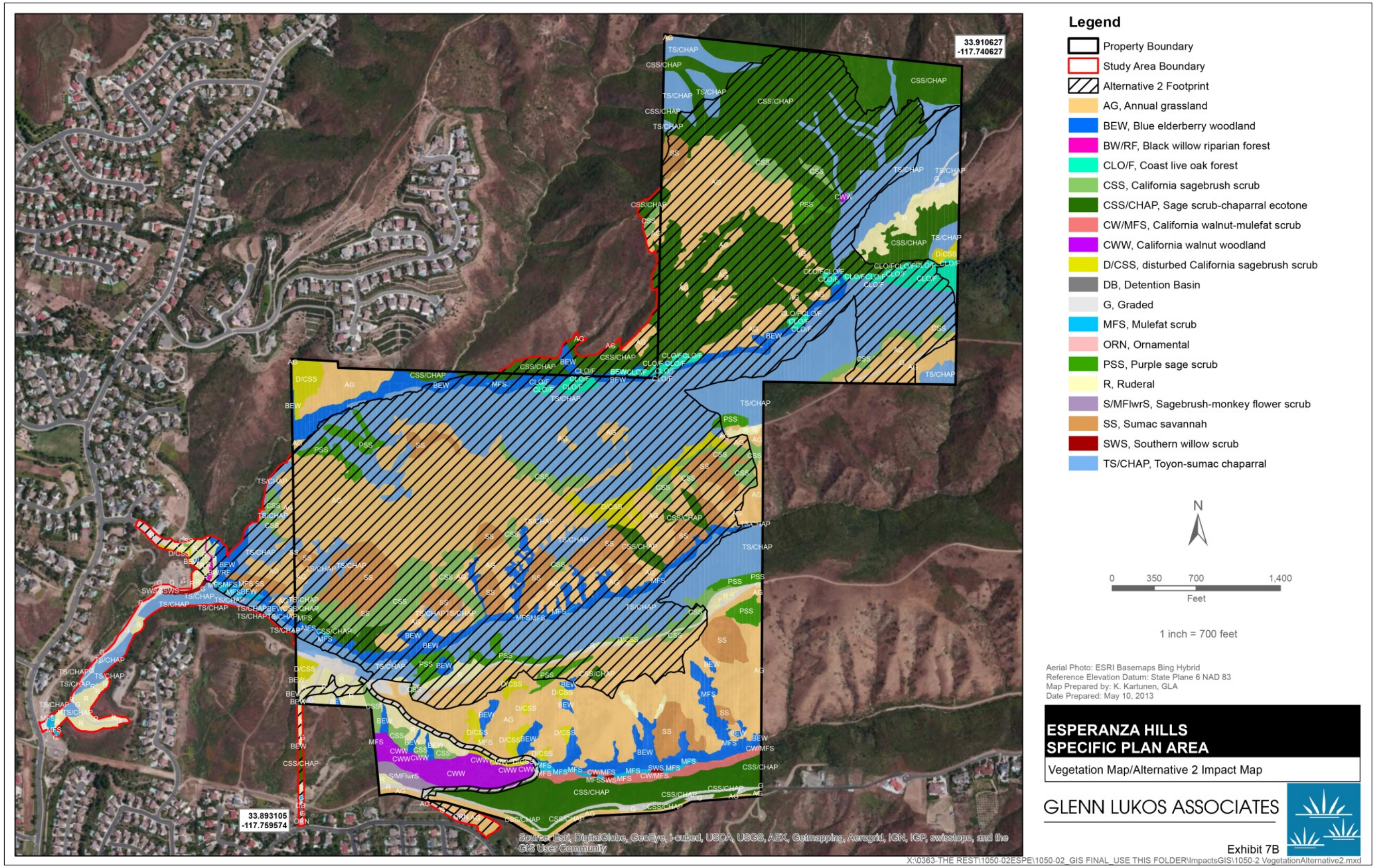



**Exhibit 5-31– Vegetation Map, Option 2 Impact Map**

## 4. Impacts to Special Status Wildlife Resources

The following is a summary of project impacts to special status wildlife resources for Option 1 and Option 2.

1. Cooper's hawk is a CDFW-designated Watch List species when nesting. In undeveloped areas, this species occurs primarily in riparian areas and oak woodlands, and most commonly in montane canyons. This species is also frequently found in suburban and urban areas, occupying trees among residential and commercial development and using utility poles as perches. Cooper's hawk was observed foraging within the Study Area, and has potential to nest within the riparian areas within the Study Area, although no nests were observed during any biological surveys. Impacts to potential riparian foraging and nesting area for Cooper's hawk associated with Option 1 and Option 2 are minimal. Given that Cooper's hawk is a relatively common urban-adapted species, is only a Watch List species (which denotes a lower level of rarity than a CDFW SSC), and thrives in developed areas, such impacts would not constitute a substantial adverse effect, and would be less than significant.

2. Golden eagle is a CDFW-designated Watch List species when nesting and wintering, and is also an FPS. This species occurs in rolling foothills, mountain areas, sage-juniper flats, and deserts, and winters and nests in cliff-walled canyons. Golden eagle was seen foraging on-site, but was not observed nesting or wintering within the Study Area. Although a nest was observed north of the site on a cliff face within Chino Hills State Park, which nest has been determined to have been abandoned or destroyed in the 2008 Freeway Complex Fire, no suitable nesting or wintering habitat is present within the Study Area, as there are no cliff faces or cliff-walled canyons within the Study Area. As there is no potential for golden eagle to breed or winter within the Study Area, impacts to this species associated with Option 1 and Option 2 would be less than significant.

3. Grasshopper sparrow is a CDFW SSC when nesting. It occurs in dense grasslands on rolling hills, lowland plains, in valleys, and on hillsides on lower mountain slopes. This species favors native grasslands with a mix of grasses, forbs, and scattered shrubs, and is loosely colonial when nesting. A single grasshopper sparrow was observed within the Study Area near the eastern boundary by GLA in 2013, with additional individuals observed outside the eastern Study Area boundary. Given that the grasshopper sparrow is a relatively common species in southern California grasslands, and that potential impacts would be very limited as the species was only detected on one occasion on the eastern Study Area boundary, such impacts would not constitute a substantial adverse effect, and would be less than significant.

4. Least Bell's vireo is a state and federally listed endangered species. It occurs in dense riparian habitats with a stratified canopy, including southern willow scrub,

mule fat scrub, and riparian forest. GLA biologists did not observe least Bell's vireo during focused surveys in 2007; however, this species was observed opportunistically during other biological surveys in 2010. Additionally, this species was detected by PCR during surveys in 2012 within the off-site impact areas as depicted by Exhibit 5-26 – Special Status Biological Resources Map (page 5-113 above).

Under Option 1, riparian vegetation occupied by least Bell's vireo at the southern edges of the Study Area would be subject to off-site impacts for project construction. Approximately 0.24 acre of mulefat scrub vegetation occupied by least Bell's vireo associated with Blue Mud Canyon (Drainage F) at the southern edge of the Study Area would be impacted (see Table 5-3-5, Summary of Impacts to Vegetation Associations/Cover Types, Option 1 (page 5-140). The least Bell's vireo is state and federally listed; therefore, direct impacts to this species, including riparian vegetation associated with breeding territories, would be potentially significant.

Under Option 2, riparian vegetation occupied by least Bell's vireo at the southern edge of the Study Area associated with Blue Mud Canyon (Drainage F) and at the drainage on the western edge of the Study Area (Drainage G) would be subject to off-site impacts for project construction. Approximately 0.79 acre of mulefat scrub and 0.19 acre of black willow riparian forest vegetation occupied by least Bell's vireo would be impacted (see Table 5-3-6, Summary of Impacts to Vegetation Associations/Cover Types, Option 2 (page 5-141). As least Bell's vireo is state and federally listed, direct impacts to this species, including riparian vegetation associated with breeding territories, would be potentially significant.

5. Northern harrier is CDFW SSC when nesting, but is a common, often abundant, winter visitor throughout California from September through April. Characteristically, this hawk inhabits marshlands, coastal salt water and freshwater, but often forages over grasslands and fields. It glides and flies low over open habitats searching for prey. Northern harrier was observed foraging on-site, but would not nest on-site as this species is not known to breed in southern California. As northern harrier does not breed on-site, impacts to this species associated with Option 1 and Option 2 would be less than significant.

6. Peregrine falcon is a CDFW FPS and a USFWS-designated BCC when nesting. In California this species inhabits coastal areas and inland mountains. This species is a very uncommon breeding resident and uncommon as a migrant or as a winter resident. Peregrine falcon was seen foraging on-site; however, no suitable sites for nesting occur on the site. As peregrine falcon does not breed on-site, impacts to this species associated with Option 1 and Option 2 would be less than significant.

7. Sharp-shinned hawk, which is a CDFW Watch List species, was observed foraging on-site and would only occur as a winter visitor, as this species does not

breed in southern California. As sharp-shinned hawk is considered a CDFW Watch List species only when nesting, and sharp-shinned hawk does not breed on-site, impacts to this species associated with Option 1 and Option 2 would be less than significant.

8. Yellow-breasted chat, which is a CDFW SSC, is a migratory songbird that breeds in riparian habitats in southern California. This species exhibits habitat requirements similar to least Bell's vireo. Suitable habitat typically consists of multi-layered riparian scrub or willow woodland corridors along flowing streams. The yellow breasted chat was not detected during 2007 or 2010 surveys. However, this species was detected by PCR during surveys in 2012 within the off-site impact areas.

   Although yellow-breasted chat is classified as a CDFW SSC, this species is very common in willow riparian habitat in southern California. As impacts to potential riparian foraging and nesting area for yellow-breasted chat associated with Option 1 and Option 2 are minimal (0.29 of the 5.34 acres of riparian habitat that could potentially be used by this species within the Study Area for Option 1 and 0.983 of the 5.34 acres of riparian habitat that could potentially be used by this species within the Study Area for Option 2, and given that this species frequently occurs in such habitat, impacts would not constitute a substantial adverse effect, and would be less than significant.

9. Southern California rufous-crowned sparrow is a CDFW Watch List species that was observed foraging on-site. Given that southern California rufous-crowned sparrow is a relatively common species in southern California grasslands, coastal sage scrub, and chaparral, and is only a Watch List species (which denotes a lower level of rarity than a CDFW SSC), such impacts would not constitute a substantial adverse effect, and would be less than significant.

10. Yellow warbler, which is a CDFW Species of Concern and USFWS Bird of Conservation Concern, is a migratory songbird that breeds in riparian habitats in southern California. This species exhibits habitat requirements similar to the yellow-breasted chat and the least Bell's vireo. Suitable habitat typically consists of multi-layered riparian scrub or willow woodland corridors along flowing streams. The yellow warbler was observed in the western portion of the Study Area during focused surveys for special-status riparian birds.

    Like yellow-breasted chat, although yellow warbler is classified as a CDFW SSC and a USFWS BCC, this species is very common in willow riparian habitat in southern California. As impacts to potential riparian foraging and nesting area for yellow warbler associated with Option 1 and Option 2 are minimal (0.29 of the 5.34 acres of riparian habitat that could potentially be used by this species within the Study Area for Option 1 and 0.983 of the 5.34 acres of riparian habitat that could potentially be used by this species within the Study Area for Option 2, and given that this species frequently occurs in such habitat, impacts

would not constitute a substantial adverse effect, and would be less than significant.

## 5. Impacts to Raptor Foraging Habitat

The Study Area supports some raptor foraging habitat, and in general the development portions of the Study Area exhibit low- to moderate-quality foraging habitat based on field observations during numerous site visits. No nesting by raptors was observed within the Study Area during the site visits, and no recently abandoned nests were observed. Although a few special status species were observed foraging within the Study Area, including Cooper's hawk, golden eagle, northern harrier, peregrine falcon, and sharp-shinned hawk, foraging by these species was infrequent, and the Study Area does not provide an important location for raptor foraging, especially given that raptors can utilize the extensive habitat at the adjacent Chino Hills State Park. As such, direct and indirect impacts to raptor foraging habitat under Option 1 and Option 2 do not constitute a substantial adverse effect on special status raptors, would be less than significant, and would not require mitigation.

The avoided scrub and chaparral, grassland, and woodland habitats similarly do not exhibit substantial use by foraging raptors, and the project does not exhibit potential for significant indirect impacts on raptor foraging.

## 6. Project Impact to Nesting Birds and Migratory Bird Treaty Act Considerations

Under Option 1 and 2, the Study Area currently contains trees, shrubs, and ground cover that have the potential to support nesting birds protected by the MBTA, which makes it unlawful to take, possess, buy, sell purchase or barter any migratory bird listed, including feathers or other parts, nests, eggs, or products. Direct impacts to a large variety of nesting birds are prohibited under the MBTA. Direct impacts to those species of nesting birds would be considered a significant impact.

## 7. Project Impact to Wildlife Movement

Although local resident wildlife use the Study Area for local movement and dispersal, the Study Area does not act as a corridor or linkage for movement between open space areas, as use of the Study Area as a movement corridor is constrained by urban development south and west of the Study Area.

As discussed in the Chino Hills State Park General Plan, there are three important corridors that connect Chino Hills State Park with adjacent projected open space: Coal Canyon, Sonome and Tonner Canyons, and the Prado Basin. None of these corridors traverse the Study Area or connect it to adjacent habitat areas.

As such, none of the project options would interfere substantially with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Therefore, under Option 1 and Option 2 impacts to wildlife movement would be less than significant

## 8. Coastal California Gnatcatcher Critical Habitat

As previously stated, the Study Area occurs entirely within Critical Habitat Unit 9, but the Study Area is not occupied by coastal California gnatcatcher as determined during a number of surveys beginning in 2007 through 2013, all of which showed the species to be absent from the site. In addition, PCEs are severely limited or lacking due to disturbance to coastal sage scrub habitat from the 2008 Freeway Complex Fire. Because the site has not been occupied, and because PCEs are limited or lacking, impacts to coastal California gnatcatcher critical habitat would be less than significant under Option 1 and Option 2.

## 9. Jurisdictional Impacts

### a. Option 1

1. **Impacts to ACOE Jurisdictional Waters** – Under Option 1, the Proposed Project would impact a total of 0.91 acre of ACOE jurisdictional waters over 16,460 linear feet, of which 0.89 acre consists of non-wetlands waters, and 0.89 acre consists of jurisdictional wetlands (refer to Table 5-3-7 below, and Exhibit 5-32– ACOE Jurisdictional Delineation / Option 1 Impact Map). Impacts would occur in Drainages A, D, E, and F, while Drainages B, C, and G would be fully avoided. Impacts to 0.91 acre of ACOE jurisdiction, including 0.02 acre of wetlands, over 16,460 linear feet, would be potentially significant without mitigation.

**Table 5-3-7 Impacts to ACOE Jurisdiction - Option 1**

| Drainage | Total ACOE Jurisdictional Impacts | | | Linear Length of Impacts (feet) |
|---|---|---|---|---|
| | Non-Wetlands Waters (acres) | Wetlands (acres) | Total (acres) | |
| A | 0.10 | 0.0 | 0.10 | 2,984 |
| B | 0.0 | 0.0 | 0.0 | 0.0 |
| C | 0.0 | 0.0 | 0.0 | 0.0 |
| D | 0.39 | 0.0 | 0.39 | 6,619 |
| E | 0.39 | 0.0 | 0.39 | 6,542 |
| F | 0.01 | 0.02 | 0.03 | 315 |
| G | 0.0 | 0.0 | 0.0 | 0 |
| **Total** | **0.89** | **0.02** | **0.91** | **16,460** |

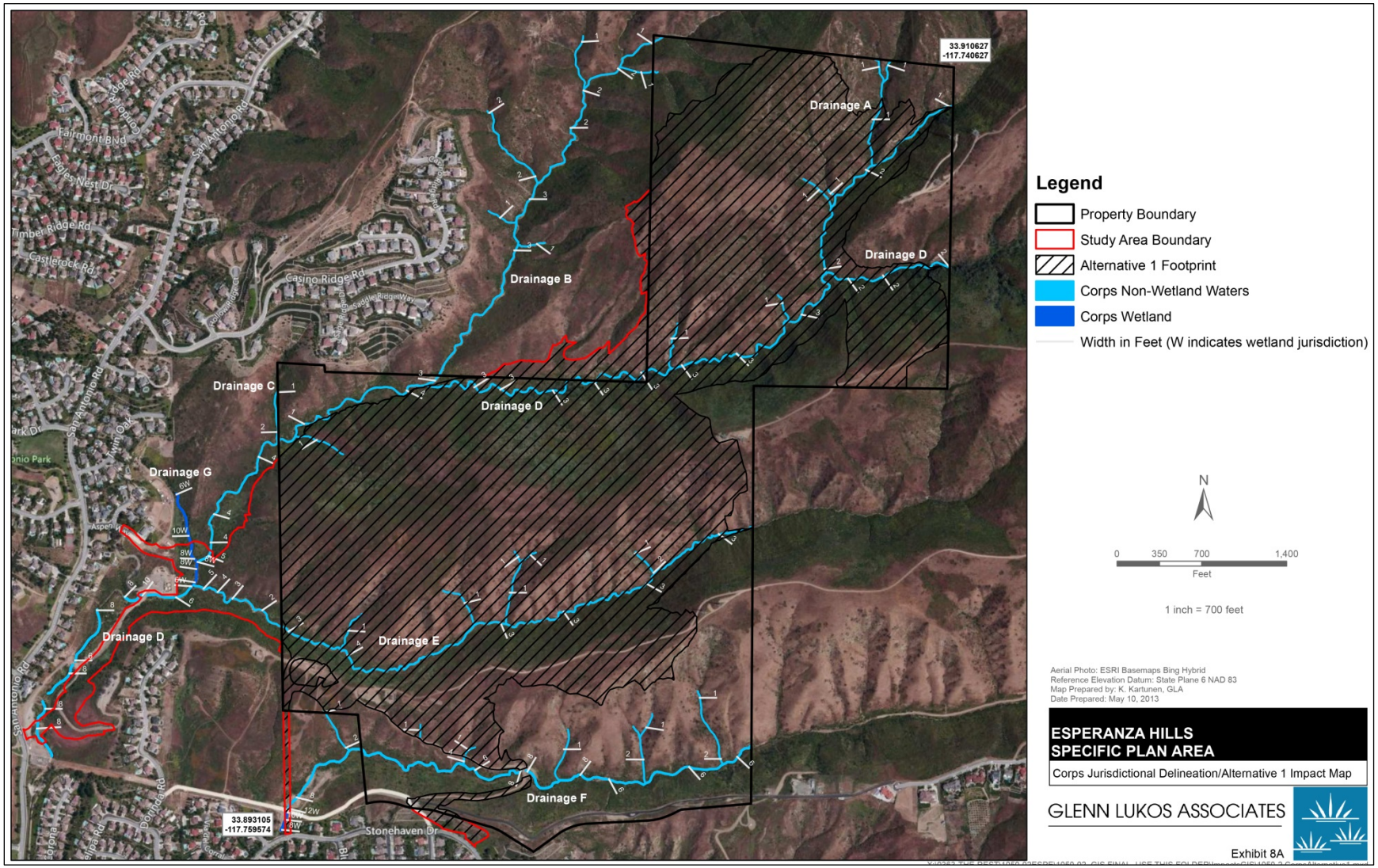



**Exhibit 5-32– ACOE Jurisdictional Delineation / Option 1 Impact Map**

2. **Impacts to CDFW Jurisdiction** – Under Option 1, the Proposed Project would impact 1.955 acres of CDFW jurisdictional drainage, of which 0.735 acre consists of unvegetated drainage, and 1.22 acres consist of vegetated riparian habitat, including coast live oak trees within CDFW jurisdiction (refer to Table 5-3-8 and Exhibit 5-33 – CDFW Jurisdictional Delineation/Option 1 Impact Map). Impacts would occur in Drainages A, D, E, and H, while Drainages B, C, and G would be fully avoided. Impacts to 1.955 acres of CDFW jurisdiction, including 1.22 acres of vegetated riparian habitat and associated coast live oak trees, would be potentially significant without mitigation.

**Table 5-3-8 Impacts to CDFW Jurisdiction – Option 1**

| Drainage | Total CDFW Jurisdictional Impacts | | | Linear Length of Impacts (feet) |
|---|---|---|---|---|
| | Unvegetated Drainages (acres) | Riparian Drainages (acres) | Total (acres) | |
| A | 0.10 | 0.0 | 0.10 | 2,984 |
| B | 0.0 | 0.0 | 0.0 | 0.0 |
| C | 0.0 | 0.0 | 0.0 | 0.0 |
| D | 0.29 | 1.02 | 1.31 | 6,619 |
| E | 0.34 | 0.13 | 0.47 | 6,542 |
| F | 0.005 | 0.07 | 0.075 | 315 |
| G | 0.0 | 0.0 | 0.0 | 0 |
| **Total** | **0.735** | **1.22** | **1.955** | **16,460** |

**Option 2**

1. **Impacts to ACOE Jurisdictional Waters** – Under Option 2, the Proposed Project would impact a total of 1.15 acre of ACOE jurisdictional waters over 17,834 linear feet, of which 0.98 acre consists of non-wetland waters, and 0.17 acre consists of jurisdictional wetlands (refer to Table 5-3-9 below, and Exhibit 5-34– ACOE Jurisdictional Delineation / Option 2 Impact Map). Impacts would occur in Drainages A, D, E, and F, while Drainages B, C, and G would be fully avoided. Impacts to 1.15 acre of ACOE jurisdiction, including 0.10 acre of wetlands, over 17,834 linear feet, would be potentially significant without mitigation.

**Table 5-3-9 Impacts to ACOE Jurisdiction - Option 2**

| Drainage | Total ACOE Jurisdictional Impacts | | | Linear Length of Impacts (feet) |
|---|---|---|---|---|
| | Non-Wetland Waters (acres) | Wetland (acres) | Total (acres) | |
| A | 0.10 | 0.0 | 0.10 | 2,984 |
| B | 0.0 | 0.0 | 0.0 | 0.0 |
| C | 0.0 | 0.0 | 0.0 | 0.0 |
| D | 0.41 | 0.11 | 0.52 | 6,690 |
| E | 0.46 | 0.0 | 0.46 | 7,530 |
| F | 0.01 | 0.02 | 0.03 | 143 |
| G | 0.0 | 0.04 | 0.04 | 187 |
| **Total** | **0.98** | **0.17** | **1.15** | **17,834** |

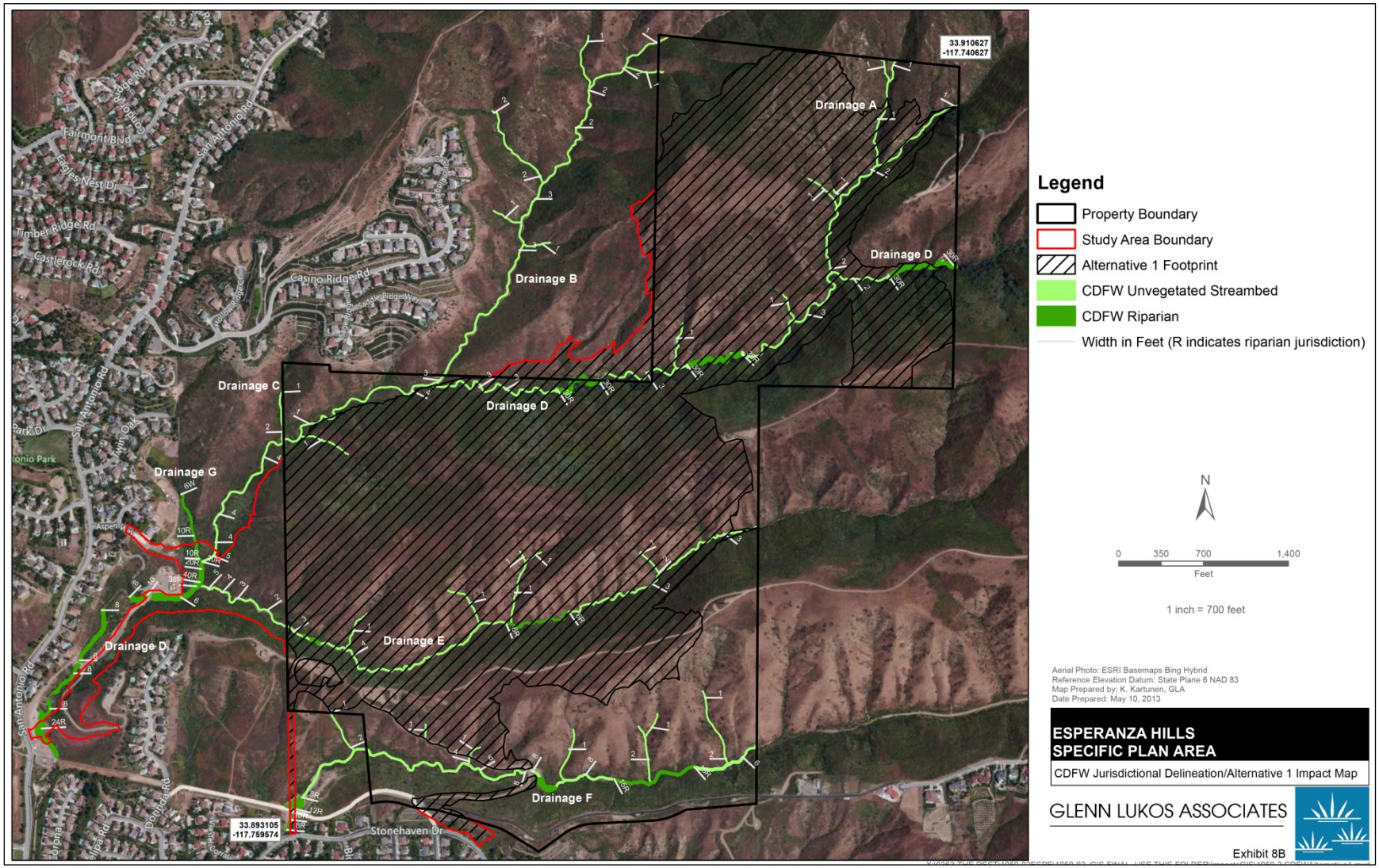



**Exhibit 5-33– CDFW Jurisdictional Delineation/Option 1 Impact Map**

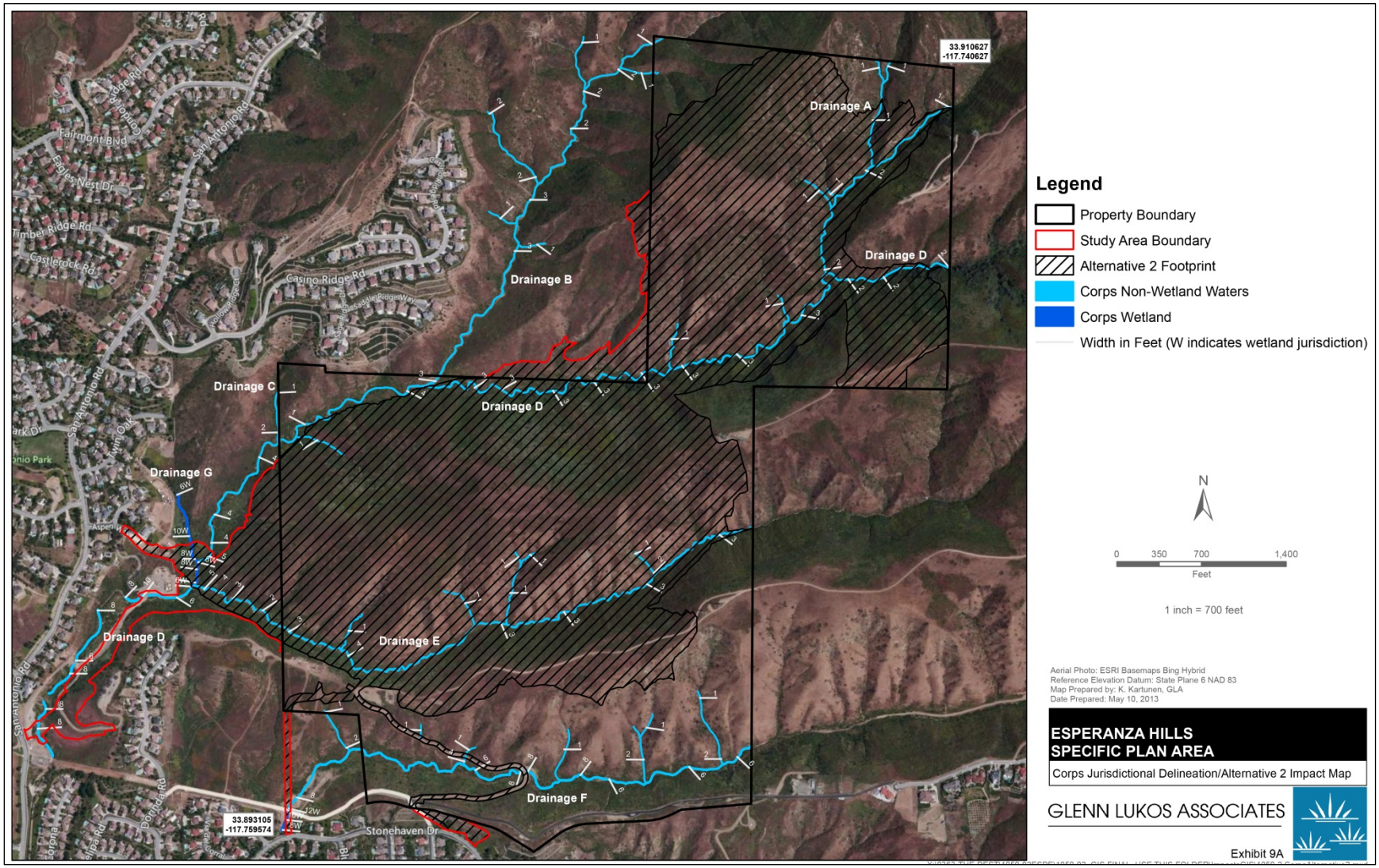



**Exhibit 5-34– ACOE Jurisdictional Delineation / Option 2 Impact Map**

2. **Impacts to CDFW Jurisdiction** – Under Option 2, the Proposed Project would impact a total of 2.234 acres of CDFW jurisdictional drainages, of which 0.824 acre consists of unvegetated drainages, and 1.41 acres consist of vegetated riparian habitat, including coast live oak trees within CDFW jurisdiction refer to Table 5-3-10 below, and Exhibit 5-35 – CDFW Jurisdictional Delineation, Option 2 Impact Map. Impacts would occur in Drainages A, D, E, F and G, while Drainages B and C would be fully avoided. Impacts to 2.234 acres of CDFW jurisdiction, including 1.41 acres of vegetated riparian habitat and associated coast live oak trees, would be potentially significant without mitigation.

**Table 5-3-10 Impacts to CDFW Jurisdiction - Option 2**

| Drainage | Total CDFW Jurisdictional Impacts | | | Linear Length of Impacts (feet) |
|---|---|---|---|---|
| | Unvegetated Drainages (acres) | Riparian Drainages (acres) | Total (acres) | |
| A | 0.10 | 0.0 | 0.10 | 2,984 |
| B | 0.0 | 0.0 | 0.0 | 0.0 |
| C | 0.0 | 0.0 | 0.0 | 0.0 |
| D | 0.31 | 1.17 | 1.48 | 6,990 |
| E | 0.41 | 0.13 | 0.54 | 7,530 |
| F | 0.004 | 0.07 | 0.074 | 143 |
| G | 0.0 | 0.04 | 0.04 | 187 |
| **Total** | **0.824** | **1.41** | **2.234** | **17,834** |

## 10. Indirect Impacts

### a. Indirect Impacts to Native Habitats

Upon build-out of the project under either option, the Study Area will be bounded by urban development to the south and west, and open space associated with Chino Hills State Park to the north and east. Potential indirect impacts typically associated with development of native habitats include introduction of trash and debris, human intrusion that results in trampling of vegetation and/or creation of ad hoc trails, potential introduction of non-native invasive plants, and generation of ambient dust during construction.

1. Introduction of Trash and Debris – A Project Design Feature (PDF) of the Proposed Project will include trash receptacles placed in appropriate locations to ensure that trash and debris are controlled and collected on the site and pose no risk to native habitats. With the incorporation of this PDF, there would be no significant impacts to native habitats due to introduction of trash and debris into areas of adjacent native habitat, because potential trash will be collected and removed.

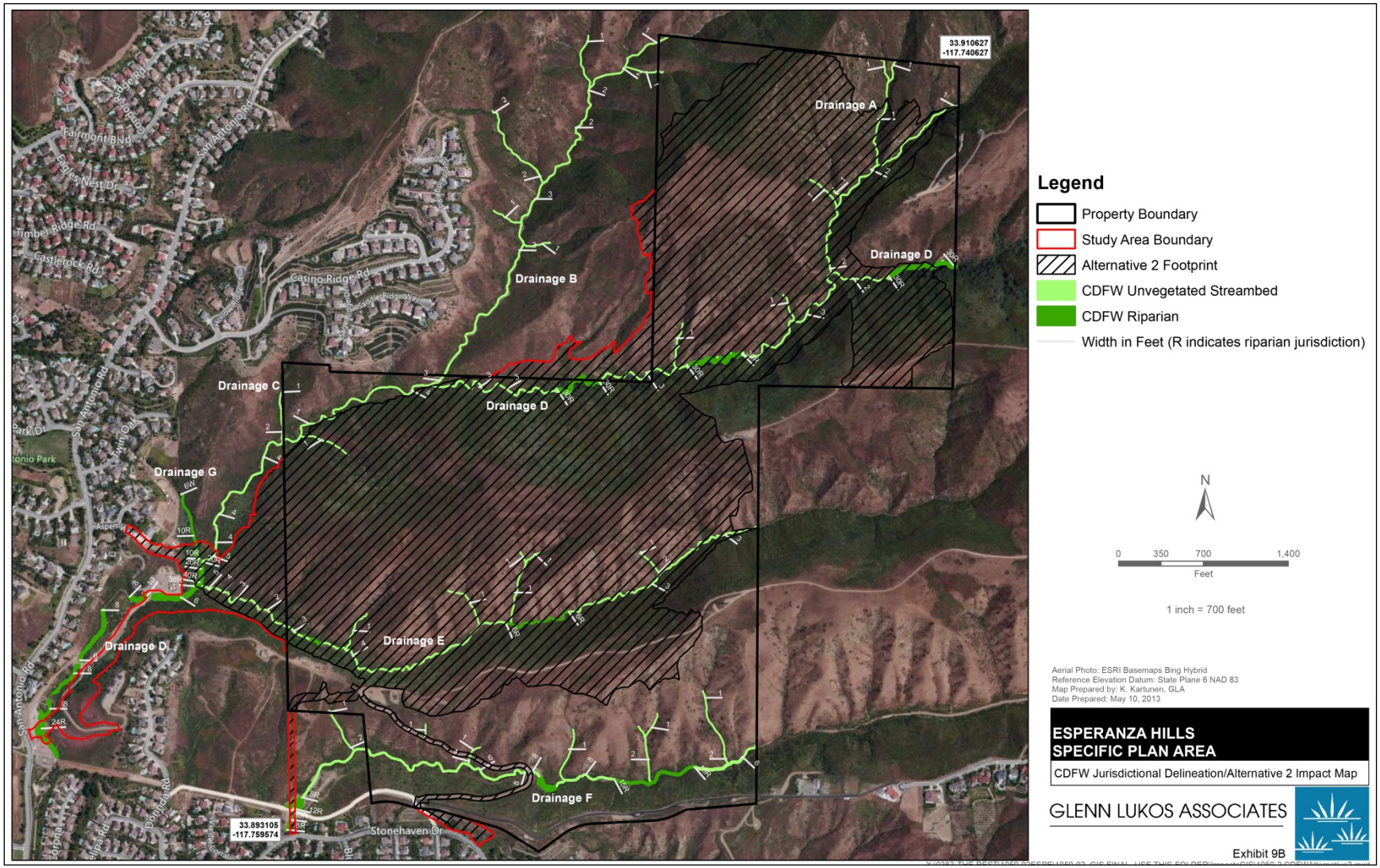



**Exhibit 5-35– CDFW Jurisdictional Delineation, Option 2 Impact Map**

2. Human Intrusion – Mitigation Measure Bio-9 for the Proposed Project will include signage placed at appropriate locations to control human access to sensitive habitat areas and Chino Hills State Park to the north. With the incorporation of PDF 15, there would be no significant impacts to native habitats due to human intrusion into adjacent native habitat areas, because people will be directed away from sensitive habitat areas.

3. Non-Native Invasive Plants – A PDF of the Proposed Project will utilize either native species or non-invasive ornamental species within the project landscaping and within fuel modification zones as listed as part of the fuel modification plan and required by Mitigation Measures Bio-9, Haz-6, and Haz-7. With the incorporation of PDF 16 and Mitigation Measure Haz-6, there would be no significant impacts to native habitats due to introduction of non-native plants into adjacent native habitat areas.

4. Dust during Construction –A potential indirect impact to native vegetation includes deposition of dust on adjacent native vegetation during grading for both Project options. While such impacts would be short-term, they do exhibit potential to harm native species. Accordingly, the Proposed Project includes Mitigation Measures AQ-2 and AQ-3 requiring dust control during construction. With the incorporation of these Mitigation Measures, there would be no significant impacts to native habitats due to dust deposition from construction.

**b. Indirect Impacts to Special-Status Plants**

Potential indirect impacts associated with both options identified above for native vegetation associations would not be considered significant for avoided Catalina mariposa lily, southern California walnut, and small-flowered microseris; nevertheless, implementation of PDF 15 and PDF 16 and/or Mitigation Measures Bio-2 through Bio-9 would provide a potential benefit for these species.

**c. Indirect Impacts to Special-Status Wildlife Resources**

1. Least Bell's Vireo – Lighting and Noise

   a. Least Bell's Vireo, Option 1 - As noted, the least Bell's vireo occurs within the areas proposed for off-site development at Blue Mud Canyon (Drainage F), and will be subject to direct impacts under Option 1, as discussed on page 5-149. Relative to indirect impacts, because the occupied habitat would be removed, there is no opportunity for indirect impacts to least Bell's vireo. However, riparian habitat, which is currently not occupied by least Bell's vireo, adjacent to the directly impacted habitat is suitable for least Bell's vireo, would not be removed, and as such may be used by the vireo following removal of the impacted habitat. Noise-related impacts to least Bell's vireo from construction of Option 1 would result in

potentially significant impacts, because the least Bell's vireo may relocate to that area.

Under Option 1, the least Bell's vireo at the western edge of the Study Area would not be subject to direct or indirect impacts, as the habitat would not be removed, and the nearest grading, construction, and residential development would be over 800 feet to the east, exceeding the 500 foot threshold generally accepted by resource agencies for noise impacts. Additionally, lighting 800 feet east of least Bell's vireo would not result in indirect impacts to least Bell's vireo as there is existing development approximately 350 feet to the west and the Proposed Project, being a greater distance, would not increase ambient light. With incorporation of PDF 3 and PDF 5, all permanent lighting adjacent to native habitat will be of the lowest illumination necessary for human safety, selectively placed and shielded and directed away from adjacent natural habitats. Accordingly, there would be no indirect impacts from lighting or noise.

b. Least Bell's Vireo, Option 2 - As noted, the least Bell's vireo occurs within the areas proposed for off-site development at Blue Mud Canyon (Drainage F) and Drainage G on the western edge of the Study Area, and will be subject to direct impacts under Option 2, as discussed on page 5-149. Relative to indirect impacts, because the occupied habitat would be removed for project construction, there is no opportunity for indirect impacts to least Bell's vireo. However, riparian habitat adjacent to the directly impacted habitat, which is currently not occupied by least Bell's vireo, is suitable for least Bell's vireo. Accordingly, noise-related impacts to least Bell's vireo in Blue Mud Canyon from construction of Option 2 would result in potentially significant impacts, because the least Bell's vireo may relocate to that area.

   Lighting associated with Option 2 would not result in indirect impacts to least Bell's vireo as there is existing development approximately 350 feet to the west and the Proposed Project would not increase ambient light. As part of the PDF, all permanent lighting adjacent to native habitat will be of the lowest illumination necessary for human safety, selectively placed, and shielded and directed away from adjacent natural habitats.

2. Impacts from Domestic Cats

Domestic cats are known predators of native birds, especially within developments situated at the urban edge. As the Study Area is bordered by Chino Hills State Park to the north, it is possible that domestic cats allowed outdoors may, over time, cause the decline of some resident bird

populations. As a PDF, the project will prohibit outdoor cats, and residents will be warned through the HOA that cats allowed to roam/reside outdoors in violation of HOA regulations may be preyed upon by Chino Hills State Park resident fauna such as coyotes.

**d. Indirect Impacts from Noise and Lighting – Option 1 and 2**

1. Impacts from Noise

There will be a temporary, unavoidable increase in noise levels during construction; however, noise will be minimized to the greatest extent practicable. All construction vehicles and equipment, fixed or mobile, will be equipped with properly operating and maintained mufflers to minimize noise, and construction will be limited to the hours of 7:00 a.m. to 8:00 p.m. on weekdays and Saturdays with no construction on Sundays and federal holidays in compliance with Orange County Noise Ordinance. As such, there will be no significant indirect impact to any special-status wildlife species due to noise from either Option 1 or Option 2, with the exception of least Bell's vireo as discussed above.

Under both project options, the lots nearest Chino Hills State Park would be least 500 feet south of the state park boundary. Noise levels associated with the completed project will be typical of suburban development, with typical noise sources to include automobile traffic and lawn mowing/ gardening equipment. As such, at that distance, typical suburban noise levels would not result in any significant indirect impacts to biological resources associated with Chino Hills State Park due to noise from Option 1 or Option 2.

2. Impacts from Lighting

The project is designed to eliminate light spillage into open space areas. As part of the PDF, all permanent lighting adjacent to native habitat will be of the lowest illumination necessary for human safety, selectively placed, and shielded/directed away from adjacent natural habitats. As such there would be no indirect impact to special status wildlife species associated with lighting from Option 1 or Option 2.

## 5.3.5 Project Design Features

PDF 11 Introduction of Trash and Debris. The project landscape plan shall include trash receptacles placed in appropriate locations to ensure that trash and debris are controlled on-site and pose no risk to native habitats. The Homeowner's Association (HOA) shall be responsible daily to maintain the trash receptacles and remove trash to avoid accumulation.

PDF 12 Impacts from Domestic Cats. Included in the HOA CC&Rs, domestic cats shall remain inside a home, or be leashed for walks or visits to the local outside environment. House cats shall not be permitted to range free outside the confines of a home.

PDF 13 Impacts from Light Pollution

1. Provide homeowner education to limit outdoor lighting by using energy efficient low-voltage systems, photo sensors, solar and light emitting diode.

2. Lighting will be hooded, shielded, and pointed away from the sensitive habitat areas, and ambient light levels will be minimized to the maximum extent practicable.

PDF 14 Short-term construction-related noise impacts will be reduced by the implementation of a number of measures including the following:

1. During all excavation and grading on-site, the construction contractors will equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards to reduce construction equipment noise to the maximum extent practicable. The construction contractor will place all stationary construction equipment so that emitted noise is directed away from Chino Hills State Park lands and staging areas will not be placed in proximity to sensitive habitats.

2. The construction contractor will stage equipment in areas that will create the greatest distance between construction-related noise sources and noise sensitive receptors (the preserved habitat areas) during all project construction.

3. All construction work will occur during the daylight hours. Construction shall not take place between the hours of 8:00 p.m. and 7:00 a.m. AM on weekdays, including Saturday, or at any time on Sunday or a federal holiday. All construction operations shall comply with Orange County Codified Ordinance Division 6 (Noise Control).

4. The construction contractor will limit haul truck deliveries to the same hours specified for construction equipment. To the extent feasible, haul routes will not pass through sensitive habitats and land uses or residential dwellings

PDF 15 Minimize Edge Effect. Best management practices will be incorporated into the project to ensure that indirect impacts (i.e., edge effects) are avoided or minimized to the maximum extent possible. Lighting will be shielded and directed away from adjacent natural habitat areas and ambient light levels will be minimized to the maximum extent

practicable. Additionally, the project's Water Quality Management Plan and Storm Water Pollution Prevention Plan will ensure that project runoff will not adversely affect the drainage within the jurisdictional drainages. Noise standards will comply with County Codes and will be consistent with General Plan Policies. In addition, fencing will be limited to open fencing that does not exceed 40 inches in height. Vegetation thinning within the fuel modification area will only occur on occasion and during daylight hours.

PDF 16 Fuel Modification Plan. To the extent feasible, native planting species will be used in fuel modification zones adjacent to natural habitat areas.

## 5.3.6 Mitigation Measures

This section identifies mitigation measures to ensure that impacts to sensitive biological resources as a result of the Proposed Project are less than significant after mitigation. Exhibit 5-36 – Proposed Mitigation Area depicts the locations of proposed mitigation.

### Mitigation for Mulefat Scrub, Walnut Woodland, and Blue Elderberry Woodland

Bio-1 Prior to the issuance of grading permits, the Project Applicant shall prepare a re-vegetation plan for mulefat scrub, black willow riparian forest, and blue elderberry woodland located within Blue Mud Canyon. The plan will also incorporate California black walnut into the plant palette to mitigate the loss of 0.48 or 0.22 acre of walnut woodland associated with Options 1 and Option 2, respectively. The plan shall be prepared by a qualified biologist for review and approval by the Manager of OC Planning. At a minimum, the plan shall include restoration of mulefat scrub and black willow riparian forest vegetation that also includes a black walnut component. The plan shall include replacement of habitat at a minimum a ratio of 1:1; responsibility and qualifications of the personnel to implement and supervise the plan; site selection; site preparation and planting implementation; schedule; maintenance plan/guidelines; monitoring plan; and long-term preservation.

### Mitigation for Intermediate Mariposa Lily

Bio-2 Prior to the issuance of grading permits, a detailed restoration program shall be prepared by a qualified biologist for approval by the County of Orange. The program shall provide for planting of 326 greenhouse-propagated individuals of intermediate mariposa lily in the Study Area within an undisturbed area of coastal sage scrub. This mitigation program will be considered successful if at least 80% of 326 flowering individuals, or 261 flowering individuals, are observed five years after planting. If success criteria are not met after five years, remedial measures shall include greenhouse propagation and planting of additional individuals on the Project Site.

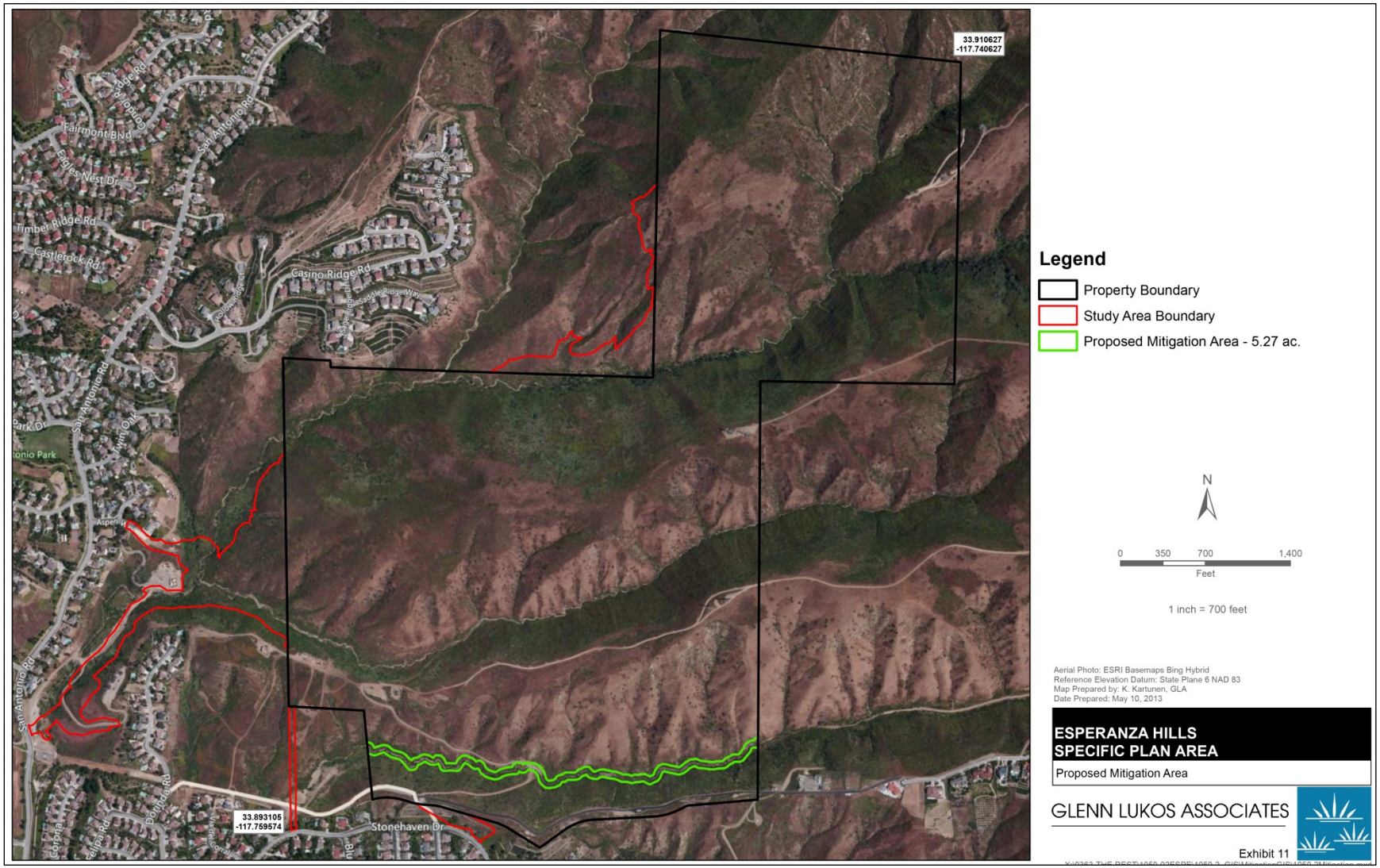



**Exhibit 5-36– Proposed Mitigation Area**

### Mitigation for Intermediate Braunton's Milk-Vetch

Bio-3 Prior to the issuance of grading permits, a detailed restoration program shall be prepared by a qualified biologist for approval by the County of Orange. The program shall provide for planting of 400 greenhouse-propagated individuals of Braunton's milk-vetch in the Study Area within an undisturbed area of suitable habitat and soils, slope and exposure. This mitigation program will be considered successful if at least 80% of 400 individuals, or 320 individuals, flower and set seed prior to senescence. If success criteria are not met prior to senescence of the planted individuals, remedial measures shall include greenhouse propagation and planting of additional individuals on the Project Site.

### Mitigation for Project Impact to Least Bell's Vireo:

Bio-4 Prior to the issuance of grading permits, the Project Applicant shall prepare a re-vegetation plan for mulefat scrub and black willow riparian forest located within Blue Mud Canyon. The plan will also incorporate California black walnut into the plant palette to mitigate the loss of walnut woodland as described in Mitigation Measure Bio-1. The plan shall be prepared by a qualified biologist for review and approval by the Manager of OC Planning. At a minimum, the plan shall include: restoration of mulefat scrub and black willow riparian forest vegetation at a ratio of 1:1; responsibility and qualifications of the personnel to implement and supervise the plan; site selection; site preparation and planting implementation; schedule; maintenance plan/guidelines; monitoring plan; and long-term preservation.

Bio-5 Prior to the issuance of grading permits, the Project Applicant shall include the following measures on the grading plan to be implemented with grading operations:

1. Prior to the commencement of clearing operations or other activities involving significant soil disturbance, all areas of mulefat scrub and black willow riparian forest habitat to be avoided shall be identified with temporary fencing or other markers that are clearly visible to construction personnel.

2. A USFWS-approved Biological Monitor shall be on-site during any clearing of mulefat scrub and black willow riparian forest. The Project Applicant shall advise the U.S. Fish & Wildlife Service at least 7 calendar days – but preferably 14 calendar days – prior to the clearing of mulefat scrub and black willow riparian forest. The Biological Monitor shall flush avian or other mobile species from habitat areas immediately prior to brush-clearing and earth-moving activities. It shall be the responsibility of the monitoring biologist to ensure that identified bird species are not directly impacted by brush-clearing and earth-moving equipment in a manner that also allows for construction activities to continue on a timely basis.

3. Following the completion of initial clearing activities, all areas of mulefat scrub and black willow riparian forest habitat to be avoided by construction equipment and personnel shall be marked with temporary fencing or other clearly visible,

appropriate markers. No construction access, parking, or storage of equipment shall be permitted within such marked areas.

### Mitigation for Project Impacts to Army Corps of Engineers and California Department of Fish and Wildlife Jurisdiction

Bio-6 Prior to the issuance of grading permits, the Project Applicant shall prepare a Restoration Plan for mulefat scrub, black willow riparian forest, coast live oak riparian woodland, and other appropriate wetland/riparian habitats at an acreage ratio of 1:1 to be located within Blue Mud Canyon. The plan shall be prepared by a qualified biologist for review and approval by the Manager of OC Planning. The Restoration Plan shall include the following:

1. Impacts to living coast live oak trees within CDFW jurisdiction will be mitigated through planting liners or locally collected acorns within Blue Mud Canyon at the following ratios:
    - For healthy trees to be removed for development:
        - trees less than 5 inches diameter at breast height (DBH) should be replaced at 3:1
        - trees between 5 and 12 inches DBH should be replaced at 5:1
        - trees between 12 and 36 inches DBH should be replaced at 10:1
        - trees greater than 36 inches DBH should be replaced at 20:1
    - For damaged trees (including trees damaged by construction and fire damaged trees to be removed for development):
        - trees less than 12 inches DBH should be replaced at 3:1
        - trees greater than 12 inches DBH should be replaced at 5:1
    - Impacts to trees that were killed by the 2008 Freeway Complex Fire do not require mitigation.
2. The sizes, condition, and total number of impacted trees will be determined after verification of the limits of CDFW jurisdiction and prior to issuance of any permit that results in ground disturbance.

Bio-7 Prior to the issuance of grading permits, the Project Applicant shall prepare a Habitat Mitigation and Monitoring Program (HMMP). The HMMP shall be prepared by a qualified biologist for review and approval by the Manager of OC Planning. The HMMP shall include responsibility and qualifications of the personnel to implement and supervise the plan; site selection; site preparation and planting implementation; schedule; maintenance plan/guidelines; monitoring plan; and long-term preservation.

The Project Applicant shall be fully responsible for the implementation of the Habitat Mitigation and Monitoring Program until the restoration areas have met the success criteria outlined in the approved plan. The Manager of OC Planning shall have final authority over mitigation area sign-off.

Bio-8 Prior to the issuance of any grading permit the Project Applicant shall include the following measures on the grading plan to be implemented with grading operations:

1. Prior to the commencement of clearing operations or other activities involving significant soil disturbance, all areas of ACOE and CDFW jurisdiction to be avoided shall be identified with temporary fencing or other markers that are clearly visible to construction personnel.
2. A USFWS-approved Biological Monitor shall be on-site during any clearing of riparian vegetation. The Project Applicant shall advise the US Fish & Wildlife Service at least 7 calendar days – but preferably 14 calendar days – prior to the clearing of riparian vegetation. The Biological Monitor shall flush avian or other mobile species from habitat areas immediately prior to brush-clearing and earth-moving activities. It shall be the responsibility of the monitoring biologist to ensure that identified bird species are not directly impacted by brush-clearing and earth-moving equipment in a manner that also allows for construction activities to continue on a timely basis.
3. Following the completion of initial clearing activities, all areas of ACOE and CDFW jurisdiction to be avoided by construction equipment and personnel shall be marked with temporary fencing or other clearly visible, appropriate markers. No construction access, parking, or storage of equipment shall be permitted within such marked areas.

### Mitigation for Project Impact to Nesting Birds Protected under Migratory Bird Treaty Act

Bio-9 Prior to the issuance of grading permits, the Project Applicant shall include the following condition on the grading plan for implementation during vegetation removal operations:

> No vegetation removal shall occur between the dates of March 15 to August 31, unless a qualified biologist surveys the Project's impact area prior to disturbance to confirm the absence of active nests. If an active nest is discovered, vegetation removal within a particular buffer surrounding the nest shall be prohibited until nesting is complete; the buffer distance shall be determined by a qualified biologist (in consultation with the CDFW or the USFWS, if applicable) and in consideration of species sensitivity and existing nest site conditions. Limits of avoidance, which can be up to 300 feet for nesting raptors, shall be demarcated with flagging or fencing. The Biologist shall record the results of the recommended protective measures described above and shall submit a memo summarizing any nest avoidance measures to the Manager of OC Planning to document compliance with applicable state and federal laws pertaining to the protection of native birds, including nesting raptors.

### Mitigation for Indirect Impacts to Special Status Plants, Sensitive Natural Communities, and Chino Hills State Park, and Preservation of Open Space

Bio-10 Prior to the issuance of building permits, the Project Applicant shall prepare a resident Environmental Awareness Program to be reviewed and approved by the Manager of OC Planning. The Environmental Awareness Program is intended to increase

awareness to residents of the sensitive plants, wildlife, and associated habitats that occur in the preserved open space areas. The intention of the program shall be to encourage active conservation efforts among the residents to help conserve the habitats in the preserved open space. The program shall address inadvertent impacts from the introduction of invasive plant species (including escapees), human intrusion, trash and debris, creation of ad hoc trails, domestic cats, and light pollution. At a minimum, the Environmental Awareness Program shall include the following components:

- Informational kiosks shall be constructed at entrance points to hiking and equestrian trails and at various locations along the fence line that separates the Project Site and the open space area to inform residents and trail users on the sensitive flora and fauna that rely on the habitats found within the preserved open space. The intent of these kiosks is to bring awareness to the sensitive plants, wildlife and associated habitats which occur in the area along with discouraging creation of ad hoc trails and trash and debris.
- The Project Applicant shall provide residents or the HOA for nearby subdivisions (if applicable) with a brochure that includes a list of plant species to avoid in residential landscaping to prevent the introduction of invasive plant species and impacts from human intrusion, light pollution and domestic cats to the surrounding natural communities.

### Mitigation for Indirect Impacts to Least Bell's Vireo

Bio-11 Prior to the issuance of grading permits the Project Applicant shall include the following measures on the grading plan to be implemented with grading operations:

- No clearing, grubbing, grading, or other construction activities shall occur within and in the vicinity of riparian habitat occupied by least Bell's vireo between March 15 and September 15, the breeding season of the least Bell's vireo, until the following requirements have been met:

  1. A qualified biologist shall survey riparian areas that would potentially be subject to construction noise levels exceeding 60 decibels [dB(A)] hourly average for the presence of least Bell's vireo. Surveys for this species shall be conducted pursuant to the protocol survey guidelines established by the U.S. Fish & Wildlife Service within the breeding season prior to the commencement of construction. If the least Bell's vireo is present, then the following conditions must be met:

     a. Between March 15 and September 15, no clearing, grubbing, or grading of occupied least Bell's vireo habitat shall be permitted. Areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist;

     b. Between March 15 and September 15, no construction activities shall occur within any portion of the site where construction activities would result in noise levels exceeding 60 dB(A) hourly average at the

edge of occupied least Bell's vireo habitat. An analysis showing that noise generated by construction activities would not exceed 60 dB(A) hourly average at the edge of occupied habitat must be completed by a qualified acoustician and/or qualified biologist (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) and approved by the U.S. Fish & Wildlife Service at least two weeks prior to the commencement of construction activities. Prior to the commencement of any construction activities during the breeding season, areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist;

c. If it is desired to conduct construction activities adjacent to habitat determined to be occupied by least Bell's vireo during pre-construction surveys, then at least two weeks prior to the commencement of construction activities, under the direction of a qualified acoustician and/or qualified biologist, noise attenuation measures (e.g., berms, walls) shall be implemented to ensure that noise levels resulting from construction activities will not exceed 60 dB(A) hourly average at the edge of habitat occupied by the least Bell's vireo. Concurrent with the commencement of construction activities and the construction of necessary noise attenuation facilities, noise monitoring shall be conducted at the edge of occupied area to ensure that noise levels do not exceed 60 dB(A) hourly average. If the noise attenuation techniques implemented are determined to be inadequate by the qualified acoustician and/or biologist, then the associated construction activities shall cease until such time that adequate noise attenuation is achieved or until the end of the breeding season (September 16).

   Construction noise shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB(A) hourly average or to the ambient noise level of it already exceeds 60 dB(A) hourly average. If not, other measures shall be implemented in consultation with the biologist as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.]

2. If least Bell's vireos are not detected during the protocol survey, the qualified biologist shall submit substantial evidence to the U.S. Fish & Wildlife Service that demonstrates whether or not mitigation measures such as noise walls are necessary between March 15 and September 15 as follows:

   - If this evidence indicates the potential is high for least Bell's vireo to be present based on historical records or site conditions, then condition 1.c shall be adhered to as specified above.
   - If this evidence concludes that no impacts to this species are anticipated, no further surveys or monitoring would be necessary.

## 5.3.7 Level of Significance after Mitigation

The Proposed Project will not have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies, or regulations or by the CDFW or the USFWS. Two special status plant species (Braunton's milk-vetch and intermediate mariposa lily) were identified as potential significant impact by implementation of the Project; however; Mitigation Measures Bio-2 and Bio-3 have been incorporated into the Project to replant the same number of impacted plants in an undisturbed area. With the implementation of Mitigation Measures Bio-2 and Bio-3, Project impacts to sensitive or special status species is less than significant. The least Bell's vireo is a special status wildlife resource that has the potential to be impacted by implementation of the Project. However; Mitigation Measure Bio-4 has been incorporated into the Project to prepare and implement a plan to restore and the revegetation of mulefat scrub and black willow riparian forest. Mitigation Measure Bio-10 has been incorporated into the Project to mitigate indirect impacts to special status plants, sensitive natural communities with the preparation and implementation of a resident Environmental Awareness Program. With the implementation of Mitigation Measures Bio-1 through Bio-4, Project impacts to sensitive or special status species is less than significant.

The following is further discussion of the level of significance after mitigation to each sensitive biological resource.

### 1. Walnut Woodland and Blue Elderberry Woodland

Removal of vegetation during grading exhibits potential for impacts to 0.48 and 0.22 acres of walnut woodland for Options 1 and 2, respectively. To ensure that impacts to walnut woodland are fully addressed, Mitigation Measure Bio-1 has been proposed that includes incorporation of at least 0.22 or 0.48 acres of walnut woodland into areas of habitat restoration within the Blue Mud Canyon mitigation site. With implementation of this mitigation measure, impacts to walnut woodland, for either Option 1 or Option 2 will result in less than significant impacts on walnut woodland.

Similarly, removal of vegetation during grading exhibits potential for impacts to 11.37 and 13.63 acres of disturbed blue elderberry woodland for Options 1 and 2

respectively. To ensure that impacts to disturbed blue elderberry woodland are fully addressed, Mitigation Measure Bio-1 has been proposed that includes incorporation of at least 11.37 or 13.63 acres of blue elderberry woodland into areas of habitat restoration within the Blue Mud Canyon mitigation site. With implementation of this mitigation measure, impacts to blue elderberry woodland for either Option 1 or Option 2 will result in less than significant impacts on blue elderberry woodland.

### 2. Braunton's Milk-Vetch

Removal of vegetation during grading exhibits potential for impacts to Braunton's milk-vetch. Impact to Braunton's milk-vetch is considered potentially significant. Option 1 and Option 2 would impact approximately 400 individuals of Braunton's milk-vetch within the Study Area. To ensure that impacts to Braunton's milk-vetch are fully avoided, Mitigation Measure Bio-3 has been proposed. This mitigation measure requires the replanting in undisturbed area of coastal sage scrub within the Study Area of 400 greenhouse-propagated individuals. With implementation of this mitigation measure, impacts to Braunton's milk-vetch for Option 1 or Option 2 will result in less than significant impacts on Braunton's milk-vetch.

### 3. Intermediate Mariposa Lily

Removal of vegetation during grading exhibits potential for impacts to intermediate mariposa lily. Impact to intermediate mariposa lily is considered potentially significant. Option 1 and Option 2 would impact all of the 326 individuals of intermediate mariposa lily detected during focused surveys in 2010, which would be potentially significant without mitigation, given that intermediate mariposa lily is a CRPR List 1B.2 species. To ensure that impacts to intermediate mariposa lily are fully avoided, Mitigation Measure Bio-2 has been proposed. This mitigation measure requires replanting 326 greenhouse-propagated individuals in undisturbed area of suitable habitat and soils, slope, and exposure within the Study Area. With implementation of this mitigation measure, impacts to intermediate mariposa lily for Option 1 or Option 2 will result in less than significant impacts on intermediate mariposa lily.

### 4. Least Bell's Vireo

Removal of vegetation during grading exhibits potential for impacts to mulefat scrub. Impact to mulefat scrub is considered potentially significant. Option 1 would permanently impact 0.05 acre of mulefat scrub occupied by least Bell's vireo. The least Bell's vireo is a special status wildlife resource that has the potential to be impacted by Project implementation. These impacts would be considered significant before mitigation. However, with the mitigation proposed for the project, there would be a net increase of riparian habitat suitable for breeding least Bell's vireo, and impacts would be reduced to less than significant following mitigation. No direct take of individual birds would occur, as impacts would occur outside the breeding season.

Removal of vegetation during grading exhibits potential for impacts to mulefat scrub and black willow riparian forest. Impact to mulefat scrub and black willow riparian forest is considered potentially significant. Option 2 would permanently impact 0.05 acre of mulefat scrub and 0.19 acre of black willow riparian forest occupied by least Bell's vireo. These impacts would be considered significant before mitigation. However, with the mitigation proposed for the Project, there would be a net increase of riparian habitat suitable for breeding least Bell's vireo and impacts would be reduced to less than significant following mitigation. No direct take of individual birds would occur, as impacts would occur outside the breeding season.

The Proposed Project will not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or the USFWS. Grading of the project will result in fill of drainages within ACOE, CDFW, and RWQCB jurisdictions. Option 1 and Option 2 would significantly impact drainages within ACOE, CDFW, and RWQCB jurisdiction. To ensure that impacts to ACOE, CDFW, and RWQCB jurisdictions are mitigated, Mitigation Measures Bio-6, Bio-7, and Bio-8 have been proposed. Mitigation Measure Bio-5 requires a Restoration Plan for mulefat scrub, black willow riparian forest, coast live oak riparian woodland, and other appropriate wetland/riparian habitats at an acreage ratio of 1:1 to be located within Blue Mud Canyon. Mitigation Measure Bio-7 requires a Habitat Mitigation and Monitoring Program. Mitigation Measure Bio-8 requires notes on the grading plan to ensure habitat protection procedures are followed during grading operations. With the implementation of Mitigation Measures Bio-5, Bio-6, and Bio-8 impacts to riparian habitat or other sensitive natural communities identified in local or regional plans, policies, and regulations or by the CDFW or the USFWS is less than significant.

The Proposed Project will not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means. Grading of the project will result in fill of drainages within ACOE, CDFW, and RWQCB jurisdictions. Option 1 and Option 2 would significantly impact drainages within ACOE, CDFW, and RWQCB jurisdiction. To ensure impacts to ACOE, CDFW, and RWQCB jurisdictions are mitigated; Mitigation Measures Bio-6, Bio-7, and Bio-8 have been proposed. Mitigation Measure Bio-5 requires a Restoration Plan for mulefat scrub, black willow riparian forest, coast live oak riparian woodland, and other appropriate wetland/riparian habitats at an acreage ratio of 1:1 to be located within Blue Mud Canyon. Mitigation Measure Bio-7 requires a Habitat Mitigation and Monitoring Program. Mitigation Measure Bio-8 requires notes on the grading plan to ensure habitat protection procedures are followed during grading operations. With the implementation of Mitigation Measures Bio-6, Bio-7, and Bio-8 impacts to federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means is less than significant.

The Proposed Project will not substantially interfere with the movement of any native resident or migratory wildlife corridors, or impede the use of native wildlife nursery

sites. The Proposed Project does not include any wildlife corridors that provide regional connection between habitats and therefore the impact to wildlife movement is less than significant. Removal of vegetation during grading results in a potential impact to nesting birds. Impacts to nesting birds are considered potentially significant. In order to ensure that impacts to nesting birds are fully avoided, Mitigation Measure Bio-9 has been proposed. Under this measure, vegetation must either be removed outside the avian nesting season or a qualified biologist must conduct surveys within areas of vegetation removed during the nesting season to ensure that nesting birds are not present. With the implementation of Mitigation Bio-9, impact to native wildlife nursery site is less than significant.

The Proposed Project will not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. The Natural Resource Element of the Orange County General Plan includes Resources Policy 1. Wildlife and Vegetation: To identify and preserve the significant wildlife and vegetation habitats of the County. This EIR was prepared to identify and preserve the significant wildlife and vegetation habitats impacted by the Project. With the implementation of Mitigation Measures Bio-1 through Bio-9, the Proposed Project will not conflict with any local policies or ordinances protecting biological resources and therefore the potential for conflict with policies and ordinances is less than significant.

## 5. Nesting Birds

Removal of vegetation during grading exhibits potential for impacts to nesting birds. Impacts to nesting birds are considered potentially significant. In order to ensure that impacts to nesting birds are fully avoided, Mitigation Measure Bio-9 has been proposed. Under this measure, vegetation must either be removed outside the avian nesting season or a qualified biologist must conduct surveys within areas of vegetation removed during the nesting season to ensure that nesting birds are not present. With implementation of this mitigation measure, impacts to nesting birds are avoided, and Option 1 or Option 2 will result in less than significant impacts on nesting birds.

## 6. ACOE, CDFW, and RWQCB Jurisdiction

Grading of the project will result in fill of drainages within ACOE, CDFW, and RWQCB jurisdictions. Option 1 and Option 2 would significantly impact drainages within ACOE, CDFW, and RWQCB jurisdiction. To ensure that impacts to ACOE, CDFW, and RWQCB jurisdictions are avoided, Mitigation Measures Bio-6, Bio-7, and Bio-8 have been proposed. Mitigation Measure Bio-6 requires a Restoration Plan for mulefat scrub, black willow riparian forest, coast live oak riparian woodland, and other appropriate wetland/riparian habitats at an acreage ratio of 1:1 to be located within Blue Mud Canyon. Mitigation Measure Bio-7 requires a Habitat Mitigation and Monitoring Program. Mitigation Measure Bio-8 requires notes on the grading plan to ensure habitat protection procedures are followed during grading operations. Impacts would be reduced to a level that is less than significant with these mitigation measures.

The Proposed Project will not conflict with provisions of an adopted Habitat Conservation Plan, a Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Although the Study Area occurs entirely within Critical Habitat Unit 9 for the coastal California gnatcatcher, surveys between 2007 and 2013 document that the Study Area is not occupied by coastal California gnatcatcher, and PCEs are severely limited or lacking due to disturbance to coastal sage scrub habitat from the 2008 Freeway Complex Fire. As such, impacts to coastal California gnatcatcher critical habitat would be less than significant under Option 1 and Option 2 Therefore, Project impact to adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan is less than significant.

## 5.3.8 Cumulative Impacts

The analysis considers cumulative biological impacts to sensitive biological resources that result from combined, incremental impacts of each of the options when added to other past, present, and reasonably foreseeable future projects having closely related impacts (including federal, non-federal governmental, and private actions). Cumulative impacts can result from individually minor, but collectively significant, impacts taking place over a period of time. When an analysis concludes that a project's impacts are individually minor but "cumulatively considerable" the project may have a significant impact on the environment. An incremental contribution is cumulatively considerable if the incremental effects of the project are significant when viewed in combination with the effects of past and current projects and reasonably foreseeable future projects. The following cumulative impact analysis is based on a review of related projects in the vicinity of the Project Site (Table 5-9-21, page 5-456), existing conditions in the vicinity of the Proposed Project, and an analysis of aerial photographs. Because the Project Site is located adjacent to Chino Hills State Park, the substantial areas of permanently preserved habitat associated with the Park are also in the evaluation of cumulative impacts to certain biological resources where appropriate.

The following potential impacts to biological resources have been evaluated, and as appropriate are addressed in the mitigation measures set forth above. The potential cumulative effects of these potential impacts are addressed below.

### 1. Southern Willow Scrub

Under Option 1 and Option 2 of the Proposed Project, southern willow scrub would not be impacted. It is anticipated that the proposed Cielo Vista project will impact approximately 1.25 acres of southern willow scrub; however, given the disturbed nature of the habitat resulting from the 2008 Freeway Complex Fire, this impact is anticipated to be found less than significant. Impacts to southern willow scrub occupied by least Bell's vireo were found to be significant before mitigation, and would be reduced to less than significant with mitigation. The Bridal Hills, LLC

property does not support any southern willow scrub and would therefore not impact southern willow scrub.

Finally, potential indirect impacts associated with introduction of trash and debris, human intrusion, introduction of non-native invasive plants, and dust generated during construction were evaluated. Through a combination of project design features (PDFs) and mitigation, potential indirect impacts would be reduced to less than significant and, as such, would not add to the cumulative impacts to southern willow scrub within the region.

For Option 1 and Option 2, which do not impact this habitat, there would be no significant cumulative impact. An analysis of cumulative impacts to riparian vegetation occupied by least Bell's vireo is presented below.

## 2. California Walnut Woodland and Blue Elderberry Woodland

Under Options 1 and 2 California walnut woodland and blue elderberry woodland would be impacted. The scale of impacted acres among the options are similar, with 0.22 to 0.48 acre of the total 6.37 acres of California walnut woodland being impacted and mitigated, since it is a significant impact, and 11.37 to 13.63 acres of the total 23.88 acres of blue elderberry woodland being impacted. As noted, the California walnut woodland within the Study Area was burned in the 2008 Freeway Complex Fire, and the majority of the walnut trees were damaged and a few killed by the fire. As such, the walnut woodland within the Study Area is highly disturbed and does not exhibit habitat values typical of intact California walnut woodland. Nevertheless, because this habitat is a G2S2 impacts to this habitat associated with Option 1 and Option 2 would be potentially significant without mitigation. Similarly, the blue elderberry woodland within the Study Area was burned in the 2008 Freeway Complex Fire. More than half of the elderberry trees were damaged and many were killed by the fire. It is not clear that the CNDDB ranking of G3S3 applies to the blue elderberry habitat on the site, and while this habitat type is relatively secure as a G3S3 species, and that more than half of the elderberry trees are damaged or dead, impacts associated with Option 1 and 2 would be significant before mitigation; however, with mitigation these impacts would be reduced to less than significant.

It is anticipated that the proposed Cielo Vista project will impact approximately 4.60 acres of blue elderberry woodland; however, given the disturbed nature of the habitat resulting from the 2008 Freeway Complex Fire, this impact is anticipated to be less than significant. It is anticipated that the proposed Cielo Vista project will not impact any California walnut woodland. Although no biological survey results are available for the Bridal Hills, LLC property, based on a review of aerial photography and GLA's reconnaissance viewing of the site with binoculars, the Bridal Hills property does not appear to support blue elderberry woodland or California walnut woodland, and therefore would not impact them.

Finally, potential indirect impacts associated with introduction of trash and debris, human intrusion, introduction of non-native invasive plants, and dust generated during

construction were evaluated. Through a combination of project design features and mitigation, potential indirect impacts would be reduced to less than significant and, as such, would not add to the cumulative impacts to California walnut woodland and blue elderberry woodland within the region.

As noted, Option 1 and 2 impacts would be reduced to less than significant with mitigation to California walnut woodland and blue elderberry woodland and would improve existing conditions considering the highly disturbed nature of these habitats within the Study Area due to the 2008 Freeway Complex Fire.

Considering the two projects described above in combination with the less than significant impacts associated with Options 1 and 2, there would be no significant cumulative impacts to California walnut woodland and blue elderberry woodland.

### 3. Braunton's Milk-Vetch

Both options would impact the approximately 400 individuals of Braunton's milk-vetch within the Study Area, which would be significant without mitigation, but would be reduced to less than significant with mitigation. Braunton's milk-vetch was not detected during focused surveys at the Cielo Vista site, and it is not known if it occurs at the Bridal Hills, LLC property, although suitable habitat may be present given the proximity to the population at Esperanza Hills. The Proposed Project, including Option 1 or Option 2, will not contribute to cumulative impacts to this species. Because the Proposed Project would fully mitigate project-related impacts, there would be no cumulative significant impacts to this species associated with Option 1 or Option 2.

### 4. Intermediate Mariposa Lily

Both options would impact all of the 326 individuals of intermediate mariposa lily detected during focused surveys in 2010, which would be potentially significant without mitigation, given that intermediate mariposa lily is a California Rare Plant Ranks List 1B.2 species. With mitigation, impacts would be reduced to less than significant. The Cielo Vista property does not support this species, and it is unknown if the Bridal Hills, LLC property supports it. Given that impacts to this species at Esperanza Hills will be fully mitigated, there would be no cumulative significant impacts to this species associated with Option 1 or Option 2.

### 5. Southern California Walnut, Catalina Mariposa Lily, and Small Flowered Microseris

Southern California walnut is a CRPR List 4 species and was detected during focused surveys in 2007. A majority of the walnut trees within the Study Area were damaged or killed in the 2008 Freeway Complex Fire. Impacts to dead trees would not be significant. Under Options 1 and 2 some live southern California walnut trees may be impacted; however, given that southern California walnut is a List 4 species, impacts to the remaining live and damaged trees would not constitute a substantial adverse

effect, and therefore would be less than significant. It is anticipated that impacts to this species from the proposed Cielo Vista project will be considered less than significant for these same reasons. The Esperanza Hills and Bridal Hills, LLC properties may support only a few scattered individuals of this species, but they do not support any areas of walnut woodland. Given these considerations, there would be no cumulative significant impacts to this species associated with Option 1 or Option 2.

Catalina mariposa lily is a CRPR List 4 species, and 445 plants were observed by GLA during 2010 surveys. All would be impacted under Options 1 and 2. However, given that Catalina mariposa lily is a List 4 species, impacts to 445 plants would not constitute a substantial adverse effect, and therefore would be less than significant. The Cielo Vista property does not support Catalina mariposa lily, and it is not known whether the Bridal Hills, LLC property supports this species. Given these considerations, there would be no cumulative significant impacts to this species associated Option 1 or Option 2.

Small flowered microseris is a CRPR List 4 species, and 10 individuals were observed by Campbell BioConsulting in 1998. Given that the 10 individuals detected in 1998 were not detected during multiple subsequent surveys, and that impacts to 10 individuals of a CRPR List 4 would not constitute a substantial adverse effect, under Options 1 or 2, any potential impacts to small-flowered microseris would be less than significant. The proposed Cielo Vista project does not support small flowered microseris, and it is not known whether the Bridal Hills, LLC property supports this species. Given these considerations, there would be no cumulative significant impacts to this species associated with Option 1 or Option 2.

### 6. Least Bell's Vireo

Option 1 would permanently impact 0.24 acre of mulefat scrub occupied by least Bell's vireo. These impacts would be considered significant before mitigation. However, with the mitigation proposed for the project, there would be a net increase of riparian habitat suitable for breeding least Bell's vireo, and impacts would be reduced to less than significant following mitigation. No direct take of individual birds would occur, as impacts would occur outside the breeding season.

Option 2 would permanently impact 0.79 acre of mulefat scrub and 0.19 acre of black willow riparian forest occupied by least Bell's vireo. These impacts would be considered significant before mitigation. However, with the mitigation proposed for the Project, there would be a net increase of riparian habitat suitable for breeding least Bell's vireo and impacts would be reduced to less than significant following mitigation. No direct take of individual birds would occur, as impacts would occur outside the breeding season.

Of the potential projects in the vicinity of the Study Area, it is anticipated that only the Cielo Vista property supports least Bell's vireo; however, it should be noted that the riparian habitat to be impacted under the proposed Cielo Vista project consists of the same habitat patches to be impacted by off-site impacts for the Proposed Project,

although at varying degrees. As such, the subject riparian least Bell's vireo habitat will only be subject to permanent impacts once, and the impacts should not be counted twice.

Given that the impacts to riparian habitat occupied by least Bell's vireo will be fully mitigated, with a net gain of riparian habitat, and no additional impacts would occur in the vicinity, there would be no significant cumulative impacts to least Bell's vireo associated with Option 1 or Option 2.

## 7. Other Special-Status Wildlife

In addition to least Bell's vireo, several other special-status wildlife were detected during surveys, including Cooper's hawk (CDFW Watch List when nesting), golden eagle (CDFW Watch List when nesting), northern harrier (CDFW SSC when nesting) peregrine falcon (CDFW FPS and USFWS BCC when nesting), sharp-shinned hawk (CDFW Watch List), yellow-breasted chat (CDFW SSC), and yellow warbler (CDFW SSC and USFWS BCC). Impacts to these species under Option 1 and Option 2 would be less than significant for the reasons set forth in above, and generally because of any given species being either relatively common and/or using the Study Area for only occasional foraging and not breeding.

Two of these species, yellow-breasted chat and yellow warbler, were detected at the Cielo Vista site; however, it should be noted that a portion of the off-site Study Area for Esperanza Hills is coincident with the potential project area of the proposed Cielo Vista project, and the chat and warbler individuals were detected in the same patches of riparian vegetation, and are not distinct occurrences.

Based on the lack of riparian habitat at Bridal Hills, LLC, yellow-breasted chat and yellow warbler are not expected to occur.

The 14,102-acre Chino Hills State Park directly north and east of the Study Area contains large tracts of suitable nesting and foraging habitat for all of the above-mentioned species. Given these considerations, there would be no cumulative significant impacts to special-status wildlife associated with Option 1 or Option 2.

## 8. Coastal California Gnatcatcher Critical Habitat

As described in detail above, the coastal California gnatcatcher has not been found to occur in the Study Area and therefore none of the options would be expected to result in direct impacts to the species.

The proposed Cielo Vista project, the Bridal Hills, LLC property, and the Yorba Linda Land property are all located in designated coastal California gnatcatcher critical habitat and contain coastal sage scrub habitat disturbed by the 2008 Freeway Complex Fire similar to the Proposed Project. Coastal California gnatcatchers were not detected at the proposed Cielo Vista project, and are not expected to occur at the Bridal Hills, LLC property or the Yorba Linda Land, LLC properties. As such, these projects exhibit no potential for impacts to the coastal California gnatcatcher.

Therefore, the Proposed Project and the proposed Cielo Vista project would not contribute to any cumulative impacts to the coastal California gnatcatcher.

Under Option 1 and Option 2, there would be direct impacts to areas mapped as Coastal California Gnatcatcher Critical Habitat, but given the highly disturbed nature of the habitat, construction of the Proposed Project would not result in impacts to PCEs. Given that neither the Proposed Project nor the projects in the vicinity would impact PCEs within Coastal California Gnatcatcher Critical Habitat Unit 9, there would be no significant cumulative significant impacts to coastal California gnatcatcher Critical Habitat associated with Option 1 or Option 2.

### 9. Raptor Foraging Habitat

The Project Site exhibits low to moderate quality foraging habitat based on field observations during numerous site visits. No raptor nests were detected on the site, and there were no old abandoned or nests observed on the site, indicating that nesting is not common on the site. As such, development of the Proposed Project would not result in significant impacts to raptor foraging habitat due to the limited use of the site by foraging raptors.

The Project Site is adjacent to Chino Hills State Park, which provides substantial conserved areas for raptor foraging, primarily grassland and shrub and habitats. Therefore, substantial raptor foraging areas have been subject to regional conservation. As such, under Option 1 or Option 2, there would be no significant cumulative impacts to raptor foraging habitat.

### 10. Nesting Birds

Removal of vegetation during grading exhibits potential for impacts to nesting birds. Impacts to nesting birds are considered potentially significant. To ensure that impacts to nesting birds are fully avoided, Mitigation Measure Bio-9 (page 5-168) has been proposed. Under this measure, vegetation must either be removed outside the avian nesting season or a qualified biologist must conduct surveys within areas of vegetation removed during the nesting season to ensure that nesting birds are not present. With implementation of this mitigation measure, impacts to nesting birds are avoided, and Option 1 or Option 2 will not contribute to potential cumulative impacts on nesting birds.

### 11. Wildlife Movement

The Study Area is not part of any regional wildlife movement corridor, and construction of Option 1 or Option 2 would not substantially interfere with the movement of native wildlife on a regional basis due to the lack of connectivity to other habitat areas. Accordingly, impacts to wildlife movement would be less than significant. The major wildlife corridors in the vicinity of the Study Area are all in preserved lands within Chino Hills State Park. As such, under either Option 1 or Option 2 there would be no significant cumulative impacts to raptor foraging habitat.

### 12. ACOE, CDFW, and RWQCB Jurisdiction

Option 1 and Option 2 would significantly impact drainages within ACOE, CDFW, and RWQCB jurisdiction. With mitigation, this impact would be reduced to a level that is less than significant. It is anticipated that the proposed Cielo Vista project would significantly impact ACOE, CDFW, and RWQCB jurisdiction, but it is anticipated that these impacts would be required to be fully mitigated, as required under §1602 of the *California Fish and Game Code* and Sections 401 and 404 of the Clean Water Act. The Bridal Hills, LLC parcel contains drainages that are likely jurisdictional, and any project constructed there would likely impact such drainages. However, such impacts would require mitigation under §1602 of the *California Fish and Game Code* and Sections 401 and 404 of the Clean Water Act.

Nevertheless, because the impacts under Option 1 and Option 2 will be fully mitigated, with a net gain in aquatic resource functions, this impact will not contribute to cumulatively considerable impacts to jurisdictional resources within the region.

## 5.3.9 Unavoidable Adverse Impacts

With implementation of the recommended mitigation measures and project design features, impacts to biological resources will be reduced to a less than significant level and, therefore, there are no unavoidable adverse impacts associated with the development of the project.

# 5.4 Cultural Resources

The cultural and paleontological resources of the proposed Esperanza Hills Specific Plan site are identified in this section. The potential impacts to the cultural and paleontological resources are also identified, along with associated mitigation measures that are proposed as necessary. The discussion of the site's cultural resources and paleontological resources is based on the "Archaeological and Paleontological Resources Assessment Update for the Esperanza Hills Project" prepared by Cogstone, dated January 2013, which is attached as Appendix F of this DEIR.

## 5.4.1 Existing Conditions

### 1. Cultural Setting

Esperanza Hills is located within unincorporated Orange County north of the SR-91 Freeway, south and west of Chino Hills State Park and adjacent to existing residential development in the City of Yorba Linda (City). The Proposed Project is east of San Antonio Road and north of Stonehaven Drive in the City of Yorba Linda. The Esperanza Hills property is currently largely undeveloped, with the exception of oil well operations in the western portion of the site. Graded portions of the site consist of dirt roads and pads for oil extraction equipment and general access to the property and to the Southern California Edison (SCE) transmission corridor. Site elevation ranges from approximately 600 feet above mean sea level (AMSL) at the southwest boundary to 1,540 feet AMSL at the property's northern boundary.

The rolling hills and ravines that characterize the Esperanza Hills property support a mix of habitats and land use types. This includes non-native grasslands with locally dominant stands of coastal sage scrub, chaparral, small stands of walnut and oak woodlands, and limited areas of riparian habitat. The Esperanza Hills property also includes disturbed habitats characterized as ruderal and disturbed/developed areas. Four drainages occur on-site.

The entire Esperanza Hills site was burned in the 2008 Freeway Complex Fire in the fall of 2008. The property has been utilized historically for animal grazing. Today the major use of the property is as open space, oil drilling operations, electric energy transmission associated with SCE, and water transmission for the Metropolitan Water District (MWD) and the Yorba Linda Water District. These existing and past land use practices are consistent with the current County of Orange General Plan Land Use designation of Open Space (5) and the Zoning Code designation of Agricultural (General) and Agricultural (O) for the property.

**Acronyms used in this section:**

| | |
|---|---|
| ACOE | Army Corps of Engineers |
| AMSL | above mean sea level |
| CEQA | California Environmental Quality Act |
| DEIR | Draft Environmental Impact Report |
| IS/NOP | Initial Study/Notice of Preparation |
| MWD | Metropolitan Water District |
| NAHC | Native American Heritage Commission |
| SCE | Southern California Edison |
| USGS | U.S. Geological Survey |

## a. Prehistoric Context

The knowledge of the occupation of southern California by prehistoric man has changed over the years from being based on material attributes to radiocarbon chronologies to association with cultural traditions. Archaeologists define a material complex consisting of an abundance of milling stones (for grinding food items) with few projectile points or vertebrate faunal remains, which are remains of animals, as dating from about 7,000 to 3,000 years before the present as the "Millingstone Horizon." The Millingstone Horizon has been redefined by archaeologists as a cultural tradition named the Encinitas Tradition.

The Encinitas Tradition has been defined in southern California to consist of four geographic patterns. These are (1) Topanga in coastal Los Angeles and Orange counties, (2) La Jolla in Coastal San Diego County, (3) Greven Knoll in inland San Bernardino, Riverside, Orange and Los Angeles counties and (4) Pauma in inland San Diego County.

About 3,500 years ago the Encinitas Tradition was replaced by the Del Rey Tradition in greater Los Angeles Basin with new settlement patterns, economic efforts, and artifact types that coincided with the arrival of a new, biologically distinctive population. Although the Encinitas Tradition has not been well defined it is proposed to be made up of the Takic groups from the Mojave Desert, the southern Sierra Nevada, and the San Joaquin Valley. The Del Rey Tradition is made up of Shoshonean groups from the Great Basin. Within the Del Rey Tradition are two patterns named Angeles and Islands. The Del Rey Tradition represents the arrival, divergence, and development of the Gabrielino in southern California.

The latest cultural revisions for the understanding of the Project Area define traits for time phases of the Greven Knoll pattern of the Encinitas Tradition applicable to inland Orange County (6500 B.C. to 1000 B.C.). This pattern is replaced in the Project Area by the Angeles pattern of the Del Rey Tradition (1500 B.C. to A.D. 1850). Each pattern has subdivisions as identified by specific changes in cultural assemblages through time. Phases are identified by their archaeological signatures in components within sites. Table 5-4-1 below is a summary of Encinitas Tradition and Angeles pattern of the Del Rey Tradition.

Greven Knoll sites tend to be in valleys such as the Project Area. The Greven Knoll dominantly used manos and mutates as tools, rather than pestles and mortars like coastal peoples, which may reflect the Greven Knoll population's closer relationship with desert groups who did not exploit acorns. In Phase I, other typical characteristics were pinto darts, charm stones, cogged stones, absence of shell artifacts, and flexed position burials. Phase II is characterized by Elko dart points along with increased indications of gathering.

The Angeles pattern generally is restricted to the mainland with a largely terrestrial focus and greater emphasis on hunting and near-shore fishing. The Angeles pattern is divided into six phases that are defined by material traits and

other traits such as changes in settlement patterns, inhumations and cremations, fishing and hunting patterns, and religion.

**Table 5-4-1 Cultural Change Chronology**

| Pattern | Phase | Dates (Years Before Present) | Material Traits | Other Traits |
|---|---|---|---|---|
| Encinitas | Greven Knoll I | 8,500 to 4,000 | Abundant manos and metates, Pinto dart points for atlatls or spears, charm stones, cogged stones and discoidals rare, no mortars or pestles, general absence of shell artifacts | No shellfish, hunting important, flexed inhumations, cremations rare |
| | Greven Knoll II | 4,000 to 3,000 | Abundant manos and metates, Elko dart points for atlatls or spears, core tools, late discoidals, few mortars and pestles, general absence of shell artifacts | No shellfish, hunting and gathering important, flexed inhumations, cremations rare |
| Angeles | Angeles I | 3,500 to 2,600 | Appearance of Elko dart points and an increase in the overall number of projectile points from Encinitas components; beginning of large-scale trade in small steatite artifacts (effigies, pipes, and beads) and *Olivella* shell beads from the southern Channel Islands; appearance of single-piece shell fishhooks and bone harpoon points; Coso obsidian becomes important; appearance of donut stones | Appearance of a new biological population (Takic proto-Gab/Supan language), apparent population increase; fewer and larger sites along the coast; collector strategy; less overall dependence on shellfish but fishing and terrestrial hunting more important; appearance of flexed and extended inhumations without cairns, cremations uncommon |
| | Angeles II | 2,600 to 1,600 | Continuation of basic Angeles I material culture with the addition of mortuary features containing broken tools and fragmented cremated human bone; fishhooks become more common | Continuation of basic Angeles I settlement and subsistence systems; appearance of a new funerary complex |
| | Angeles III | 1,600 to 1,250 | Appearance of bow and arrow technology (e.g., Marymount or Rose Spring points); changes in *Olivella* beads; asphaltum becomes important; reduction in obsidian use; Obsidian Butte obsidian largely replaces Coso | Larger seasonal villages; flexed primary inhumations but no extended inhumations and an increase in cremations; appearance of obsidian grave goods; possible expansion into eastern Santa Monica Mountains, replacing Topanga III groups |
| | Angeles IV | 1,250 to 800 | Cottonwood points appear; some imported pottery appears; birdstone effigies at the beginning of the phase and "spike" effigies dropped by the end of the phase; possible appearance of ceramic pipes | Change in settlement pattern to fewer but larger permanent villages; flexed primary inhumations continue, cremations uncommon; expansion into the San Gabriel Mountains, displacing Greven Knoll III groups |
| | Angeles V | 800 to 450 | Trade of steatite artifacts from the southern Channel Islands becomes more intensive and extensive, with the addition or increase in more and larger artifacts, such as vessels and comals; larger and more elaborate effigies | Strengthening of ties, especially trade, with southern Channel Islands; expansion into the northern Santa Ana Mountains and San Joaquin Hills; development of mainland dialects of Gabrielino |
| | Angeles VI | 450 to 150 | Addition of Euroamerican material culture (e.g., glass beads and metal tools), locally made pottery, metal needle-drilled *Olivella* beads | Change of settlement pattern, movement close to missions and ranches; use of domesticated species obtained from Euroamericans; flexed primary inhumations continue, cremations uncommon to the north (nearer the Chumash) but somewhat more common to the south (nearer the Luiseño); apparent adoption of Chingichngish religion |

## b. Ethnography Context

"Ethnography" is the study and systematic recording of human cultures. Early Native American peoples of the Project Area are poorly understood. They were replaced about 3,500 years ago by Native Americans now known as the Gabrielino (Tongva). The Gabrielino speak a language that is part of the Takic language family. Their territory encompassed a vast area stretching from Topanga Canyon in the northwest, to the base of Mount Wilson in the north, to San Bernardino in the east, Aliso Creek in the southeast and the Southern Channel Islands, in all an area of more than 2,500 miles. Prehistoric Gabrielino/Tongva communities near the Esperanza Hills project are Hotuuknga and Pazavzanga to the south and southeast, Pashinonga to the north and Wapijanga to the northeast. At European contact, the tribe consisted of more than 5,000 people living in various settlements throughout the area. Some of the villages could be quite large, housing up to 150 people. Exhibit 5-37 – Prehistoric Gabrielino/Tongva Communities near Esperanza Hills indicates the location of prehistoric communities near the Project Site.

The Gabrielino are considered to have been one of the wealthiest tribes and to have greatly influenced tribes they traded with. Houses were domed, circular structures thatched with tule or similar materials. The best known artifacts were made of steatite (soapstone) and were highly prized. Many common everyday items were decorated with inlaid shell or carvings reflecting an elaborately developed artisanship.

The main food zones utilized were marine, woodland, and grassland. Plant foods were, by far, the greatest part of the traditional diet at contact. Acorns were the most important single food source. Villages were located near water sources necessary for leaching of acorns, which was a daily occurrence. Grass seeds were the next most abundant plant food used along with chia. Seeds were parched, ground and cooked as mush in various combinations according to taste and availability. Greens and fruits were eaten raw or cooked or sometimes dried for storage. Bulbs, roots, and tubers were dug in the spring and summer and usually eaten fresh. Mushrooms and tree fungus were prized as delicacies. Various teas were made from flowers, fruits, stems and roots for medicinal cures as well as beverages.

The principal game animals were deer, rabbit, jackrabbit, woodrat, mice, ground squirrels, antelope, quail, dove, ducks, and other birds. Most predators were avoided as food, as were tree squirrels and most reptiles. Trout and other fish were caught in streams, while salmon were available when they ran in the larger creeks. Marine foods were extensively utilized. Sea mammals, fish, and crustaceans were hunted and gathered from the shoreline and the open ocean, using reed and dugout canoes. Shellfish were the most common resource, including abalone, turbans, mussels, clams, scallops, and bubble shells.


**Exhibit 5-37 – Prehistoric Gabrielino/Tongva Communities**

## c. Historic Context

Juan Cabrillo was the first European to sail along the coast of California in 1542 and was followed in 1602 by Sebastian Vizcaino. Between 1769 and 1822 the Spanish had colonized California and established missions, presidio and pueblos.

In 1821 Mexico won its independence from Spain and worked to lessen the wealth and power held by the missions. The Secularization Act was passed in 1833, giving the vast mission lands to the Mexican governor and downgrading the missions' status to that of parish churches. The governor then redistributed the former mission lands, in the form of grants, to private owners. Ranchos in California numbered over 500 by 1846, all but approximately 30 of which resulted from land grants.

California was granted statehood in 1850 and although the United States promised to honor the land grants, the process of defining rancho boundaries and proving legal ownership became time consuming and expensive. Legal debts led to bankruptcies and the rise in prices of beef, hide, and tallow. This combined with flooding and drought was detrimental to the cattle industry. Ranchos were divided up and sold inexpensively.

The southern portion of the Project Area lies within the boundaries of the former Rancho Canón de Santa Ana, a land grant issued to Bernardo Yorba in 1834. Exhibit 5-38 – Land Grant Map indicates the historic location of the Project Site. Bernardo and his brothers utilized the land as a ranch. In 1866 the grant was recognized by the United States and patented to Bernardo Yorba. In 1868 the Yorba ranch lands were divided among the descendants.

The southern portion of the Project Area has been passed down among members of the Carrillo family since the 19$^{th}$ century. The Project Area has mostly been used for cattle ranching in the past. There has also been 20$^{th}$ century oil exploration, drilling and pumping.

In 1958, a portion of the property on the west, consisting of the 33-acre site owned by Yorba Trails, LLC was created as part of a partition judgment entered by the Orange County Superior Court, which is still owned by descendants of the Carrillo Family.

The northern portion of the property has been held by the Nicholas Long family, who originally received it through a land grant in the 1800s.

The 277 acres currently owned by Yorba Linda Estates, LLC was owned by the Anaheim Water Company, which conveyed it to David Murdock and Castle & Cooke in 1979. Yorba Linda Estates purchased the property in 2011.

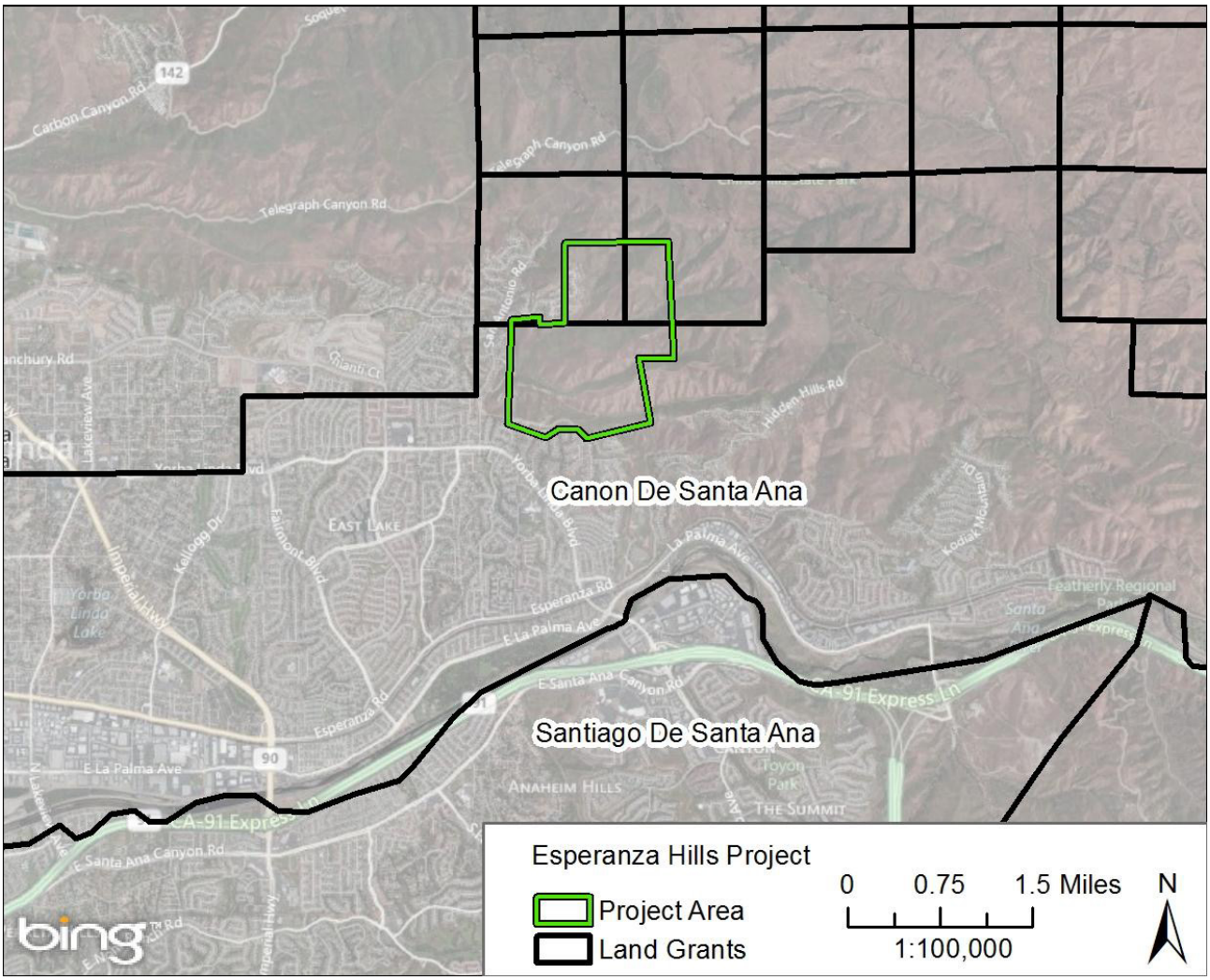



**Exhibit 5-38 – Land Grant Map**

### d. Existing Cultural Resources

The archaeological and historical records search determined that there are no known cultural resources within the Project Site boundaries. A total of 18 cultural resources have been documented previously within a one-mile radius of the Project Site. Prehistoric resources number 16 and include 9 isolates and 7 sites. In addition, an historic resource consisting of power lines, towers, and a substation is known to exist in the area, along with an historical archaeological resource consisting of remnants of pipes and basins for a cattle water station. None of the previously-recorded resources were determined eligible for the National Register of Historic Places.

Native American consultation for this project was conducted in 2008 in compliance with consultation requirements of Senate Bill 18 (Burton). The Native American Heritage Commission (NAHC) reported no sacred lands known in the vicinity – i.e., "sacred sites" as defined by the NAHC and the California Legislature in *California Public Resources Code* §5097.94(a) and §5097.96. Items in the NAHC Sacred Lands Inventory are confidential and exempt from the Public Records Act pursuant to *California Government Code* §6254(r). The NAHC recommended that a dozen individuals or tribes be consulted for further information. Letters were sent to all in June 2008. Two responses were received. Neither offered specific information about resources within the Project Area but stated concerns about sensitivity and requested Native American monitoring. In addition, the NAHC was contacted during the IS/NOP process in December 2012. A response from NAHC requested that additional information be sent to NAHC and local representatives during the DEIR public review process.

An intensive pedestrian survey of the Project Area for archaeological and paleontological resources was conducted after the 2008 Freeway Complex Fire, when the area was clear of vegetation. No paleontological, prehistoric, or historical archaeological or historic (built environment) resources were observed. Portions of the Project Area have been included in five additional surveys; no resources were observed by any of the archaeologists.

A survey update was performed in October 2012. Most of the Project Area consists of slopes of more than 45 degrees covered only with sparse vegetation, and no resources were visible. The canyons between the three hills of the Proposed Project were densely vegetated and impassible.

## 2. Paleontological Resources

### a. Geological Setting

The eastern Puente Hills, also known as the Chino Hills, of the Project Area are made up of middle Miocene to early Pliocene (16 million to 3.6 million years old) marine sedimentary rock units overlain in some areas by Pleistocene Epoch (1.8 million to 10,000 years old) terrestrial sediments. Beginning about 2.3 million years ago, the ocean extended well past the modern shoreline and

covered the Project Area. The Miocene and early Pliocene sediments were deposited as submarine fans at bathyal (3,300 to 13,000 feet) depths. Tectonic events about 5 million years ago including uplift of local mountains and subsidence of valleys resulted in withdrawal of the ocean and the beginning of river and stream cutting of channels into the exposed sediments.

"Stratigraphy" is a branch of geology that studies rock layers and layering. Stratigraphy of the Project Area is mapped (Exhibit 5-39 – Project Geology) as mostly Monterey Formation, with smaller components of Sycamore Canyon Formation, Quaternary Older alluvium, Quaternary alluvium and Quaternary landslide deposits.

1. **Monterey Formation**. The lowest member of the Monterey Formation is the La Vida Member (Tmlv). The La Vida Member is exposed in the northern portion of the property. The La Vida is characterized by soft gray micaceous siltstone, hard, platy, locally laminated calcareous siltstone, and thin isolated beds of silty medium-grained sandstone.

   The Soquel Sandstone Member (Tmss) overlies the La Vida Member and primarily consists of thick sequences of biotite-bearing feldspathic sandstone and conglomerate, with occasional thin beds of shale and sandstone. This unit is exposed in the northern portion of the property.

   Overlying the Soquel Sandstone Member is the Yorba Member (Tmy). The Yorba Member consists of thinly bedded and occasionally diatomaceous siltstone, with interbeds of sandstone and limestone. This unit is exposed in the central portion of the property. Fish and microfossils from this unit, deduced to be the Yorba Member, have been reported and deposited in water greater than 1,800 feet deep.

   Clay shale facies (Tmc) and unassigned sandstone (Tms) have been recognized as units that crop out in the southwestern corner of the Project Site area, south of the Whittier Fault. The age and any fossils that might occur in these units are unknown.

2. **Sycamore Canyon Formation**. The Sycamore Canyon Formation (Tscs) is exposed at the surface in the southwestern portion of the property, south of the Whittier Fault. It is mostly moderately indurated marine clastic sediments. In the Project Area, the Sycamore Canyon Formation is described as coarse to fine-grained, arkosic, and occasionally conglomeratic. The basal Sycamore Canyon Formation is described as coarse-grained, poorly sorted, feldspathic, micaceous sandstone. Higher in the section, the Sycamore Canyon Formation is finer-grained, and contains interbeds of siltstone and sandy siltstone.

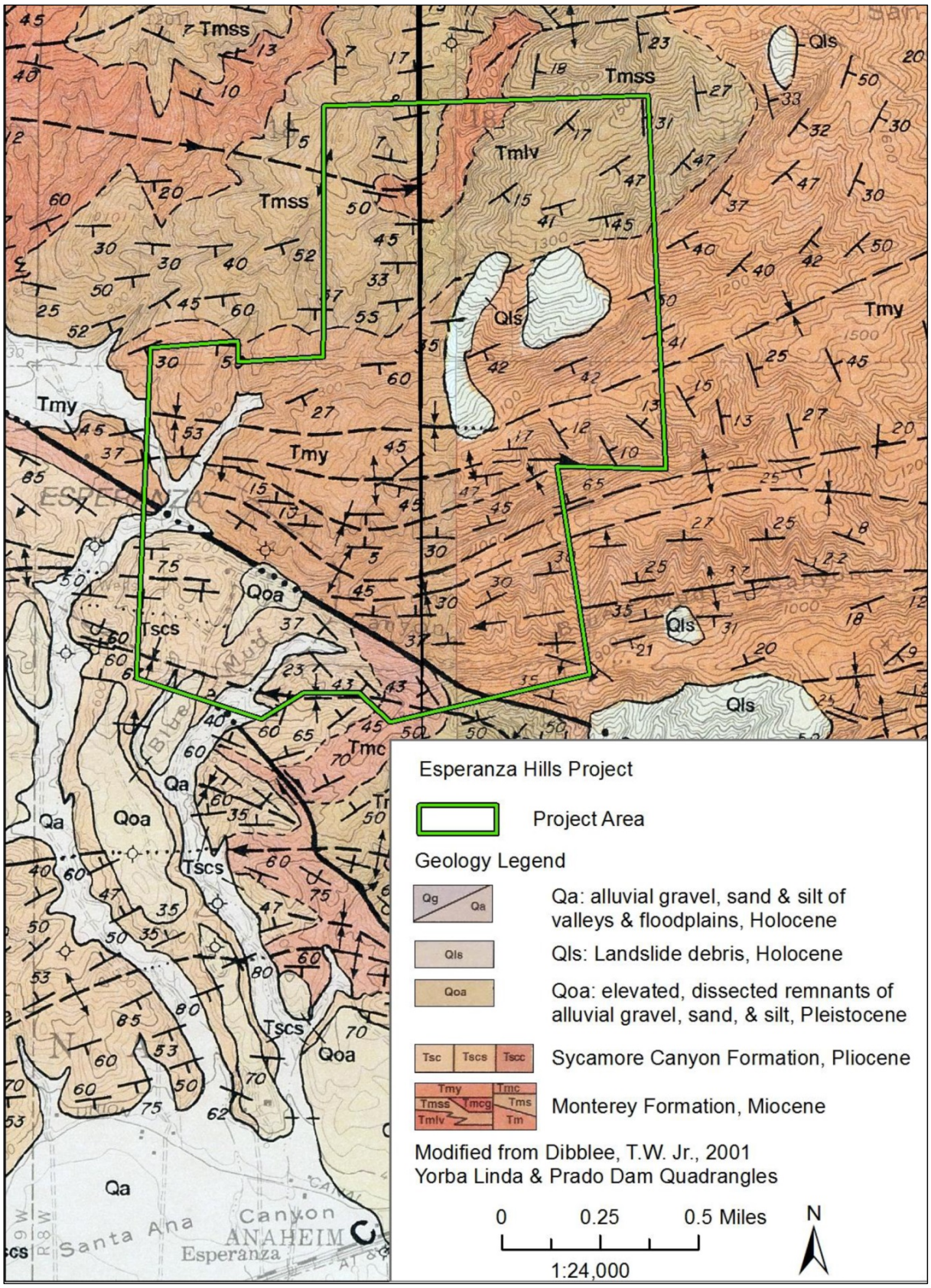



**Exhibit 5-39 – Project Geology**

3. **Quaternary Older Alluvium**. Pleistocene Epoch Quaternary Older Alluvium (Qoa) is mapped at the surface in the vicinity of the drainages. Analysis indicates that the alluvial sediments consist of decomposed Monterey and Sycamore Canyon Formation rocks of the local area.

4. **Quaternary Alluvium**. Holocene Epoch Quaternary alluvium (Qa) is surficial deposits in the southwestern portion of the project composed of alluvial gravel, sand, and silt.

5. **Quaternary Landslide Debris**. Holocene Quaternary landslide (Qls) sediments are comprised of missed soil, rubble, and displaced bedrock blocks resulting from slope failure.

## b. Paleontology

A record search was conducted by staff of the Natural History Museum of Los Angeles County for resources within the Project Area and one mile radius. In addition, known records within ten miles from other sources were also checked, including records held by Chino Hills Historical Museum, Loma Linda University, California State University San Bernardino, and San Bernardino County Museum.

No fossils are known within the Project Area or a one-mile radius. Fossils known nearby are from some of the same rock units that occur in the Project Area and were recovered during subsurface excavations for development in the City of Chino Hills to the east.

Fossils known from the middle Miocene Monterey Formation include a wide variety of birds, marine mammals, boney fishes, cartilaginous fishes, invertebrates and marine and terrestrial plants. The marine mammals are mostly whales and dolphins plus seals and sea lions. The boney fishes include sabertoothed salmon, cod, herrings and sardines, bonito, mackerel, croaker, barracuda and many types of deep water species such as dragonfish, viperfish, lanternfish and others. Cartilaginous fishes include white, mako and basking sharks. Invertebrates include many types of snails, clams, scallops, and barnacles. Marine plants are various types of seaweed, kelp, and algae. The terrestrial plants are mostly leaves that were washed into the ocean by streams and rivers. They include a wide variety including oak, laurel, willow, fan palm, sycamore, maple, alder, birch, walnut, fig, avocado, and grasses.

Fossils known from the Pliocene Sycamore Canyon Formation represent an assemblage similar to that of the Monterey Formation. However the sample is much smaller and thus no significance can be assigned to the reduced number of fossil animals and plants known in the younger rock unit.

Fossils known from the Pleistocene Quaternary older alluvium include mammoth, ground sloths, giant horse, western horse, bison, deer, and rodents. Prior to discovery of giant horse in Chino Hills in 2008, all previous occurrences

were in the California deserts. The other known species are relatively common in the Pleistocene of the greater Los Angeles area.

An intensive pedestrian survey of the entire Project Area was conducted in 2008 for archaeology and paleontology. No paleontological resources were observed.

## 5.4.2 Regulatory Setting

The County of Orange General Plan Resource Element (Cultural-Historical Component) establishes goals, policies, and implementation measures for historical, archaeological, and paleontological resources for development projects within Orange County. The Cultural-Historical Component identifies the County's historical, archaeological, and paleontological resources and identifies, evaluates, and provides criteria to preserve these resources in the event they are discovered during development activities.

Goal 2 contained in the Cultural-Historical Component is to "encourage through a resource management effort the preservation of the county's cultural and historic heritage." Objective 2.2 states, "Take all reasonable and proper steps to achieve the preservation of archaeological and paleontological remains, or their recovery and analysis to preserve cultural, scientific, and educational values." Objective 2.3 states, "Take all reasonable and proper steps to achieve the preservation and use of significant historic resources including properties of historic, historic architectural, historic archaeological, and/or historic preservation value."

The Cultural-Historical Component of the Orange County General Plan establishes the following policies to address archaeological, paleontological, and historical resources to be implemented at appropriate stage(s) of planning and the processing of a project application, as follows:

- Identification of resources shall be completed at the earliest stage of project planning and review such as general plan amendment or zone change.
- Evaluation of resources shall be completed at intermediate stages of project planning and review such as site plan review, subdivision map approval, or at an earlier stage of project review.
- Final preservation actions shall be completed at final stages of project planning and review such as grading, demolition, or at an earlier stage of project review.

### 5.4.3 Thresholds of Significance

For the purposes of this DEIR, the thresholds of significance for evaluation of project impacts are based upon suggested criteria from the County of Orange Environmental Checklist and the CEQA Environmental Checklist found within Appendix G of the CEQA Guidelines. The project would result in a significant impact if it would:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5 *[of the CEQA Guidelines]*
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature
d) Disturb any human remains, including those interred outside of formal cemeteries

CEQA Guidelines §15064.5 provides a detailed explanation of historical and archaeological guidelines for determining the significance of impacts on historical and unique archaeological resources.

### 5.4.4 Project Impacts Prior to Mitigation

The following is a summary of project impacts prior to implementation of mitigation measures. The Proposed Project will involve cutting of existing slopes to varying depths and filling of portions of canyon areas, provided that approval is received from the Army Corps of Engineers (ACOE). In addition, some cutting will occur in canyons to permit installation of drainage features prior to filling. The two project access options, Option 1 and Option 2, have slightly different cut and fill designs associated with each conceptual grading plan. Exhibit 5-40 – Cut and Fill Map, Option 1 and Exhibit 5-41– Cut and Fill Map, Option 2 depict the grading designs for each option. The project impacts on cultural resources for Option 1 and Option 2 are the same. Based on the information in the "Archaeological and Paleontological Resources Assessment Update" prepared by Cogstone in January 2013 and previous reports for the Project Area the cultural resources impacts are discussed below.

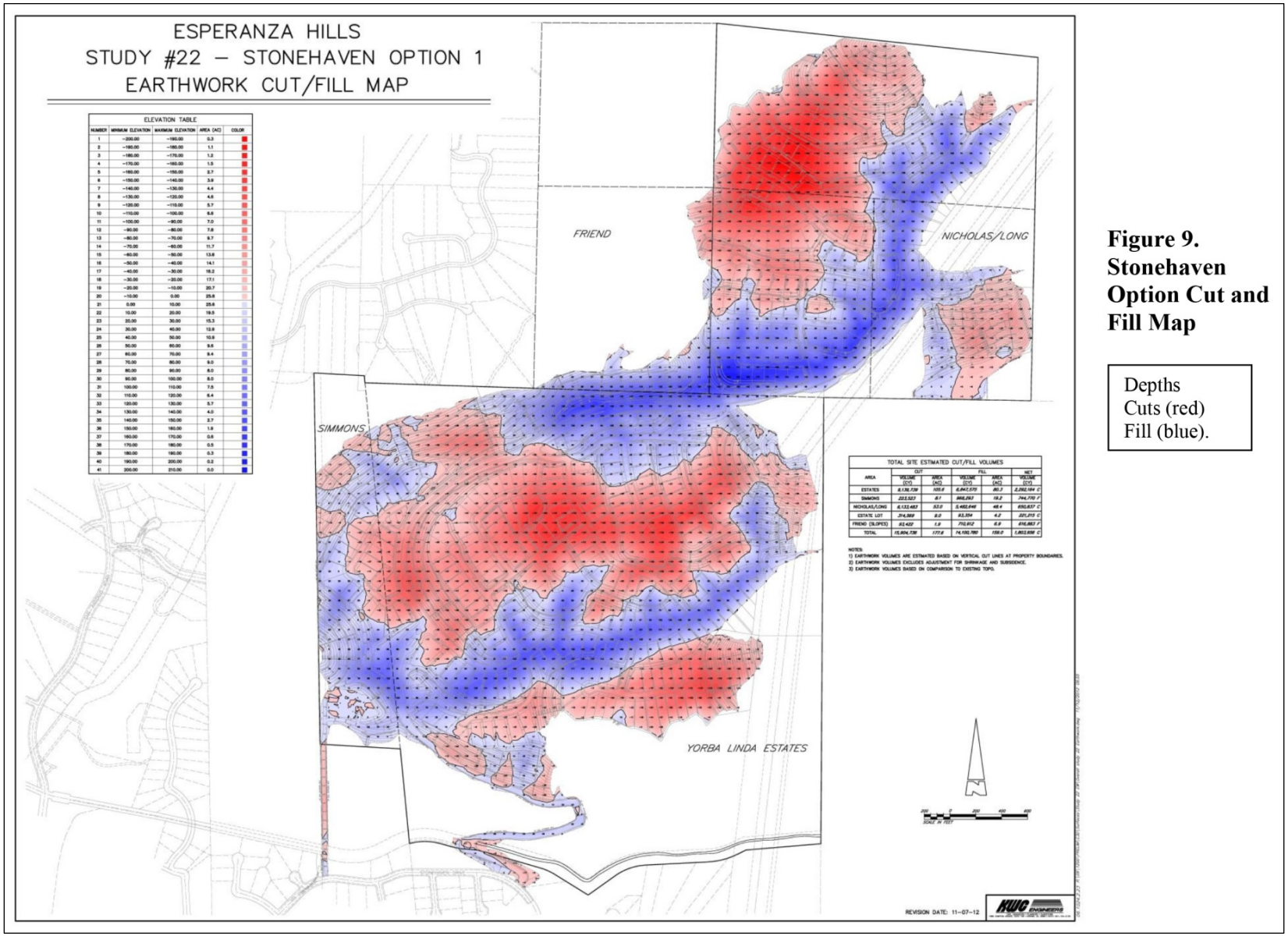



**Figure 9. Stonehaven Option Cut and Fill Map**

Depths
Cuts (red)
Fill (blue).

**Exhibit 5-40 – Cut and Fill Map, Option 1**

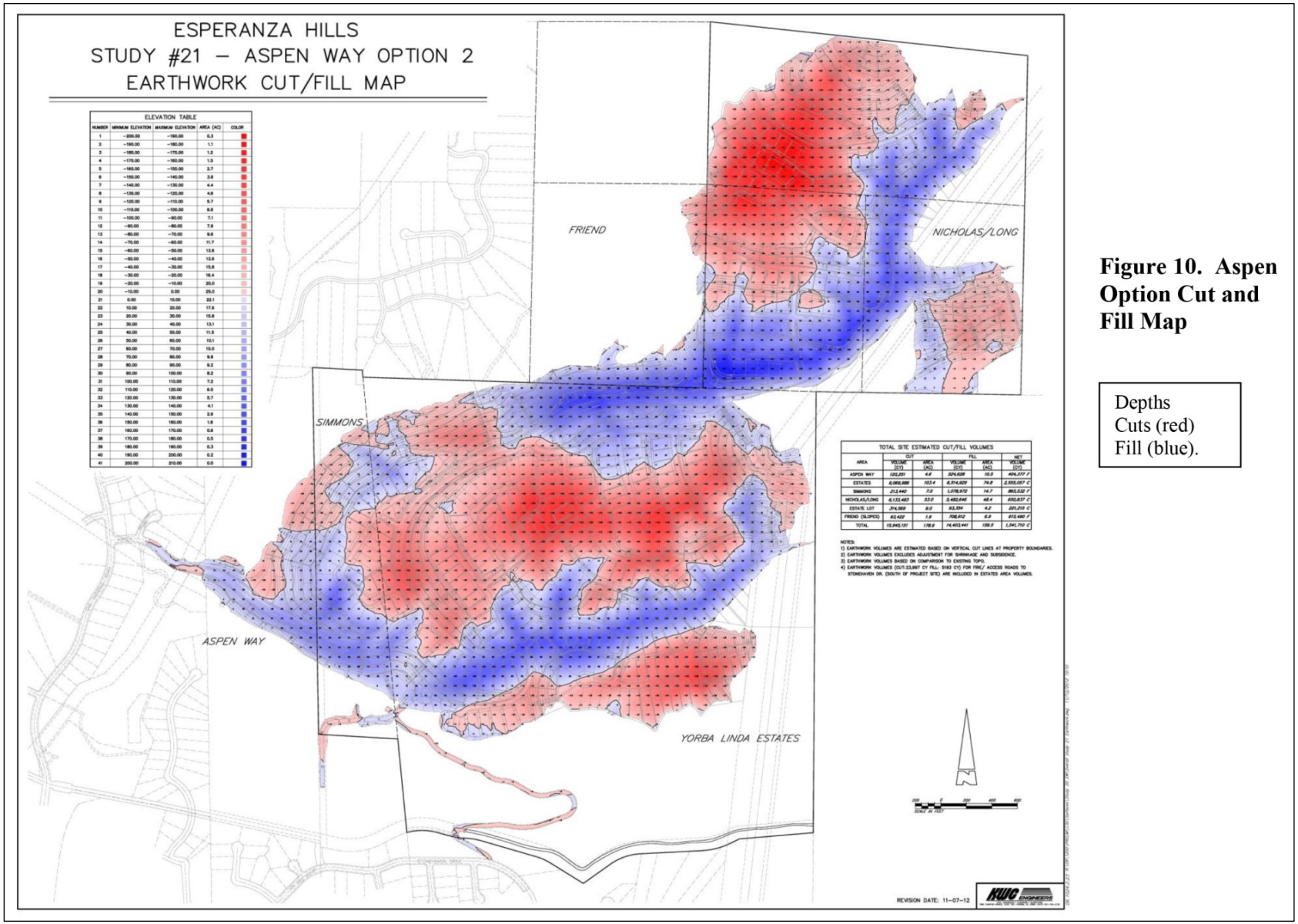



**Figure 10. Aspen Option Cut and Fill Map**

Depths
Cuts (red)
Fill (blue).

**Exhibit 5-41 – Cut and Fill Map, Option 2**

## 1. Cultural and Historic Resources

Cultural resources impact analysis for the Proposed Project Site determined that there is no evidence of historical resources, archaeological resources, or human burials within the project boundaries. The archaeological and historical records research determined that there are no known cultural resources within the Project Area boundaries. A total of 18 cultural resources have been documented previously within a one-mile radius of the Project Area. Prehistoric resources number 16 and include 9 isolates and 7 sites. In addition a historic resource consisting of power lines, towers and a substation is known to exist along with historical archaeological resource consisting of remnants of pipes and basins of a cattle watering station. None of the previously-recorded resources were determined eligible for the National Register of Historic Places and are therefore not significant. Table 5-4-2 below is a summary of recorded sites within a one-mile radius of the project.

**Table 5-4-2 Recorded Sites within One Mile Radius**

| Primary No. | Site Type | Date Recorded | USGS Quad Name | Distance from Area |
|---|---|---|---|---|
| P-30-000848 | Prehistoric milling stone site, containing of manos, hammer stones, and lithic flakes | 1979 | Yorba Linda | Within ¼ mile |
| P-30-001650 | Prehistoric ground stone scatter | 2005 | Yorba Linda | Within 1 mile |
| P-30-100116 | Prehistoric hand stone isolate | n/a | Yorba Linda | Within 1 mile |
| P-30-100117 | Prehistoric hand stone isolate | n/a | Yorba Linda | Within 1 mile |
| P-30-100118 | Prehistoric hand stone isolate | n/a | Yorba Linda | Within 1 mile |
| P-30-100119 | Prehistoric hand stone isolate | n/a | Yorba Linda | Within 1 mile |
| P-30-100120 | Prehistoric hand stone isolate | n/a | Yorba Linda | Within 1 mile |
| P-30-100314 | Prehistoric discoidal isolate | 1978 | Yorba Linda | Within ¼ mile |
| P-30-100315 | Prehistoric bifacial hand stone isolate | 1978 | Yorba Linda | Within ¼ mile |
| P-30-120007 | Prehistoric boulder and cobble outcrops with surface scatter. Update could not relocate previous artifacts. | 1976 | Prado Dam | Within ½ mile |
| P-30-120008 | Prehistoric boulder and cobble outcrops with surface scatter. Update could not relocate previous artifacts. | 1980 | Prado Dam | Within ½ mile |
| P-30-120009 | Prehistoric boulder and cobble outcrops with surface scatter. Update could not relocate previous artifacts. | 1980 | Prado Dam | Within ¾ mile |
| P-30-120010 | Prehistoric boulder and cobble outcrops with surface scatter. Update reported that any prehistoric material was destroyed during mining activities. | 1980 | Prado Dam | Within 1 mile |
| P-30-179857 and P-36-013627 | Historic power lines, towers, and substation | 2007 | Prado Dam/ Yorba Linda | Within ½ mile |
| P-36-012493 | Prehistoric site consisting of milling artifacts, FAR, and bone. | 2005 | Prado Dam | Within 1 mile |
| P-36-019847 | Historic watering station for cattle consisting of pipes and basins | 2008 | Prado Dam | Within 1 mile |
| P-36-060007 | Prehistoric quartz chopper isolate | 1983 | Prado Dam | Within 1 mile |
| P-36-060008 | Prehistoric mano isolate | 1983 | Prado Dam | Within 1 mile |

In addition, a variety of sources were consulted in November 2012 to obtain historical information regarding the Project Area. Table 5-4-3, Additional Sources Consulted provides a summary of the sources consulted and the results. As depicted in Table 5-4-3, there are no known historical resources of significance within the Project Site.

**Table 5-4-3 Additional Sources Consulted**

| Source | Results |
|---|---|
| National Register of Historic Places (1979-2002 & Supplements | Negative |
| Historic United States Geological Survey topographic maps | Shows late 20th/early 21st century agriculture |
| Historic United States Department of Agriculture aerial photos | Shows late 20th/early 21st century agriculture |
| California Resister of Historic Resources (1992-2010) | Negative |
| California Resister of Historic Resources (1976-2010) | Negative |
| California Historic Landmarks (1995 and supplements to 2010) | Negative |
| California Points of Historical Interest (1992-2010) | Negative |
| California Department of Transportation Historic Bridge Inventory (Caltrans 2007) | Negative |
| Local Historical Register Listings | Negative |
| Bureau of Land Management General Land Office Records | Shows 4 owners |

The Project Area is within the traditional tribal territory of the Gabrielino/Tongva. A sacred land record search was requested from the Native American Heritage Commission (NAHC) in 2008. The NAHC replied on June 18, 2008 that no sacred lands are known within one-half mile of the Project Site. The NAHC was sent a copy of the Initial Study and Notice of Preparation for this DEIR. A letter was received on December 28, 2012 listing state and federal statutes relating to Native American historic properties and resources.

The "Archaeological and Paleontological Resources Assessment Update" for the Proposed Project (Appendix F to this DEIR) determined based on field observation and historic data search, as well as previous consultation with a representative of the Gabrieleno/Tongva San Gabriel Band of Indians and a representative of the Juaneño Band of Mission Indians, that there is no indication of human remains or burials within the Project Site. However, if human remains are encountered unexpectedly during construction excavation and grading activities, state laws will apply concerning human remains. *California Health and Safety Code* §7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to *California Public Resources Code* §5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the NAHC. The NAHC will then identify a Most Likely Descendent who will provide recommendations as to the future disposition of the remains. Per *California Public Resources Code* §5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices and taking into account the possibility of multiple human remains, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the Most Likely Descendent, as prescribed in *California Public Resources Code* §5097.98.

An intensive pedestrian survey of the Project Area for historic and archaeological resources was conducted in 2008 before the 2008 Freeway Complex Fire, and no prehistoric or historical archaeological or historical (built environment) resources were observed.

The "Archaeological and Paleontological Resources Assessment Update" (Appendix F to this DEIR) concludes, based on historical data, records search, on-site surveys, and observations by qualified experts, that there is no evidence of historical or archaeological resources within the Proposed Project boundaries, and there is no indication of human remains. Therefore, the project impact on historical and archaeological resources, as well as project impact to disturb human remains, is less than significant. However, there is a potential that unanticipated cultural resources could be discovered during ground-disturbing activities such as site grading that could have the potential to significantly impact cultural resources if not mitigated.

### 2. Paleontological Resources

No fossils are known within the Project Area or a one-mile radius. Fossils are known nearby from some of the same rock units that occur in the Project Area. These include Miocene and Pliocene marine fishes in addition to marine mammals and plants. Pleistocene fossils of the last ice age are also known.

A survey update was performed by Cogstone in October 2012 for the Project Site. Filled-in locations of nine large geotechnical fault testing trenches were clearly visible in canyon areas consisting of Quaternary alluvium underlain by Quaternary older alluvium. Radiocarbon dates from the bottom of these trenches were as old as 14,000 years before the present, representing the late Pleistocene.

As discussed above, the project will involve cutting of slopes to approximately 200 feet below current surface and filling of canyon areas. In addition, some cutting will occur in canyons to permit installation of drainage features prior to filling. This deep cutting into Miocene formation known to produce significant vertebrate paleontological resources nearby has potential to impact fossils that may contribute information new to science that could result in a potential significant impact to paleontological resources if not mitigated.

## 5.4.5 Mitigation Measures

The "Archaeological and Paleontological Resources Assessment Update" for the Proposed Project (Appendix F to this DEIR) determined that there is no evidence of historical resources, archaeological resources, or human burials within the project boundaries. No fossils are known within the Project Area or a one-mile radius. Fossils are known nearby from some of the same rock units that occur in the Project Area. Nonetheless, in the event such resources are encountered during the grading and excavation phase of the Proposed Project, the following mitigation measures are recommended.

### Cultural Resources

CR-1 Prior to the issuance of any grading permit, a grading note shall be added to the grading plan that states: "If any unanticipated cultural resources, including human remains, are discovered during ground-disturbing activities; work in that location shall be temporarily diverted a minimum of 25 feet away until a County qualified archaeologist can evaluate the find. Recommendations by the archaeologist and as approved by the County of Orange Planning Manager shall be complied with for any further ground-disturbing work."

### Paleontological Resources

CR-2 Prior to the issuance of any grading permit, the Project Applicant shall prepare and submit to the Manager, OC Planning for review and approval a Paleontological Resources Mitigation Plan as detailed in the "Archaeological and Paleontological Resources Assessment Update" for the Esperanza Hills Project, dated January 2013, prepared by Cogstone. The Paleontological Resources Mitigation Plan shall include the following: 1) paleontological resources awareness training for all earthmoving personnel, 2) monitoring of excavations more than five feet below the current surface (not for shallow excavations), 3) adjustments by the principal paleontologist to monitoring requirements based on fossil yield, depth and location of impact, and 4) recovery and curation of fossils meeting the significance criteria established in the Paleontological Resources Mitigation Plan.

## 5.4.6 Level of Significance after Mitigation

The Proposed Project, with mitigation, is consistent with the Cultural-Historical Component of the Orange County Resources Element, because any discovered cultural resources within the Project Site will be identified, evaluated, and preserved.

The Proposed Project will not cause a substantial adverse change in the significance of a historical or archaeological resource as defined in §15064.5 of the CEQA Guidelines. No cultural resources, including human remains, are known to exist within the Project Site. However, a mitigation measure has been developed to address unanticipated discovery of cultural resources during project grading operations. With implementation of the recommended mitigation measures any project impacts to cultural resources will be reduced to a less than significant level.

The Proposed Project will not directly or indirectly destroy a unique paleontological resource or site, or a unique geological feature. No fossils or paleontological resources are known within the Project Area. Fossils are known nearby from some of the same rock units that occur in the Project Area. However, a mitigation measure has been developed to address project impacts to paleontological resources during project grading operations. With implementation of the recommended mitigation measures any project impacts to cultural resources will be reduced to a less than significant level.

### 5.4.7 Cumulative Impacts

With mitigation, development of the Proposed Project (Option 1 and Option 2) is not anticipated to significantly impact cultural or paleontological resources within or adjacent to the site boundaries. Individual project impacts are evaluated and mitigated on a project-by-project basis. Project development in combination with other cumulative projects would not significantly alter any regional or cumulative cultural, scientific, or historic resources.

### 5.4.8 Unavoidable Adverse Impacts

With implementation of the recommended mitigation measures, impacts to cultural, scientific, or historic resources will be reduced to a less than significant level and therefore there are no unavoidable adverse impacts to cultural resources associated with the development of the Proposed Project.

# 5.5 Geology and Soils

This section analyzes the geology, soils, and seismicity of the Project Site, identifies the on-site soil conditions that have the potential to impact the Proposed Project and recommends mitigation measures to reduce the significance of such impacts to an acceptable level. This section summarizes the findings of the "Geotechnical Review of Conceptual Design Plans"(Geotechnical Review) prepared by American Geotechnical, Inc. dated August 2013 (Appendix G) and on the "Fault Hazard Assessment Report" (Fault Hazard Report) prepared by American Geotechnical, Inc. dated November 2012 (Appendix G) and approved by the County of Orange in March 2013, and the "Phase I Environmental Site Assessment Report" (Phase I ESA) prepared by American Geotechnical dated July 2012 (Appendix I).

The purpose of the geotechnical investigation was to determine the geologic setting of the site and the presence of any geologic hazards for analysis in the DEIR and to determine the geologic conditions in order to provide data for design of foundations, walls, slabs on grade, paving, and grading. The geotechnical investigation includes several recommendations that have been included herein as mitigation measures.

## 5.5.1 Existing Conditions

The Project Site is located in the unincorporated portion of Orange County in the Chino Hills and adjacent to the City of Yorba Linda (City). The site lies along the southeasterly flank of the Puente Hills at the northwesterly end of the Peninsular Ranges Geomorphic Province of California. The Puente Hills consist of complex, uplifted, and faulted anticlinal structures, with the south-dipping Chino Fault Zone on the northeast and the north-dipping Whittier Fault Zone on the southwest. These two fault zones merge with the northwest-trending Elsinore Fault Zone at the east end of the Puente uplift, in Santa Ana Canyon.

### 1. Geology

The Project Site is underlain by a series of thinly bedded marine sedimentary bedrock units assigned to the Soquel and Yorba members of the late Miocene age Puente Formation. Quaternary to recent age geologic units occur at the surface of the property, including deposits of alluvium, colluvium, older elevated stream terraces, and landslide debris. Bedrock units underlying the property are assigned to a series of deep-water marine sedimentary rocks of the Puente Formation. This upper Miocene age formation is

**Acronyms used in this section:**

| | |
|---|---|
| AMSL | above mean sea level |
| AP Act | Alquist-Priolo Earthquake Fault Zoning Act |
| AP Zone | Alquist-Priolo Zone |
| CEQA | California Environmental Quality Act |
| DEIR | Draft Environmental Impact Report |
| EFZ | earthquake fault zone |
| SCE | Southern California Edison |
| SCG | Southern California Gas Co. |

further divided into Soquel, Yorba, and Sycamore Canyon members that outcrop across the property from north to south.

The geologic structure underlying the site can be defined as a generally consistent pattern of alternating anticlinal (occurring at right angles to the surface) and synclinal (inclined down from opposite directions) folds with local areas of tight folding and high angle to overturned bedding. The structure tends to be closely related to the orientation, form and structure of major canyons and ridges. With increasing proximity to the Whittier Fault Zone, many axial folds are bent into a more northwesterly strike. Cross sections A-A and B-B depicting certain existing structural conditions are included herein as Exhibit 5-42 – Cross Sections A-A and B-B.

## 2. Topography

Site topography consists of a series of ridges and intervening canyons (or drainage areas). Elevations range from approximately 600 feet above mean sea level (AMSL) in Blue Mud Canyon near the southern margin of the property to approximately 1,540 feet at the northern perimeter of the northeastern-most area. Drainage flows within the canyons are generally from east to west. For purposes of this analysis, the canyons are referred to as Canyon A on the north, Canyon B, which crosses the western portion of the site, and Blue Mud Canyon, which lies along the southern boundary of the site. The topography is generally steep and the canyons are narrow, resulting in a moderate to significant landslide potential.

## 3. Regional Faulting and Seismicity

The two principal seismically induced hazards to property in the southern California region are damage to structures and foundations due to strong ground shaking and surface rupture of earth materials along fault traces. An earthquake occurs when the elastic strain energy that has accumulated in the bedrock adjacent to a fault is suddenly released. The energy released propagates in the form of seismic waves that radiate great distances in all directions from the earthquake epicenter. The strong ground motion or shaking produced by these seismic waves is the primary cause of earthquake damage. The amount of shaking at a given location depends on the earthquake size (magnitude), distance from the earthquake source (epicenter) and the local geologic conditions, which can either amplify or attenuate the earthquake waves.

The Project Site is located in a seismically active region of southern California dominated by the intersection of the northwest-trending San Andreas Fault system and the east-west trending Transverse Ranges Fault system. These fault systems accommodate the majority of the geological strain produced by the gradual, yet powerful, movement between the Pacific and the North American tectonic plates. As a result, numerous faults that have been mapped in the southern California region could produce significant ground shaking at the site.

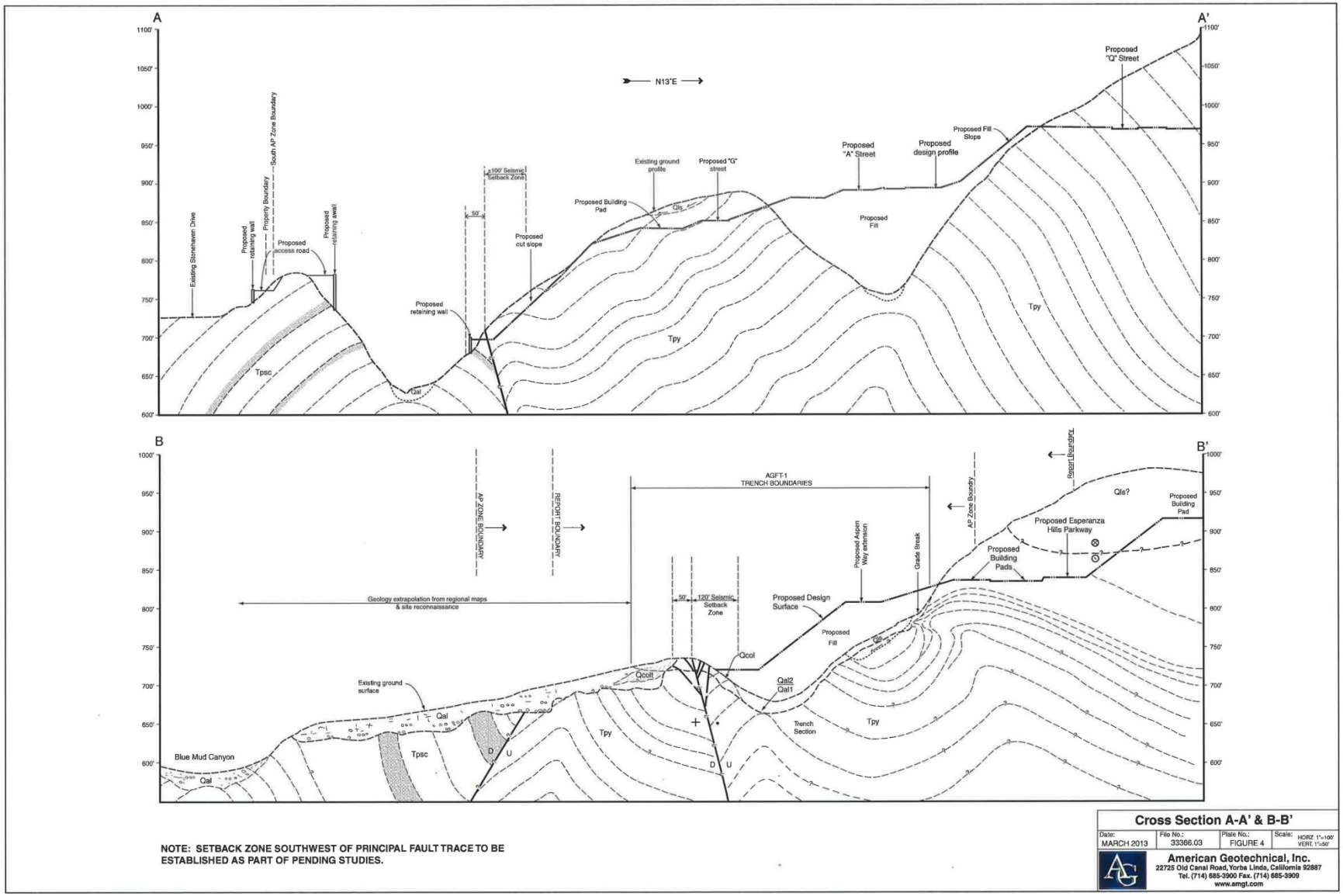



**Exhibit 5-42 – Cross Sections A-A and B-B**

The Chino Hills continue to be uplifted along active translational faults capable of generating moderate and larger earthquakes. The southwesterly margin of the hills is bounded by the Whittier Fault Zone. This fault zone is designated as an Alquist-Priolo Earthquake Fault Zone (A-P Zone) by the State of California. It is possible that active secondary faults, or splay faults, exist within the parcel area near the A-P Zone. Tectonic uplift, folding, jointing, and fracturing of the bedrock units has yielded structurally complex and weakened bedrock conditions.

The active Whittier Fault Zone transects directly through the southernmost area of the site along a well-defined and continuous west-northwesterly trend. This fault zone represents the northern 36 to 40 kilometers of the more regionally well-known Whittier-Elsinore Fault Zone that stretches from the Mexican border on the southeast to Whittier Narrows northwest of the Proposed Project. In addition to severe ground shaking, up to approximately four to seven feet of lateral (horizontal) surface rupture displacement is estimated in the event of a large earthquake along the Whittier Fault in this region. The Whittier Fault poses the most significant seismic threat to the Proposed Project. Active crude oil production and related facilities exist on the southerly portion of the site in close proximity to the Whittier Fault Zone.

The Fault Hazard Report provided an assessment for Option 1 and Option 2 of the Proposed Project regarding potential surface fault rupture and included findings and conclusions as well as recommendations pertaining to implementation of the conceptual design plan. The boundaries of the Fault Hazard Report are consistent with the southern margin of the Project Site and encompass the northern portion of the AP Zone. Fault trenching was conducted in the northern portion of the study site in areas generally coincident with proposed design grading improvements. Exhibit 5-43 – Hazard Assessment Boundaries, Option 1 and Exhibit 5-44 – Hazard Assessment Boundaries, Option  depict the hazard assessment boundaries for Options 1 and 2. Detailed information related to the Fault Hazard Report is discussed below in Subsection 5.5.3,Project Impacts Prior to Mitigation  below.

## 4. Ground Rupture

Primary ground rupture refers to fissuring and offset of the ground surface along a fault that breaks the ground during an earthquake. Primary ground rupture typically results in a relatively small percentage of the total damage in an earthquake, but being too close to a rupturing fault can cause severe damage to structures. Fault rupture is a significant potential impact on the Project Site due to the presence of the Whittier Fault trace along the southwest portion of the site.

In the Puente Hills, the Whittier Fault Zone comprises a series of short, discontinuous, northwest-trending, echelon faults, and a complex pattern of subordinate folds and faults. An active fault is defined as a fault that has had surface displacement within Holocene time (approximately the last 11,000 years). There is potential for primary fault rupture in the area where active strands of the Whittier Fault are present. Surface rupture due to a nearby earthquake on the Whittier Fault could potentially damage structures or facilities.

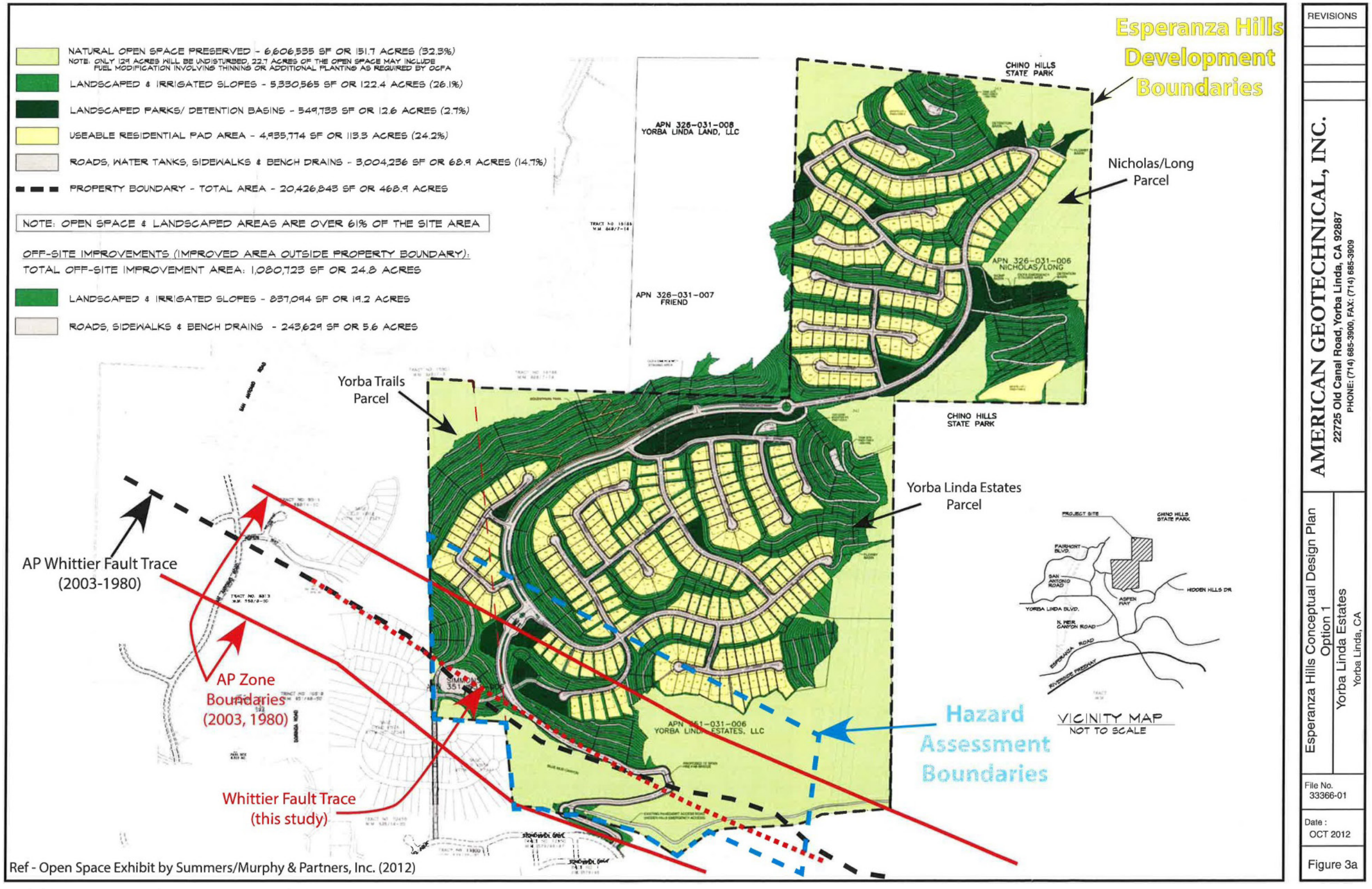



**Exhibit 5-43 – Hazard Assessment Boundaries, Option 1**

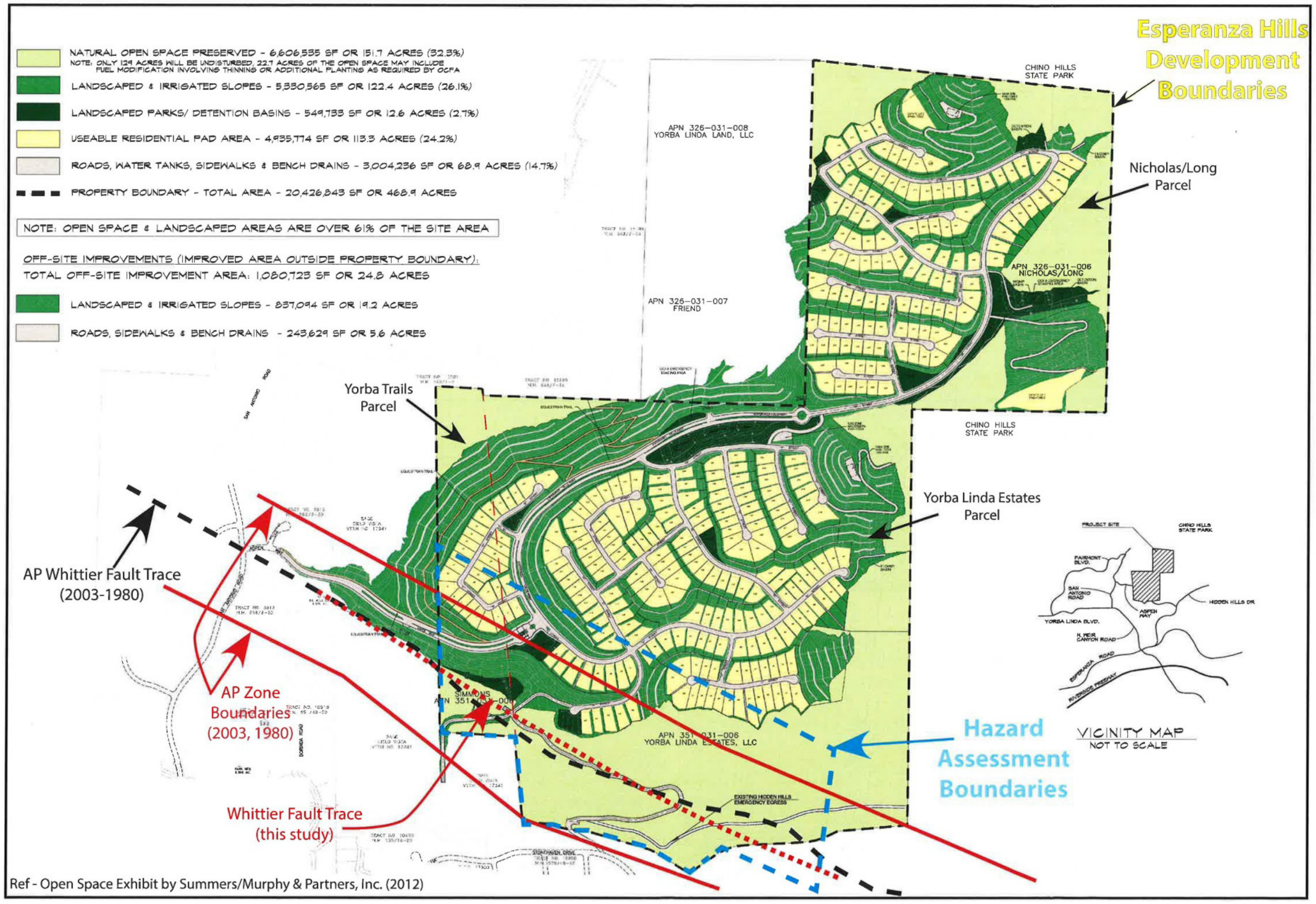



**Exhibit 5-44 – Hazard Assessment Boundaries, Option 2**

## 5. Geologic Setting

The geomorphic (surface configuration) character of the Puente/Chino hills and southeast Los Angeles basin in general is depicted on Exhibit 5-45 – Regional Geomorphology Map and Exhibit 5-46 – Regional Shaded Relief Map, respectively. Evidence exists suggesting that uplift of the Puente-Chino Hills block occurs along the relatively deep and gently northeasterly dipping Puente Hills Blind Thrust fault buried beneath approximately 3 km of alluvial sediments to the west. The uplift rate is approximately ±0.06 mm per year based on the age of drainage within the hills. Provided the Blind Thrust fault configuration is accurate, the Whittier Fault exists as an independent steeply northward-dipping fault within the hanging wall block of the thrust plate.

Emergence of the hills is thought to have begun approximately 600 to 700 thousand years ago. Over time, motion along the fault has been transformed from mostly vertical reverse motion into what is currently almost purely dextral right-lateral strike-slip motion. The waning of vertical uplift has apparently allowed rates of erosion to outpace uplift, a condition interpreted from the nature pattern of surface erosion in the hills. Surface erosion is even more advanced southwest of the Whittier Fault where the juxtaposition of more youthful and erodible bedrock units exists.

## 6. Landslides

Bedrock landslides, as well as surficial soil slumps (coherent mass of loosely consolidated materials that has moved a short distance down a slope), slides, debris flows and soil creep, are relatively common occurrences in the Puente Hills. Natural slope stability is dependent on numerous factors, including soil and bedrock composition, slope steepness, slope height, seismic activity, human activities, groundwater, and structural features (e.g., faults, folds, and joints).

Thinly bedded silt and clay shales comprising the Yorba Member can be the source of moderate to large translational (a mass that slides downward and outward on top of an inclined planar surface) and rotational (downward and outward movement of a mass on top of a concave upward failure surface) landslides where bedding within hillside terrain is oriented adversely. Existing geologic maps indicate areas of the property may be underlain by larger landslides, mostly within areas of steeply sloping canyon walls. A stereoscopic review of historical air photo pairs, LIDAR imagery, fault trench exposures, geologic mapping, field reconnaissance, and subsurface exploration suggest that if many of the larger landslides exist, they have a significant degree of surface erosion and masking of morphologic landslide characteristics.

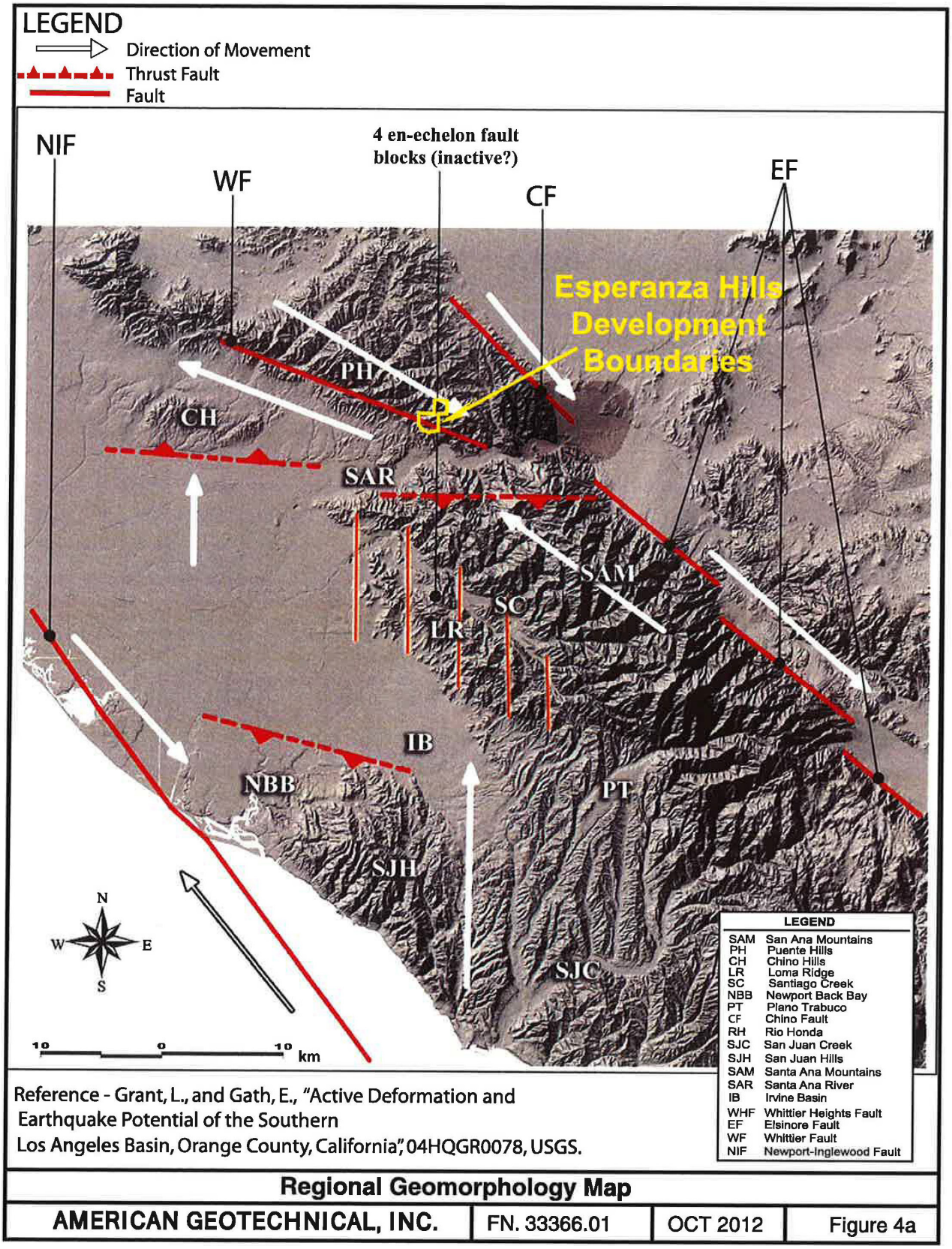



**Exhibit 5-45 – Regional Geomorphology Map**

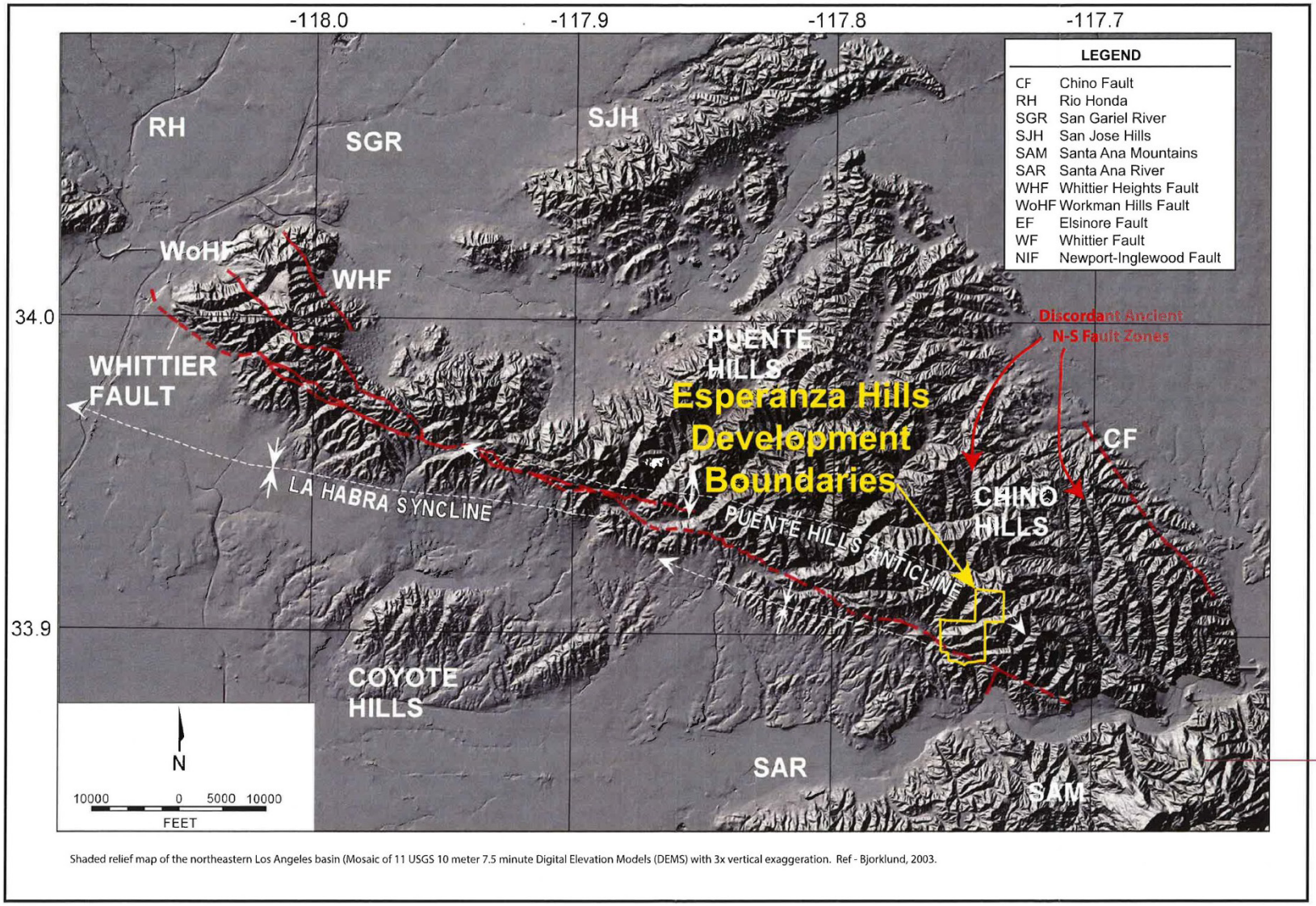



**Exhibit 5-46 – Regional Shaded Relief Map**

## 7. Whittier-Elsinore Fault Zone

The Whittier-Elsinore Fault Zone is a major north-northwest trending structure that closely parallels the San Andreas Fault. The Whittier Fault represents the northernmost 36 to 40 kilometers of the greater Whittier-Elsinore Fault Zone. Based on its overall length, proximity to Orange and Los Angeles counties and recognition that earthquakes transfer seismic strain directly toward nearby metropolitan areas, the Whittier Fault Zone represents one of the most prominent actively seismic hazards within southern California. Its structural companion, the Chino fault, forms the northeasterly boundary of the Puente/Chino Hills. The Whittier and Chino faults extend northward from the Elsinore Fault in a horsetail-shaped array. The Whittier Fault is recognized as being the most active branch accommodating a majority of strain from the Elsinore fault.

The active Whittier Fault, which crosses the southerly portion of the Project Site, could subject the site to severe ground shaking resulting from a major earthquake along this segment of the fault. Peak ground accelerations could exceed 1.8 g., causing well-built structures to be destroyed, to collapse, or to be moderately to severely damaged or shifted off their foundations. Such shaking could also cause localized slope deformation and/or trigger slope failures in graded and natural slope areas, potentially leading to structural damage. Uplift of the ground surface and/or the continued propagation of existing folds could occur on a more regional scale, which could damage or alter the flow of buried utilities. The integrity of side-hill fills and retaining walls could also be impacted in the event of any related slope deformation. Impacts due to strong ground shaking could be significant.

## 8. Historical Seismicity and Earthquake History

The Fault Hazard Report included an evaluation of earthquake history within the southern California region. Significant and damaging earthquakes have been a common occurrence throughout the modern and geologic history of southern California. Exhibit 5-47 – Earthquake and Fault Plan depicts epicenters of regional quakes with magnitudes above 6.0 and traces of major fault lines which were obtained from the United States Geological Survey. Exhibit 5-48 – Site Earthquake and Fault Plan depicts a more local series of earthquakes exceeding magnitude 3.5 and were selected based on their proximity to the proposed Project. As shown, Exhibit 5-47 suggests that no earthquakes greater than 6.0 have occurred within the adjacent vicinity of the Project Site over the past 120 years. As shown on Exhibit 5-48 several quakes of lesser magnitude occurred during preparation of the Fault Hazard Report (June 14, 2012, August 8, 2012, and August 29, 2012).

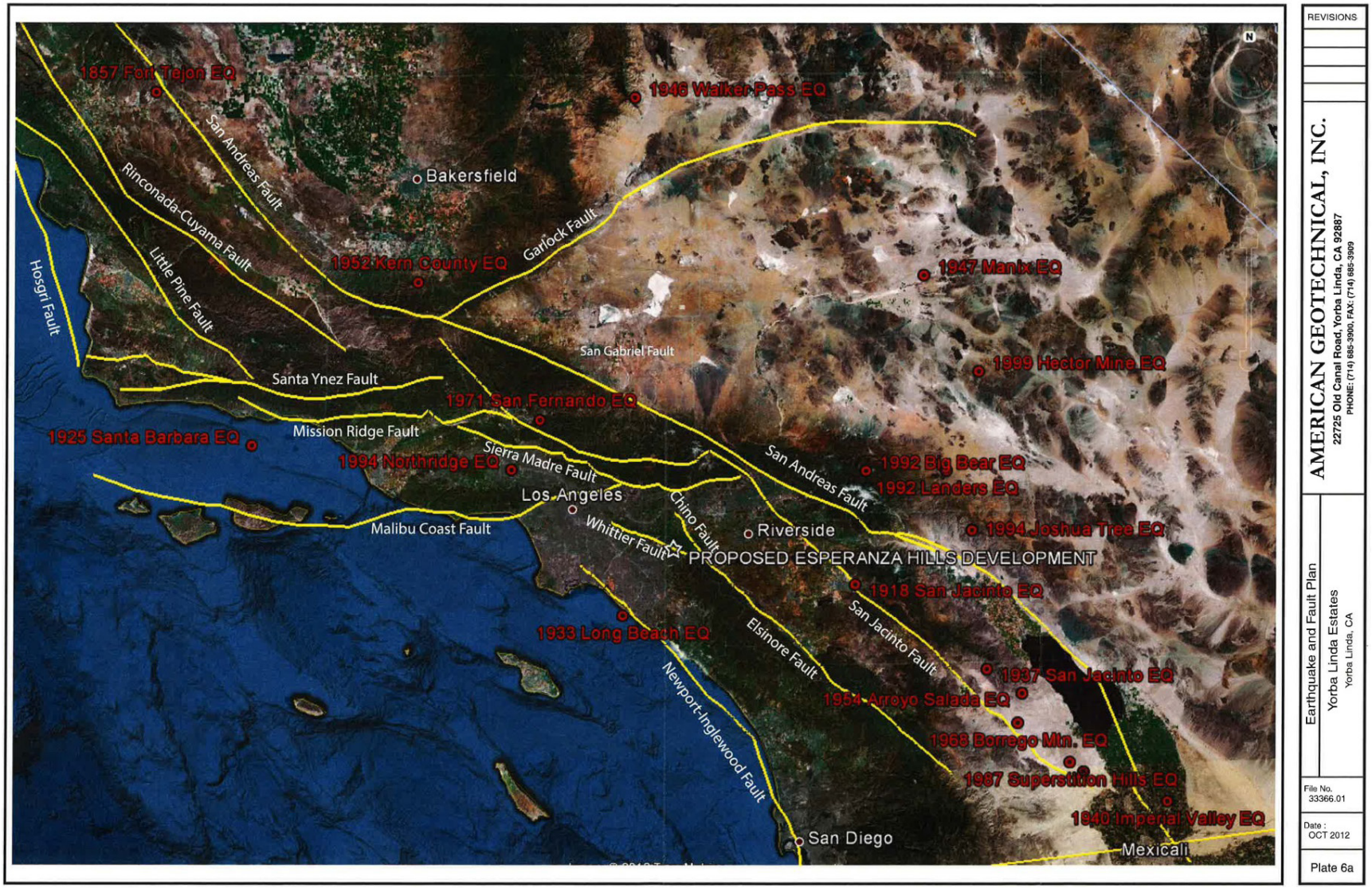



**Exhibit 5-47 – Earthquake and Fault Plan**

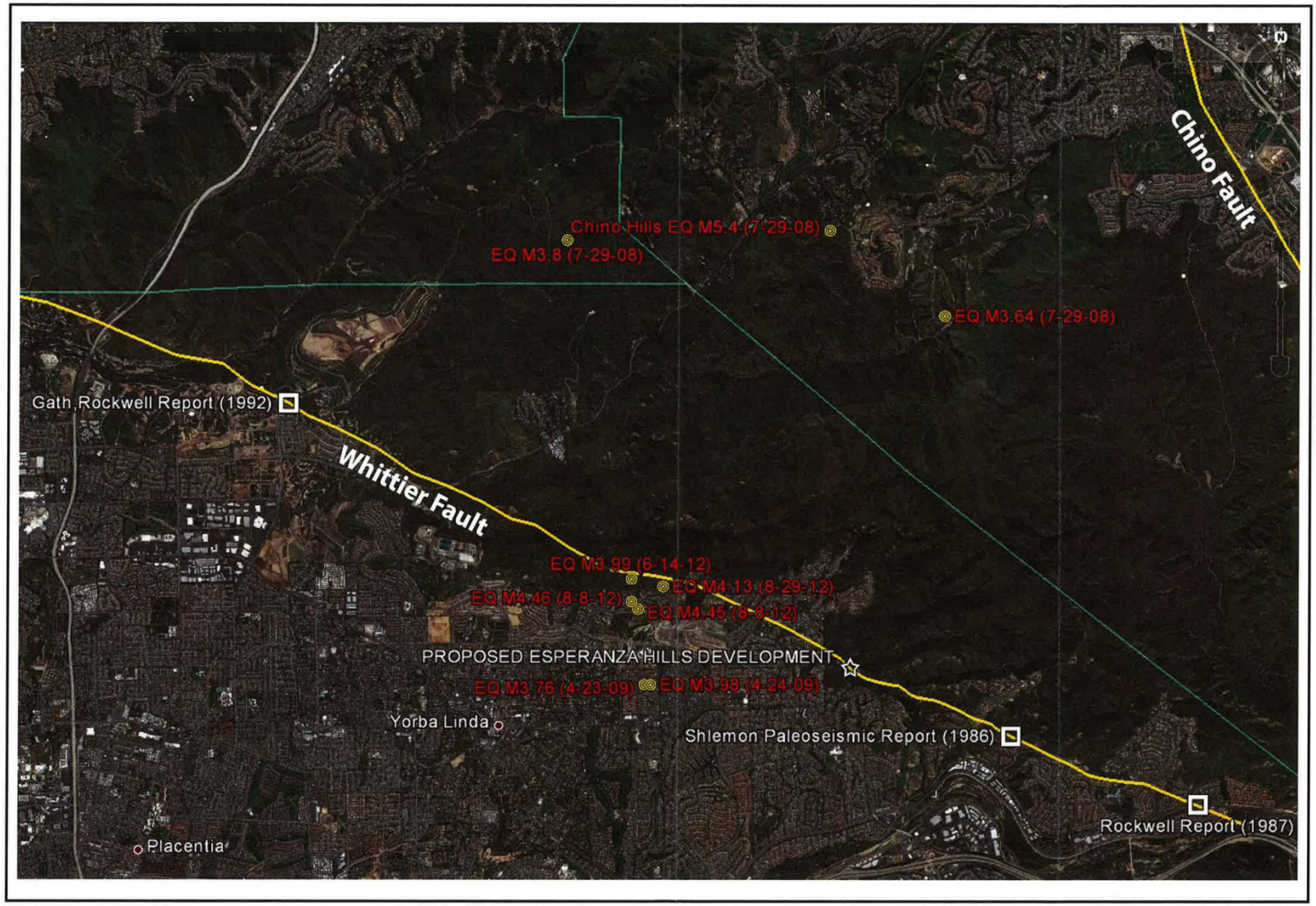



**Exhibit 5-48 – Site Earthquake and Fault Plan**

Results of the study conducted by Rockwell (1993) concluded the timing of the last large (resulting in surface rupture) earthquake along the Whittier Fault zone occurred between 1,400 and 2,200 years ago, with a minimum 1.9 meters of offset. The study also noted the minimum recurrence interval for probabilistic seismic hazard assessment was 760 years (±640) but that much longer recurrence intervals are suggested by the geologic data.

A historical list of earthquakes in the area is presented below:

**Table 5-5-1 Historical Area Earthquakes**

| Magnitude | Earthquake Distance from Development | Latitude | Longitude | Depth (km) | Date (UTC) Time |
|---|---|---|---|---|---|
| 5.39 | 6.27 km M | 33.953 | -117.761 | 14.7 | 07/29/08 18:42 |
| 3.8 | 7.46 km NW | 33.952 | -117.802 | 16.2 | 07/29/08 18:51 |
| 3.64 | 5.27 km NNE | 33.942 | -117.743 | 15.3 | 07/29/08 20:40 |
| 3.76 | 3.0 km W | 33.894 | -117.790 | 4.7 | 04/23/09 23:56 |
| 3.98 | 2.96 km W | 33.894 | -117.789 | 4.2 | 04/24/09 03:27 |
| 3.99 | 3.45 km WNW | 33.908 | -117.792 | 9.8 | 06/14/12 03:17 |
| 4.46 | 3.33 km WNW | 33.905 | -117.792 | 10.1 | 08/08/12 06:23 |
| 4.45 | 3.23 km WNW | 33.904 | -117.791 | 10.4 | 08/08/12 16:33 |
| 4.13 | 2.94 km WNW | 33.907 | -117.787 | 9.1 | 08/29/12 20:31 |

Current earthquake magnitude estimates are such that 6.7 quakes will occur every 700 years and 7.2 quakes every 1,000 to 1,500 years. Paleo-seismic studies in the area indicate that the last large earthquake had an offset of four to seven feet right-laterally and reportedly occurred more than 1,600 years ago.

## 9. Landslide Deposits/Debris Flows

Recent debris flow deposits mainly exist at the surface, are approximately three feet thick and overlie deposits of artificial fill, topsoil or bedrock. They are the result of downslope failure of moisture-laden surficial materials as an earthflow, mobilized in response to wetting and gravity during periods of heavy precipitation. Older slides are similar in nature but have a less significant weathering profile and more pronounced/ recognizable geomorphic surface expression.

Older debris flow deposits tend to underlie transition areas between canyon walls and main channel axes. Older and recent debris flows are similar in lithology and depositional environment but differ in age, thickness, stratigraphic location, and lithology depending on source area. Individual flow events are commonly a few feet thick, with local stacked flows representing multiple events. Of particular interest are local flows interpreted to be associated with ancient wildfires, represented by accumulations of deep reddish brown “baked” earth. The wildfire deposits exhibit a more welded texture, possibly due to the presence of oils, resins, and other byproducts of the fires.

Older Quaternary landslide deposits are generally similar in character to those of recent age but exhibit a more significant degree of weathering and less recognizable

geomorphic expression or no expression at all. Slide material is derived from thinly bedded clayey to silty shale bedrock.

### 10. Compressible Soils

Compressible soils are deposits of recent alluvium within the boundaries of modern stream channels and accumulations of slope wash or colluvium near the base of natural slopes or within side-hill swales. Surficial soils are also categorized within this group but they are commonly thin on steeper natural slopes and would be removed during conventional grading operations. Impacts associated with compressible soils typically occur as a result of settlement and a loss of support in areas where structural fill has been placed against or above such deposits. Compressible soils will likely pose the most significant impact in development boundary areas where their removal will be necessary in order to achieve lateral support for proposed fill slopes or daylight cut lots.

### 11. Corrosive Soils

Corrosive soil types are categorized as being corrosive to metal, mainly steel and concrete elements. Where the chemistry of certain soils is corrosive to a degree that concrete and steel are weakened, the strength and integrity of foundations can be jeopardized.

### 12. Expansive Soils/Bedrock Heave

Expansive soil materials typically occur as part of engineered fill mixture derived from areas of bedrock cut. Impacts associated with expansive clay soil and heaving bedrock related to the adverse effects these materials can have on the structural integrity of foundations and other improvements.

### 13. Surficial Slope Stability

Surficial slope failures have occurred and may occur on natural slopes across the property in the future. Earth materials involved in these failures typically include loose accumulations of soil, vegetation and other debris mantling the slope surface or shallow fractured bedrock that is weakened by weathering.

Related impacts are more commonly associated with natural slopes but may also occur within engineered fill slopes that are buttressed or stabilized as part of a finished development. Of particular concern are areas where natural drainage swales exist above or below the development. Other impacts can include accumulations of mud and debris along the base of a slope or the destabilization of adjacent upslope areas where the scar of these failures encroach into existing building lots. Impacts from surficial slope failures are considered to be potentially significant.

## 14. Liquefaction

Liquefaction is defined as a failure of structure in loose, medium-grained soils in the presence of high groundwater due to an increase in pore pressure and resulting loss of shear strength induced by strong ground motion, typically resulting from a large earthquake. When liquefaction occurs, the sediments involved behave like a liquid or semi-viscous substance. Liquefaction can cause structural distress or failure due to ground settlement, a loss of bearing capacity in the foundation soils and the buoyant rise of buried structures.

## 15. Ground Water

The Geotechnical Review states that groundwater on the site is currently confined to permeable deposits of alluvium within the lower reaches of drainage canyons, tending to perch above bedrock in these areas. The height of the water table tends to fluctuate in response to seasonal rainfall.

## 16. Existing Infrastructure

Structures that currently exist within the influence of the conceptual design plans and may be adversely impacted by proposed grading and/or construction activities are considered problematic infrastructure. There are two existing large-diameter natural gas pipelines buried within a Southern California Gas (SCE) easement that extend along the western boundary of the adjacent proposed Cielo Vista project.

The second problematic infrastructure element is the regional SCE electrical transmission line system crossing the eastern boundaries of the Project Site.

## 17. Existing/Abandoned Oil Wells

The Fault Hazard Report identified a total of three active and four inactive (or previously abandoned) oil wells within the boundaries of the Project Site. The above-ground storage tanks and associated pipelines were also identified.

## 18. Previous Site Studies

Geologic studies associated with exploration for petroleum resources within the Puente Hills were conducted prior to 1998. Various generations of large scale regional geologic maps were published compassing the Project Site. The Esperanza Oil Field nearby provided a source of deep well log information. A 200-scale geotechnical constraints map was included in a 1998 report prepared by Earth Consultants International that related directly to potential residential development of the Proposed Project. The map outlined locations of possible landslides and faults on the property as well as estimated thicknesses of alluvium in canyon areas. A later site-specific study was performed in 2002 to evaluate geologic conditions for another conceptual design plan including excavation of in excess of 30 shallow exploratory trenches across the

southern parcels to assess conditions of geologic structure and resolve some of the major landslide conditions.

American Geotechnical conducted an active fault study in 2013 within the limits of the southern site boundaries. The study included excavation and detailed logging of approximately 2,500 linear feet of exploratory trenches, mainly confined to the boundaries of the Alquist-Priolo Earthquake Study Zone established by the state of California for the Whittier Fault. The Fault Hazard Report was approved by the County of Orange in March 2013. Exhibit 5-49 depicts the previous trench study locations performed by Seward and the recent American Geotechnical trenching locations.

American Geotechnical also completed a recent Phase I ESA for the Project Site, which was submitted to the County of Orange for review. An ESA identifies potential or existing contamination. According to the findings of this report, there are a total of three active and four abandoned oil wells present within the boundaries of the development. The Phase I ESA findings and recommendations are discussed in detail in Section 5.7, Hazards and Hazardous Materials (beginning on page 5-275 in this DEIR).

## 5.5.2 Thresholds of Significance

The state encourages local agencies to adopt their own thresholds, but it is not required. For purposes of this DEIR, the thresholds of significance for evaluating project impacts are based upon suggested criteria from the CEQA Environmental Checklist (Appendix G of the CEQA Guidelines). According to the CEQA Guidelines, the Proposed Project would have a potentially significant impact with respect to geology and soils if it would:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving:
   i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42.
   ii) Strong seismic ground shaking
   iii) Seismic-related ground failure, including liquefaction
   iv) Landslides
b) Result in substantial soil erosion or the loss of topsoil
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-site or off-site landslide, lateral spreading, subsidence, liquefaction or collapse
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water

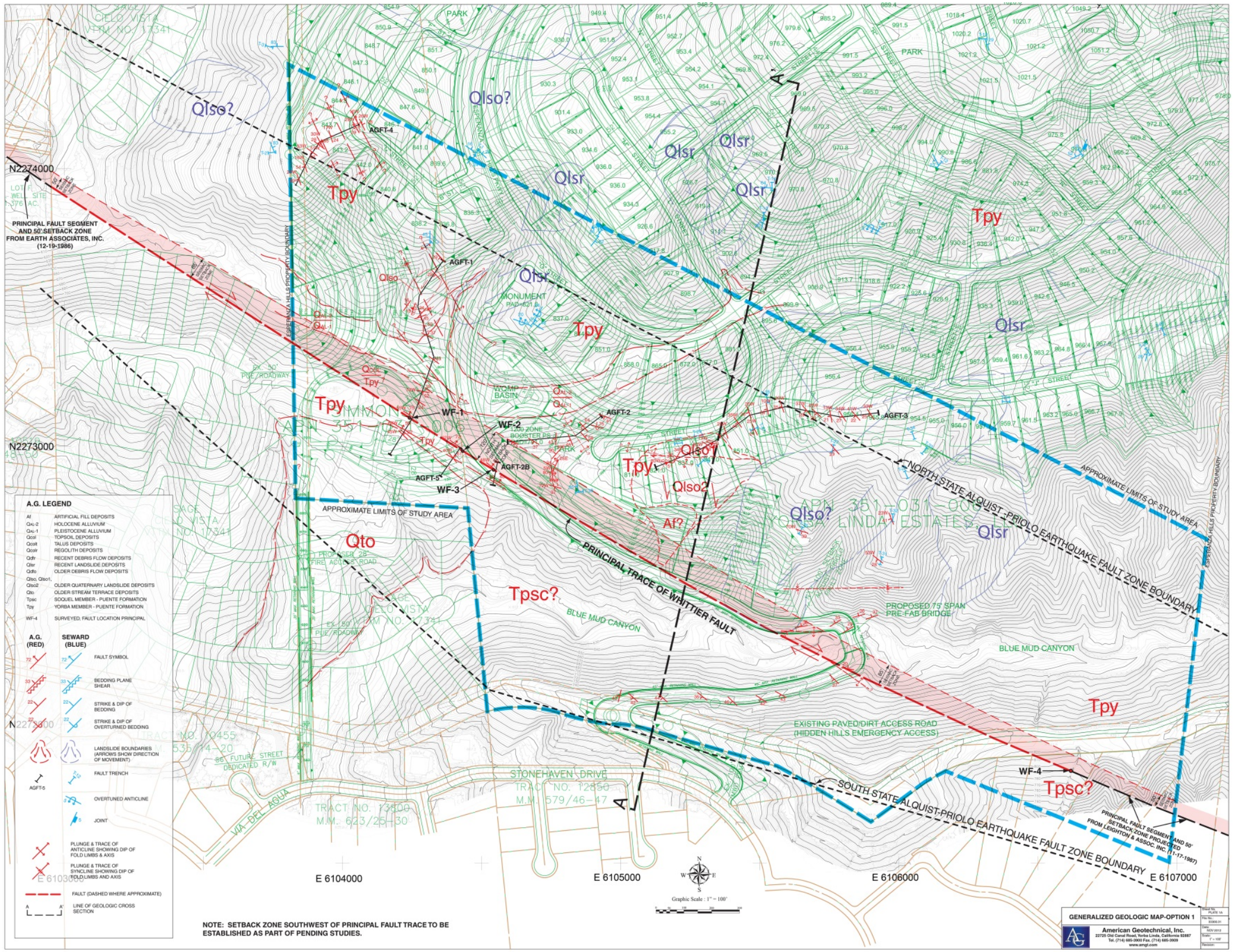



**Exhibit 5-49 – Trench Study Locations**

### 5.5.3 Project Impacts Prior to Mitigation

The Proposed Project includes conceptual design plans for access Options 1 and 2. Associated infrastructure will include internal roadways, parks, graded cut and fill slopes, bio-retention basins, underground water reservoirs, booster-pump pads, retaining walls, multi-use trails for hiking, biking, and equestrian uses. Grading volumes are currently estimated to range from approximately 15 to 16 million cubic yards of raw earthwork cut. Grading will be accomplished through conventional cut and fill methods including cuts and canyon fills exceeding 150 feet in some locations.

One prominent difference in design proposed under the Option 1 access plan is conversion of the existing access road within Blue Mud Canyon for use as Esperanza Hills Parkway and the main route of development access/egress. The 50-foot-wide road will closely follow the existing alignment. A prefabricated bridge or other structure will be constructed at the bottom of Blue Mud Canyon spanning the jurisdictional drainage area of the U.S. Army Corps of Engineers (ACOE) with graded earth-fill abutments and will be supported by retaining walls with variable heights along the north and south canyon walls. Grading within the canyon will be avoided where possible so natural slope areas below the walls remain as open space.

An emergency access road under Option 1 will extend from the southwesterly property line through the adjacent proposed Cielo Vista project. Road grades will be achieved by construction of retaining walls along roadway margins of varying heights. The roadway alignment will also serve as an easement for underground sewer and water utility lines.

Option 1 design depicts the abrupt termination of a fill slope along the western project boundary which will require a series of tiered retaining walls. Residential building pads are proposed at higher elevations upslope from the wall/slope to the east. A retaining wall or walls of varying heights are proposed across the axis of a tributary canyon that descends along the rear lots on southernmost parcel area.

The design for Option 2 will require fewer retaining walls to achieve design grades. The roadway will enter the western side of the project as an extension of Aspen Way, crossing two large diameter natural gas pipelines and the axis of Canyon B located on the proposed Cielo Vista project. The new 70-foot-wide roadway would be constructed by placement of fill within the canyon. A fill slope is to ascend out of the canyon to achieve roadway grades and beyond to a series of residential lots along "C" Street.

The unimproved roadway currently serving as access at the southerly area of the project would be improved for emergency fire access use under Option 2. The roadway crosses the trend of the active fault near the bottom of Blue Mud Canyon and parallels it along its northwestward ascent. No bridge or retaining walls are shown within Blue Mud Canyon for this Option. The roadway alignment will serve an easement for underground sewer and water utility lines.

Proposed cut/fill slopes, cut/fill depths, and construction of the tributary canyon retaining wall for support of lots along "J" Street are consistent with those identified for the Option 1 access plan.

## 1. Primary Impacts

Geotechnical and engineering geologic hazards posing the most significant impact to conceptual design plan implementation are categorized as "Primary" impacts herein. They are considered more significant as they are likely to require use of supplemental engineering structures to achieve adequate factors of safety in excess of conventional costs and practices commonly associated with remedial grading operations. These impacts relate to the stability of proposed slopes including graded fill and/or cut slopes, slopes steeper than 2:1 (horizontal:vertical) and slopes to remain natural following grading. The grade (or slope) of a physical feature or landform refers to the inclination of that surface to the horizontal. Slope stability is of particular concern where daylight cut and fill lots are proposed above or below natural slopes. Additional impacts include the stability of retaining walls to be constructed on sloped areas. Other primary impacts relate to surface rupture associated with a major earthquake along the Whittier Fault. Elements of the conceptual plan could be damaged by right-lateral strike-slip and/or vertical offset anticipated within the 50- to 120-foot-wide seismic setback zone established in the Fault Hazard Report. Individual impacts are discussed below.

### a. Gross Slope Stability

Gross slope stability refers to deep-seated failures which can occur on natural or man-made slopes. The potential for slope failure is dependent on many factors and their inter-relationships. Some of the most important factors include slope height, slope steepness, shear strength (a material's ability to resist forces that can cause the internal structure to slide against itself), and orientation of weak layers in the underlying geologic units. Joints and shears, which weaken the rock fabric, allow penetration of water leading to deeper weathering of rock along with increasing pore pressures, increasing the plasticity of weak clays, and increasing the weight of the land mass. For engineering of earth materials, these factors are combined in calculations to determine if a slope meets a minimum safety standard.

A slope is considered to be in equilibrium where it is determined to possess a factor-of-safety of 1.0. Slopes calculated as having safety factors less than 1.0 are considered to be either failing or on the precipice of failure. In order to satisfy regulatory code requirements, a minimum 1.5 factor-of-safety must be achieved either through remedial grading methods or installation of supplemental engineering structures.

Large graded cut, fill or cut/fill combination slopes will be constructed as part of the Proposed Project. Most are designed at gradients of 2:1. Some are designed at steeper gradients up to 1.5:1.

Other slopes of significant concern are natural slopes which will remain along project margins in descending or ascending configurations. Natural slope impacts relate to their overall height, gradient, unstable nature and requirements that they remain undisturbed by remedial grading. Where proposed building lots will daylight above or below natural slopes, gross stability will have a direct impact on the integrity of adjacent lots and associated improvements. Many of these slopes may not meet safety factors in their present configuration.

Graded slopes and natural slopes may be underlain by thinly bedded and tectonically folded sedimentary bedrock structure with adversely oriented bedding plans of low shear strength. Depending upon these and other factors, there is a potential for the occurrence of translational (bedding plane) or rotational type landslide failures. Such failures pose a significant "Primary" impact to the development. Exhibit 5-50 – Typical Translational Landslide and Exhibit 5-51 – Typical Rotational Landslide depict examples of translational and rotational landslides.

Design cut, fill and fill-over-cut slopes, and slopes to remain natural following grading, may not meet minimum 1.5 factors of safety standards, and pose a hazard to planned improvements and areas beyond the boundaries of the development from a gross slope stability standpoint. Design slopes steeper than 2:1 will not satisfy minimum grading code requirements and are likely to possess an even greater slope stability hazard. Such slopes may require more difficult grading measures and/or use of engineering structures to achieve minimum factor-of-safety requirements. Therefore, mitigation measures have been included herein to ensure gross slope stability.

### b. Ground Rupture

Current earthquake magnitude estimates are such that magnitude 6.7 quakes could occur every 700 years and magnitude 7.2 quakes every 1,000 to 1,500 years along the Whittier Fault. Paleoseismic studies in the nearby area indicate the last large earthquake along this fault segment resulted in approximately four to seven feet of right-lateral offset and occurred more than 1,600 years ago.

The Fault Hazard Report addressed proposed Option 1 and Option 2 conceptual design plans for Esperanza Hills. The Fault Hazard Report was based in part on guidelines published by the California Geological survey[9]. Current Alquist-Priolo Earthquake Fault Zone Maps were used as the base map in the Fault Hazard Report.

[9] (2002, Note 49 entitled "Guidelines for Evaluating the Hazard of Surface Fault Rupture")

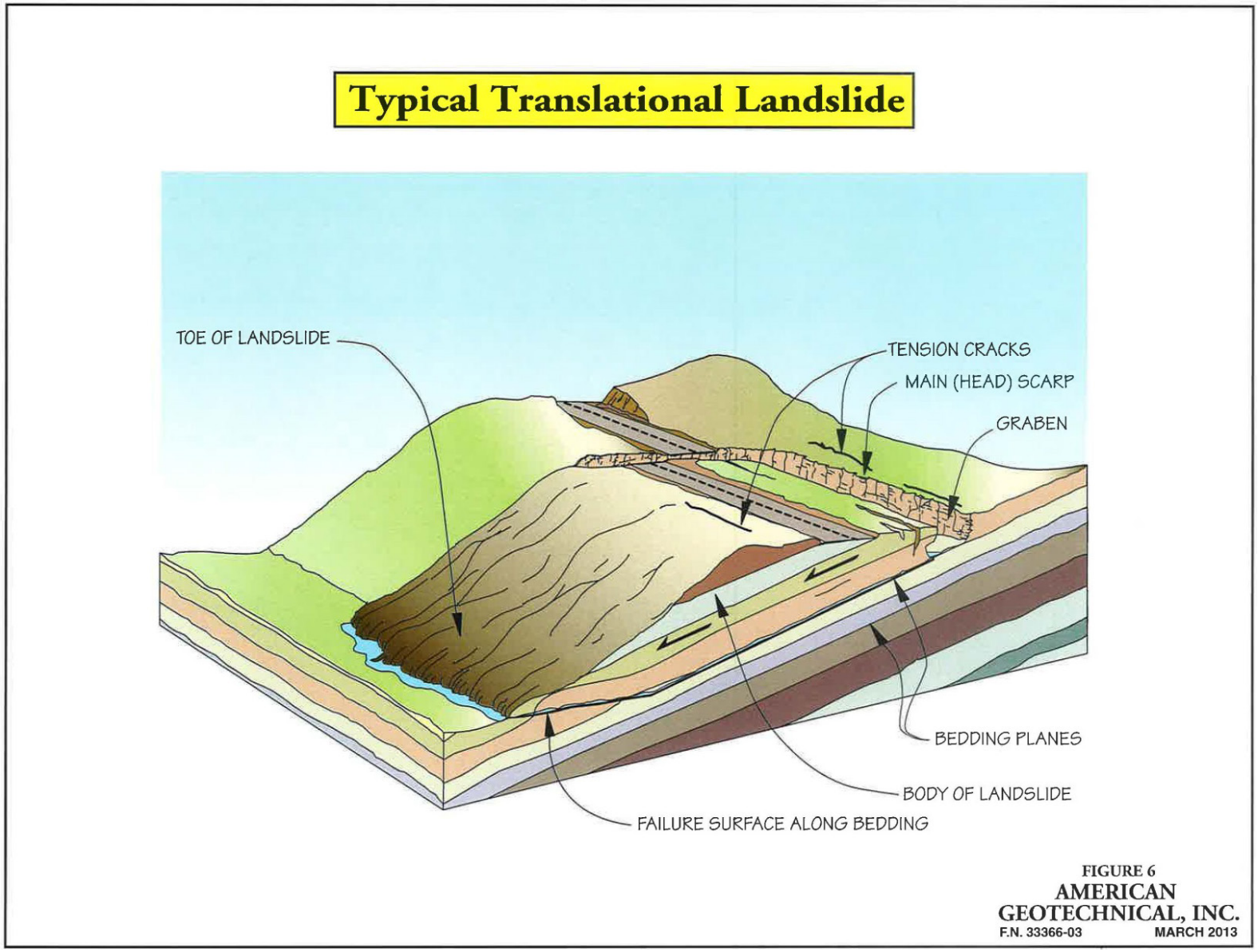



**Exhibit 5-50 – Typical Translational Landslide**

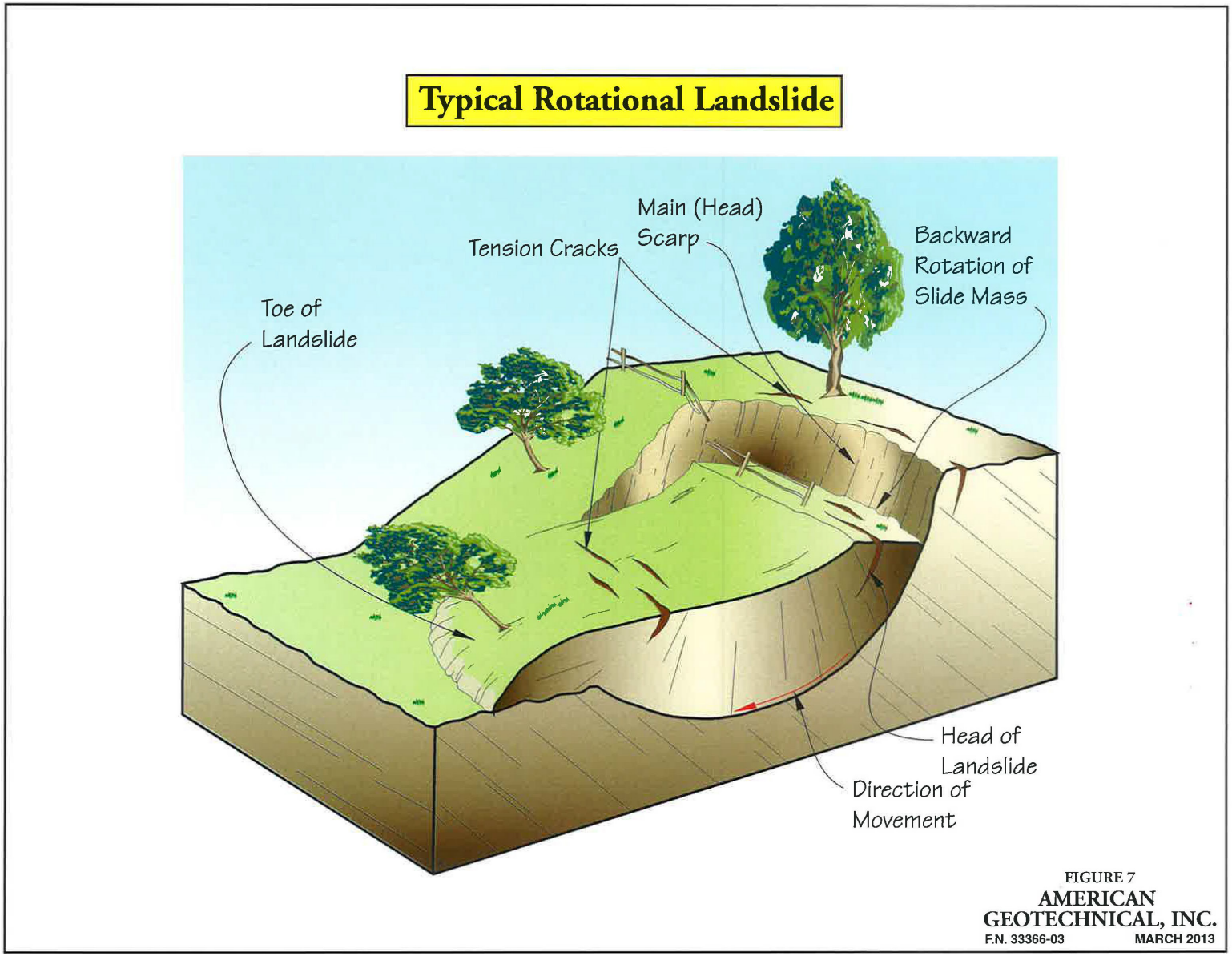



**Exhibit 5-51 – Typical Rotational Landslide**

The boundaries of the assessment zone for the Fault Hazard Report were located in the southern portion of the Project Site designated by the State of California Geological Service as the Alquist-Priolo Zone (AP Zone). The north boundary of the assessment area extends beyond the northern AP Zone boundary, to determine whether north-trending fault traces were present. The southern limits of the proposed conceptual design plan occur within the boundaries of the AP Zone. Fault trenching was conducted in the northern portion of the assessment area in areas generally coincident with proposed design grading improvements. Exhibit 5-52 – Orthophoto Map depicts the boundaries of the Fault Hazard Report analysis (Exhibit 5-43 (page 5-207) and Exhibit 5-44 (page 5-209)). The following information is based on and taken from the Fault Hazard Report.

**1) Option 1 Access**

Option 1 access closely follows that of the existing unimproved access road connecting with Stonehaven Drive on the south. From Stonehaven Drive, the road descends the south wall of Blue Mud canyon. A retaining wall system is proposed along the downslope side of the roadway with a pre-fabricated bridge allowing the roadway across the bottom axis of the canyon. From the bridge to the development area, the road generally follows the principal trace of the Whittier Fault.

Option 1 also includes construction of an emergency access road along the westerly property boundary of the Yorba Trails LLC property, extending south through the proposed Cielo Vista property along the western border of the Virginia Richards Trust property and then extending south to Via del Agua. A retaining wall is proposed along each side of the road.

**2) Option 2 Access**

Option 2 access is provided by an extension of Aspen Way eastward across a north-south trending canyon. The proposed roadway includes earthwork grading (placement of fill) to bridge the axis of the canyon. A fill slope would ascend from the canyon bottom to road grades and residential lots beyond. The unimproved road currently serving as the main access to the property from Stonehaven Drive would be improved for emergency fire access.

Option 2 also includes construction of an emergency access road that closely follows that of the existing unimproved access road connecting with Stonehaven Drive on the south. From Stonehaven Drive, the road descends the south wall of Blue Mud Canyon. A retaining wall system is proposed along the downslope side of the roadway with a pre-fabricated bridge allowing the roadway across the bottom axis of Blue Mud Canyon, which will span the jurisdictional drainage area for the ACOE. From the bridge up the hill to the development area, the road generally follows the principal trace of the Whittier Fault.

Exhibit 5-43 (page 5-207) and Exhibit 5-44 (page 5-209) depict the Option 1 and Option 2 access relative to the Fault Hazard Report boundaries.

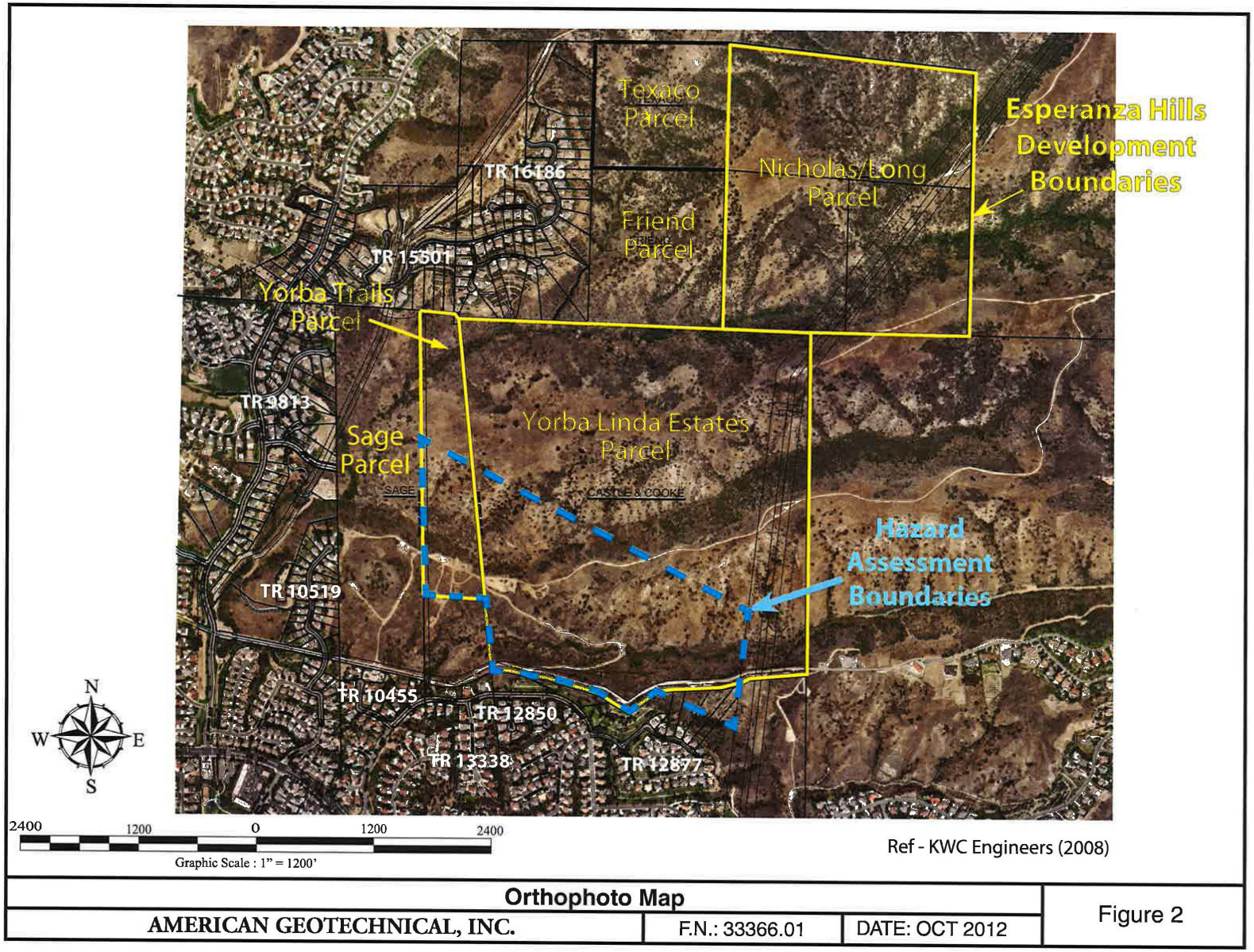



**Exhibit 5-52 – Orthophoto Map**

### 3) Alquist-Priolo Act

The Alquist-Priolo Earthquake Fault Zoning Act (AP Act) requires the State of California to delineate appropriately wide earthquake fault zones to encompass all potentially and recently active traces of faults or segments determined to be sufficiently active and well-defined as to constitute a potential hazard to structures from surface faulting or fault creep. The earthquake fault zones (EFZs) and locations of faults are published as Official Earthquake Fault Zone Maps on 7.5 Minute Quadrangle based maps.

Qualified professional geologists must critically investigate the presence of faults when structures for human occupancy are proposed inside the limits of an EFZ and demonstrate that no critical structures will be impacted by surface rupture, mainly by their construction across active traces. The AP Act states:

- An active fault is defined as having had surface displacement during the Holocene time (last 11,000 years)
- Unless proven otherwise, the area within 50 feet of an active fault is presumed to be underlain by active branches of the fault
- Geologic reports are required, directed at the problem of potential surface faulting for all projects defined by the Act
- Cities and counties are required to review geologic reports for adequacy, and
- Geologic reports shall be submitted to the State Geologists for open-file

In keeping with the guidelines of the AP Act, the purpose of the Fault Hazard Report was to identify the presence of all faults within the EFZ (active and inactive) and to establish a "seismic setback zone" encompassing all recognized active faults within which structures proposed for human occupancy are to be avoided.

Field exploration for preparation of the Fault Hazard Report included:

- Excavation of six fault trenches over 2,500 feet in total length
- Graphic fault trench logging at a scale of 1 inch equals 5 feet
- Photo-documentation of fault trenches using a digital camera
- Subcontracted consulting paleoseismologist for review and comment on certain outcrops (no written report commissioned)
- Collected samples of organic material for radiometric age date testing
- Organized fieldtrips for peer review

The trenching took place between June 12 and August 1, 2012. The total combined measured length of trenching as established by civil engineering survey was 2,535 linear feet. Excavations were accomplished using a three-foot wide bucket attachment. Trench depths ranged between

approximately 10 feet and a maximum of 20 feet below existing grades. Hand tools were used to remove the effects of bucket-smudging from log walls and reveal underlying geology. Final trench logs are included in the Fault Hazard Assessment, which can be found in Appendix G of this DEIR.

### c. Faulting

Findings of the Fault Hazard Report, reached after surface mapping, LIDAR imagery review, and review and study of more than 2,500 feet of continuous fault trenching provided conclusive documentation of fault locations on the Project Site. Several bedrock faults were observed in the trenches, having varying degrees of offset, age, and style. Three fault trenches encountered what is considered to be the principal active strand of the Whittier Fault. This structure consists of a narrow well-defined zone approximately two feet wide, bounded by near vertical to steeply northeasterly dipping fault strands and additional internal high angle shears.

Bedrock directly south of the principal fault extends upward nearly to the surface of the oil/gas cut pad on the Darco oil well located on the western portion of the Yorba Linda Estates, LLC property, covered by only a few inches of residual topsoil. To the north, across what is interpreted to be a buried fault scarp (step slope), bedrock is covered by a four-foot-thick wedge-shaped graben deposit (a depressed block of land bordered by parallel faults), infilled with organic-rich topsoil material that is heavily disturbed by plants and animals (bioturbated). The principal fault extends upward to the base of the topsoil but does not offset this contact.

Several branch faults were observed to the north and south of the principal fault trace. None of these fault traces were found to extend upward into overlying surficial deposits or break the contact between capping soil and underlying bedrock. Although the branch faults are subsidiary to the principal fault, they likely accommodate only a fraction of sympathetic movement on the order of millimeters to inches and are laterally discontinuous. The Hazard Fault Report states that branch faults should be considered active and included within the boundaries of a seismic setback zone, barring mitigation through special grading or construction measures.

No geomorphic evidence of recent faulting was noted in LIDAR imagery or on aerial photographs as being associated with these faults, nor is any evidence of their presence depicted on as-graded geotechnical maps prepared for nearby tracts on file with the City. Observations of the faults in the field by peers confirm the absence of active fault features.

Field exposures of faulting and general geology were observed within several trenches by professional geologists from the County of Orange, the California Geological Survey, and consulting geologists with Seward Engineering Geology, Inc. There was near universal agreement among all parties with the geologic

interpretations of the Fault Hazard Report, including identification of principal and branch faults and absence of evidence for active faulting beyond the established 120-foot-wide seismic setback zone to the north. No change in the state-mandated 50-foot-wide seismic setback zone to the south was recommended, as there are no habitable structures designed to occur south of the main trace of the Whittier Fault.

## d. Geologic Setting

Regarding the Project Site, deep and sharply-incised canyons and narrow ridges cross the property in a general east-northeasterly trend. The east-west canyon and ridge topography is locally interrupted off-site to the east by one or more distinct north-trending canyons and ridges which are likely the expressions of an ancient fault zone associated with the uplift of the Puente-Chino Hills structural block. Significant active strike-slip motion associated with the Whittier Fault zone is evident as consistently offset and beheaded drainage channels, enclosed basins and a northward bending of major topographic features in closer proximity to the Whittier Fault. Exhibit 5-53 – Regional Geologic Map (Tan, et al.) depicts the geological characteristics of the Project Area.

Site specific characteristics identified in the Fault Hazard Report include:

- A sequence of deep water marine sedimentary bedrock of the late Miocene age occurs extensively at/near the surface and depths of approximately 2,000 feet. The bedrock consists of well bedded shale and sandstone unit considered to be contemporaneous in deposition with the Monterey Formation, a regionally extensive unit found throughout the Los Angeles basin and elsewhere along western coastal North America.
- The overall geologic structure of the Puente-Chino Hills is that of a northwest trending anticline elevated above surrounding alluvial basins by as much as 1,000 feet. Geologic structure across the Project Site exhibits several tightly spaced parallel fold axes trending in a general east-northeasterly direction. Exhibit 5-54 – Regional Geologic Map (Dibblee) indicates that no faults cross the Hazard Assessment areas analyzed in the Fault Hazard Report. Fault trenching performed by American Geotechnical allowed the principal Whittier Fault trace to be mapped across the length of the Hazard Assessment area.

The maps are included as Plates 1A/1B in the Fault Hazard Report. The mapping confirms that of published data, which indicates that interbedded sandstones and shale of the Yorba Member of the Puente Formation are more prominent at the surface to the north and northeast of the Whittier Fault Zone. Interpretations of faulting from well data in the Esperanza Oil Field suggest that deformation of underlying Puente Formation has been accommodated mainly by flexural slip and not by faulting.

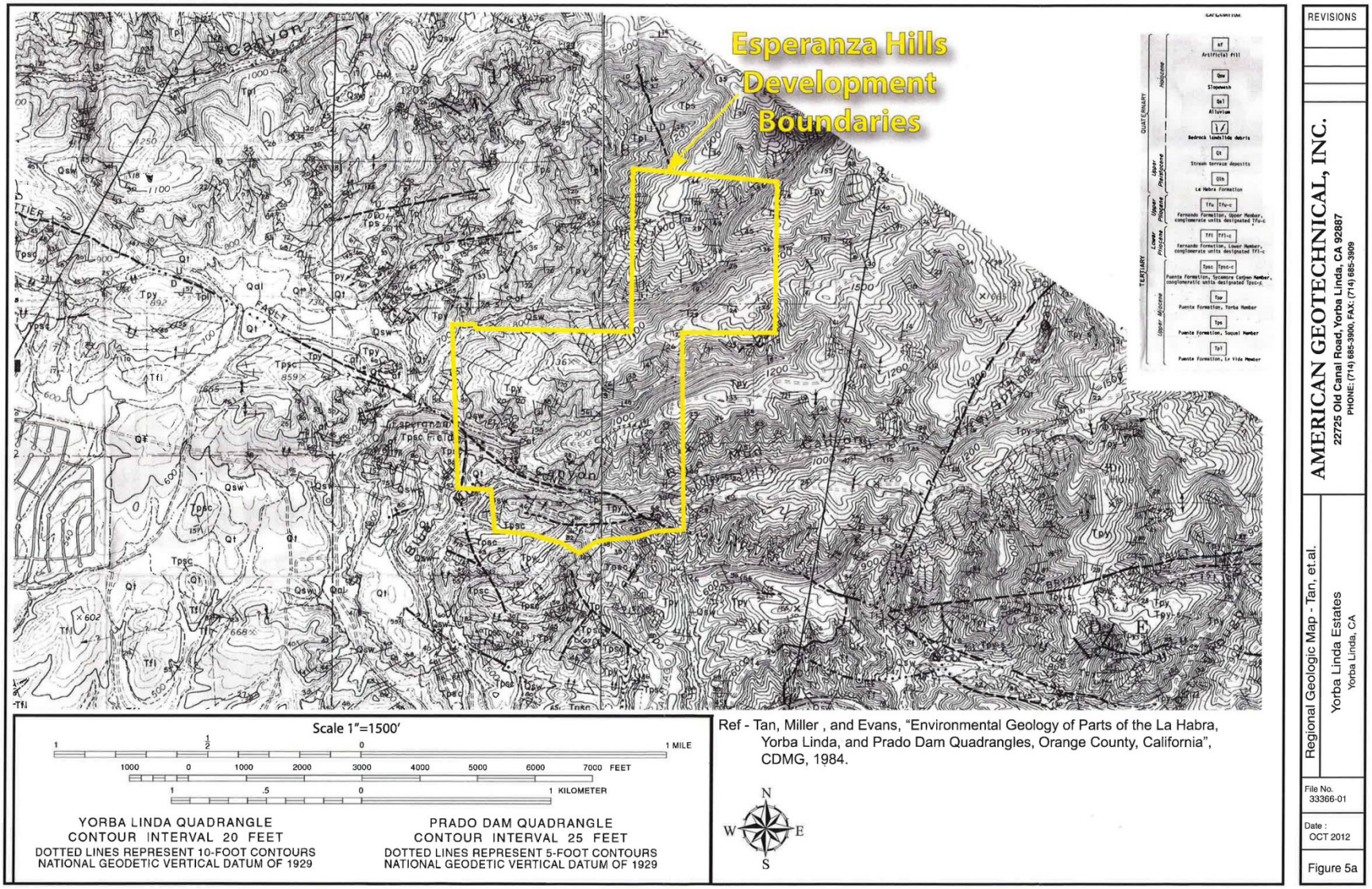



**Exhibit 5-53 – Regional Geologic Map (Tan, et al.)**

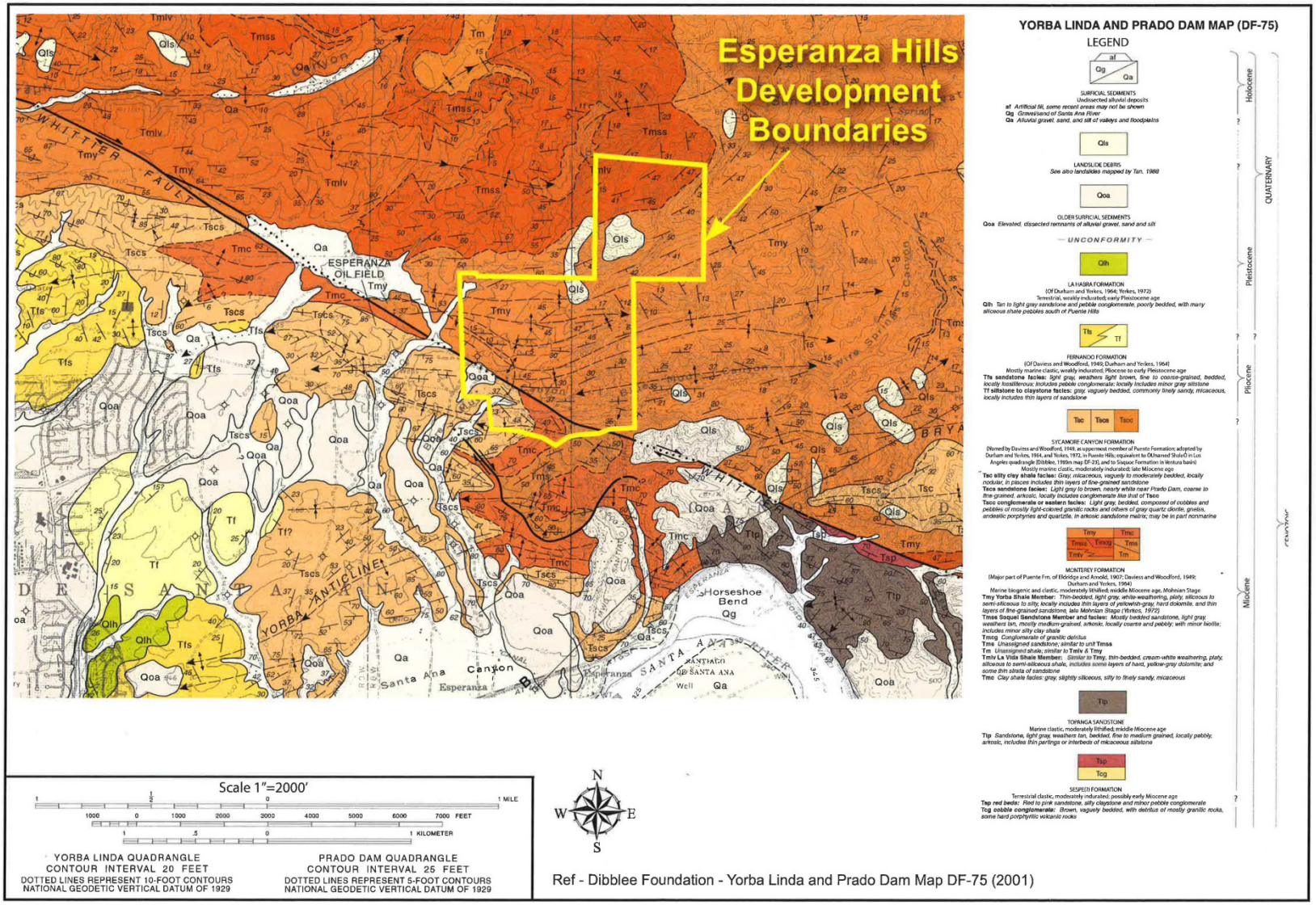



**Exhibit 5-54 – Regional Geologic Map (Dibblee)**

### e. Landslide Deposition/Debris Flows

No such landslide deposits were encountered in any fault trenches performed by American Geotechnical.

The thickest older debris flow deposit, approximately 12 feet, occurred along the margins of the southerly canyon wall in Canyon B. The occurrence of these deposits is comparatively limited along the north canyon margin where only a single slope failure event is interpreted, measured to approximately seven feet thick and likely originating within the nearby tributary canyon to the north.

No geomorphic surface expression of older landslide deposits was recognizable in light detection and ranging (LIDAR) imagery and historical stereo aerial photographs. Along with the relatively significant degree of weathering exhibited by the deposits, the Fault Hazard analysis estimated the slides to be at least 15,000 years in age.

### f. Local Geomorphic Landforms

Local geomorphic landform conditions are clearly recognizable on LIDAR imagery and aerial photographs as shown on Exhibit 5-55 – LIDAR Image – Oblique Southwesterly View and Exhibit 5-56 – LIDAR Image – Oblique Northeasterly View. LIDAR shows a major right-lateral deflected stream channel (Blue Mud Canyon), triangular slope faceting along canyon margins, side-hill benches and a major "scissor-ridge" in the area of the oil/gas operations. These features are depicted and identified on Exhibit 5-56.

### g. Ground Water Conditions

A small amount of groundwater was encountered within the lower portion of trench AGFT-1, where it crosses the bottom of the main drainage canyon. The water occurs within the lower portion of the Pleistocene Alluvium Deposits, perched above bedrock. The elevation of the water table existed at approximately 673 AMSL at the time of the excavation. No discharge of groundwater occurred during testing.

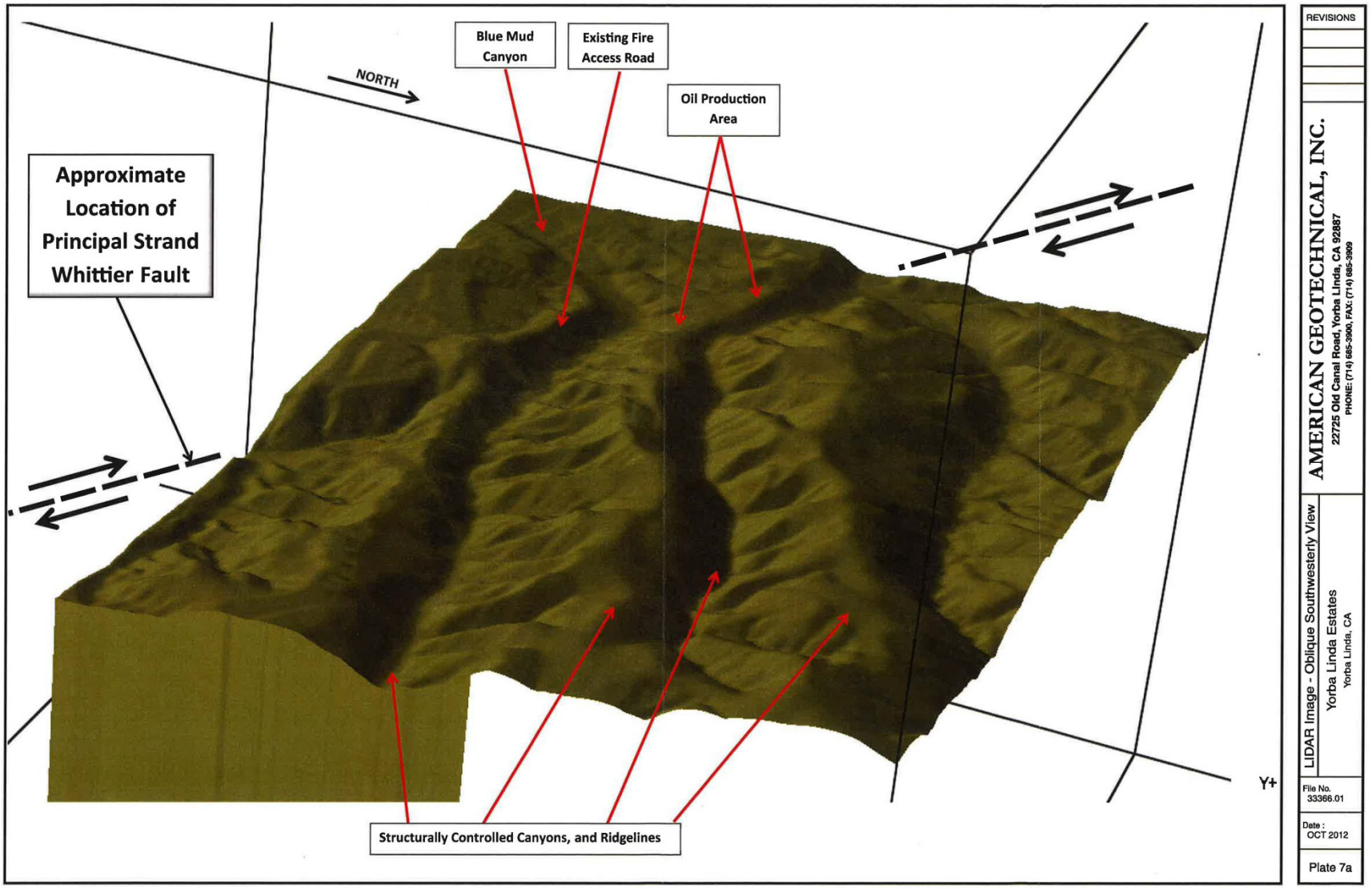



**Exhibit 5-55 – LIDAR Image – Oblique Southwesterly View**

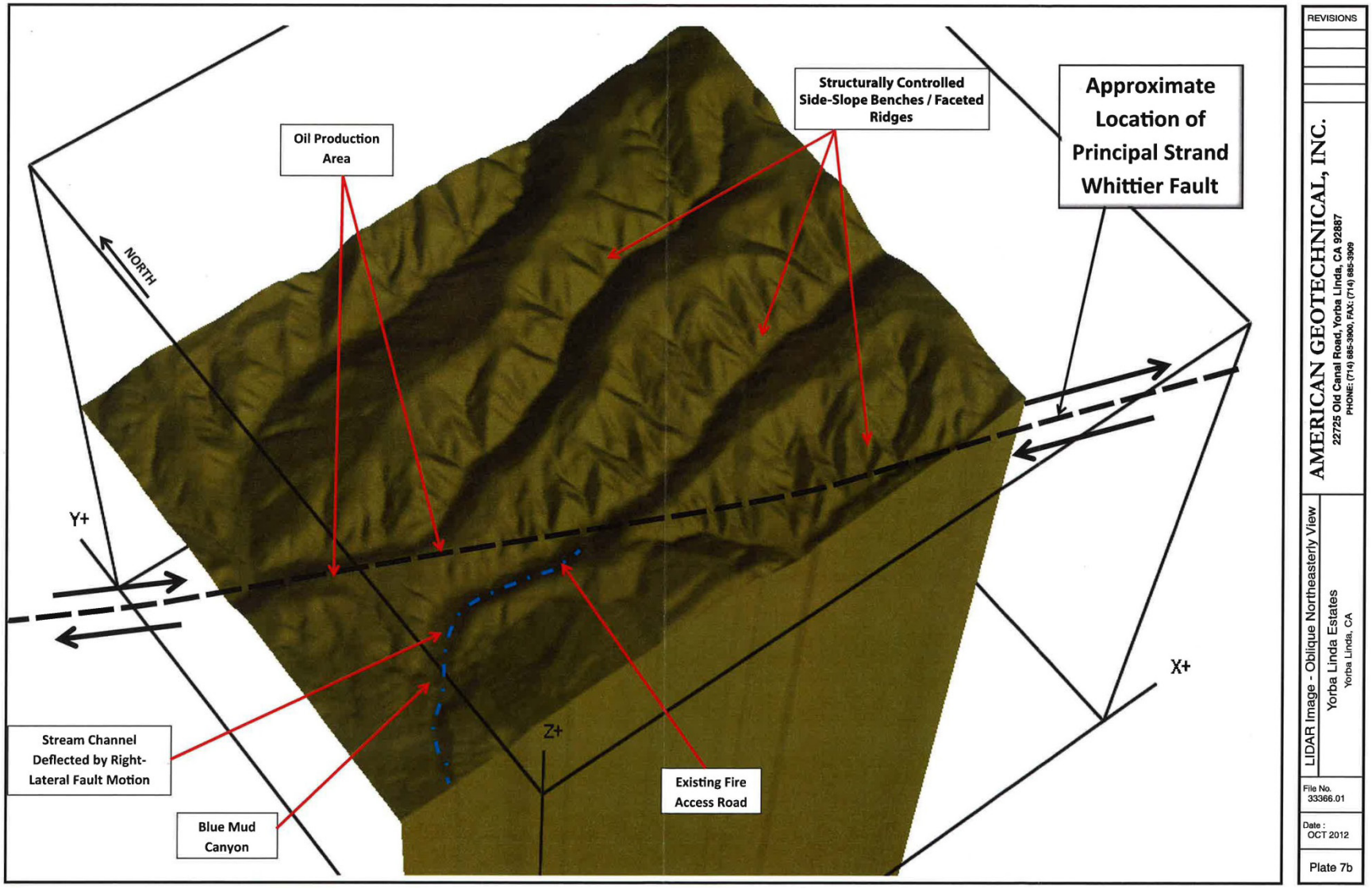



**Exhibit 5-56 – LIDAR Image – Oblique Northeasterly View**

### h. Retaining Wall Stability

Conceptual design plans indicate use of retaining walls of varying height, or alternatively, a series of retaining walls set back from each other, as part of the development. The purpose of the more significant walls is to support access roads within Blue Mud Canyon or accommodate changes in grade along the western parcel boundary. The walls will primarily be constructed across the face of significantly high natural slopes with ratios steeper than 2:1. Some walls will span side-hill swales. Some walls with significant combined wall/slope heights to be constructed across steep and unstable natural slopes may not meet minimum factors-of-safety for gross stability without proper design. Some may also be underlain by landslides where gross stability is not possible without additional grading. These impacts would be considered significant. Therefore, mitigation measures are included herein to reduce potential significant impacts.

### i. Fault Hazard Report Recommendations

The principal "active" trace of the Whittier Fault was found to consist of a single fault strand or narrow zone of multiple strands bounding a zone of gouge. The main fault orientation was found to dip northward between 75 and 80 degrees. Significant changes in the dip of bedding and stratigraphic section were observed across the fault. A significant right-lateral deflection of Blue Mud Canyon on the property is supporting evidence for motion in a right-lateral sense.

Several secondary faults north and south of the principal trace of the Whittier Fault are bedrock faults classified as normal, thrust and bedding-plane styles. Geomorphic evidence of recent movement along these faults ranged from subtle to non-existent. The branch faults diminish in frequency, magnitude and dip angle with increasing distance from the principal fault strand and are likely discontinuous and anastomosing laterally. Trenching revealed these faults to be steeply dipping between 61 and 85 degrees in a direction consistently toward the principal fault strand. The amount of future offset along these faults is expected to be variable and significantly less than that of the principal fault, likely on the order of only a few inches. The location and orientation of secondary faults was used to define the existing margins/widths of the existing seismic setback zone, as documented within the Fault Hazard Report.

A few inactive faults were noted within the elevated/uplifted area of the Puente Hills block. None of these faults were noted as breaking deposits of overlying topsoil or colluvium, nor are they associated with any geomorphic landforms indicative of active faulting.

A seismic setback zone has been established based on the mapped locations of principal and secondary branch faults. Widths vary from a maximum of 120 feet to the north of the main fault trace in the area of specific trenches to 50-feet where established by others outside the subject property to the northwest and

southeast. No setback zone has been established to the south of the principal fault trace other than the state-mandated 50-foot seismic zone as the results of ongoing studies by others related to the adjacent proposed Cielo Vista project are pending. There are no habitable structures designed south of the main trace of the Whittier Fault on the Proposed Project Site. Mitigation has been included herein to ensure compliance with identified seismic setback zones.

The right-lateral style and magnitude of anticipated surface rupture should be incorporated into future design plans for any improvements within the seismic setback zone where possible. Construction of utilities across the fault zone should incorporate flexible connections capable of sustaining their integrity following an abrupt lateral offset associated with a surface rupture event. Mitigation has been included herein related to structures and utilities within the seismic setback zone.

Conceptual design level geotechnical studies should be conducted in close coordination with County of Orange staff in order to ensure satisfactory compliance with all residential development requirements for this level of design. Depending on which access option is selected, the studies will address development of proposed roadways, building lots, cut and fill slopes, bridges, retaining walls detention basins and other improvements at a scale of 1-inch equals 100 feet. Mitigation has been included herein to ensure coordination with County of Orange staff for compliance with development regulations.

A finalized version of the Fault Hazard Report should be forwarded to the California Geological Survey for inclusion in their open-file library of Alquist-Priolo Earthquake Fault Study reports.

The Fault Hazard Report concludes that the fault trenches and review by professional geologists suggest that the location of the principal Whittier Fault trace and secondary fault strands have been accurately mapped. The study confirmed that there was no evidence of active faulting beyond the limits of the established seismic setback zone. Therefore, the risk of surface rupture hazards to proposed habitable structures will be low, because active faults do not extend into areas designated for habitable structures. The risk to improvements proposed within the seismic setback zone as a result of future surface rupture is considered significant. Improvements within the seismic setback zone will be limited to non-habitable structures. In addition, no houses are permitted within the seismic setback zone.

The Geotechnical Review included discussion regarding ground rupture impacts and states that, in accordance with California law, construction of habitable residential structures will be prohibited across the trace of the active Whittier Fault or within the limits of the seismic setback zone. Other elements of the conceptual design plan will be constructed across or astride the fault within the setback zone. If not designed and constructed properly, structures could be damaged, destroyed, or rendered inoperable where affected by ground rupture.

The location and orientation of faults are currently based on detailed trench logging conducted as part of the fault study. The width of the seismic setback zone was conservatively established to accommodate the style of observed active faulting. It remains possible that local adjustments (increases/decreases) in the width of the existing seismic setback zone could be warranted after more widespread geologic exposures of these conditions are observed during rough grading. A modification of zone width would depend upon the configuration of the design earthwork (slope face orientation and fill thickness) and orientation of secondary faults used to define the margin of the zone. Increases in zone width typically result where a relatively thicker fill body is constructed above a controlling fault that possesses a shallow dip angle. The greater the increase in surface elevation and the flatter the dip of a fault, the greater the potential change in setback width. Zone width changes will be established by projecting the plane of a causative fault through the body of an overlying fill to its intersection with design ground surface. Vertical faults would not be expected to result in any change in zone width, regardless of fill thickness or slope face orientation.

Earthwork required within the influence of the seismic setback zone will mainly include fill slope and access road construction where fill thickness will range from approximately 20 to 80 feet. In most cases design slopes ascend away from current setback margins at angles shallower than that of controlling faults and, thus, modification to the existing seismic setback zone margins, if any, would be insignificant.

California's building regulations and standards are contained within Title 24 of the *California Code of Regulations* published by the California Building Standards Commission. These are regulations passed by California agencies charged with enforcing the state's various laws and requirements for builders and property owners. Title 24 includes all regulations for how buildings are designed and constructed, and are intended to ensure the maximum structural integrity and safety of private and public buildings.

Other hazards were identified as possible settlement in areas underlain by different earth materials or minor co-seismic (places simultaneously affected by an earthquake shock) slip along bedding planes. In addition, the anticipated effects of ground rupture could destroy or severely damage improvements and infrastructure and are thus considered to be significant. Therefore, mitigation measures have been included herein to reduce such impacts:

## 2. Secondary Impacts

Secondary impacts are those which can be mitigated by more conventional construction grading practices and costs. These impacts relate to surficial slope stability, strong ground shaking associated with earthquakes, deep fill settlement in canyon areas, and differential settlement across steep cut/fill transitions and

compressible soils in areas of proposed fill. Additional secondary impacts could include effects of potential liquefaction, problematic soils, the control of groundwater (either from natural and/or expected future irrigation sources), rippability (the measure of ability to excavate with conventional methods) of harder sandstone bedding and disposal of oversize materials, the effects of expansive soil and differential bedrock heave, corrosivity of soils to metal and concrete elements and problematic existing infrastructure. Individual secondary impacts are discussed below.

### a. Surficial Slope Stability

Surficial slope failures have occurred on the Project Site. Failures are typically local in scale and on the order of a few feet thick. Exhibit 5-57 – Typical Surficial Slump and Repair and Exhibit 5-58 – Typical Mud-Debris Flow depict examples of typical surficial slump and mud-debris flow failures.

The occurrence of slope creep or rock creep can be categorized as a type of surficial failure as the slow movement of rock or soil down-slope in response to gravity can progressively affect improvements such as property-line or screen walls, swimming pools, and hardscaping or flatwork located within its sphere of influence. Exhibit 5-59 – Typical Environmental Slope Creep Process (Expansive Soil) depicts the occurrence of environmental slope creep.

Surficial slope failures can occur within natural slopes abutting the development or within finished graded slopes. While the failures have the potential to undermine improvements constructed along the rear of lots that daylight above natural slopes, the same types of failures could also impact graded areas where natural slopes ascend away from the development. In order to reduce the potential for slope failure, the following mitigation measures are incorporated herein.

### b. Strong Ground Shaking

There is no feasible way to avoid earth shaking from seismic events. However, the seismic shaking expected to occur at the Project Site is not significantly greater than the surrounding areas or other hillside areas in southern California. Strong earthquake-induced ground shaking could be triggered by seismic activity from the Whittier Fault and could result in damage as set forth above. For residential development, structures should be constructed to be able to:

- Resist minor earthquakes with no damage, such as the three recent earthquakes;
- Resist moderate earthquakes with some non-structural damage;
- Resist major earthquakes with some structural damage, but with a low likelihood of collapse.

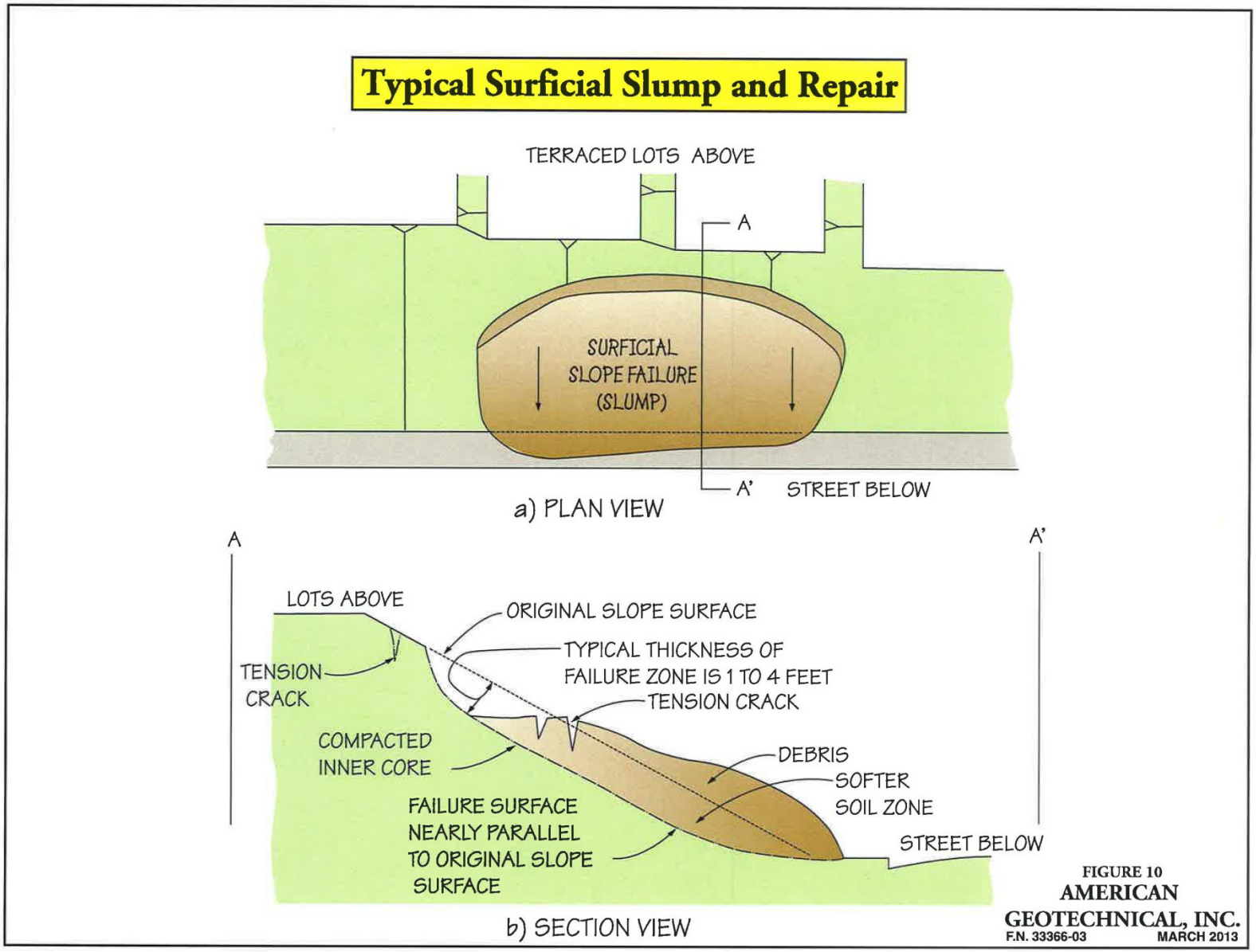



**Exhibit 5-57 – Typical Surficial Slump and Repair**

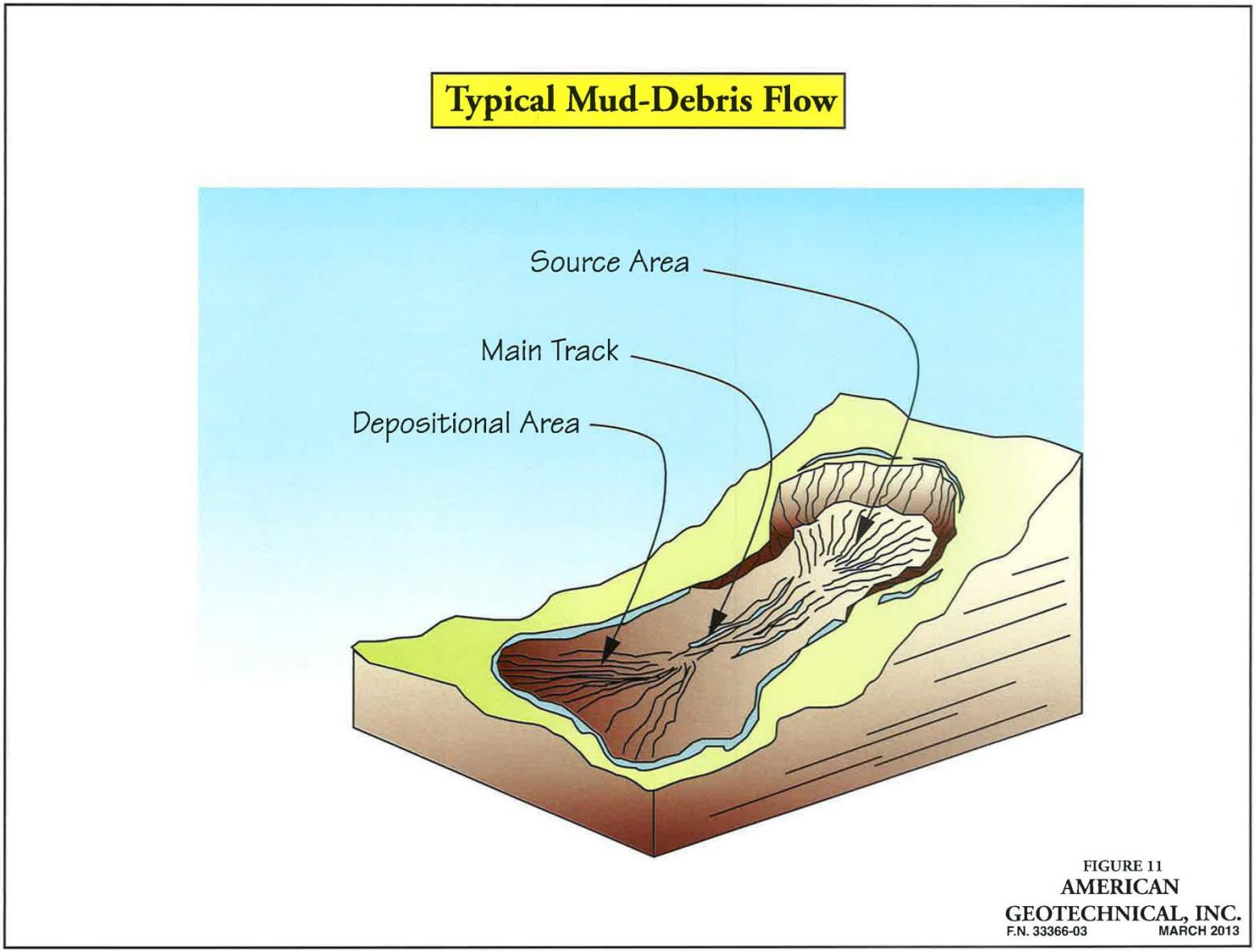



**Exhibit 5-58 – Typical Mud-Debris Flow**

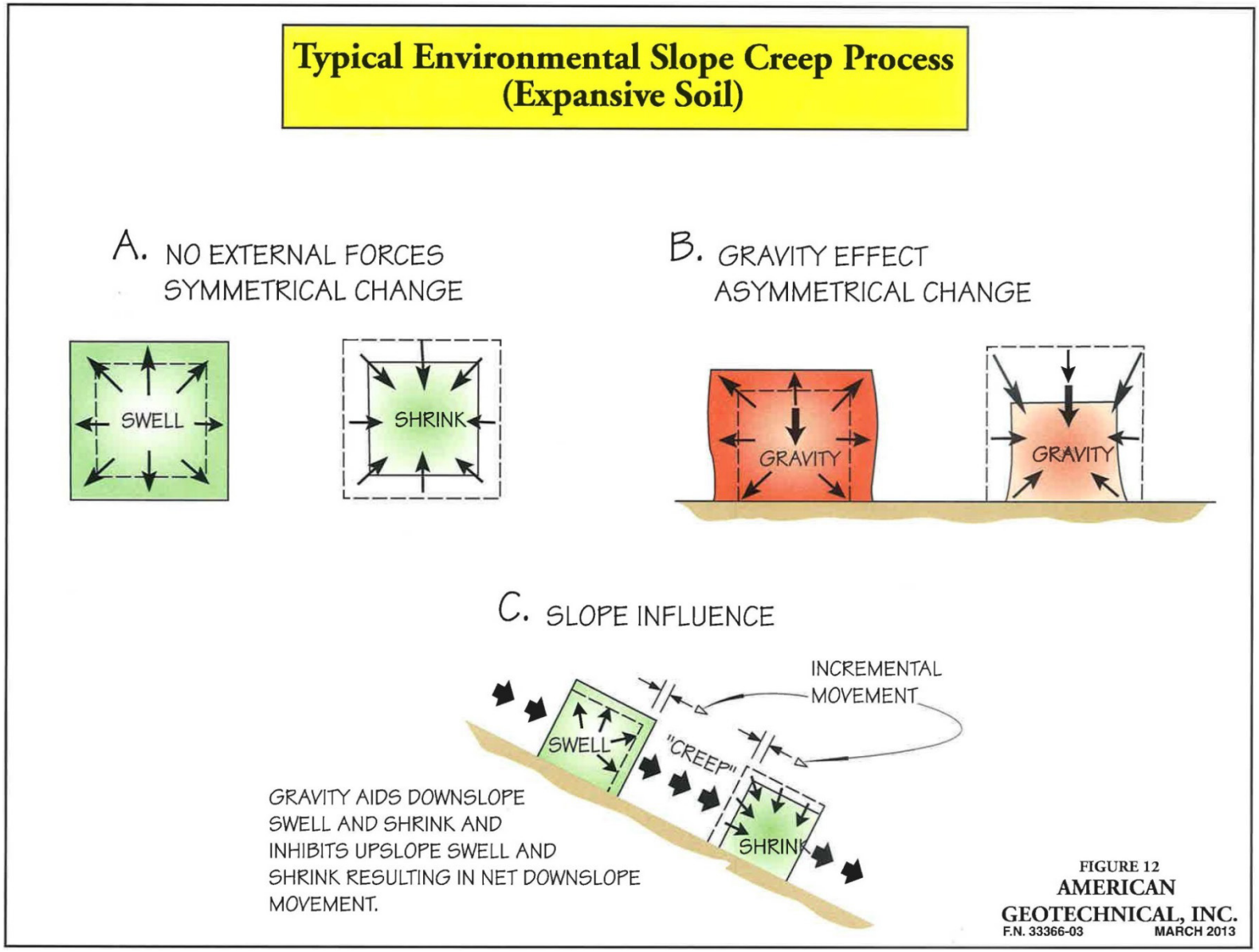



**Exhibit 5-59 – Typical Environmental Slope Creep Process (Expansive Soil)**

Design of structures in accordance with the current Uniform Building Code will promote safety and reduce the damaging effect of seismic shaking.

The Geotechnical Review proposed mitigation based on the Fault Hazard Report results from the exploratory trenching to identify active fault traces. Therefore, in addition to the above, mitigation has been incorporated herein.

Adherence to the current Uniform Building Code and Mitigation Measure Geo-11 will result in earthquake resistance as stated above, and will reduce impacts from ground shaking to the maximum extent practicable.

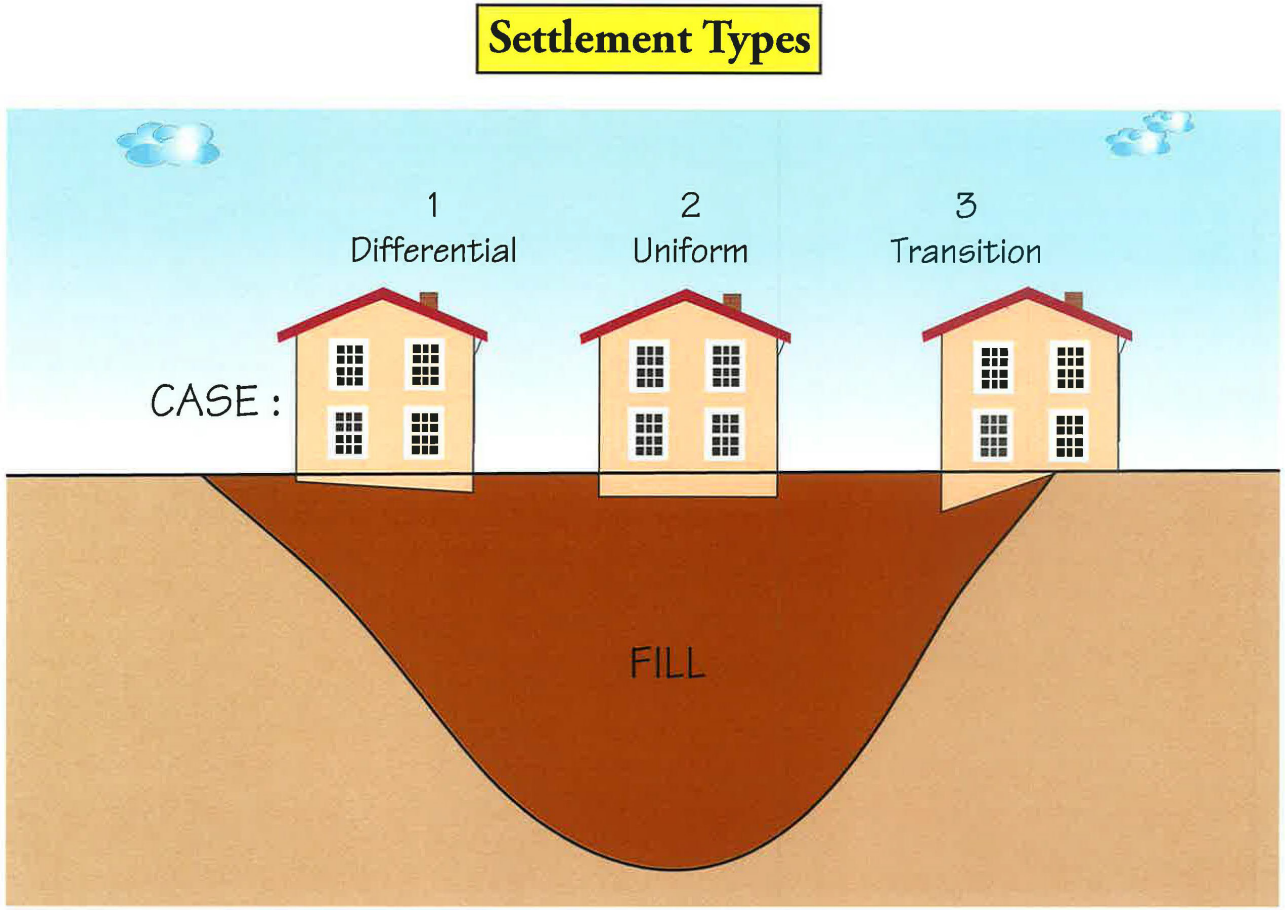
### c. Deep Fill Settlement

Fill greater than approximately 40 feet in thickness can be expected to settle under its own weight. The rate of settlement depends upon fill composition and overall thickness, the ability of the fill to displace pore waters during settlement and other geotechnical criteria associated with its placement including degree of mechanical compaction. Exhibit 5-60 – Settlement Types depicts general types of deep canyon fill settlement and related damage risks. Generally, sandier fill will settle at a greater rate than a clayey fill. Design fills greater than 40 feet are planned for Canyon A and Canyon B where the thicknesses will be approximately 180 feet and 150 feet, respectively.

Impacts from fill settlement are considered significant due to the potential damage to elements of the conceptual design plan as well as the lengthy overall time required for primary settlement to occur. This could take up to several years depending upon fill composition and methods of emplacement. Therefore, mitigation has been included herein to minimize potential impacts from deep fill settlement.

### d. Steep Cut/Fill Transitions

Excessive differential fill settlement can occur where removal contacts between new fill soil and bedrock removals are greater than approximately 1.5:1. This condition is anticipated to be emphasized most where cut/fill boundaries exist between steep natural canyon removals and areas of mass cut. The magnitude of this settlement could be on the order of several inches. Duration of settlement is different compared to deep vertical fills due to the long term dynamic interaction between fill, bedrock, and groundwater along the contact and component of creep. Potential damage could occur to conceptual design elements due to such settlement in areas above steep daylight fill/cut contacts. This impact is considered significant. Exhibit 5-61 – Potential Transition Lot Impacts depicts generalized cut/fill transition impacts to building lots. Therefore, to minimize this potential impact, mitigation has been included herein.




| Category | Comparative Risk of Damage |
|---|---|
| 1 | Intermediate |
| 2 | Lowest |
| 3 | Highest |

FIGURE 14A
AMERICAN GEOTECHNICAL, INC.
F.N. 33366-03 MARCH 2013

**Exhibit 5-60 – Settlement Types**

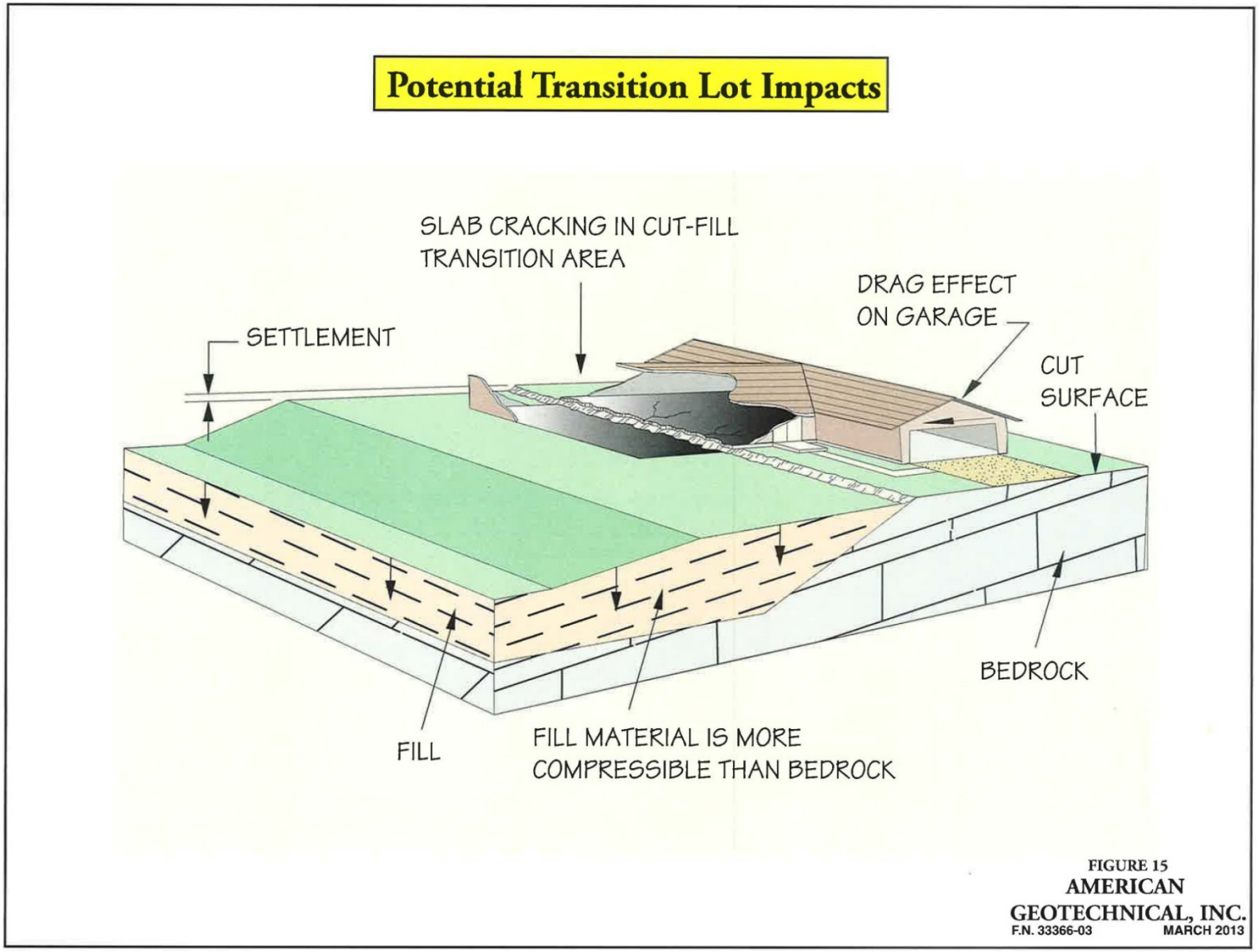



**Exhibit 5-61 – Potential Transition Lot Impacts**

### e. Soils (Compressible/Corrosive/Expansive)

#### 1) Compressible Soils

The removal of compressible soils to establish structural fill prisms becomes significant where the toe of descending fill slopes is designed mid-height along a natural slope, above sloped areas that otherwise remain natural. This will occur along Blue Mud Canyon in association with the proposed main road and retaining walls designed under access Option 1 or the emergency road under Option 2. A second area where this occurs is along Canyon A where the toe of the proposed fill slope occurs in a deposit of thicker alluvium and adjacent active stream channel. Where restrictions to off-site grading occur, it is likely that structural support will need to be achieved through other supplemental methods such as pin piles. From a cost standpoint, use of any such support structures would be a significant impact due to additional grading and use of supplemental engineering methods to achieve stability. Therefore, mitigation has been included to reduce potential impacts.

#### 2) Corrosive Soils

If corrosive soils are detected on the Project site, the strength and integrity of foundations can be jeopardized. This is considered a significant impact. Therefore, mitigation has been included requiring testing of soils to determine their potential corrosive effects.

#### 3) Expansive Soils/Bedrock Heave

Expansive soils due to engineered fill mixtures could result in impacts to the structural integrity of foundations.

Exhibit 5-62 – Potential Expansive Soil Impacts depicts impacts of this condition to improvements. Expansive materials can also exist as relatively thin sedimentary bedding within in-situ bedrock, exposed in areas of cut. When subjected to moisture, these materials tend to swell and can transfer significant upward forces into overlying earth materials and/or buildings. The occurrence of this phenomenon would be considered a significant impact. Therefore, mitigation is included herein to reduce impacts due to expansive soils.

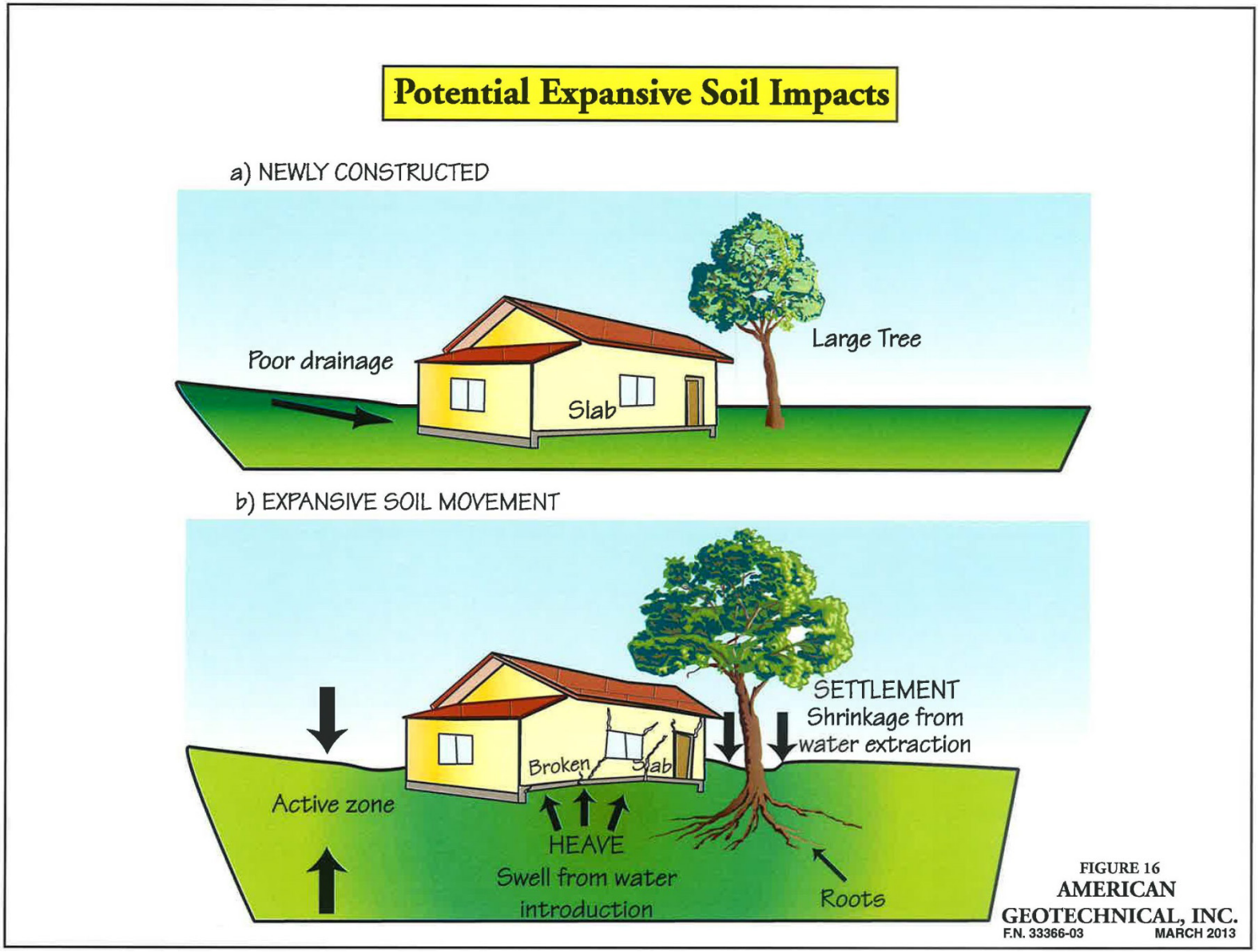



**Exhibit 5-62 – Potential Expansive Soil Impacts**

### f. Liquefaction

The potential for liquefaction is limited to deposits of recent alluvium occurring within modern drainage channels. The most significant areas of liquefaction concern are within Canyon A and Canyon B where grading of roadway fill is proposed to support the main routes of access for Option 2. Another area of concern exists along the alignment for an emergency fire access road where it crosses Blue Mud Canyon south to Via del Agua across the adjacent proposed Cielo Vista project. The potential for liquefaction on the Project Site is considered a significant impact; therefore, mitigation has been included herein to reduce impacts.

### g. Ground Water

It is anticipated that implementation of the conceptual design will dramatically increase the amount of subsurface groundwater, specifically related to residential landscape irrigation activities occurring within the development area. This potentially significant impact will be reduced to a less than significant level through utilization of common methods of subsurface groundwater control such as subdrain networks will reduce potential impacts. Therefore, mitigation has been included herein to reduce potential impacts due to groundwater.

### h. Existing Infrastructure

Structures that currently exist within the influence of the conceptual design plans and may be adversely impacted by proposed grading and/or construction activities are considered problematic infrastructure. There are two existing large-diameter natural gas pipelines buried within a Southern California Gas (SCG) easement that extend along the western boundary of the adjacent proposed Cielo Vista project. Minor cuts and fills are proposed in order to construct the road to Aspen Way across this easement as part of the primary access for the Option 2 plan. Use of special supplemental engineering structures and/or grading methodology may be required to establish a stable roadway and/or to maintain or protect the integrity of the pipelines during grading.

The second problematic infrastructure element is the regional SCE electrical transmission line system crossing the eastern boundaries of the Project Site. Two significant cut slopes are proposed near the hills on which the transmission towers are located. The integrity of the transmission towers must be maintained during and after rough grading. Final grading plans will be submitted for review by SCE and SCG. Any impacts to the stability of the gas line or the electrical transmissions lines would result in catastrophic failure or disruption in infrastructure service. Therefore, mitigation has been included herein to reduce potential impacts.

### i. Existing/Abandoned Oil Wells

Three active wells and four inactive (or previously abandoned) oil wells are located within the boundaries of the Project Site. The above-ground storage tanks and associated pipelines were identified as potential obstructions and sources of accidental or unauthorized releases of oil or hydrocarbon product if disturbed during project development. A more detailed analysis of impacts due to active and inactive oil wells is presented in this DEIR in 5.7, Hazards and Hazardous Materials (beginning on page 5-275).

## 5.5.4 Mitigation Measures

The following mitigation measures have been incorporated herein related to Geology and Soils impacts. This is a restatement of the Mitigation Measures identified above in the appropriate sections where the mitigation was described.

Geo-1 Prior to issuance of building permits, the Project Applicant and the County hall ensure that geologic conditions underlying design slopes and those to remain natural in areas adjacent to the development perimeter shall be investigated and analyzed for gross stability in accordance with current geotechnical engineering practice. Investigation shall include areas where larger landslides are suspected to exist, mainly in natural slope areas bordering the development, including analysis of distribution and dimension regarding conditions of gross stability.

Geo-2 During grading, the Project Applicant and the County shall ensure that unstable areas be avoided or that design slopes determined to be grossly unstable be stabilized by construction of buttresses or stabilization fills, flattening gradients, lowering overall heights, improving stability through use of tie-back/grade-beam systems, use of geogrid, use of cement-treated-soil or similar supplemental stabilization measures or combinations of these methods.

Geo-3 During grading, the Project Applicant shall ensure that zones of weathered bedrock be removed from back cuts and/or areas upon which new fill is to be placed.

Geo-4 Prior to issuance of building permits, the Project Applicant shall ensure that construction across the trace of active faults and/or outside the limits of the setback zone will be avoided to the maximum extent practicable, and no residential lots are designed within the setback zone established for the Whittier Fault. Where access roads, retaining walls, bridge structures or structural fills are planned within the setback zone, the direction and magnitude of anticipated fault offset and severity of anticipated ground shaking shall be incorporated into the design.

Geo-5 Prior to issuance of building permits, the Project Applicant shall ensure that the design for improvements that cross the Whittier Fault should be minimal, and the trend in which crossings are made should be oriented as nearly perpendicular (20 degrees east of north) to the trend of the fault as possible. The prefabricated bridge structure spanning Blue Mud Canyon under Option 1 shall be positioned and designed to accommodate expected fault offset. The Project Applicant shall consider use of

alternative geotechnical engineering technologies to minimize impacts to structures constructed above active fault strands. These may include the incorporation of geo-fabric materials into fill bodies to add to fill strength and/or select placement of gravel blankets within subgrade areas to diffuse shear forces relating to ground rupture.

Geo-6 Prior to issuance of building permits, the Project Applicant shall ensure that utility lines located in or near the Whittier Fault incorporate flexible joints into their design, to accommodate anticipated ground rupture in a right-lateral strike-slip sense.

Geo-7 Prior to issuance of building permits, the Project Applicant shall verify that the existing seismic setback zone margins are appropriate for encountered geologic conditions and, where changes are warranted, evaluate any impacts to design plan elements and assure any revisions to the margins are depicted on final plan sets.

Geo-8 Prior to issuance of building permits, the County shall ensure that the Project Applicant has provided geotechnical investigations and engineering analyses to evaluate retaining wall design and stability, establish foundation design recommendations and determine conditions of gross and surficial stability of overall wall/slope combinations. In surficially unstable slopes where no remedial grading is permitted, wall foundations shall be strengthened to accommodate a potential loss of lateral support. Where natural slopes are grossly unstable, possibly due to the presence of a larger landslide, the slope shall be stabilized or buttressed through grading methods. Where grading is not permitted, structural stabilization shall be accomplished through the design of retaining walls and/or soldier pile walls, tie backs, or some combination of both.

Geo-9 Prior to issuance of building permits, the Project Applicant shall ensure that natural slope areas adjacent to development are analyzed for stability and estimated volumes of failure material determined. Setback zones or design of a bench in the upper slopes shall be employed to reduce the potential for failures to migrate into graded areas. Areas of rock creep influence shall require use of tie-backs and structural sheets to prevent this occurrence.

Geo-10 Prior to issuance of building and grading permits, the Project Applicant shall ensure that the following methods are incorporated into the design to prevent slope failure:

- Where daylight fill lots lie adjacent to ascending natural slopes, building pad elevations shall be raised, and toe-of-slope catchment troughs have been designed into which the failure materials can accumulate. These areas should be designated as “common areas” and maintained by homeowners associations.
- In areas where a more significant volume of debris is expected, such as an area situated within the path of adjacent natural drainage swales, impact or deflection walls shall be installed.
- Use of design stabilization fills, which are typically the width of standard grading equipment, shall be used for surficially unstable cut or fill slopes.

Geo-11 During the conceptual design phase, the Project Applicant and the County shall ensure that no lots are designed with habitable structures within the fault hazard setback zone as determined in the Fault Study, and no building permits shall be

applied for or granted for any habitable structures within the hazard fault setback zone in the future. Asymmetrical floor plans shall be avoided, because these kinds of buildings tend to twist in addition to shaking laterally.

Geo-12 Prior to issuance of building permits, the Project Applicant shall demonstrate to the County that deep fills have undergone a cycle of "primary" settlement sufficient to allow safe construction. The Project Applicant may opt to employ supplemental geotechnical measures to minimize anticipated settlement time. Such measures could include vertical wick-drain installation, use of higher fill compaction standards, use of granular fill zones prone to less settlement, and/or placement of surcharge fills.

Geo-13 During construction, Project Applicant and the County shall ensure that appropriate conventional engineering measures are implemented to reduce impacts of excessive differential settlement in cut/fill transition areas as determined by the County building official. These measures can include a flattening of removal profiles to 2:1 or shallower, deepening over-excavation of building pads within zones of expected impacts, use of higher compaction standards, limiting construction of certain improvements within structural setback zones or construction of stiffened foundation systems including post-tension foundations caisson walls or mat slabs as determined feasible and appropriate.

Geo-14 During grading, the Project Applicant and the County shall ensure that removal and re-compaction of compressible native soils shall be performed in areas of proposed structural fills to minimize settlement of new fill and/or prevent loss of lateral support. The limits of removals shall extend beyond conceptual plan boundaries and potentially beyond the limits of grading into areas to remain natural. Where no removals are permitted beyond the boundaries of design, engineered structures shall be installed such as pin piles to achieve proper slope stability.

Geo-15 Prior to issuance of building permits, the County shall verify that testing has been conducted to evaluate the chemical character of fill soils. Results of such testing shall be used to formulate appropriate foundation design criteria to reduce the adverse effects of corrosive soils.

Geo-16 Prior to issuance of building permits, the County shall ensure that the Project Applicant has provided geotechnical studies to evaluate the occurrence and character of expansive clay soil on the Project Site. Based on the results of the studies, criteria for foundation design shall be formulated to reduce adverse effects such as selective grading methods including placement of adverse clay soils in deeper fill areas, or non-structural fill areas, and/or increasing the vertical distance between in-situ clayey bedrock and design structures through building pad over-excavation. Post grading studies and testing shall be conducted on finished building pads to verify the adequacy of foundation design.

Geo-17 Prior to grading, the County shall ensure that the Project Applicant has conducted geotechnical investigations of recent alluvium deposits to evaluate the potential for liquefaction. Findings of such investigations shall be incorporated into the design of structures proposed in areas where there is a potential for liquefaction to occur.

Geo-18 Prior to construction, the Project Applicant shall ensure that a network of subdrains and back-drains shall be installed in areas of expected groundwater or active seepage.

Geo-19 Prior to issuance of building permits, the County shall ensure that the Project Applicant has conducted geotechnical investigations and engineering analyses in areas where proposed roadways cross existing natural gas pipelines or transmission towers exist adjacent to proposed cut slopes and designed roadway crossings to avoid or minimize damage to these facilities.

### 5.5.5 Level of Significance after Mitigation

The Geotechnical Review and the Fault Hazard Report identify impacts to gross and surficial slope stability, ground rupture, retaining wall stability, strong ground shaking, fill settlement, compressible soils, liquefaction, groundwater, and expansive soils that may be encountered during grading or construction.

Development of the Proposed Project will place housing in an area that is subject to earthquakes and seismic ground shaking. Strong seismic ground shaking is endemic in southern California, and future residents of Esperanza Hills will not be exempt from this risk, if it occurs. All feasible mitigation measures identified herein, along with adherence to state and local building and construction standards, will reduce potential impacts to the extent feasible.

Grading and construction activities could result in erosion or the loss of topsoil. Mitigation measures have been incorporated to minimize potential impacts related to erosion. Mitigation has also been identified to reduce risks from expansive soils, landslides, lateral spreading, subsidence, liquefaction, or collapse. The use of septic tanks is not proposed. Provision has been made for wastewater disposal through the development of infrastructure for water and sewer service.

Mitigation Measures Geo-1 through Geo-19 have been designed to reduce impacts in the area of Geology and Soils to below a level of significance.

### 5.5.6 Cumulative Impacts

Cumulative impacts associated with geological conditions resulting from the Proposed Project development in the vicinity and surrounding uses include short-term impacts as a result of potential increases in erosion due to grading activities. Mitigation Measures AQ-1, AQ-2, and AQ-3, and Condition of Approval COA-5 will ensure that erosion from Esperanza Hills is reduced to a level of insignificance. However, the Proposed Project and the proposed Cielo Vista project, when taken together, may result in a cumulatively considerable impact in the area of erosion. While erosion control measures will be in place that will reduce impacts to air quality and water quality, and these measures are considerably more effective than they were in the past, erosion from blowing wind may carry soil to off-site areas in the form of dust. If grading operations for the two projects overlap, as is anticipated at the time of this writing, it will be difficult to identify the source of such dust. Therefore, a potential

cumulative impact in the area of erosion is identified. No other cumulative impacts will occur in the area of Geology and Soils, because none of the grading or construction activities planned for Esperanza Hills will significantly impact regional or cumulative geologic conditions off-site.

### 5.5.7 Unavoidable Adverse Impacts

Implementation of the recommended mitigation measures specified above will reduce all potentially significant geological impacts to a less than significant level.

# 5.6 Greenhouse Gas Emissions

This section analyzes the potential air quality impacts related to greenhouse gas (GHG) emissions associated with the Proposed Project in terms of short-term (construction) impacts and long-term (operational) impacts. The existing setting has been detailed in Section 5.2, Air Quality, and is summarized in this section. Information in this section is based on the "Air Quality and Greenhouse Gas Emissions Impact Analysis" (Air Quality Analysis) prepared by Giroux & Associates (Giroux) dated July 2013. The complete Air Quality Analysis, including appendices, is included herein as Appendix C.

## 5.6.1 Existing Setting

### 1. Climate

The Project Site is located in the South Coast Air Basin (SCAB). The Basin is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean and high mountains. The climate in the SCAB is determined by its terrain and geographical location and is dominated by the strength and position of the semi-permanent high pressure center over the Pacific Ocean near Hawaii.

**Acronyms used in this section:**

| | |
|---|---|
| AAQS | Ambient Air Quality Standards |
| AQMD | Air Quality management District |
| AQMP | Air Quality Management Plan |
| BAU | business as usual |
| CAAA | Clean Air Act Amendments |
| CAP | Climate Action Plan |
| CAPCOA | California Air Pollution Control Officers Association |
| CARB | California Air Resources Board |
| CEQA | California Environmental Quality Act |
| CO | carbon monoxide |
| EPA | Environmental Protection Agency |
| GHG | greenhouse gas |
| $NO_x$ | nitrogen oxides |
| RCM | reasonable control measure |
| ROG | reactive organic gases |
| SCAB | South Coast Air Basin |
| SCAG | Southern California Association of Governments |
| SCAQMD | South Coast Air Quality Management District |

#### a. Temperature

The average temperature varies little throughout the SCAB, averaging 62°F. High temperatures in the Project Area average 75°F during the summer and 65.5°F during the winter. Low temperatures average 62.2°F during summer nights and 48.6°F during winter nights.

#### b. Winds

Winds in the vicinity display several characteristics. Summer daytime winds are generally from the south in the morning and the west in the afternoon. The warm air during spring and early summer lifts most of the pollution produced on an average day and moves it through the mountain passes. Late summer and winter months see a less pronounced flushing effect due to the lower

wind speeds and early off-shore winds. Pollutants are trapped in the valleys of the region due to this stagnation.

Adequate daytime ventilation speed typically does not allow for stagnation of air pollutants in the Project Area. Moderate onshore breezes carry locally generated emissions eastward toward Chino Hills or across northern Orange County and up Santa Ana or Carbon Canyons towards western San Bernardino and Riverside counties. Daytime air quality problems occur when winds shift into the northwest and the sea breeze is replaced by airflow across substantial pollution generation areas of southwestern Los Angeles County. Occasional unhealthful smog levels near the Project Site during the summer and early fall are the result of slower nighttime winds drifting seaward across the air basin, allowing for stagnation of pollution. However, during the night the density of vehicular sources in the upwind area is generally low enough to minimize any major air pollution problems. The Air Quality Analysis determined that air pollution episodes, if any, are due mainly to pollutants transported into the area rather than any locally generated emissions.

### c. Temperature Inversions

Temperature inversions result when the daytime onshore flow of marine air is capped by a dome of warm air that acts like a lid over the basin. As the ocean air moves inland, pollutants are continually added from below without any dilution from above. This layer slows down in inland valleys and undergoes photochemical transformations due to sunlight, creating unhealthful levels of smog (ozone). Ozone typically occurs in high concentrations in late spring, summer, and early fall when light winds, low mixing height, and increased sunlight combine, resulting in ozone production. Smog effects are less significant when there is no inversion layer or when winds average 15 miles per hour or greater.

Nighttime inversions, especially during the winter, form as cool air pools in low elevations while the upper air remains warm. Shallow radiation inversions are formed that trap pollutants near intensive traffic sources such as freeways, forming localized effects called “hot spots.”

Pollutants generated by stationary and mobile sources mix with less contaminated air beneath the inversion layer and will become more concentrated unless the inversion breaks down. When strong inversions are formed on cool winter nights, carbon monoxide (CO) generated by automobile exhaust becomes concentrated. Generally, the highest levels of CO are produced during the months of November through February.

## 2. Baseline Air Quality

The SCAQMD Anaheim monitoring station, which is the nearest station to the Proposed Project, was used to determine existing and probable future levels of air quality in the Project Area. The station measures regional pollution levels (smog) and primary vehicular pollution levels near busy roadways (carbon monoxide, nitrogen oxides). Pollutants such as $PM_{10}$ and $PM_{2.5}$ are also monitored. A six-year air quality monitoring summary (2006-2011) is found in Table 5-6-1 below. The Project Site is vacant land that currently contributes minimally to impacts from greenhouse gas emissions. The Air Quality Analysis provides the following conclusions regarding air quality/greenhouse gas emissions trends based on the table.

- Photochemical smog (ozone) levels occasionally exceed standards. The 1 hour state standard and the 8-hour state and federal ozone standard have been exceeded an average of 1% of all days in the past six years. Years 2009, 2010 and 2011 demonstrate progressively improved ozone levels in the area. While ozone levels are still high, they are much lower than 10 to 20 years ago.
- Respirable dust ($PM_{10}$) levels occasionally exceed the state standard on approximately 6% of measured days. As with ozone, the frequency of violations has noticeably decreased in 2009-2011. The less stringent federal $PM_{10}$ standard was violated once in 2007 during a wildfire event.
- The federal ultra-fine particulate ($PM_{2.5}$) standard of 35 $\mu g/m^3$ has been exceeded about 2% of measurement days in the last six years. Similarly, 2009-2011 have been the "cleanest" years on record.
- More localized pollutants such as carbon monoxide, nitrogen oxides, etc. are very low near the Project Site. These pollutants can be naturally dispersed to reduce localized vehicular air pollutants such as $NO_X$ or CO without any threat of violating applicable AAQS.

While complete attainment of every standard is not imminent, the steady improvement trend suggests that such attainment could occur within the reasonably near future.

**Table 5-6-1 Air Quality Monitoring Summary (2006-2011)**

| Pollutant/Standard | Number of Days Standards Were Exceeded and Maximum Levels During Such Violations (Entries shown as ratios = samples exceeding standard/samples taken) | | | | | |
|---|---|---|---|---|---|---|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
| **Ozone** | | | | | | |
| 1-Hour > 0.09 ppm (S) | 6 | 2 | 2 | 0 | 1 | 0 |
| 8-Hour > 0.07 ppm (S) | 5 | 7 | 10 | 2 | 1 | 1 |
| 8- Hour > 0.075 ppm (F) | 3 | 1 | 5 | 1 | 1 | 0 |
| Max. 1-Hour Conc. (ppm) | 0.113 | 0.127 | 0.105 | 0.093 | 0.104 | 0.088 |
| Max. 8-Hour Conc. (ppm) | 0.089 | 0.100 | 0.086 | 0.077 | 0.088 | 0.072 |
| **Carbon Monoxide** | | | | | | |
| 1-hour > 20. ppm (S) | 0 | 0 | 0 | 0 | 0 | 0 |
| 8- Hour > 9. ppm (S,F) | 0 | 0 | 0 | 0 | 0 | 0 |
| Max 1-hour concentration (ppm) | 4.5 | 3.6 | 4.1 | 3.2 | 3.0 | 2.7 |
| Max 8-hour concentration (ppm) | 2.9 | 2.9 | 3.4 | 2.7 | 2.0 | 2.1 |
| **Nitrogen Dioxide** | | | | | | |
| 1-Hour > 0.18 ppm (S) | 0 | 0 | 0 | 0 | 0 | 0 |
| Max. 1-Hour concentration (ppm) | 0.114 | 0.086 | 0.093 | 0.068 | 0.073 | 0.074 |
| **Inhalable Particulates ($PM_{10}$)** | | | | | | |
| 24-hour > 50 μg/m3 (S) | 7/55 | 6/59 | 3/58 | 1/56 | 0/57 | 2/57 |
| 24-hour > 150 μg/m3 (F) | 0/55 | 1/59 | 0/58 | 0/56 | 0/57 | 0/57 |
| Max. 24-Hr. concentration (μg/m3) | 103. | 488.* | 61. | 62. | 43. | 53. |
| **Ultra-Fine Particulates ($PM_{2.5}$)** | | | | | | |
| 24-Hour > 35 μg/m3 (F) | 7/314 | 14/336 | 5/304 | 4/334 | 0/331 | 2/365 |
| Max. 24-Hr. concentration (μg/m3) | 56.2 | 79.4 | 67.8 | 64.5 | 31.7 | 39.2 |

*wildfire event
S=State standard
F=Federal standard
Source: South Coast Air Quality Management District, Anaheim Station (3176)

## 5.6.2 Regulatory Setting

The SCAQMD and the California Air Resources Board (CARB) are the principal agencies charged with managing air quality within the SCAB. The SCAQMD establishes and enforces regulations for stationary (non-mobile) sources of air pollution within the SCAB. The CARB is responsible for controlling motor vehicle emissions, establishing legal emissions rates for new vehicles, and the vehicle inspection program. In addition to the current regulatory status relating to GHG emissions, this section provides a brief summary of the regulatory setting for other principal pollutants. Detailed discussion of these pollutants is found in Section 5.2, Air Quality (beginning on page 5-65).

### 1. Greenhouse Gas Emissions (GHG)

Greenhouse gases (GHG) are so called because of their role in trapping heat near the surface of the earth. GHG are created by human activities and are implicated in global climate change, commonly referred to as global warming. The principal GHGs are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. Title 14, Chapter 3,

§15364.5 of the *California Code of Regulations* defines GHGs to include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions at about one-fourth of total emissions.

State of California Assembly Bill 32 (AB 32) (Division 25.5 of the *Health and Safety Code*, §38500, et seq.), known as the Global Warming Solutions Act, was passed in August 2006. AB 32 requires that levels of GHG be reduced to 1990 levels by the year 2020. Senate Bill 97 (SB 97) requires that the Governor's Office of Planning and Research develop guidelines for CEQA compliance related to GHG emissions, including mitigation measures for the reduction of GHG.

AB 32 is the state bill requiring that levels of GHG be reduced to 1990 levels by the year 2020 and is one of the most significant pieces of environmental legislation that California has adopted. The bill will have wide-ranging effects on California businesses and lifestyles as well as far reaching effects on other states and countries. A unique aspect of AB 32, beyond its broad and wide-ranging mandatory provisions and dramatic GHG reductions are the short timeframes within which is must be implemented. Major components include:

- Require the monitoring and reporting of GHG emissions beginning with sources or categories of sources that contribute the most to statewide emissions.
- Requires immediate "early action" control programs on the most readily controlled GHG sources.
- Mandates that by 2020, California's GHG emissions be reduced to 1990 levels.
- Forces an overall reduction of GHG gases in California by 25-40% from business as usual, to be achieved by 2020.
- Must complement efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants.

Section 15064.4 of CEQA provides that emissions identification may be quantitative, qualitative or based on performance standards. CEQA guidelines allow the selection of the model or methodology the lead agency considers most appropriate. Use of a computer model such as CalEEMod is the most common practice for emissions quantification to determine the significance of the emissions. The threshold of significance must take into consideration what level of GHG emissions would be cumulatively considerable. The guidelines are clear that they do not support a zero net emissions threshold. A lead agency may rely on thresholds adopted by an agency with greater expertise if it does not have sufficient expertise in evaluating the impacts.

California has passed several bills and the Governor has signed at least three executive orders regarding GHG. GHG statutes and executive orders (EO) include AB 32,

SB 1368 (Chapter 596, Statutes of 2000), EO S-03-05, EO S-20-06 and EO S-01-07. Statewide, the framework for developing the implementing regulations for AB 32 is under way. Maximum GHG reductions are expected to derive from increased vehicle fuel efficiency, from greater use of renewable energy and increased structural energy efficiency. Additionally, through the California Climate Action Reserve, general and industry-specific protocols for assessing and reporting GHG emissions have been developed. The California Climate Action Reserve is a program of the Climate Action Reserve committed to solving climate change through emissions and accounting and reduction. GHG sources are categorized into direct sources (i.e. company owned) and indirect sources (i.e., not company owned). Direct sources include combustion emissions from on- and off-road mobile sources and fugitive emissions. Fugitive emissions are defined as gases or vapors emitted from pressurized equipment due to leaks and other unintended or irregular releases of gases, generally from industrial activities. Indirect sources include off-site electricity generation and non-company owned mobile sources.

## 2. Ambient Air Quality Standards (AAQS)

To gauge the significance of the air quality impacts of the Proposed Project, those impacts, together with existing background air quality levels, must be compared to the applicable ambient air quality standards. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare of those people most susceptible to further respiratory distress. This group, called "sensitive receptors," includes asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. National Ambient Air Quality Standards (AAQS) were established in 1971 for six pollution species with states retaining the option to add other pollutants, require more stringent compliance, or include different exposure periods. The federal Clean Air Act Amendments of 1990 required that the EPA review all national AAQS in light of known health effects. The EPA was charged with modifying existing standards or promulgating new standards where appropriate. EPA subsequently developed standards for chronic ozone exposure (8+ hours per day) and for very-small-diameter particulate matter ($PM_{2.5}$). New national AAQS were adopted on July 17, 1997.

Because the State of California had established AAQS several years before the federal action, and because of unique air quality problems introduced by the restrictive dispersion meteorology, there is a considerable difference between state and national clean air standards. Table 5-2-2, Health Effects of Major Criteria Pollutants (page 5-70) describes the health effects of the major criteria pollutants and lists sources and primary effects for each.

## 3. Federal Clean Air Act Amendments

The Federal Clean Air Act Amendments (CAAA) of 1990 required that the EPA review all national AAQS in light of currently known health effects, including modifying existing standards or promulgating new standards where appropriate. EPA subsequently developed standards for chronic ozone exposure (8+ hours per day) and for very small diameter particulate matter ($PM_{2.5}$). New national AAQS were adopted in 1997 for these pollutants. Additional details regarding the CAAA can be found in Section 5.2, Air Quality (beginning on page 5-65).

In response to continuing evidence that ozone exposure at levels just meeting federal clean air standards is demonstrably unhealthful, EPA proposed a further strengthening of the 8-hour standard. Draft standards were published in 2010 with an 8-hour standard of 0.065 ppm. Environmental organizations generally approved of the proposal; however, most manufacturing, transportation, or power generation groups opposed the new standard as economically unwise in an uncertain fiscal climate. In recognition of the fact that a stronger ozone standard could adversely impact employment, the draft proposal was placed on indefinite hold. EPA did propose and adopt a revised annual $PM_{2.5}$ standard that may require a revision to the basin-wide fine particulate attainment plan. The Clean Air Act defines "non-attainment as a locality where air pollution levels persistently exceed national AAQS.

## 4. California Air Resources Board

In 2005, CARB extensively evaluated health effects of ozone exposure and adopted a new state standard for an 8-hour ozone exposure which aligned with the federal 8-hour standard. The state 8-hour standard of 0.07 parts per million (ppm) is more stringent than the federal standards of 0.075 ppm. As with the $PM_{2.5}$ standard, there is no specific attainment deadline. State jurisdictions are required to make progress towards attaining state standards, but there are no consequences of non-attainment. At the same time, CARB adopted an annual state standard for nitrogen dioxide ($NO_2$) which is more stringent than the federal standard.

A new federal one-hour standard for $NO_2$ was adopted in 2010 that is more stringent than the existing state standard. Based on air quality monitoring data in the SCAB, the CARB has requested the EPA to designate the basin as "in attainment" for this standard. The federal standard for sulfur dioxide ($SO_2$) was also recently revised. However, with minimal combustion of coal and mandatory use of low sulfur fuels in California, $SO_2$ is typically not a problem pollutant.

## 5. Air Quality Management Plan

The federal Clean Air Act Amendments of 1977 required that designated agencies in any area of the nation not meeting national clean air standards must prepare a plan demonstrating the steps that would bring the area into compliance. The SCAB was unable to meet deadlines for ozone, nitrogen dioxide, carbon monoxide, or $PM_{10}$. The agencies designated by the Governor to develop regional air quality plans within the

SCAB are the SCAQMD and the Southern California Association of Governments (SCAG). The first Air Quality Management Plan (Plan) was adopted by these agencies in 1979. However, attainment forecasts were overly optimistic and the Plan was revised several times.

The Federal Clean Air Act Amendments of 1990 required that all states with air-sheds with "serious" or worse ozone problems submit a revision to the State Implementation Plan (SIP). Over the past decade, revisions and amendments to the SIP have been approved. The most current attainment emissions forecast for ozone precursors – i.e., reactive organic gases (ROG) and nitrogen oxides ($NO_X$) and for carbon monoxide (CO) and particulate matter are shown in Table 5-6-2 below. Substantial reductions of ROG, $NO_X$ and CO are forecast to continue throughout the next several decades. $PM_{10}$ and $PM_{2.5}$ are forecast to slightly increase unless new particulate control programs are implemented.

**Table 5-6-2 South Coast Air Basin Emissions Forecasts**

| | Emissions in Tons per Day | | | |
|---|---|---|---|---|
| **Pollutant** | **2008 [a]** | **2010 [b]** | **2015 [b]** | **2020 [b]** |
| $NO_X$ | 917 | 836 | 667 | 561 |
| ROG | 632 | 596 | 545 | 525 |
| CO | 3,344 | 3,039 | 2,556 | 2,281 |
| $PM_{10}$ | 308 | 314 | 328 | 340 |
| $PM_{2.5}$ | 110 | 110 | 111 | 113 |

[a] 2008 base year
[b] With current emissions reduction programs and adopted growth forecasts.
Source: California Air Resources Board, California Emissions Projection Analysis Model, 2009

In 2003, the AQMD adopted an updated AQMP, which was approved by the EPA in 2004. The AQMP outlined the air pollution measures needed to meet federal health-based standards for ozone by 2010 and for particulates by 2006. The AQMP was based on the federal one-hour ozone standard, which was revoked late in 2005 and replaced by an 8-hour federal standard, which action initiated a new air quality planning cycle.

Re-designation of the air basin as non-attainment for the 8-hour ozone standards resulted in a new attainment plan being developed. The plan shifted most of the one-hour ozone standard attainment strategies to the 8-hour standard. The attainment date was changed from 2010 to 2021.

Because projected attainment by 2021 requires control technologies that do not yet exist, the SCAQMD requested a voluntary "bump-up" from a "severe non-attainment" area to an "extreme non-attainment" designation for ozone, allowing a longer time for the technologies to develop. Without attainment, EPA would have been required to impose sanctions on the region if the bump-up had not been approved. In April 2010, EPA approved the change in designation to "extreme," thus setting a later attainment deadline. This reclassification also requires the air basin to adopt even more stringent emissions controls.

## 5.6.3 Thresholds of Significance

The California Resources Agency developed guidelines for the treatment of GHG emissions under CEQA in response to requirements of SB 97. The new guidelines became state laws under Title 14 of the *California Code of Regulations* in March 2010. The CEQA Appendix G Guidelines for air quality state that a project would have a potentially significant impact if it:

a) Generates GHG emissions, directly or indirectly, that may have a significant impact on the environment, or,

b) Conflicts with an applicable plan, policy or regulation adopted to reduce GHG emissions.

*California Code of Regulations* §15064.4 specifies how significance of GHG emissions is to be evaluated, even though guidelines have not been adopted. The process is broken down into quantification of project-related GHG emissions, making a determination of significance and specification of any appropriate mitigation if impacts are found to be potentially significant. The lead agency is afforded substantial flexibility at each of these steps.

On December 5, 2008, the SCAQMD governing board adopted an Interim Quantitative GHG Significance Threshold for industrial projects where the SCAQMD is the lead agency (e.g., stationary source permit projects, rules, plans) of 10,000 metric tons (MT) $CO_2$ equivalent/year. In September 2010, the Working Group released revisions which recommended a threshold of 3,500 MT $CO_{2e}$ for residential projects. This 3,500 MT per year recommendation was used as a guideline for the Proposed Project Air Quality Analysis. However, because the recommendations included a threshold of 3,000 MT $CO_2$ for mixed use projects, the more restrictive threshold is used here. Some jurisdictions have adopted a numerical annual GHG emissions level as a CEQA threshold of significance. Others, such as the County of Orange, have taken the numerical threshold to be an indicator level that signals a requirement for incorporating reasonable and feasible enhanced "green" building practices without formal adoption of an absolute significance standard.

As detailed in Section 5.2, Air Quality (beginning on page 5-65), air quality impacts can be categorized as primary or secondary. Primary pollutant impacts can generally be evaluated directly in comparison to appropriate clean air standards. Violations of these standards where they are currently met, or a measurable worsening of an existing or future violation, would be considered a significant impact.

Secondary pollutants, by comparison, require time to transform from a more benign form to a more unhealthful contaminant. The impact occurs regionally far from the source. Analysis of significance of such emissions is based on a specified amount of emissions (e.g., pounds, tons) even though there is no way to translate those emissions directly into a corresponding ambient air quality impact.

The SCAQMD has established significance thresholds based on Section 182(e) of the federal Clean Air Act that identify levels of volatile organic compounds from stationary sources operating in extreme non-attainment regions for ozone at 10 tons per year. These established values were converted into threshold levels of pounds per day for the construction and operational phases of a project. The SCAQMD states that any project located in the SCAB having daily emissions from direct and indirect sources that exceed the emissions thresholds should be considered significant.

Table 5-6-3 below depicts threshold levels for direct construction emissions and indirect operations emissions. Impacts related to these pollutants are further discussed in Section 5.2, Air Quality (beginning on page 5-65).

**Table 5-6-3 Daily Emissions Thresholds**

| Pollutant | Construction | Operations |
|---|---|---|
| ROG | 75 | 55 |
| $NO_X$ | 100 | 55 |
| CO | 550 | 550 |
| $PM_{10}$ | 150 | 150 |
| $PM_{2.5}$ | 55 | 55 |
| $SO_X$ | 150 | 150 |
| Lead | 3 | 3 |

Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.

## Sensitive Receptors

The Air Quality Analysis combined the existing background air quality levels and potential impacts from the Proposed Project and then compared the results to the applicable air quality standards. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare, particularly for those people most susceptible to further respiratory distress. These population groups include asthmatics, the elderly, very young children, people already weakened by other disease or illness and persons engaged in strenuous work or exercise and are called, collectively, sensitive receptors. Healthy adults can generally tolerate occasional exposure to air pollutant levels considerably above the minimum standards before adverse effects result. However, recent research has shown that chronic exposure to ozone (the primary ingredient in photochemical smog) may lead to adverse respiratory health even at concentrations close to the ambient standard.

A health risk assessment was prepared by Giroux Associates to determine risks to sensitive receptors from construction emissions. An analysis of this assessment is included in Section 5.2, Air Quality (beginning on page 5-65).

## 5.6.4 Project Impacts Prior to Mitigation

Local air quality impacts/emissions are usually divided into short-term and long-term impacts. Short-term impacts are normally the result of demolition, construction, or grading operations. Long-term impacts are associated with the built-out condition of the Proposed Project and are the result of day-to-day operation and maintenance, use of consumer products, natural gas use, and vehicle trips associated with residents, visitors, and employees.

Table 5-6-4 below shows CalEEMod's default equipment fleet with the addition of several scrapers and a grader to the grading phase to ensure an accurate and conservative analysis. Activity duration estimates were provided by the Project Applicant. CalEEMod defaults are included in the Appendix C of the Air Quality Analysis (Appendix C to this DEIR).

**Table 5-6-4 CalEEMod Equipment Fleet**

| | |
|---|---|
| Clearing (120 Days) | 4 Tractors/loaders/backhoes<br>3 Dozers |
| Grading (260 days) | 2 Excavators<br>1 Dozer<br>2 Graders<br>6 Scrapers<br>2 Tractors/loaders/backhoes |
| Construction (1,000 days) | 1 Crane<br>3 Forklifts<br>1 Generator set<br>3 Tractors/loaders/backhoes<br>1 Welder |
| Paving (120 days) | 2 Pavers<br>2 Paving equipment<br>2 Rollers |

Using the equipment fleet indicated above as a worst case scenario required dust mitigation measures, which have been included in the mitigation section herein. However, it is unlikely that all equipment will be in use at the same time. The mitigation measures applied to construction equipment for the "with mitigation" scenario include the best available construction management practices.

The CalEEMod construction model demonstrated the unmitigated and mitigated emissions for an assumed eight-year construction scenario. This information is further detailed in Section 5.2, Air Quality (beginning on page 5-65).

## 2. Construction GHG Emissions

The CalEEMod used to determine construction activity GHG emissions estimated construction emissions over a 6- to 7-year timespan. The SCAQMD GHG emissions policy is to amortize emissions over a 30-year lifetime. Table 5-6-5 below identifies the projected construction emissions for Option 1 and Option 2 alternatives, including the amortized level for both options. As shown, GHG impacts from construction are considered individually less-than-significant.

**Table 5-6-5 Construction Emissions**

| | Metric Tons $CO_2$(e) | |
|---|---|---|
| | **Option 1** | **Option 2** |
| Year 2014 | 1,557.3 | 1,525.5 |
| Year 2015 | 1,501.9 | 1,470.9 |
| Year 2016 | 613.0 | 613.0 |
| Year 2017 | 607.5 | 607.5 |
| Year 2018 | 606.9 | 606.9 |
| Year 2019 | 604.2 | 604.2 |
| Year 2020 | 490.1 | 490.1 |
| **Overall Total** | **6,005.2** | **5,942.4** |
| **Amortized** | **200.2** | **198.1** |

*CalEEMod Output provided in appendix *[to Air Quality and Greenhouse Gas Emissions Impact Analysis dated July 12, 2013]*

## 3. Operational GHG Emissions

Project operational emissions were analyzed using the CalEEMod model. The GHG conversion from consumption to annual regional $CO_2$(e) emissions in the model output files included in Appendix C. Total operational and annualized construction emissions are depicted in Table 5-6-6 below.

**Table 5-6-6 Proposed Residential Operational Emissions**

| Consumption Source | MT $CO_2$(e) tons/year |
|---|---|
| Area Sources | 256.2 |
| Energy Utilization | 1,572.1 |
| Mobile Source | 4,535.7 |
| Solid Waste Generation | 201.6 |
| Water Consumption | 166.2 |
| Annualized Construction | 198.6 |
| **Total** | **6,930.4** |

As shown, total project GHG emissions are substantially above the proposed significance threshold of 3,000 MT and are, therefore, considered significant.

## 4. Consistency with GHG Plans and Policies

Consistency with GHG plans and policies is typically evaluated relative to AB 32 requirements. A reduction in statewide GHG emissions of 28.9% compared to

business-as-usual (BAU) conditions has been established as a goal of AB 32. In preparing the Air Quality Analysis for the Proposed Project, BAU conditions were conservatively presumed to continue throughout the lifetime of the project. However, a number of statewide programs are in place to achieve GHG emissions reductions that will attain a very substantial fraction of the AB 32 goal, creating a 5% shortfall. As shown in Table 5-6-7 below, SCAQMD has estimated that the adopted low carbon fuel standard, the enhanced renewable portfolio standard, and required enhanced energy efficiencies will combine to achieve 23.9% of the 28.9% goal. Assuming the remaining 5% reductions can be achieved by local initiatives, the Proposed Project would not interfere with timely implementation of AB 32.

**Table 5-6-7 GHG Emissions Reductions from State Regulations**

| Category | Source | Percent of Category | Percent of State Total |
|---|---|---|---|
| Mobile | AB 1493 | 19.7% | 8.9% |
| | LCFS-auto | 7.2% | 3.2% |
| | LCFS-medium | 7.2% | 0.4% |
| | Truck efficiency | 2.9% | 0.2% |
| | Passenger efficiency | 2.8% | 1.3% |
| Area | Res. Energy Efficiency (gas) | 9.5% | 1.0% |
| | Non-Res. Energy Efficiency (gas) | 9.5% | 1.0% |
| Indirect | RPS | 21.0% | 3.5% |
| | Energy efficiency (elec) | 15.7% | 4.0% |
| | Solar roofs | 1.5% | 0.2% |
| Total | | | **23.9%** |

LCFS = low carbon fuel standard
RPS = renewable portfolio standard
Totals may not sum due to rounding.
Source: http://www.aqmd.gov/ceqa/handbook/GHG/2009/nov19mtg/ghgmtg14.pdf

If it can be demonstrated that more than adequate options exist to attain the local mitigation responsibility of 5%, mitigation would not be considered to be deferred even if the development plan is not yet finalized. In the absence of an adopted Orange County Climate Action Plan (CAP), reasonable and feasible mitigation measures have been evaluated to achieve the 5% reduction as an interim measure to be taken prior to any CAP adoption. Therefore, mitigation aimed at achieving a 5% reduction in GHG emissions is included herein.

The California Air Pollution Control Officers Association (CAPCOA) has developed candidate GHG reduction programs to supplement the statewide AB-32 compliance program. CAPCOA's "CEQA and Climate Change" (2010) is one of the most detailed and annotated mitigation plans outlined. This plan was applied to the preliminary Esperanza Hills GHG mitigation plan because it is so comprehensive and because it quantifies the potential measure effectiveness in great detail.

Five general categories of emissions reduction potential were evaluated, including transportation control measures, energy conservation enhancement, water supply, solid waste generation, and miscellaneous measures. Table 5-6-8 below presents a

detailed breakdown of the general measures and levels of emissions reduction potential that CAPCOA considers feasible on a project-level basis. In presenting the potential effectiveness, the CAPCOA document presents a percent range of documented results. The low end of the effectiveness range is presented. This is considered appropriate because the implementation of multiple programs simultaneously tends to result in duplicated efforts, which reduces the effectiveness of each measure. For example, while some measures may achieve a 3% to 5% capture rate independently, they may not achieve maximum efficiency when a larger array of "green" options is employed. In addition, because the Proposed Project is residential, measures applicable to commercial uses are not considered.

**Table 5-6-8 Design Control Measures and Potential Effectiveness**

| Measures | Effectiveness |
|---|---|
| Transportation control measures | |
| Bus shelters for future transit | 1.0% |
| Pedestrian access and paths though parking areas | 1.0% |
| Voluntary Rideshare w/ Incentives | 1.0% |
| Preferential Parking for EVs and Hybrids | 1.0% |
| Electric vehicle charge stations | 1.0% |
| Total (transportation) | 5.0% |
| Energy Efficiency | |
| Energy Star and Cool Roofs | 0.5% |
| On-site solar panels on flat roofs | 2.0% |
| Exceed Title 24 requirements by 10% | 3.0% |
| Solar orientation of buildings | 0.5% |
| Low energy cooling | 0.5% |
| Energy Star appliances | 0.5% |
| "Green Building" materials | 0.25% |
| Shading mechanisms | 0.25% |
| High efficiency lighting systems | 0.5% |
| Total energy conservation | 8.0% |
| Water Supply | |
| Use Reclaimed Water | 0.5% |
| Low Flow Fixtures | 0.5% |
| Water Efficient Landscape | 5.0% |
| Total | 6.0% |
| Solid Waste | |
| Enhanced Recycling/Recovery Programs | 10.0% |
| Reuse Cut-and-Fill | 10.0% |
| Total | 20.0% |
| Miscellaneous Measures | |
| Electric lawnmowers | |
| Enhanced recycling, reduction and reuse | |
| LEED certification | Benefits not quantified |
| Drought resistant landscaping | |
| Local farmer's markets | |

Source: CAPCOA (2008), Chapter 7

Table 5-6-9 below summarizes the GHG reductions attainable with the application of reasonable control measures (RCM). Reductions will be provided through Specific Plan Development Guidelines, which include drought-tolerant landscaping and nine community parks to reduce travel to other area parks. As noted herein, the Proposed Project shall incorporate project design features to reduce operational emissions, including use of Energy Star appliances, high-efficiency lighting, low-flow fixtures, Energy Star and Cool roofs, and gas fireplaces instead of wood-burning fireplaces. The table below shows projected GHG reductions overall and for project-specific conditions.

**Table 5-6-9 GHG Reductions Attainable with Implementation of Reasonable Control Measures**

| Category | Applies To | Overall Effectiveness [a] | Overall Percent Reduction [b] | Annual Metric Tons Reduced | Proposed Project RCMs |
|---|---|---|---|---|---|
| Transportation control | Transportation | 5.0% | 3.3% | 227 | NA |
| Water supply | Water use | 6.0% | 0.1% | 10 | 5.5% |
| Solid waste | Solid waste | 20.0% | 0.6% | 40 | NA |
| Energy efficiency | Electric and natural gas | 8.0% | 1.8% | 126 | 4.5 |
| Miscellaneous | All | unknown | unknown | NA | NA |
| Total | | | 5.8% | 403 | 10% |

[a] percentage reduction within a given source category
[b] effectiveness within a given source category times the source category share of the total burden

The Proposed Project has incorporated all design features feasible to reduce impacts. Even without reductions from the categories of transportation and solid waste, with feasible options and realistic expectations of effectiveness, mitigation levels exceeding the local goal of 5% can be demonstrated in the categories of water supply and energy efficiency. As shown in the last column of Table 5-6-9 above, the Proposed Project, with implementation of recommended RCMs, can achieve a 10% reduction in GHG emissions. Achievement of this emissions reduction goal would require the implementation of mitigation measures proposed herein, as well as incorporation of identified design features. With available options, project compliance with AB 32 goals and policies can be assured with a reasonable margin of safety.

## 5.6.5 Mitigation Measures

### 1. Short-Term Impacts (Construction)

Project-related air quality impacts were shown to be potentially significant during project grading due to off-road diesel equipment $NO_X$ emissions. To further minimize potential impacts, during construction and grading activities the construction contractor shall ensure that standard construction practices set forth in the SCAQMD Handbook shall be implemented. In addition, Mitigation Measures AQ-1, AQ-2, and AQ-3 have been included in Section 5.2, Air Quality (beginning on page 5-65), to minimize construction impacts, including potential GHG emissions.

GHG-1 Prior to issuance of building permits for residential units, the County shall ensure that all fireplaces are gas rather than wood burning.

### 2. Long Term Impacts (GHG)

With incorporation of the following mitigation measure, operational emissions would be reduced; however, GHG emissions would exceed SCAQMD significance thresholds.

GHG-2 Prior to construction of project, the developer shall implement or develop a plan for implementation of one or more mitigation strategies for the reduction of greenhouse gas (GHG) emissions from the report "CEQA and Climate Change" prepared by the California Air Pollution Control Officers Association (CAPCOA) as updated in 2010. The total benefit of the mitigation strategies must result in a minimum 5% reduction in GHG emissions from the business-as-usual value. Alternative strategies not listed in the CAPCOA report may be used with approval of the Orange County Planning Director. The selected strategies, including measures for their long-term maintenance, must be described in a memo submitted to and approved by the County Planning Department prior to initial occupancy of any on-site facility.

## 5.6.6 Level of Significance after Mitigation

The project may eventually be annexed to the City of Yorba Linda (City). The City has requested that the County consult with it regarding sustainability initiatives planned to be incorporated as project design features to reduce GHG emissions. The County and City currently have no formally adopted climate change action plan (CAP). However, any adoption and implementation of mitigation measures for GHG impact minimization under the County CEQA responsibilities will be equally effective if the project is annexed to the City. Therefore, to achieve the required 5% reduction in GHG emissions, reasonable control measures (RCMs) are included herein as depicted in Table 5-6-9 above. Mitigation Measure GHG-2 will ensure that such RCMs are included during the construction phase to reduce GHG by combining with SCAQMD standards towards achievement of the AB-32 goal.

Implementation of the mitigation measures identified in Section 5.2.5, Mitigation Measures (Air Quality) beginning on page 5-88 above) will reduce GHG emissions to the extent feasible. As shown in Table 5-6-5, Construction Emissions (page 5-268) and Table 5-6-6, Proposed Residential Operational Emissions (page 5-268), the size of the Proposed Project is such that direct construction GHG emissions and indirect operations GHG emissions will exceed the SCAQMD screening level threshold (3,000 MT $CO_{2e}$ per year) by a large margin (3,889.6 MT per year). This finding is based on a BAU assumption and does not include statewide or locally sponsored mitigation. State program reductions reduce the emissions in the BAU scenario by 23.9%. Feasible local reductions, with application of RCMs as summarized above, would result in an additional 10% reduction. Specific local reductions to be implemented on the site would be determined prior to construction based on then-

current strategies and technologies and as required in Mitigation Measure GHG-2 above. However, even with implementation of required and discretionary GHG reduction measures, annual emissions cannot be reduced below the SCAQMD's advisory level and the impact remains significant and unavoidable.

## 5.6.7 Cumulative Impacts

With respect to GHG, the Proposed Project will add emissions above the SCAQMD's advisory level of 3,000 MT $CO_{2(e)}$. The addition of the adjacent Cielo Vista project and the 18 related projects identified in the Traffic Analysis will further contribute to an exceedance of GHG and, therefore, cumulative impact remains significant and unavoidable.

## 5.6.8 Unavoidable Adverse Impacts

Project impacts related to GHG will remain above the SCAQMD advisory level for construction, operation, and cumulative conditions and are, therefore, considered significant and unavoidable.

# 5.7 Hazards and Hazardous Materials

This section provides an analysis of the hazards and risks to the public and the environment posed by the Proposed Project by hazardous materials and particularly wildfire. The term "hazardous materials" refers to hazardous substances and wastes. A "material" is defined as hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local regulatory agency, or if it has characteristics defined as hazardous by such an agency.

This section provides an analysis of potential soil or water contamination from oil well operations. Further discussion of the potential for soil or water contamination from hazardous materials is detailed herein.

This section also analyzes the impact of wildfire hazard within the Project Area, on the surrounding community and the region, and on emergency response and emergency evacuation. A wildfire hazard section has been prepared for this DEIR because the project is within a State Responsibility Area – Very High Fire Hazard Severity Zone (VHFHSZ) as designated by the County of Orange, the Orange County Fire Authority (OCFA), and the California Department of Forestry and Fire Protection (CAL FIRE) (Exhibit 5-63 – Orange County Fire Authority Unincorporated Yorba Linda and La Habra Ember/Fire Hazard Severity Zones).

The Project Area has historically experienced wildfires, the most recent being the 2008 Freeway Complex Fire, which burned the entire Project Site and ultimately consumed more than 30,000 acres, destroyed or damaged 381 structures – including 187 residences – at a cost of more than $16.1 million dollars.[10]

**Acronyms used in this section:**

| | |
|---|---|
| ACOE | Army Corps of Engineers |
| AMSL | above mean sea level |
| AQMD | Air Quality Management District |
| CAL FIRE | California Department of Forestry and Fire Protection |
| CC&Rs | Covenants, Conditions, and Restrictions |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| DEIR | Draft Environmental Impact Report |
| DOGGR | California Department of Conservation, Oil, Gas, and Geothermal Resources |
| ESA | Phase 1 Environmental Site Assessment |
| FCF Report | Freeway Complex Fire Preliminary Report |
| FMZ | fuel modification zone |
| FPEP | Fire Protection and Emergency Evacuation Plan |
| MWD | Metropolitan Water District |
| NEAPS | Northeast Area Planning Study |
| OCFA | Orange County Fire Authority |
| OCSD | Orange County Sheriff's Department |
| RAP | Remedial Action Plan |
| SCE | Southern California Edison |
| SOI | Sphere of Influence |
| USFWS | U.S. Fish and Wildlife Service |
| VHFHSZ | Very High Fire Hazard Severity Zone |
| WUI | wildland urban interface |
| YLWD | Yorba Linda Water District |

[10] Orange County Fire Authority, Freeway Complex Fire Preliminary Report, December 2, 2008

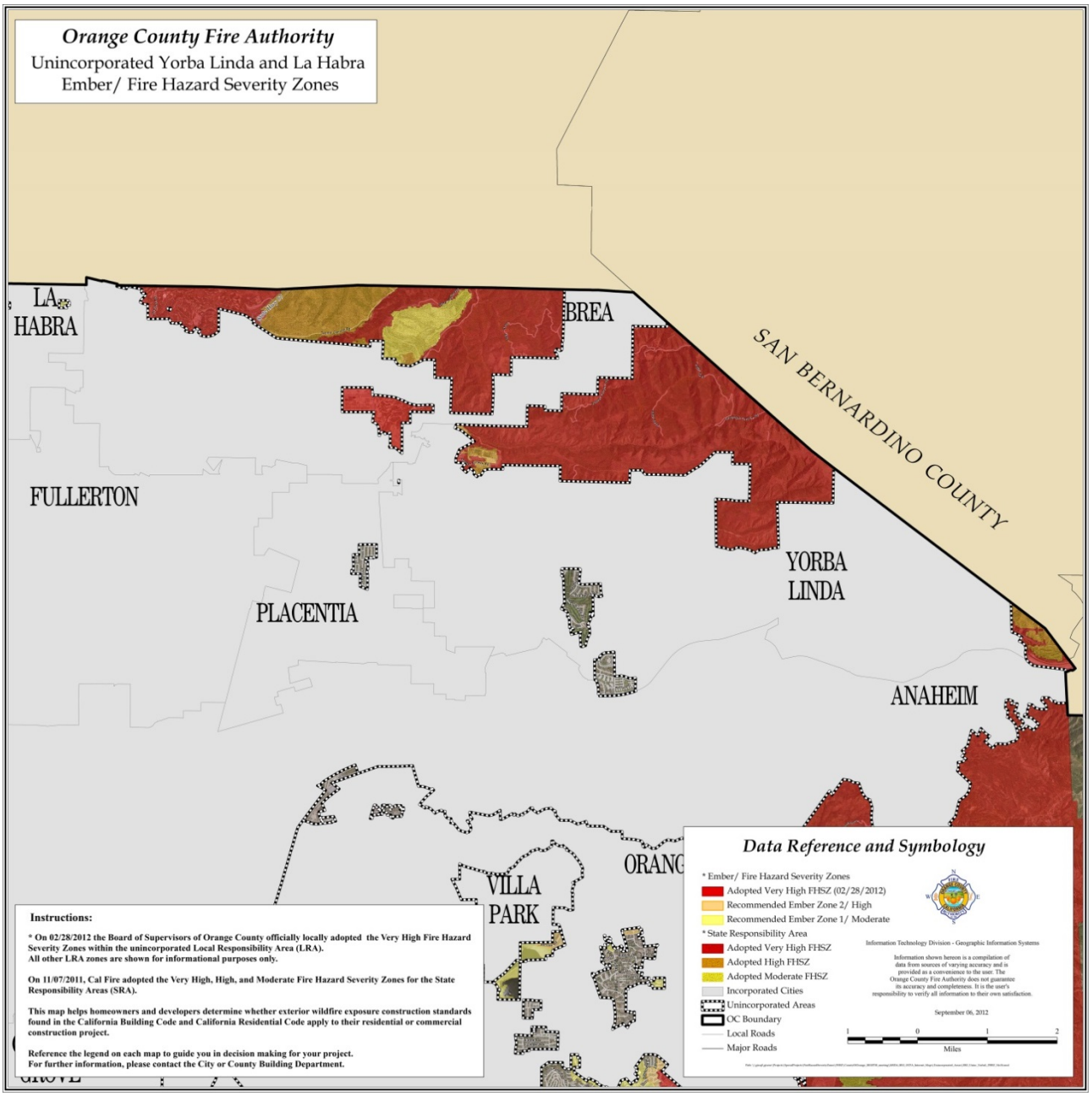



**Exhibit 5-63– Orange County Fire Authority Unincorporated Yorba Linda and La Habra Ember/Fire Hazard Severity Zones**

This was the largest fire in Orange County since the Green River Fire in 1948.[11] Prior to the 2008 Freeway Complex Fire, the most notable and devastating events were the 1980 Carbon Canyon Fire (14,613 acres), the 1980 Owl Fire (18,332 acres), the 1982 Gypsum Fire (19,986 acres), and the 2006 Sierra Peak Fire (10,506) acres.[12] This section is based on the "Phase I Environmental Site Assessment Report" (Phase I ESA) prepared by American Geotechnical, Inc. and dated July 2012 (Appendix I in this DEIR), the "Fire Protection and Emergency Evacuation Plan" (FPEP) prepared by Dudek and dated June 2013 (Appendix J in this DEIR), and the "Preliminary Water Report for Option 1 and Option 2," dated June 2013 (Appendix P in this DEIR).

## 5.7.2 Existing Conditions

### 1. Project Setting and Existing Use

The Project Site is located in an unincorporated area of Orange County, within the Sphere of Influence (SOI) for the City of Yorba Linda (City). Specifically, the Project Site is situated north of the SR-91 Freeway, southwest of Chino Hills State Park, and adjacent to existing residential development in the City. The project is east of San Antonio Road and north of Stonehaven Drive. The Project Site is currently undeveloped, with the exception of oil well operations in the western portion of the site. Although the site has been used historically for grazing, its major use today is open space, water transmission for the Metropolitan Water District (MWD) and the Yorba Linda Water District (YLWD), energy transmission associated with the Southern California Edison Company (SCE), and oil operations from three existing oil wells located in the southwestern area of the site. Grading on the site consists of dirt roads and pads for oil extraction equipment and general access to the property, as well as to the SCE transmission corridor.

### 2. Topography

The Project Site is within the Puente-Chino Hills range, just north of the north end of the Santa Ana Mountains, and is aligned east-west with the downslope end of the site facing the flatlands of Santa Ana Canyon and the City. The Project Site includes a variety of terrains, including steep slopes, rolling hills, and narrow V-shaped ravines. The topography of the Project Area is dominated by three ridgelines. The most significant ridgeline occupies the northern portion of the Project Area and is bordered on the north by an unnamed drainage. The central portion of the Project Area contains two east-west tending ridgelines.

The topography on-site and off-site is situated such that winds may be accelerated as they enter the rugged terrain from on-shore or off-shore directions. Further, this area is

[11] Orange County Fire Authority "After Action Report, Freeway Complex Fire, November 15, 2008," page 7; http://www.wildlandfire.com/docs/2008/lessons-learn/freeway-cplx-aar.pdf (accessed July 2013)

[12] Orange County Fire Authority "After Action Report, Freeway Complex Fire, November 15, 2008," page 10; http://www.wildlandfire.com/docs/2008/lessons-learn/freeway-cplx-aar.pdf (accessed July 2013)

subject to seasonal Santa Ana winds that are enhanced as they are funneled into the SR-91 corridor to the south of this site.

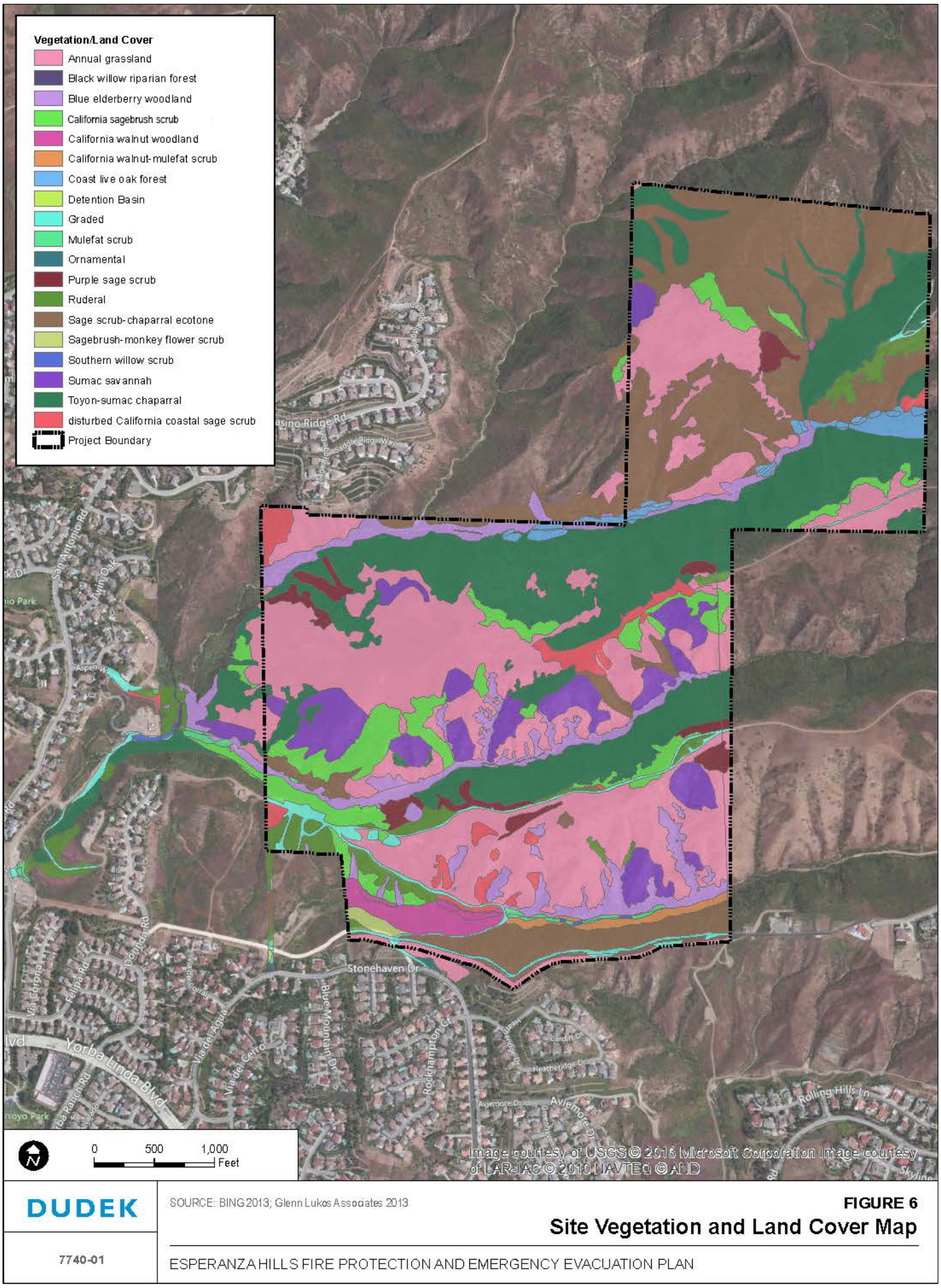
Slopes on the site vary, ranging from moderately to steeply sloped, up to 55% along drainage walls in the steeper canyons. The site elevations range from approximately 600 feet above mean sea level (AMSL) in the extreme southwestern portion of the Proposed Project near Blue Mud Canyon to approximately 1,540 feet AMSL in the northeastern portion of the property. The property slope trends north to south and east to west.

Topography affects wildfire movement and spread. Steep terrain typically results in faster fire spread due to pre-heating of uphill vegetation. Flat areas typically result in slower fire spread, absent windy conditions. Topography may form unique conditions that result in concentrated winds or localized fire funneling, such as saddles, canyons, and chimneys (land formations that collect and funnel heated air upward along a slope). Similarly, terrain may slow the spread of fire. For example, fire generally moves slower downslope than upslope. Terrain may buffer or redirect winds away from some areas based on canyons or formations on the landscape.

## 3. Vegetation

The Project Site supports a diverse mix of habitats/land use types including non-native grasslands with locally dominant stands of coastal sage scrub currently dominated by bush mallow and other fire followers (following the 2008 Freeway Complex Fire) and chaparral with limited areas of riparian habitat and walnut woodland. The Project Site also includes disturbed habitats characterized as ruderal and disturbed/developed areas. A complete description of existing vegetation is found in Section 5.3, Biological Resources (beginning on page 5-91). The Biological Resources section describes a Study Area of approximately 504.20 acres, which encompasses the entire 468.9-acre Project Site, as well as off-site impact areas of an additional 35.26 acres.

The majority of the vegetation on the Study Area is represented by annual grasses and chaparral-dominated plant communities. In total, the various sage scrub vegetation types account for 192.55 acres (38.2%) of coverage on the site. Annual grassland and non-native grasslands make up 136.10 acres (27.0%) of the 504.20 acres. Toyon-sumac chaparral accounts for 118.14 acres (23.4%) and occurs throughout the site on the more mesic (moist), north-facing slopes. Woodlands account for 44.2 acres (9.0%). Non-fuel areas that will not burn (dirt roads and bare ground) occur on 10.17 acres (2.0%) of the site and are located primarily along ridge tops for access to oil extraction equipment and SCE transmission lines. The Proposed Project's vegetation and land coverage is illustrated in Exhibit 5-64 – Site Area Vegetation and Land Cover Map. Variations in vegetative cover type and species composition have a direct effect on fire behavior. Some plant communities and their associated plant species have increased flammability based on plant physiology (resin content), biological function (flowering, retention of dead plant material), physical structure (bark thickness, leaf size, branching patterns), and overall fuel loading.




DUDEK

SOURCE: BING 2013; Glenn Lukos Associates 2013

**FIGURE 6**

**Site Vegetation and Land Cover Map**

7740-01

ESPERANZA HILLS FIRE PROTECTION AND EMERGENCY EVACUATION PLAN

**Exhibit 5-64 – Site Area Vegetation and Land Cover Map**

The corresponding fuel models for each of these vegetation types are designed to capture these differences. Additionally, vegetative cover influences fire suppression efforts through its effect on fire behavior.

The vegetation types, amount of vegetation (acres), and percentage of total area are summarized in Table 5-7-1 below.

**Table 5-7-1 Study Area Vegetation and Land Cover Types – Esperanza Hills**

| | Acres | Percent Coverage |
|---|---|---|
| **Vegetation Type** | | |
| Annual grassland | 136.1 | 27.0% |
| Black willow riparian forest | 0.19 | 0.04% |
| Blue elderberry woodland | 31.28 | 6.2% |
| California sagebrush scrub | 28.70 | 5.7% |
| California walnut woodland | 6.37 | 1.3% |
| California walnut-mulefat scrub | 2.70 | 0.5% |
| Coast live oak forest | 6.36 | 1.3% |
| Disturbed California sagebrush scrub | 10.32 | 2.0% |
| Mulefat scrub | 1.93 | 0.3% |
| Purple sage scrub | 10.14 | 2.0% |
| Ruderal | 15.93 | 3.2% |
| Sage scrub-chaparral ecotone | 95.02 | 18.9% |
| Sagebrush-monkey flower scrub | 1.21 | 0.2% |
| Southern willow scrub | 0.52 | 0.1% |
| Sumac savannah | 28.78 | 5.7% |
| Toyon-sumac chaparral | 118.14 | 23.4% |
| **Land Cover Type** | | |
| Graded | 10.17 | 2.0% |
| Total | 504.20 | 100% |

Vegetation plays a significant role in fire behavior, and is an important component to the fire behavior models used to predict fire behavior. Fire presence and absence at varying cycles or regimes disrupt plant community succession, setting succession progress back to an earlier state, as was experienced on this site during the 2008 Freeway Complex Fire. Succession is a natural process within plant communities. High frequency fires tend to gradually convert shrublands to grasslands or maintain grasslands, while fire exclusion tends to convert grasslands to shrublands. In general, biomass and associated fuel loading will increase over time, assuming that disturbance (fire, grazing) or fuel reduction efforts are not diligently implemented.

## 4. Climate

As with most of southern California, the Proposed Project Area is influenced by the Pacific Ocean and is frequently under the influence of a seasonal, migratory subtropical high pressure cell known as the Pacific High. Wet winters and dry summers, with mild seasonal changes, characterize the southern California climate. This climate pattern is occasionally interrupted by extreme periods of hot weather, winter storms, or dry, easterly Santa Ana winds. The average annual high temperature

for the site (near the City) is approximately 77°F, with average highs in the summer and early fall months (July through October) reaching 88°F. The average precipitation for the area is approximately 14.4 inches per year, with the majority of rainfall concentrated in the months of January (2.99 inches), February (3.10 inches), and March (2.37 inches), while smaller amounts of rain are experienced during the other months of the year.

The prevailing wind pattern is from the west, but the presence of the Pacific Ocean causes a diurnal (i.e., day/night) wind pattern known as the land/sea breeze system. During the day winds are typically from the west–southwest (sea), and at night winds are from the northeast (land). During the summer season, these diurnal winds can be slightly stronger than the winds during the winter season due to greater pressure gradient forces. Surface winds can also be influenced locally by topography and slope variations. The varied topography on and around the Project Site may affect wind velocity and patterns. The highest wind velocities are typically associated with downslope, canyon, and Santa Ana winds.

Typically, the highest fire danger is produced by the high-pressure systems that occur in the Great Basin area of the western United States, which result in the "Santa Ana winds" of southern California. Sustained wind speeds recorded during recent major fires in Orange County exceeded 30 mph and may exceed 50 mph during extreme conditions. The Santa Ana wind conditions are a reversal of the prevailing south-westerly winds that usually occur on a regionwide basis during late summer and early fall. Santa Ana winds are warm winds that flow from the higher desert elevations in the north through the mountain passes and canyons. As they converge through the canyons, their velocities increase. Consequently, peak velocities are highest at the mouths of canyons and dissipate as they spread across valley floors. This is especially noticeable through the SR-91 Freeway corridor just south of the Project Site where the Santa Ana River forms a steep-sided "tunnel" through the Santa Ana Mountains. Winds commonly are accelerated through this corridor, which interfaces with open space areas to the south and east of the Project Site. Santa Ana winds generally coincide with the regional drought period and the period of highest fire danger.

## 5. Regional Fire Setting

The proposed Project Site is adjacent to the Chino Hills State Park to the north and east. The open space areas preserved within the Chino Hills State Park are not currently managed under an approved, directed fire management plan. Native sage and chaparral communities will likely continue converting to grasslands as the shrub layer is degraded from frequent fires. This will have the benefit of reducing the fire intensity associated with wildfires, but it is not a preferred situation, because grasses are more readily ignited and will result in more frequent fires.

Additionally, the topography of the Santa Ana River corridor to the south of the Project Site has the potential to funnel Santa Ana winds as they pass through the narrow canyon section between Coal Canyon and Scully Hill, thereby increasing local wind speeds and increasing wildfire hazard in the region. Also of concern is a Santa Ana

wind-driven fire burning within adjacent open space that may result in embers landing on the undeveloped Project Site and adjacent residential neighborhoods. Ember-caused ignitions rely on embers landing in a susceptible fuel bed (e.g., dry grass), but may also ignite unprotected structures directly if they penetrate roofing and siding (e.g., via roof vents).

## 6. Fire History

The most recent large event wildland fire, the 2008 Freeway Complex Fire, burned most of the Chino Hills, including the entire Project Site. The Freeway Complex Fire started on November 15, 2008 as a vegetation fire located adjacent to the westbound SR-91 Freeway west of the Green River off-ramp. The 2008 Freeway Complex Fire, after merging with a second fire, burned into portions of several cities, including Anaheim, Brea, Corona, and Yorba Linda. A total of 381 structures were damaged or destroyed in the fire. Following similar findings of large fire events over the last decade, the OCFA concluded in their "After Action Report" that homes lost were primarily those that were of older, more vulnerable construction methods and materials and primarily from embers that penetrated into attic spaces. Conversely, newer homes performed well due to the ignition-resistant construction standards that were formally adopted in the City in 1996 and that have become increasingly more restrictive as a result of the code updates occurring in 2001, 2003, and 2007. Of the 187 residential structures that were lost in the 2008 Freeway Complex Fire, none within the fire perimeter had been built to at least the 1996 Special Fire Area codes enacted by the City.

Fire history data provides valuable information regarding fire spread, fire frequency, ignition sources, and vegetation/fuel mosaics across a given landscape. One important use for this information is as a tool for pre-planning a tactical defense position, by knowing what type of fire burned on the site and how a fire may spread. According to available data from CAL FIRE, only three fires have burned within the Project Site since the beginning of the historical fire data record. These three fires (the Santa Ana Canyon Fire in 1943, the Owl Fire in 1980, and the Freeway Complex Fire in 2008) each burned the entirety of the property. This fire occurrence interval on-site indicates that vegetation, terrain, and potentially suppression efforts have played a role in the low number of fires on the Project Site.

There are several barriers and non-fuels on the north side of the SR-91 Freeway that likely result in limited vegetation ignitions toward the Proposed Project Area. This is consistent with historical fire records, which indicate that roughly 90% of wildfires occur on non-Red Flag Warning days and account for about 10% of the acreage burned. The other 10% of the wildfire occurrences coincide with Red Flag Warning days and account for 90% of the acreage burned.

Exhibit 5-65 – Fire History Map indicates the frequency, locations, and areas burned by wildfires in the general vicinity of the Proposed Project. There is a strong association between wildland urban interface (WUI) roadways. Seven fires have burned within one mile of the Project Site over the historic fire data record, all of which exceeded 1,000 acres in total size.

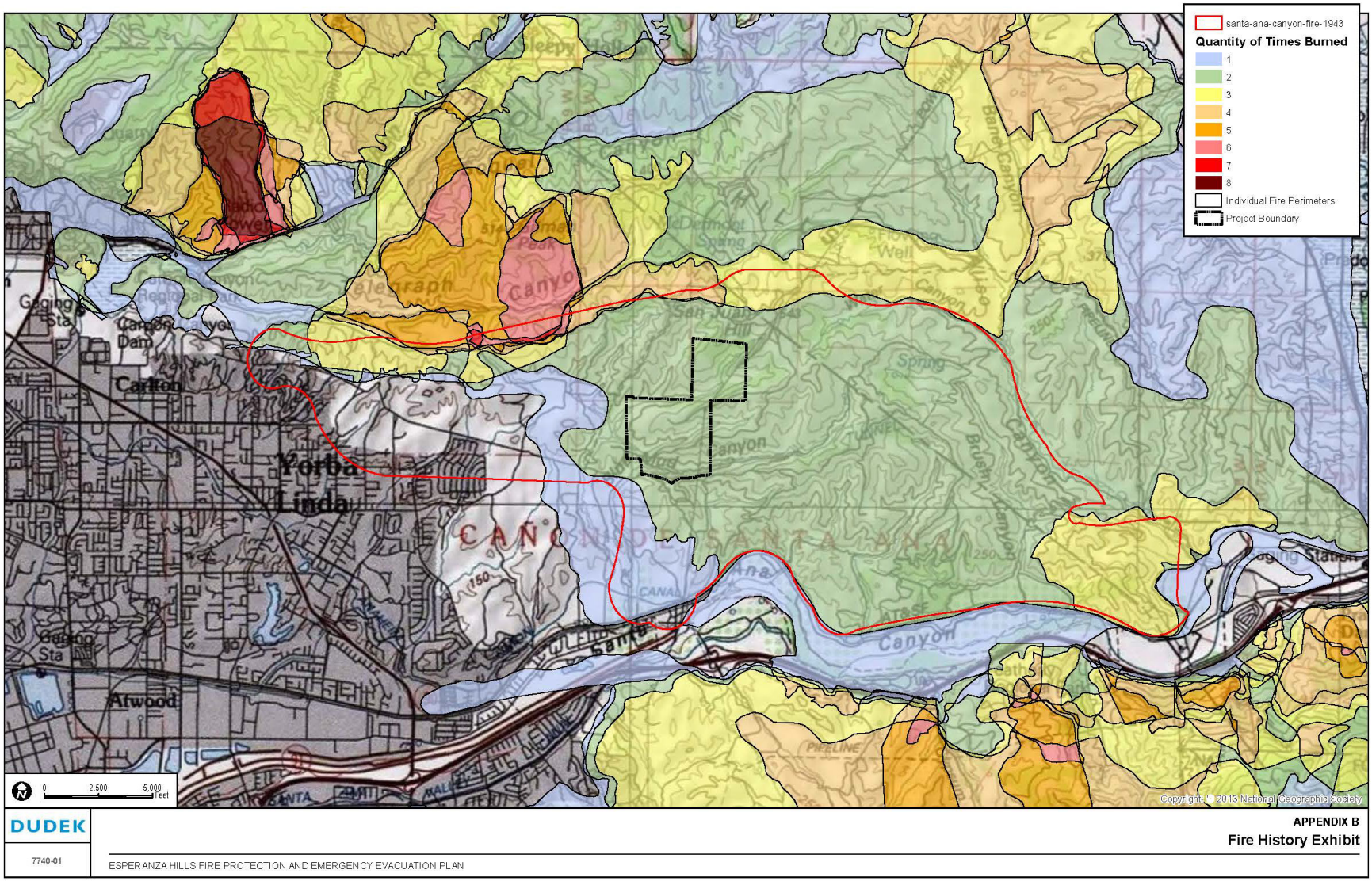



**Exhibit 5-65– Fire History Map**

Table 5-7-2 below summarizes 13 fires that have burned within two miles of the Project Site over the recorded fire history period.

**Table 5-7-2 Fire History within Two Miles of Project Site**

| Fire Year* | Fire Name | Interval (years) | Area Burned (acres) |
|---|---|---|---|
| 1943 | Santa Ana Canyon Fire | N/A | 9,375 |
| 1948 | Green River Fire | 5 | 53,080 |
| 1959 | La Vida Fire | 11 | 610 |
| 1967 | Paseo Grande Fire | 8 | 51,076 |
| 1978 | Soquel Fire | 11 | 3,934 |
| 1980 | Owl Fire | 2 | 18,332 |
| 1982 | Gypsum Fire | 2 | 18,332 |
| 1985 | Telegraph Fire | 3 | 1,635 |
| 1985 | Shell Fire | 0 | 2,367 |
| 1990 | Yorba Fire | 5 | 7,883 |
| 2002 | Blue Gum Fire | 12 | 497 |
| 2005 | Yorba Linda Fire | 3 | 1,079 |
| 2008 | Freeway Complex Fire | 3 | 30,305 |

*FRAP 2003

Based on an analysis of this fire history data set, specifically the years in which the fires burned, the average interval between wildfires in the area was calculated to be 5.5 years with intervals ranging between 0 years (multiple fires in the same year) and 12 years. Based on this analysis, it is expected that portions of the Chino Hills will be subject to wildfire at least every five to six years, with the realistic possibility of shorter interval occurrences. Further, the proximity of the Proposed Project to large expanses of open space to the north and east in Chino Hills State Park and potential ignition sources along SR-91, SR-71, La Palma Avenue, Carbon Canyon Road, and portions of Yorba Linda Boulevard contribute to increased wildfire hazard in the existing condition of the Project Site.

## 7. Fire Risk Assessment for Undeveloped Site

Predicting wildland fire behavior is not an exact science due to the many variables that must be considered. As such, the movement of a fire will likely never be fully predictable, especially considering the variations in weather, the limits of weather forecasting, and the weather that is often "created" by firestorms. Nevertheless, practiced and experienced judgment, coupled with a validated fire behavior modeling system, results in useful and accurate fire information.

The fire risk assessment is based on the results of the FlamMap model, a geographic-based fire behavior modeling system as described in the FPEP. FlamMap utilizes fire spread equations and provides a geographical presentation of fire behavior outputs as it applies the calculations to each pixel in the associated GIS landscape. Summer weather conditions (onshore flow) and more extreme fall weather conditions (off-shore, Santa Ana winds conditions) were modeled for the existing site condition and the proposed post-development site condition. To be used effectively, the basic

assumptions and limitations of fire behavior modeling applications must be understood.

- First, it must be realized that the fire model describes fire behavior only in the flaming front. The primary driving force in the predictive calculations is the dead fuels less than 0.25 inches in diameter. These are the fine fuels that carry fire. Fuels greater than one inch have little effect, while fuels greater than three inches have no effect on fire behavior.
- Second, the model bases calculations and descriptions on a wildfire spreading through surface fuels that are within six feet of the ground and contiguous to the ground. Surface fuels are often classified as grass, brush, litter, or slash.
- Third, the software assumes that weather and topography are uniform. However, because wildfires almost always burn under non-uniform conditions, creating their own weather, length of projection period and choice of fuel model must be carefully considered to obtain useful predictions.
- Fourth, fire behavior computer modeling systems are not intended for determining sufficient fuel modification zone/defensible space widths. However, it does provide the average length of the flames, which is a key element for determining defensible space distances for minimizing structure ignition.

A critical factor to consider is the dynamic nature of vegetation communities. The FlamMap model was used to predict fire behavior for existing conditions. Fire behavior can be predicted largely by analyzing the characteristics of fuels. Fire behavior is affected by seven principal fuel characteristics: fuel loading, size and shape, compactness, horizontal continuity, vertical arrangement, moisture content, and chemical properties.

Table 5-7-3 below provides a description of seven fuel models coded for the site that were subsequently used in the on-site FlamMap analysis for the Proposed Project.

**Table 5-7-3 Existing On-Site Fuel Model Characteristics**

| Fuel Model | Description | Land Cover Classification | Canopy Cover |
|---|---|---|---|
| 0 | Non-burnable | Graded | 0 |
| 1 | Tall grass | Annual grassland, ruderal, sumac, savannah | 0 |
| 8 | Closed timber litter | Southern willow scrub | 50%-80% |
| 9 | Hardwood litter | Coast live oak forest | 50%-80% |
| GS2 | Moderate load, dry climate grass-shrub | Blue elderberry and walnut woodland, mulefat scrub, black willow riparian forest | 0 |
| SCAL 18 | Coastal sage scrub | Sage and monkeyflower scrub, purple sage scrub, California sagebrush scrub | 0 |
| SH5 | High load, dry climate shrub | Toyon-sumac chaparral | 0 |

The FlamMap model predicts potential flame length (feet) conditions during summer and peak weather scenarios. Flame length, the length of the flame of a spreading surface fire within the flaming front, is measured from midway in the active flaming combustion zone to the average tip of the flames. It is a somewhat subjective and non-scientific measure of fire behavior, but is extremely important to fire line personnel in evaluating fire line intensity and is worth considering as an important fire variable.

Table 5-7-4 below presents an interpretation of flame length and its relationship to fire line intensity.

**Table 5-7-4 Fire Suppression Interpretation**

| Flame Length (feet) | Fire Line Intensity (BTU/foot/second) | Interpretations |
|---|---|---|
| Under 4 | Under 100 | Fires can generally be attacked at the head or flanks by persons using hand tools. Hand Line should hold the fire. |
| 4-8 | 100-500 | Fires are too intense for direct attack on the head by persons using hand tools. Hand line cannot be relied on to hold the fire. Equipment such as dozers, pumpers, and retardant aircraft can be effective. |
| 8-11 | 500-1,000 | Fires may present serious control problems-torching out, crowning, and spotting. Control efforts at the fire head will probably be ineffective. |
| Over 11 | Over 1,000 | Crowning, spotting, and major fire runs are probable. Control efforts at head of fire are ineffective. |

Given the climatic, vegetation, and topographic characteristics of the analysis area, along with the fire behavior modeling results, the undeveloped Project Site is considered vulnerable to wildfire starting in, burning onto, or spotting onto the site. Based on the FlamMap modeling conducted for the existing Project Site, maximum flame lengths during a summer fire (50$^{th}$ percentile weather) are modeled at 19 feet, and maximum flame lengths during a fall fire (97$^{th}$ percentile weather) are modeled at 41 feet.

Therefore, in the existing condition, the undeveloped Project Site is considered vulnerable to wildfire starting in, burning into, or spotting into the site fuels as it did during the 2008 Freeway Complex Fire. The location's proximity to off-site wildland areas that are prone to fire, such as the Chino Hills State Park, numerous ignition sources and climatic, vegetation, WUI location, and topographical characteristics of the area, along with the fire history and fire behavior modeling results, combine to heighten the risk of wildfire. Under favorable weather conditions, a lower intensity fire can move through the non-indigenous grass ground cover, burning quickly but with lower flame lengths. Areas that will re-vegetate (succession) with sage scrub have the potential to produce moderate to high intensity fire. Under extreme conditions, catastrophic wildfire could result as grass/understory fires burn into ladder fuels or heavier fuels, driven by high winds. A typical cause for wildfire may be related to roadways (tossed cigarette, vehicle accidents, catalytic converter, or car fire), power lines, unattended teenagers/children, arson, or gas powered mowers, trimmers or other equipment.

## 8. Water Supply and Capacity

The Project Site is currently undeveloped, and there is no water distribution system servicing the site. The YLWD is the water purveyor for the Project Site. A complete description of the area water distribution system and capacity is included in Section 5.12, Public Services (beginning on page 5-493 of this DEIR). During the comment period for the Notice of Preparation, several letters were received from residents in the area of the Proposed Project concerning inadequate water supply for firefighting in the Project Area during the 2008 Freeway Complex Fire. The OCFA in its "Freeway Complex Fire Preliminary Report" (FCF Report) dated December 2, 2008 provides a summary of water supply issues during the Freeway Complex Fire that hindered its ability to protect structures in the Project Area. The FCF Report concludes that even a single-structure fire can overstrain a well-functioning water system, and in the case of the 2008 Freeway Complex Fire dozens of structures needed to be defended. In wildland events such as the 2008 Freeway Complex Fire, water hydrants are used to fill water tenders and the fire engine water tanks that are used during mobile suppression efforts. At 2:00 p.m. on November 15, 2008, several fire companies reported encountering low or no water pressure in various locations in the Hidden Hills area that is southeast of the Project Site, including Hidden Hills Road, Mission Hills Lane, High Tree Circle, Fairwood Circle, Green Crest Drive, and Skyridge Drive. The FCF Report states, "With homes burning on multiple fronts, Strike Team Leaders directed companies to move to areas that had available water."

The FCF Report states the YLWD responded into the area quickly, but was not able to immediately determine the reason for the pressure loss. By 5:00 p.m. the water pressure had been improved sufficiently enough to permit filling of water tenders. It was later determined that the fire hydrants in the upper portion of Hidden Hills, which were served by a pump system rather than a gravity fed system, failed. Three electrical pumps stopped working because of a wiring short, and the emergency gas powered pumps overheated quickly and stopped working.

## 9. Community Evacuation Planning

In its FCF Report the OCFA provides a summary of community evacuations. The fire started at 9:07 a.m. along the westbound SR-91 Freeway, west of the Green River off-ramp. By 10:20 a.m. the first alert was sent to the OCFA Emergency Communications Center to advise the City that evacuations should be initiated in the areas of Brush Canyon (northwest of the ignition point) and that the fire would be upon those homes within 30 minutes. At 10:31 a.m. the first reports are received that the fire was spotting and homes were threatened on Bighorn Mountain Way in the City (north of Brush Canyon area). At 10:39 a.m. an OCFA helicopter confirmed that homes on Bighorn Mountain Way, Blue Ridge Drive, and Evening Breeze Drive were threatened. The OCFA estimated that 9,000 homes in the City were eventually evacuated along with approximately 24,000 people. The FCF Report states that as residents began to evacuate, traffic gridlocked in some areas as emergency apparatus tried to enter the neighborhoods while residents tried to exit. The FCF Report states that law

enforcement agencies do not have legal authority to force residents to evacuate, but they may restrict residents from entering evacuation areas. The FCF Report concludes that determining where and when to evacuate is difficult and has its own set of risks and benefits. There was no loss of life or serious injury to residents as a result of the 2008 Freeway Complex Fire.

Residents in the area of the Project Site have provided comments in conjunction with the Notice of Preparation for this DEIR. Many comments were received concerning road congestion during emergency evacuation. The commenters stated that Stonehaven Drive, Via del Agua, San Antonio Road, and Yorba Linda Boulevard were blocked with vehicles attempting to leave the area that hindered timely evacuation. Evacuation of residents delayed fire responders from getting into the area. Comments were also received concerning the lack of evacuation notice and emergency personnel.

The Orange County Office of Emergency Services is responsible for the Community Evacuation Plan. Currently, the City has not completed its Community Evacuation Plan. After the 2008 Freeway Complex Fire, the OCFA adopted the "Ready, Set, Go!" program to educate citizens in fire-prone areas and centers on preparation and early evacuation. The concept includes attention to being "Ready" for wildfire by pre-planning, being "Set" through ongoing preparedness training, and implementing the "Go" by implementing evacuations well-before the community is directly threatened. Wildfires are most likely to approach from the north/northeast/east, where wildland fuels are present. Areas to the west/northwest/southwest are predominantly urban areas in the City. Decisions regarding wildfire behavior and the corresponding time available before fire threatens the community are made by fire officials involved in the Incident Command System that is established for all significant wildland fires and may include OCFA, CAL FIRE, the Office of Emergency Services, and other fire or law enforcement officials. Road closures and traffic control are among the tasks performed by local law enforcement. Orange County has initiated Alert OC; residents can sign up to have messages sent to cell phones in order to directly inform them of emergency evacuation events. The County also uses Reverse 911 and radio and television news sources.

The evacuation routes have been designed in accordance with specifications from the OCFA. In addition, an internal emergency access plan was designed as depicted on Exhibit 5-76 (page 5-319) and Exhibit 5-77 (page 5-321). The Orange County Sheriff's Department has also prepared an area evacuation plan designed to move traffic off Yorba Linda Boulevard and through local neighborhoods. The plan is included as Exhibit 5-66 – Evacuation Plan, Orange County Sheriff's Department.

## 10. Oil Well Operations

Oil well operations have the potential of releasing hazardous contaminants that can impact surrounding soils and groundwater, and releasing methane gas. Oil wells are subject to regulations and oversight of the California Department of Conservation, Oil, Gas, and Geothermal Resources (DOGGR).

A Phase I ESA was prepared for the Project Site that researched 15 federal records and 11 state standard environmental records, and 90 additional available environmental records and databases to evaluate the environmental risk. Records reviewed and site investigation identified five above-ground storage tanks with associated pipelines, seven wells located within the project southerly boundary, three "active" wells, and four "inactive or previously abandoned" wells shown on Exhibit 5-67 – On-Site Oil Well Location Plan. Well sites 1, 5, and 9 have active oil pumping activity. Well sites 13, 14, 15, and 24 are abandoned, and the approximate well locations were identified in the field by previously graded pads on the hillsides (and the presence of concrete tie-downs). No physical evidence of well casing or piping or well production concrete pads was observed at these abandoned sites. It is unknown if the well casings remain intact below the ground surface or how the wells were capped.

A Phase II ESA will be prepared identifying abandoned well locations, hidden pits, or accumulations of drilling mud. The Phase II ESA will verify regulatory compliance with previously abandoned wells.

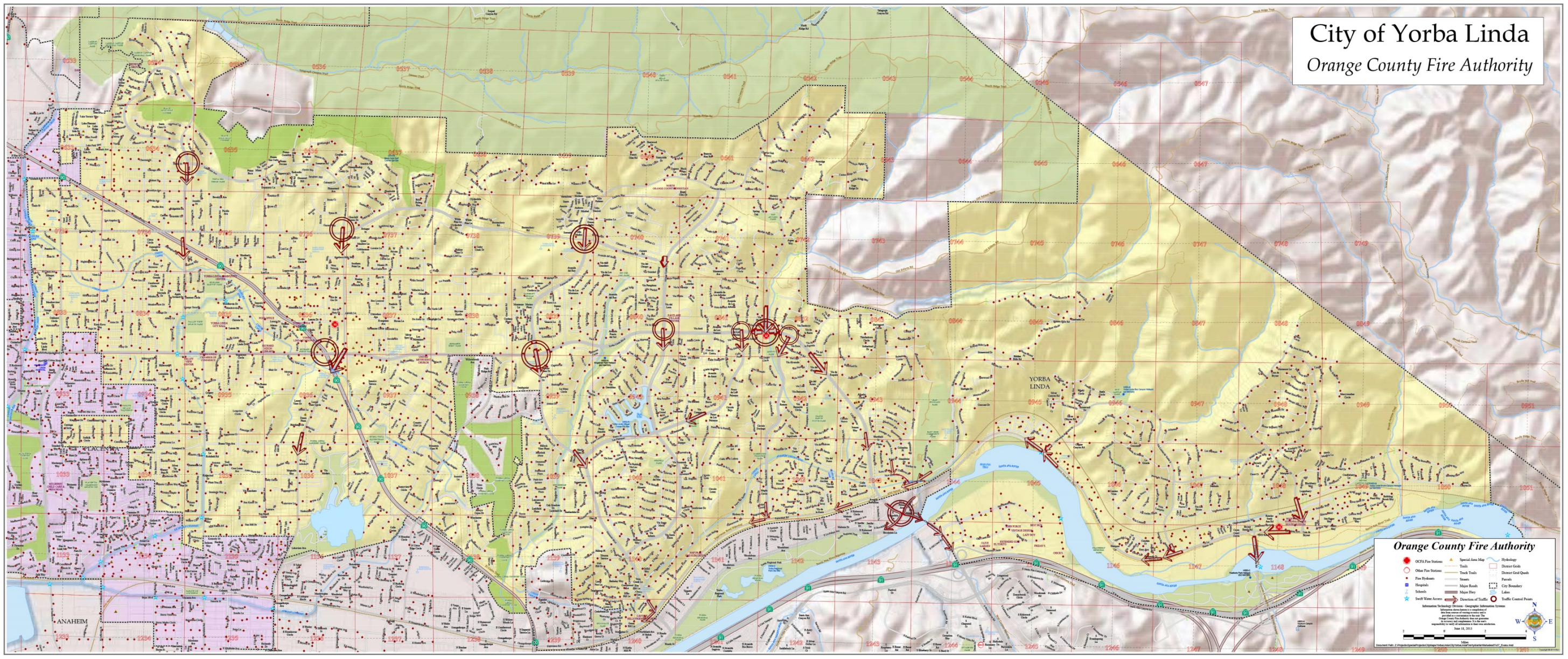



**Exhibit 5-66 – Evacuation Plan, Orange County Sheriff's Department**


**Exhibit 5-67 – On-Site Oil Well Location Plan**

Table 5-7-5 below provides a summary of field observations of the on-site oil wells.

**Table 5-7-5 Oil Well Observations for Contaminants**

| Item or Condition | Observed Evidence | No Evidence Observed | Comments |
|---|---|---|---|
| Hazardous Substances and Petroleum Products | ☒ | ☐ | Oil overfill, oil spillage, miscellaneous oil leaks, and oil-stained soil were observed in the immediate vicinity of the oil wells, storage vessels, and conveyance piping. |
| Storage Tanks and Related Equipment | ☒ | ☐ | Approximately ten above-ground storage tanks and associated active and inactive piping were observed on the Site. |
| Odors | ☒ | ☐ | Petroleum odors were noted in the vicinity of the oil wells, piping, and storage tanks. One mobile carbon vapor treatment system was observed adjacent to a large mobile storage tank at Well 2. |
| Standing Surface Water or Other Pools of Liquid | ☐ | ☒ | |
| Products or Other Unidentified Contents | ☐ | ☒ | |
| Transformers or Equipment containing Polychlorinated Biphenyls (PCBs) | ☐ | ☒ | A high-tension power line was observed in the eastern portion of the property. However, no transformers or potential sources of PCBs were noted. |
| Pits, Ponds, or Lagoons | ☐ | ☒ | No visible surface evidence of drilling mud pits typically associated with oil well drilling and production. |
| Stressed Vegetation (other than from insufficient water) | ☐ | ☒ | |
| Evidence of Mounds, Depressions or Graded Areas Suggesting Trash or Other Solid Waste Disposal | ☐ | ☒ | |
| Waste Water or any Discharge (including storm water) into a Drain, Ditch, or Stream on or Adjacent to the Site | ☐ | ☒ | |
| Wells (active, inactive, or abandoned) | ☒ | ☐ | Three active oil wells were observed and the locations of four abandoned oil wells were identified by level graded drilling pads. |
| Septic Systems or Cesspools | ☐ | ☒ | |
| Drains and Sumps | ☒ | ☐ | Associated with oil pipelines and adjacent to storage tanks. |
| Prior structures | ☐ | ☒ | |
| Roads, Tracks, Railroad Tracks, or Spurs | ☒ | ☐ | The Site is traversed by numerous unpaved dirt access roads. |

Table 5-7-6 below provides a summary of well reference number, well condition, operator, and oil well lease information within the Project Site.

**Table 5-7-6 Summary of On-Site Oil Wells**

| Well Number | Existing Well Condition | DOGGR Database Well Operator Name | DOGGR Database Well Lease Name |
|---|---|---|---|
| 1 | Active | Gary A. Darnell, Trust | CRA Texas A.U.W.C. |
| 5 | Active | Santa Ana Canyon Dev. Corp. | Reeves |
| 9 | Active | Santa Ana Canyon Dev. Corp. | Reeves |
| 13 | Abandoned | Petrominerals Corp. | Anaheim Union Water Co. |
| 14 | Abandoned | Terra Resources, Inc. | Westpet-Texas A.U.W.C. |
| 15 | Abandoned | Petrominerals Corp. | Anaheim Union Water Co. |
| 24 | Abandoned | Petrominerals Corp. | Anaheim Union Water Co. |

## 5.7.3 Regulatory Setting

The applicable existing regulations concerning fire protection are:

- 2010 California Building and Fire Codes, Chapter 7A, Materials and Construction Methods for Exterior Wildfire Exposure. These regulations focus primarily on preventing ember penetration into homes, a leading cause of structure loss from wildfires
- 2010 California Fire Code, Chapter 49, Wildland Urban Interface Fire Access. The purpose of this code is to provide minimum standards to increase the ability of a building to resist the intrusion of flame or burning embers being projected by a vegetation fire and contributes to a systematic reduction in conflagration losses through the use of performance and prescriptive requirements
- 2010 California Residential Code, Section 237 as adopted by the County of Orange regulates residential building construction concerning materials and methods for fire resistance for Orange County.
- Orange County Fire Authority Vegetation Management Guidelines, Guideline C 05 establishes the standards for fuel modification zone design for new construction. A fuel modification zone is a strip of land where combustible vegetation has been removed and/or modified and partially or totally replaced with more adequately spaced, drought-tolerant, fire-resistant plants in order to provide a reasonable level of protection to structures from wildland and vegetation fires. The OCFA requires a minimum width of 170 feet of fuel modification that is characterized as Zone A, B, C and D. Zone A is level 20-foot structure setback zone, Zone B is a minimum 50-foot irrigated zone, with an additional 100-foot minimum of vegetation thinning zones (Zones C and D). The minimum width of a fuel modification area in some cases increases due to type of terrain and/or type and mass of vegetation. Alternative materials and methods can also be approved by the OCFA in situations where the project

cannot meet the requirements of the fuel modification guideline for total distance of the zones, alternate plant species, or horizontal spacing/grouping distances.

The City has also adopted the 2010 California Fire Code.

## 5.7.4 Thresholds of Significance

For the purposes of this DEIR, the thresholds of significance for evaluation of project impacts are based upon suggested criteria from the County of Orange Environmental Checklist and the California Environmental Quality Act (CEQA) Environmental Checklist found within Appendix G of the CEQA Guidelines. This project would result in a significant impact if it would:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials
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
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school
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
e) 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 result in a safety hazard for people residing or working in the project area
f) For a project within the vicinity of private airstrip, would the project result in a safety hazard for people residing or working in the project area
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
h) Expose people or structures to a significant risk or loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands

## 5.7.5 Project Impacts Prior to Mitigation

### 1. Project Description

The Proposed Project consists of the development of single-family residential homes on 468.9 acres. The Proposed Project is being evaluated for two conceptual site plan options that primarily differ by their main entry into the Project Site. Proposed development for Option 1 is 334 homes, whereas Options 2 would include 340 homes. At build-out, all development options would consist of a gated entrance with low-density residential and estate lots. Project components include up to 13.9 acres of

parklands and roughly 7 miles of trails, including pedestrian, bicycle, and equestrian trails with access points to permit non-vehicular access to the Chino Hills State Park and surrounding open space areas. The Project will retain approximately 230.8 acres of open space, including 146.9 acres of natural open space and 83.9 acres of landscaping as part of a fuel modification plan. As part of a private community, a homeowners' association will be established to manage and maintain streets, landscaping, parks, and community-wide fuel modification zones (FMZs).

Entry into the Project Site will be through one of two options. Option 1 (Exhibit 5-68) would provide a primary connection from Stonehaven Drive, a residential connector road, south of the Project Site along an existing dirt road that historically has been used by oil well operators, the OCFA, the YLWD, SCE, Chino Hills State Park, and neighboring residents for vehicular and foot access into the Project Area. The proposed Option 1 improved fire apparatus access road would be constructed in a 50-foot easement on the western boundary of the Yorba Trails property extending south through the proposed Cielo Vista project to Via del Agua.

Option 2 (Exhibit 5-69) proposes a primary residential entry road to the west of the Project Site via Aspen Way, which intersects San Antonio Road, a residential collector street. The proposed Option 2 improved fire apparatus access road would align with the existing dirt road from Stonehaven Drive across Blue Mud Canyon in approximately the same alignment as an existing dirt road that historically has been used by oil well operators, the OCFA, the YLWD, SCE, Chino Hills State Park, and neighboring residents for vehicular and foot access into the Project Area.

Fire protection has been a key element in the design of the Proposed Project. Development of the Proposed Project will affect the vegetation distribution pattern across the Project Site with large areas being converted to lower flammability landscapes, such as irrigated, maintained landscapes and ignition-resistant structures. This significant change results in a reduction of roughly 70% of the native fuels that would otherwise remain on the Project Site. The Proposed Project's design includes fire protection systems that result in a redundant layering of fire protection design components that have been found to reduce risk of structure ignition and prepare residents for early evacuation as well as assist emergency personnel during wildfire emergencies.

Provisions for continuous maintenance will be addressed in the Esperanza Hills Homeowners' Association's Covenants, Conditions, and Restrictions (CC&Rs) for common areas and individual properties. "Maintenance" refers to anything needed to maintain the fuel modification area in a fire-safe condition as required by the OCFA, including periodic removal of undesirable and combustible vegetation, replacement of dead and dying fire-resistant plantings, maintenance of the operational integrity and programming of irrigation systems, and preservation of identification markers. The HOA will contract with the OCFA to perform annual inspections at the expense of the HOA.

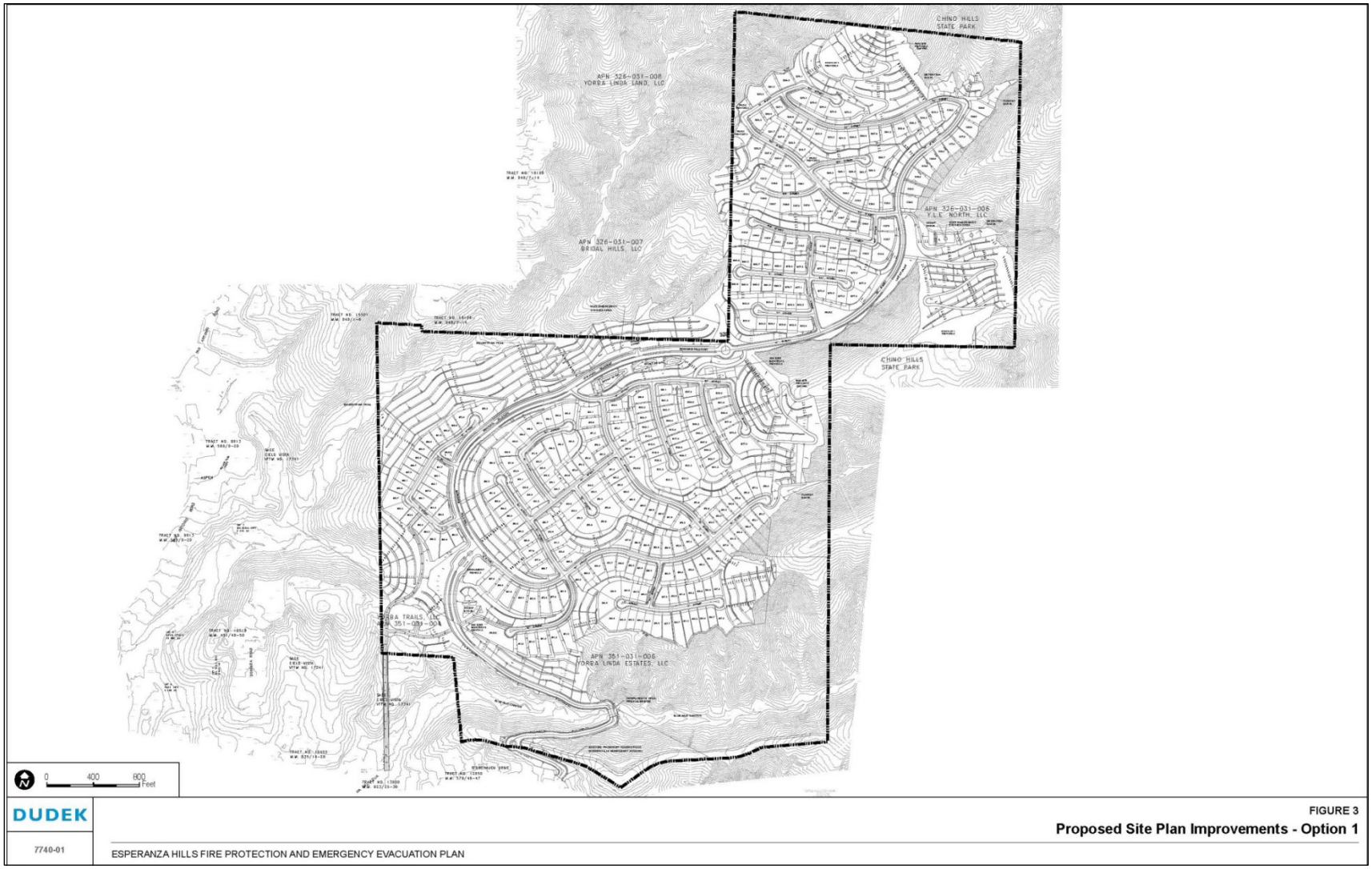



**Exhibit 5-68 – Site Plan Option 1**

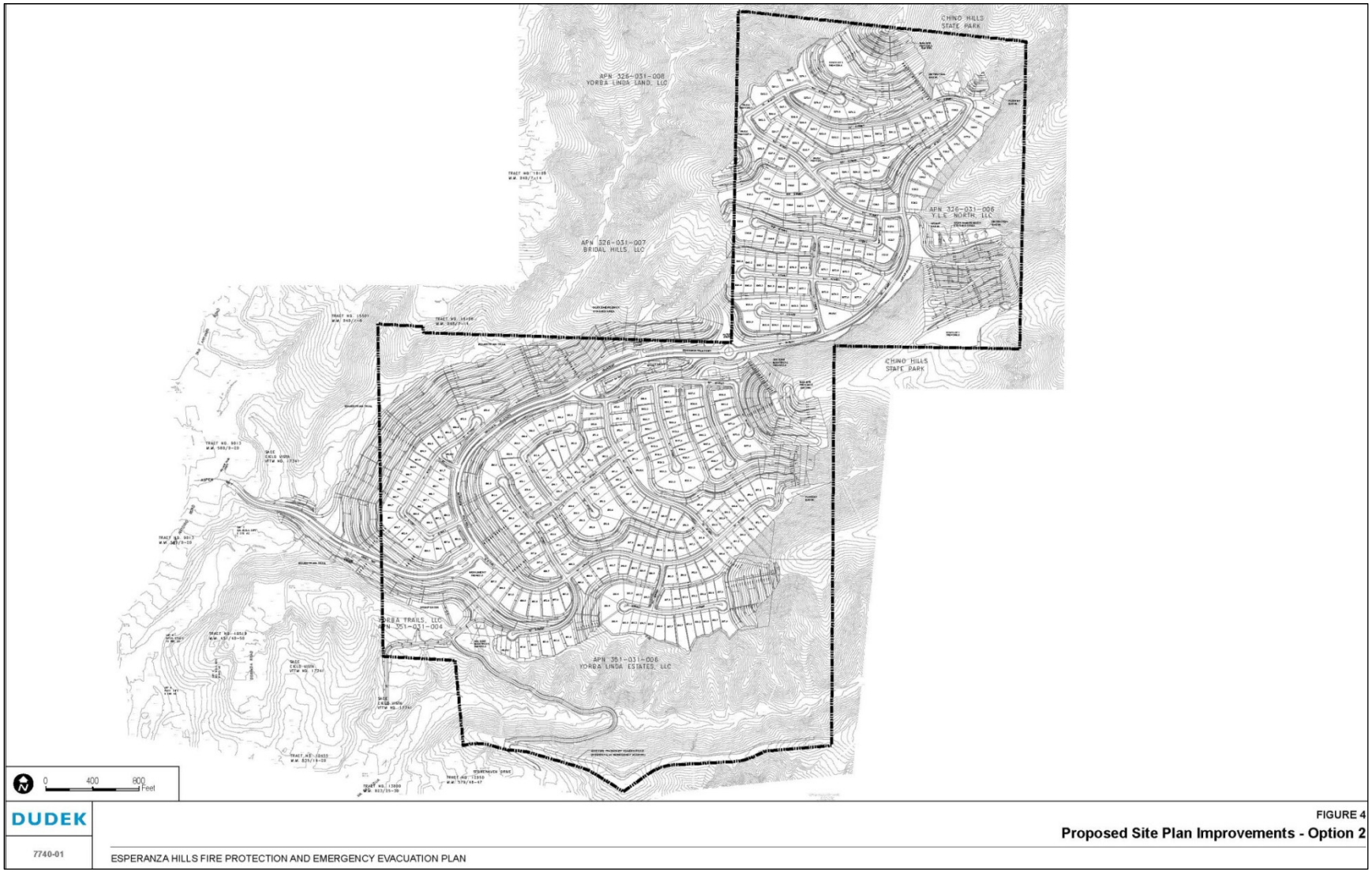



**Exhibit 5-69 – Site Plan Option 2**

The fire protection systems for the Proposed Project are described below.

### a. Fuel Modification Plan

The proposed fuel modification areas are designed to be a minimum of four times the predicted (modeled) maximum flame lengths (97th percentile) and up to eight times wider than the predicted flame lengths (50th percentile). The fuel modification area works in tandem with the other components of the fire protection system including ignition-resistant construction, interior automatic fire sprinklers (with attic heads in each structure), infrastructure upgrades, and water supply, among others, to provide enhanced ignition resistance and protection for the site's structures.

The fuel modification proposed with the development of the Proposed Project consists of Zone A, B, C and D and is graphically presented for Option 1 as Exhibit 5-70 – Conceptual Fuel Modification Plan, Option 1 and Option 2 as Exhibit 5-71 – Conceptual Fuel Modification Plan, Option 2. Zone A is 20 feet wide and contained within the private lot and is an irrigated structure setback zone. Zone B is 50 feet wide and is an irrigated zone. Zones C and D are each 50 feet wide and include the thinning or removal of plants and are non-irrigated zones.

Vegetation management requirements will be implemented at commencement and throughout the construction phase. Vegetation management will be performed pursuant to the OCFA on all lots or areas prior to the start of work and prior to any import of combustible construction materials. Adequate fuel reductions will occur through thinning, mowing, or blading around all grading, site work, and other construction activities in areas where there is flammable vegetation.

The OCFA's approved plant palette and a prohibited plant list are found in Appendix E and Appendix F, respectively, of the FPEP (Appendix J in this DEIR).\

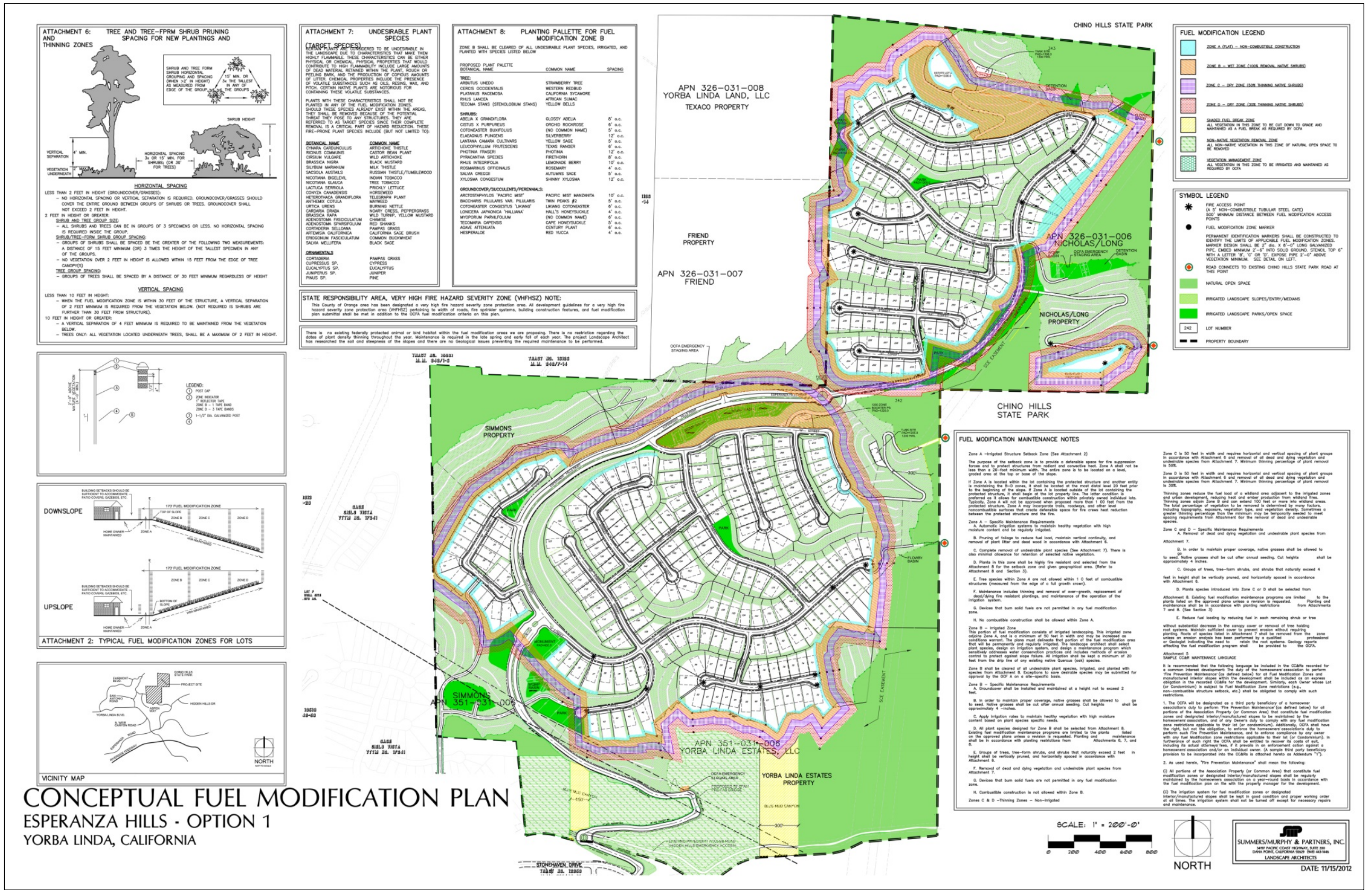



**Exhibit 5-70 – Conceptual Fuel Modification Plan, Option 1**

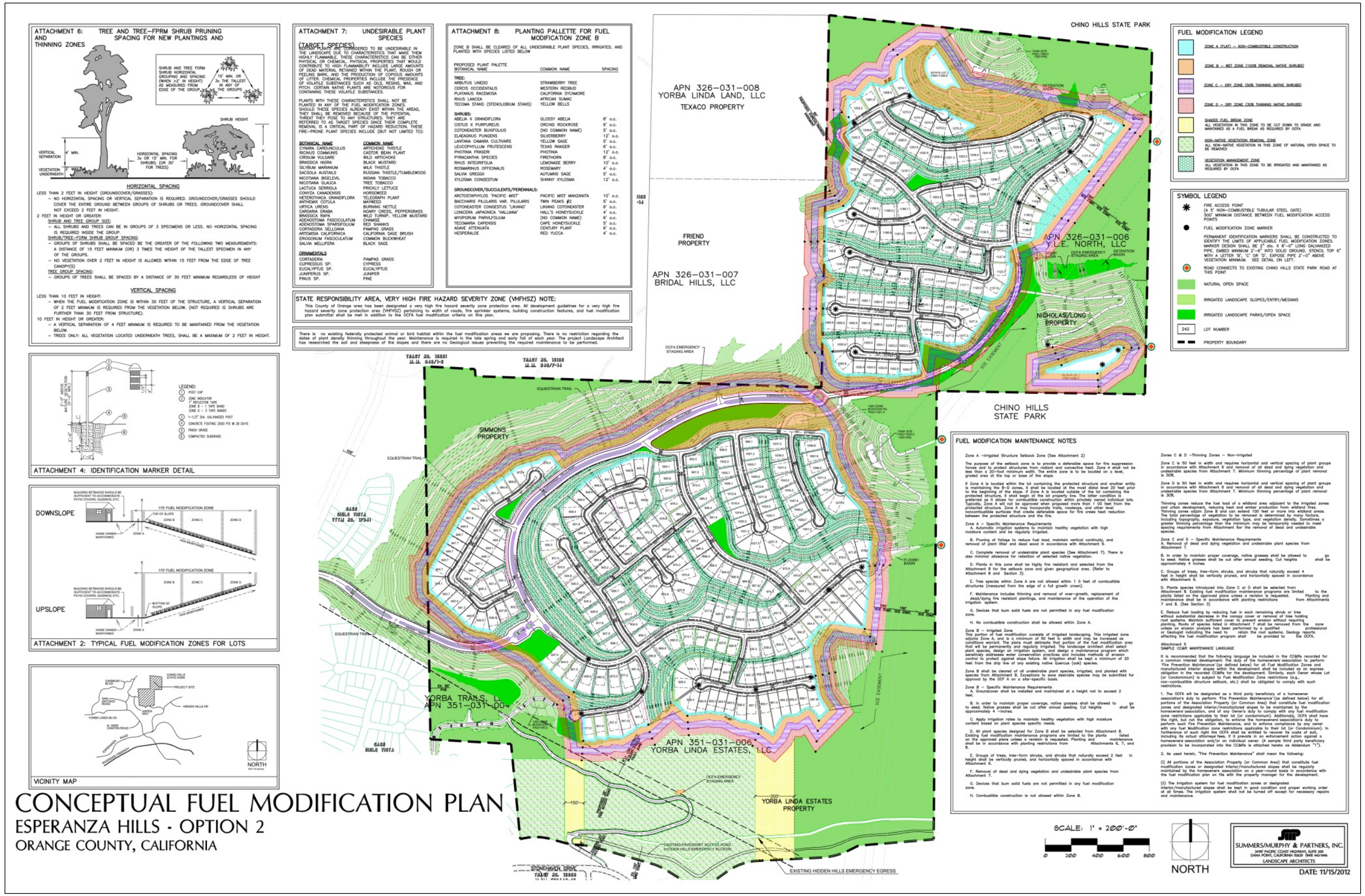



**Exhibit 5-71 – Conceptual Fuel Modification Plan, Option 2**

### 1) Zone A – Irrigated Structure Setback

Zone A is applied throughout the site and along the perimeter of the development area. Zone A will be 20 feet wide and contained within private lots. This zone will be planted with drought-tolerant, fire-resistive plants from the OCFA's approved plant palette. Zone A includes the following key components in addition to the OCFA Zone A requirements (project fuel modification plan details requirements for each zone):

- Automatic irrigation system throughout the FMZ to maintain hydrated plants without over-watering or attracting nuisance pests.
- Trees and tree-form shrub species not allowed within 10 feet of combustible structures (measured from the edge of a full growth tree canopy or crown). Back yard/side yard areas are set back from the fuel modification areas by a typical Zone A and shall be maintained to Zone A standards.
- Maintenance including ongoing removal and/or thinning of undesirable combustible vegetation, replacement of dead/dying plantings, maintenance of the programming and functionality of the irrigation system, regular trimming to prevent ladder fuels.
- A minimum of 36 inches of horizontal clearance and unlimited vertical clearance around the exterior of the structure (360°) provided for firefighter access. Within this clearance area, landscape such as low ground covers and shrubs are permitted so long as their placement and mature height to do not impede firefighter access, consistent with the purpose of this guideline.
- No combustible construction (structures) allowed in Zone A (first 20 feet from structure).
- No permanent or portable barbeques/grills, fire pits, fireplaces or other flame generating devices permitted within 10 feet of plants/vegetation.
- Mulch within first 5 feet from structure restricted to non-flammable materials such as stone, rock, concrete, bare soil, or other non-flammable material.
- Vegetation landscaping from the OCFA-approved Fuel Modification Plant List.

### 2) Zone B – Irrigated Zone

Zone B is an irrigated zone that adjoins Zone A, and is a minimum of 50 feet in width. Zone B shall be cleared of undesirable plant species and re-planted with drought-tolerant, fire resistive plant material from the OCFA approved plant list. Irrigation systems shall be designed and maintained to address best water conservation practices and include methods of erosion control to protect against slope failure. All irrigation shall be kept a minimum of 20 feet from the drip line of all native oak species. Specific maintenance requirements are as follows:

- Automatic irrigation system throughout the FMZ to maintain hydrated plants without over-watering or attracting nuisance pests.
- Grasses shall be cut to four inches in height. Native grasses can be cut after going to seed.
- Trees and tree-form shrub species that naturally grow to heights that exceed 2 feet shall be vertically pruned to prevent ladder fuels.
- Maintenance including ongoing removal and/or thinning of undesirable combustible vegetation, replacement of dead/dying plantings, maintenance of the programming and functionality of the irrigation system, regular trimming to prevent ladder fuels (fuels – primarily vegetation – that provide vertical continuity between vegetation layers – ground, shrub, and overstory strata – thereby allowing fire to carry from surface fuels into the crowns of the trees or shrubs).
- No combustible construction (structures) allowed within Zone B.
- No permanent or portable fire pits, fireplaces or other flame generating devices that burn wood.

### 3) Zone C and D – Thinning Zones (Non-Irrigated)

Thinning Zones reduce the fuel load of a wildland area adjacent to Zones A and B, and thereby, reduce heat and ember production from wildland fires. Thinning zones adjoin Zone B and extend 100 feet into the WUI. For the Proposed Project, Zone C is 50 feet and requires a minimum of 50% thinning or removal of plants. Zone D is 50 also feet in width and requires a minimum of 30% thinning or removal of plants. Zone C and D specific maintenance requirements are as follows:

- Grasses shall be cut to four inches in height. Native grasses can be cut after going to seed.
- Trees and tree-form shrub species that naturally grow to heights that exceed 4 feet shall be vertically pruned to prevent ladder fuels.

- Maintenance including ongoing removal and/or thinning of undesirable combustible vegetation, replacement of dead/dying plantings, and regular trimming to prevent ladder fuels.
- Plant species introduced into Zone C and D shall be selected from the approved OCFA plant list
- Reduce fuel loading by reducing fuel in each remaining shrub or tree without substantial decrease in the canopy cover or removal of tree holding root systems. Maintain sufficient cover to prevent erosion without requiring planting. Root systems of undesirable species will be removed unless a geology report indicates the need to retain them for soil stability/erosion control.

In environmentally sensitive areas that contain sensitive habitat, cultural sites, riparian areas, biological buffer areas, and/or detention basins, permission will be needed from the County, and the appropriate resource agencies (e.g., the California Department of Fish and Wildlife (CDFW), the U.S. Fish and Wildlife Service (USFWS), and the U.S. Army Corps of Engineers (ACOE)) prior to any vegetation management activities occurring in order to protect sensitive areas.

The majority of the FMZs will be located within the boundaries of the Proposed Project Site, except for Lots 7, 8, 9, 224, 225, 236, 237, 253, 254, and 278 in Option 1 (highlighted on Exhibit 5-72 – Lots with Off-Site Fuel Modification Zones, Option 1). Lots 224, 225, 236, 237, 253, 254, and 278 have received off-site fuel modification easements from the Bridal Hills, LLC property owner. However, at the time of the preparation of this DEIR, a fuel modification easement had not been secured from the Cielo Vista property owner for Lots 7, 8, and 9.

Lots 8, 9, 10, 224, 225, 236, 237, 253, 254, and 278 in Option 2 will require off-site fuel modification as highlighted on Exhibit 5-73 – Lots with Off-Site Fuel Modification Zones, Option 2. Fuel modification easements have been granted for Lots 224, 225, 236, 237, 253, 254, and 278 from the property owner of the Bridal Hills, LLC property. At the time of the preparation of the DEIR, a fuel modification easement had not been granted for Option 2, Lots 8, 9, and 10 from the Cielo Vista property owner. Therefore, these lots (Option 1, Lots 7 through 9, and Option 2, Lots 8 and 9) do not conform to the OCFA's fuel modification standards.

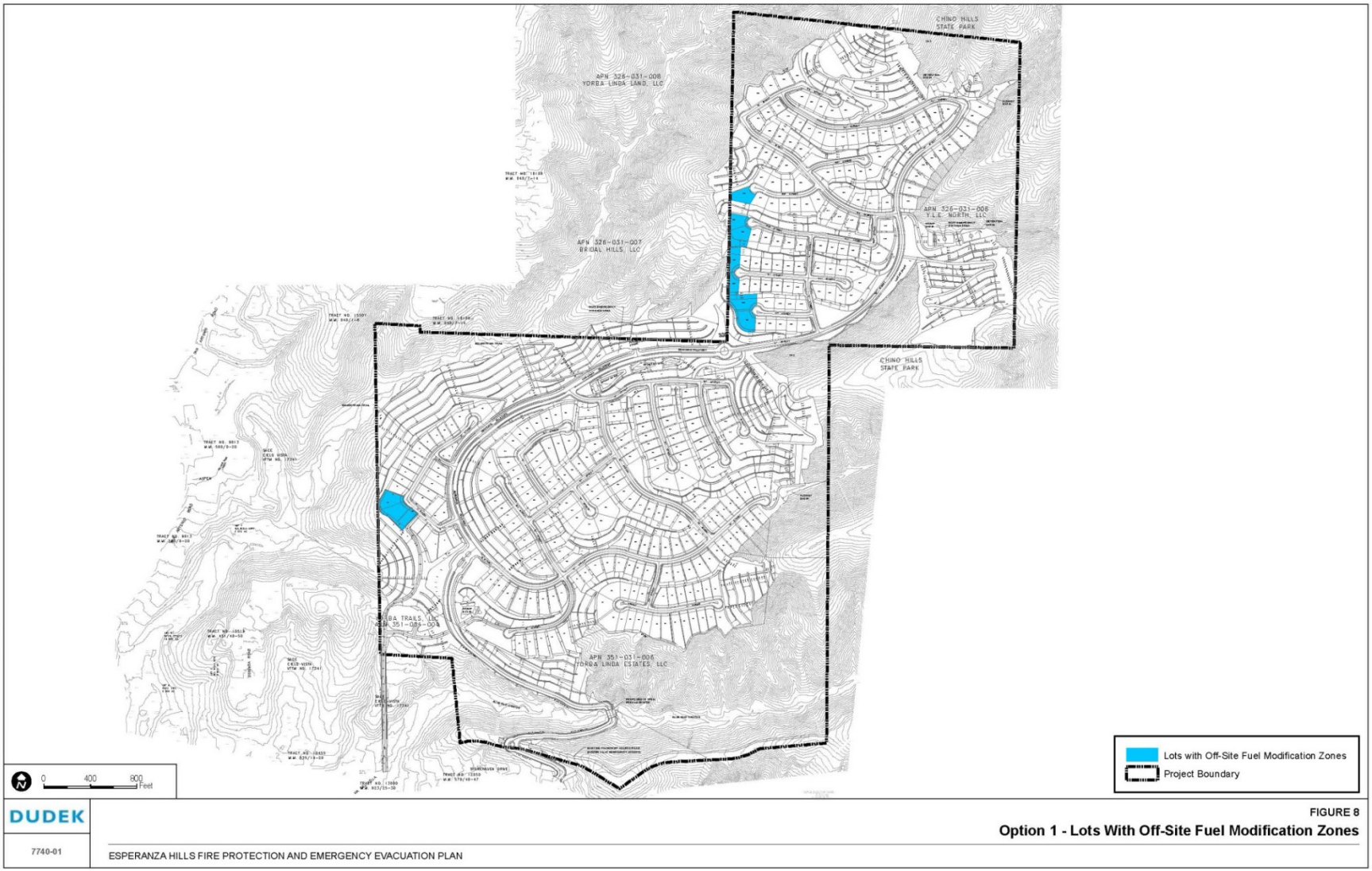



**Exhibit 5-72 – Lots with Off-Site Fuel Modification Zones, Option 1**

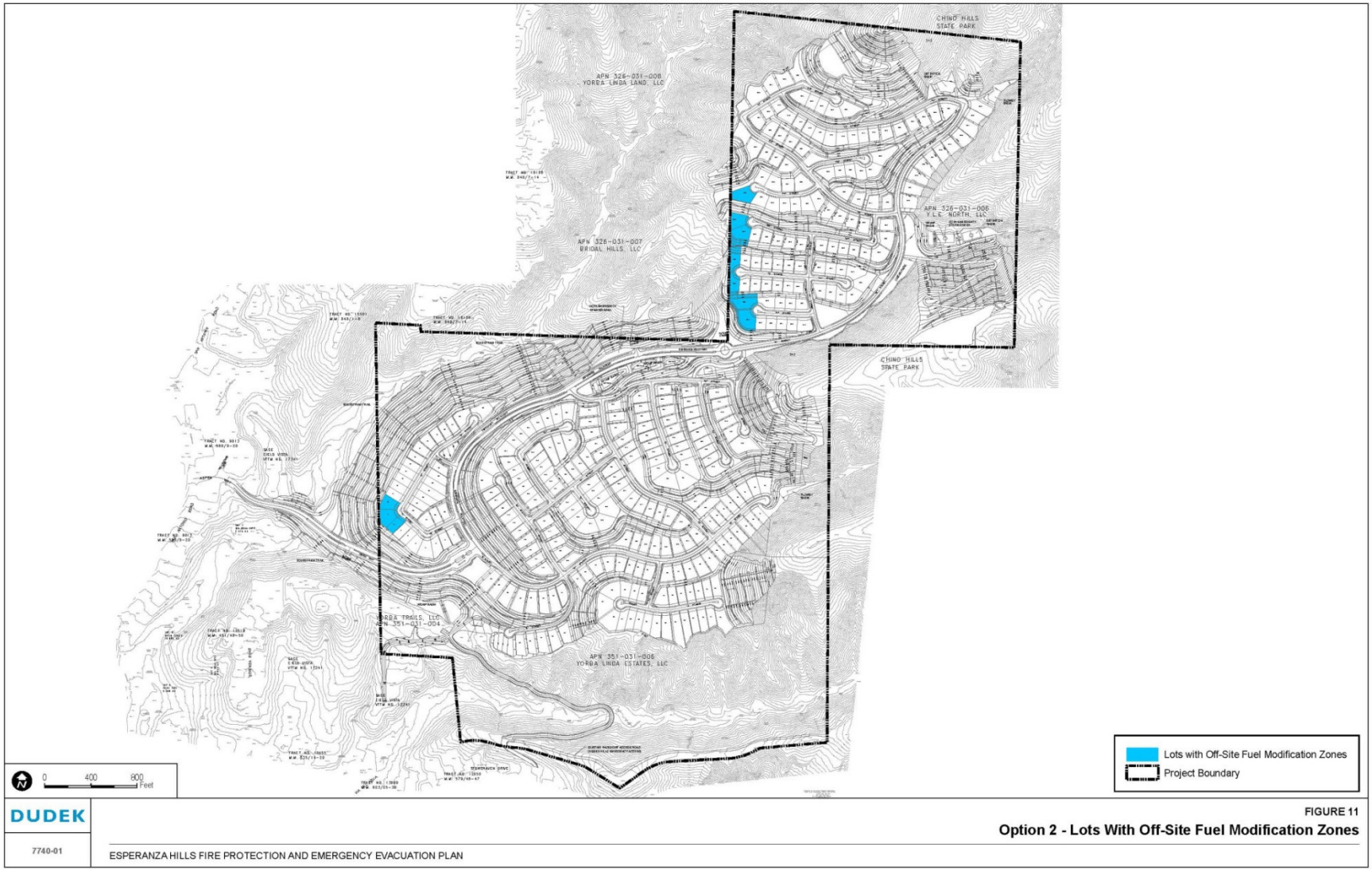



**Exhibit 5-73 – Lots with Off-Site Fuel Modification Zones, Option 2**

Alternative FMZss are proposed for the three affected lots (Lots 7, 8, and 9 in Option 1, and Lots 8, 9, and 10 in Option 2). In order to retain the lots, which are important for the financial viability of the project, the project's Alternative Materials and Methods letter incorporates a layered, redundant system including a combination of permanently irrigated, fire-resistant landscaping which provides for a minimum of 20 feet of Zone A along with a total of approximately 157 feet (Lot 7), 140 feet (Lot 8), and 150 feet (Lot 9) of FMZ. Option 2 includes similar achievable FMZs, except for lots 8, 9, and 10, as described for Option 1. This enables each lot to include a back yard area outside the FMZ, starting at the structure and extending across the flat pad to Zone A and a heat-deflecting landscape wall at the top of slope.

A series of retaining walls has been incorporated into the Proposed Project design that will provide vertical separation from the off-site native fuels below (Exhibit 5-74 – Esperanza Hills Lot 7 – Fuel Modification Section and Exhibit 5-75 – Esperanza Hills Lot 8 – Fuel Modification Section). In addition, the design of the structures on these lots will include the addition of dual-pane/both panes tempered windows, focused homeowner education, and annually inspected FMZs in compliance with OCFA requirements. The Esperanza Hills Homeowners' Association (HOA) will contract with the OCFA to perform regulation inspections. These measures are anticipated to provide at least an equivalent level of protection to the OCFA's standard requirements for FMZs.

### b. Strategic Fuel Breaks

Fuel breaks are provided on the south and southwestern portions of the property within Blue Mud Canyon. The fuel break includes maintained fuel reduction and in effect, becomes an extension of the formal FMZ provided for the project. This fuel break will significantly affect fire behavior (spread rates and intensity) in this portion of the canyon and is expected to provide substantial benefits for neighborhoods south and west in the City. Exhibit 5-70 (page 5-301) and Exhibit 5-71 (page 5-303) along with Exhibit 5-80 – FlamMap Fire Behavior Analysis, Option 1 - Flame Length Fall Fire (page 5-327) and Exhibit 5-81 – FlamMap Fire Behavior Analysis, Option 2 - Flame Length Fall Fire (page 5-329) discussed under Fire Risk Assessment below, illustrate the effect this fuel break has on fire behavior.

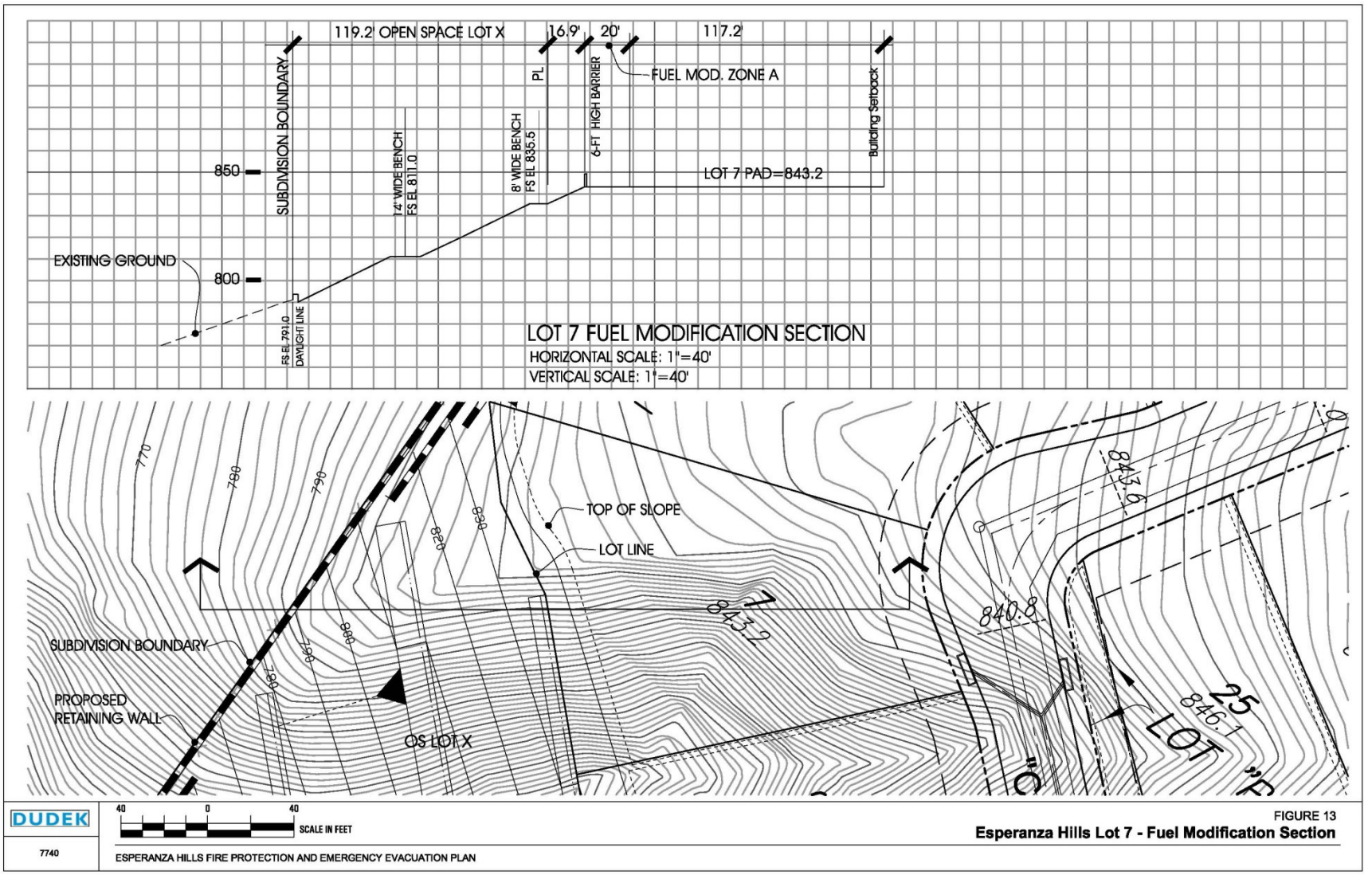



**Exhibit 5-74 – Esperanza Hills Lot 7 – Fuel Modification Section**

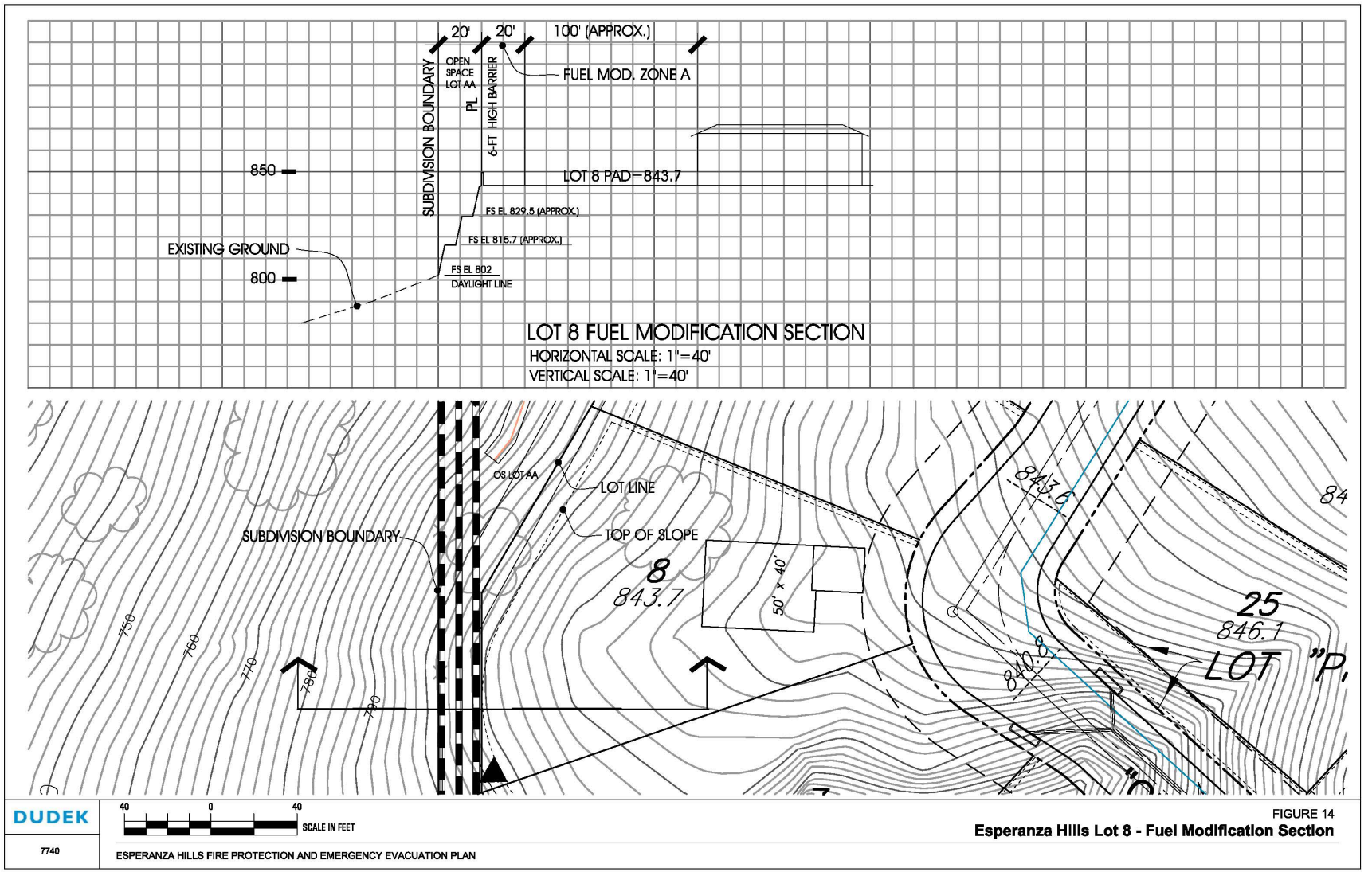



**Exhibit 5-75 – Esperanza Hills Lot 8 – Fuel Modification Section**

### c. Roadside Fuel Modification Zones

Roadside FMZs will be provided and maintained for all project roads and designated fire department access roads. Roadside FMZs will be 10 to 20 feet wide from edge of road on both sides of roadways adjacent natural open space areas. The types of fuel modification and maintenance required for roadsides throughout the Proposed Project include:

1. No use of prohibited plants
2. No continuous tree canopies (canopies must be interrupted through tree spacing of 20 feet between mature canopies).
3. Grass will be mowed to 4 inches.
4. No dry grass within fuel modification zone.
5. Single specimen trees, fire-resistive shrubs, or cultivated ground cover (such as green grass, succulents, or similar plants) may be used, provided they do not form a means of readily transmitting fire.
6. Trees may be placed within the Roadside Vegetation Management Zones. The following criteria must be followed:
    a. Tree spacing to be 20 feet between mature canopies (30 feet if adjacent to a slope steeper than 41%).
    b. Trees must be limbed up one-third the height of mature tree or 6 feet, whichever is greater.
    c. No tree canopies lower than 13 feet 6 inches over roadways.
    d. No tree trunks intruding into roadway.
    e. No trees will be planted that are listed on the Prohibited Plant List (Appendix F to the FPEP in Appendix J to this DEIR). No flammable understory is permitted beneath trees. Any vegetation under trees to be fire resistive and kept to 2 feet in height or below, and no more than one-third the height of the lowest limb/branch on the tree.
    f. No tree limbs/branches are permitted within 10 feet of a structure.
    g. No vegetation found on the Prohibited Plant List (Appendix F to the FPEP in Appendix J to this DEIR) will be planted or remain in this zone.

### d. Parks and Greenways

Fire Safe Vegetation Management is recommended within parks and other greenway areas in compliance with the guidelines in this plan.

1. Grasses must be maintained/mowed to 4 inches.
2. Types and spacing of trees, plants and shrubs, to comply with the criteria in this plan.
3. Areas will be maintained free of down and dead vegetation.
4. Trees to be properly limbed and spaced and will not be of a prohibited type.

5. No species from the Prohibited Plant List included (Appendix F to the FPEP in Appendix J to this DEIR).

### e. Interior Manufactured Slopes

Interior slopes will be considered "Vegetation Management Areas." Features of these internal slopes will include:

1. The irrigation and maintenance requirements of standard fuel modification zones apply to these areas.
2. The area is completely irrigated or the area is adequately separated from structures.
3. There is a noncombustible setback zone of 20 feet from all structures (see Zone A requirements).
4. Only trees and shrubs from the Fuel Modification Zone Plant List, and planted in accordance with spacing requirements, can be used within the first 30 feet from any structure.
5. Selected palm species must be a minimum of 30 feet from all structures (measured from mature canopy growth to the structure) and planted in clusters of no more than 5 to 7 trees per cluster with 30 feet between clusters. The areas between the clusters may be planted with allowable plants.
6. Vegetative under-story must not create a fuel ladder or create the potential for ground fires. Trees shall be limbed up to three times the height of the under-story vegetation height or no vegetation taller than 2 feet in height within 15 feet of trees is allowed.
7. Any plants proposed from the OCFA undesirable list shall be reviewed through an Alternate Means of Protection process to determine the plants suitability, including spacing requirements, within the project boundary area.

### f. Vacant Parcels and Lots

1. Vacant Lots will not be required to implement vegetation management strategies until construction begins. However, perimeter Vegetation Management Zones must be implemented prior to commencement of construction utilizing combustible materials.
2. Prior to any construction, grading, digging, installation of fences, the outermost 30 feet of the lot is to be maintained as a Vegetation Management Zone. Install fence at edge of pad adjacent habitat areas.
3. Existing flammable vegetation will be reduced by 60% on vacant lots upon commencement of construction on each lot; no vegetation clearing in adjacent open space will occur.

4. Dead fuel, ladder fuel (fuel which can spread fire from ground to trees), and downed fuels will be removed and trees/shrubs will be properly limbed, pruned and spaced per this plan.
5. The remainder of the Vegetation Management Zones required for the particular lot will be installed and maintained prior to combustible materials being brought onto any lot under construction.

### g. Summary of Project Design Features

The Proposed Project has been designed with fire protection as a fundamental objective. There are two primary concerns for structure ignition: 1) radiant and/or convective heat and 2) burning embers. Burning embers have been a focus of building code updates for at least the last decade, and new structures in the WUI built to these codes have proven to be very ignition resistant. Likewise, radiant and convective heat impacts on structures have been minimized through exterior fire ratings for walls, windows, and doors.

The Proposed Project structural and infrastructural fire protection components will comply with the 2010 California Building Code and the 2010 Fire Code, as adopted by the OCFA or the latest codes in place at the time of construction. The 2010 Fire Code includes key features that are required for new development in WUI areas and form the basis of the system of protection necessary to minimize structural ignitions as well as provide adequate access by emergency responders:

- Application of 2010 California Building Code Chapter 7A, ignition resistant building requirements
- Minimum one-hour rated exterior walls and doors
- Multi- pane glazing with a minimum of one tempered pane
- Ember resistant vents (recommend BrandGuard, O'Hagin, or similar vents)
- Interior, automatic fire sprinklers exceeding code for occupancy type (the Project will also include attic heads, above and beyond the existing requirement)
- Modern infrastructure, access roads, and water delivery system
- 170 feet of maintained fuel modification areas (alternative materials and methods for three lots)
- Fire apparatus access roads throughout the community and three strategic fire apparatus staging areas
- Emergency ingress/egress plans for evacuation and entry of emergency vehicles simultaneously have been incorporated into the circulation design of the Project, and roads have been designed so that residents will have various alternative routes for evacuation

The HOA for the Proposed Project will be required to finance and maintain FMZs, comply with planting palette regulations, be subject to annual compliance inspections by the OCFA, formally adopt, practice and implement a

"Ready, Set, Go!" approach to site evacuation that includes distributing educational information to residents, holding evacuation planning meetings, and creating a resident notification system to distribute information about wildfire and emergency procedures. The emergency evacuation plan is discussed in greater detail below.

### h. Water Capacity/Availability

The water supply for fire protection will be a looped public water system provided by the YLWD and will be designed and installed to its standards. The YLWD prepared the Northeast Area Planning Study (NEAPS) in March 2013 (NEAPS) to study the water demand and system requirements from the developments of the Proposed Project and the proposed Cielo Vista project. The NEAPS states that water supply for the Proposed Project will be taken from the Little Canyon Reservoir, which is fed by the Fairmont Pumping Station. Additional discussion on water supply and distribution system is located in the Section 5.15, Utilities and Service Systems (beginning on page 5-625 of this DEIR).

The Proposed Project includes the construction of two underground water reservoirs in Planning Area 1 and Planning Area 2 that will provide a combined storage capacity of 1.3 million gallons to meet the needs of peak residential water use and gravity-fed flow to on-site hydrants. Each reservoir will be resupplied by a pump that is sized to replenish the reservoir within a 24-hour period. This results in adequate on-site and off-site redundant water supply for residential and emergency use. The addition of a gravity-fed firefighting water supply will directly address issues concerning the loss of water to hydrants during the 2008 Freeway Complex Fire.

The Proposed Project has been designed to be consistent with OCFA standards for fire hydrant locations and spacing. The Proposed Project will provide the minimum fire flow storage of 1,500 gallons per minute for a 2-hour duration with a minimum residual pressure of 20 pounds per square inch to meet OCFA's and YLWD's fire flow requirements for single-family residential developments. OCFA normally allows a reduction to the fire flow requirements for developments that have incorporated fire sprinkler systems, specific building construction types, fuel modification, fire breaks, and other special fire protection measures. However, OCFA has indicated that it will not allow credits or reduction on the fire flow requirements for this project, because it is located in a Very High Fire Hazard Severity Zone (VHFHSZ).

Mitigation measures U-1 (page 5-649) and U-2 (page 5-649) requiring a Pre-Annexation Agreement and an Agreement with the YLWD for water and sewer services are included herein to ensure the water services and supply will be provided for the project.

### i. Project Emergency Plan

The Proposed Project will include a Community Evacuation Plan that utilizes information from Orange County and San Diego Office of Emergency Services and will require the update of Orange County's Community Evacuation Plan and eventually included in the City's Community Evacuation Plan when it is completed. The Community Evacuation Plan includes hazard identification, a description of the area's environment, mitigation strategies, law enforcement, fire agencies and contact information, homeowner education materials, preparedness checklist, route planning, and specific procedures for early evacuation and contingency on-site refuge. Wildfire emergency response procedures will vary depending on the type of wildfire and the available time in which decision makers from the OCFA and law enforcement can assess the situation and determine the correct evacuation alternative.

Evacuation of residents would typically occur during large wildfire events that, due to weather patterns and difficulty in gaining control, could threaten the community, but are distant enough that evacuation from the Proposed Project Area is possible. For example, the 2008 Freeway Complex Fire, which occurred during extreme weather conditions (Red Flag Weather with 8% humidity, and 43 to 50 mph wind), took more than three hours to reach the easterly boundary of the Project Site. This type of fire behavior history and modeling information is used by the Incident Command for aiding evacuation declarations. Law enforcement and fire officials involved with the Incident Command System set up for a wildfire would evaluate the wildfire event and determine at which point relocation of various potentially affected areas would occur and whether it would be a partial or community wide evacuation. The Proposed Project will allow consideration of partial evacuation because of the ember-resistant and fire-hardened construction for the structures and implementation of FMZs around the structures. Residents nearest the fire front could be partially evacuated to structures on-site away from the fire front. Also, because of the ember-resistant and fire-hardened structures within the FMZs, the residents could shelter within their homes if wildfire is immediate or roadways are blocked, although evacuation away from the area is the preferred option.

Allowances for adequate time will be a key factor in determining the evacuation timeframe so that the roads do not become congested. The Proposed Project includes emergency vehicle staging areas in three locations, allowing five fire trucks in each of two areas and one for one engine with access to fire hydrants. Fire fighter access will be a key priority and the array of dedicated fire apparatus access roads in the Proposed Project refer to Exhibit 5-76 – Emergency Ingress/Egress Plan, Option 1 and Exhibit 5-77 – Emergency Ingress/Egress Plan, Option 2, which depict the Proposed Project ingress in the event of a wildfire. Additional discussion on fire apparatus access roads and staging is located in Section 5.12, Public Services (beginning on page 5-493 of this DEIR).

Evacuation trigger thresholds have been established for the Proposed Project based on review of fire behavior, fire spread rates, fire progression, and spotting occurrence during the 2008 Freeway Complex Fire and other local wildfires and fire behavior modeling, on-site population, area roadways, and potential loading. The recommended trigger for the Proposed Project evacuation/closure is:

- Red Flag Warning Period: When there is an active wildfire burning west of the SR-71 Freeway and north of the SR-91 Freeway and south of Highway 142 (Carbon Canyon Road) within the Puente Hills (Exhibit 5-78 – Potential Evacuation Trigger Threshold – Red Flag Warning Period) that coincides with declared Red Flag Warning periods, or when ordered to evacuate by fire or law officials, whichever occurs first, the Proposed Project will conduct an evacuation out of the area, or a partial on-site relocation if directed by fire/law officials. Although wildfires can occur any time of the year, they are more likely to become uncontrollable during the period of roughly May through November, coinciding with the high fire season and particularly during Red Flag Warning weather.
- Non-Red Flag Warning days: When there is an active wildfire burning within a 2.5-mile sphere of the community (Exhibit 5-79 – Potential Evacuation Trigger Threshold – Non-Red Flag Warning Period) or when ordered to evacuate by fire or law officials, whichever occurs first, the community will conduct an evacuation out of the area or a partial relocation if directed by fire/law officials.

In addition, the Orange County Sheriff's Department has developed a plan for the City and the adjacent area for evacuation procedures that include the Alert OC Reverse 911 messaging system, a helicopter public address system alert, public address announcements via patrol cars, door-to-door alerts, and a controlled traffic plan to move traffic off Yorba Linda Boulevard with entry to the area by vehicles prohibited.

In the event that a wildfire scenario would not allow enough time to safely evacuate the Proposed Project, which is considered a rare possibility, an on-site relocation alternative to evacuation is included in the emergency evacuation planning. Fires igniting within the southern portion of the Chino Hills, off the SR-91 Freeway or in Chino Hills State Park, under Red Flag Warning conditions (such as from a vehicle accident, arson, electrical distribution line, or wind-borne embers from a distant wildfire) and driven by wind and rapid spread rates, or backed-up roadways due to heavy evacuation, vehicle accident or other issues may require an alternative to off-site evacuation if extreme spotting occurs. The Proposed Project's residents would receive notification from Alert OC or radio and television news sources. Once aware of a fire, the community's pre-planned and practiced emergency response would be initiated. The OCSD is notified by OCFA, and their area evacuation plan is implemented.

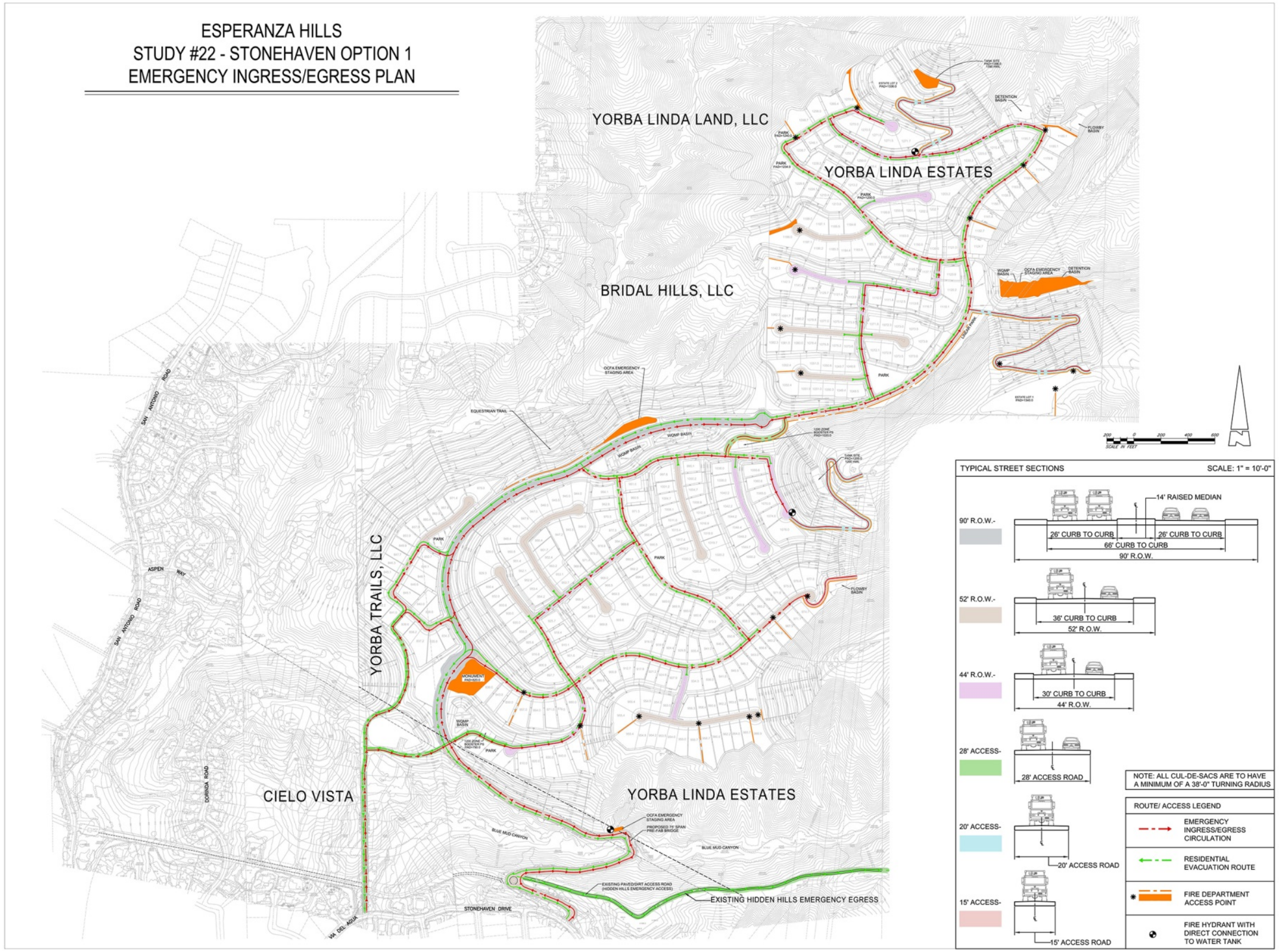



**Exhibit 5-76 – Emergency Ingress/Egress Plan, Option 1**

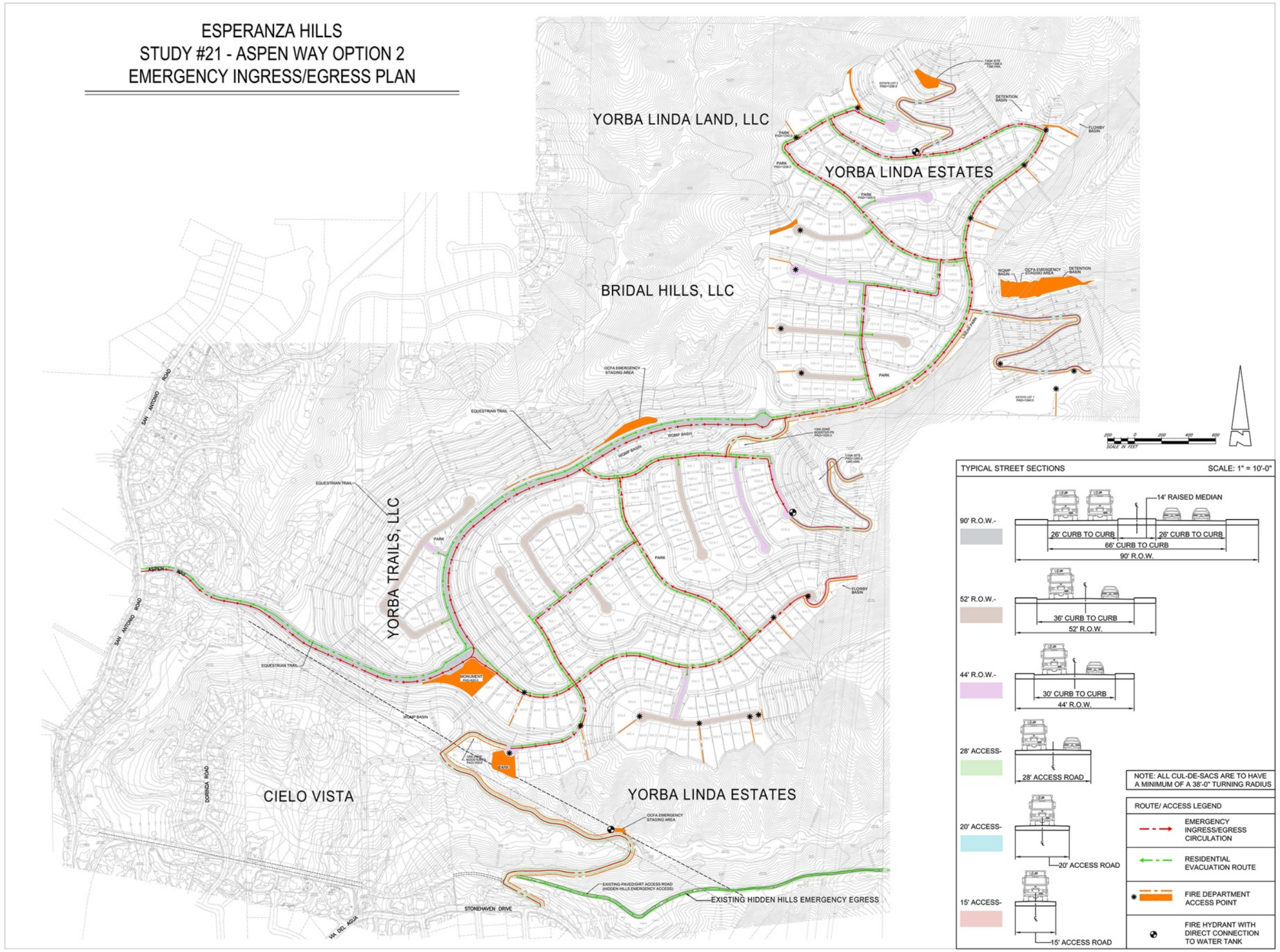



**Exhibit 5-77 – Emergency Ingress/Egress Plan, Option 2**


**Exhibit 5-78 – Potential Evacuation Trigger Threshold – Red Flag Warning Period**

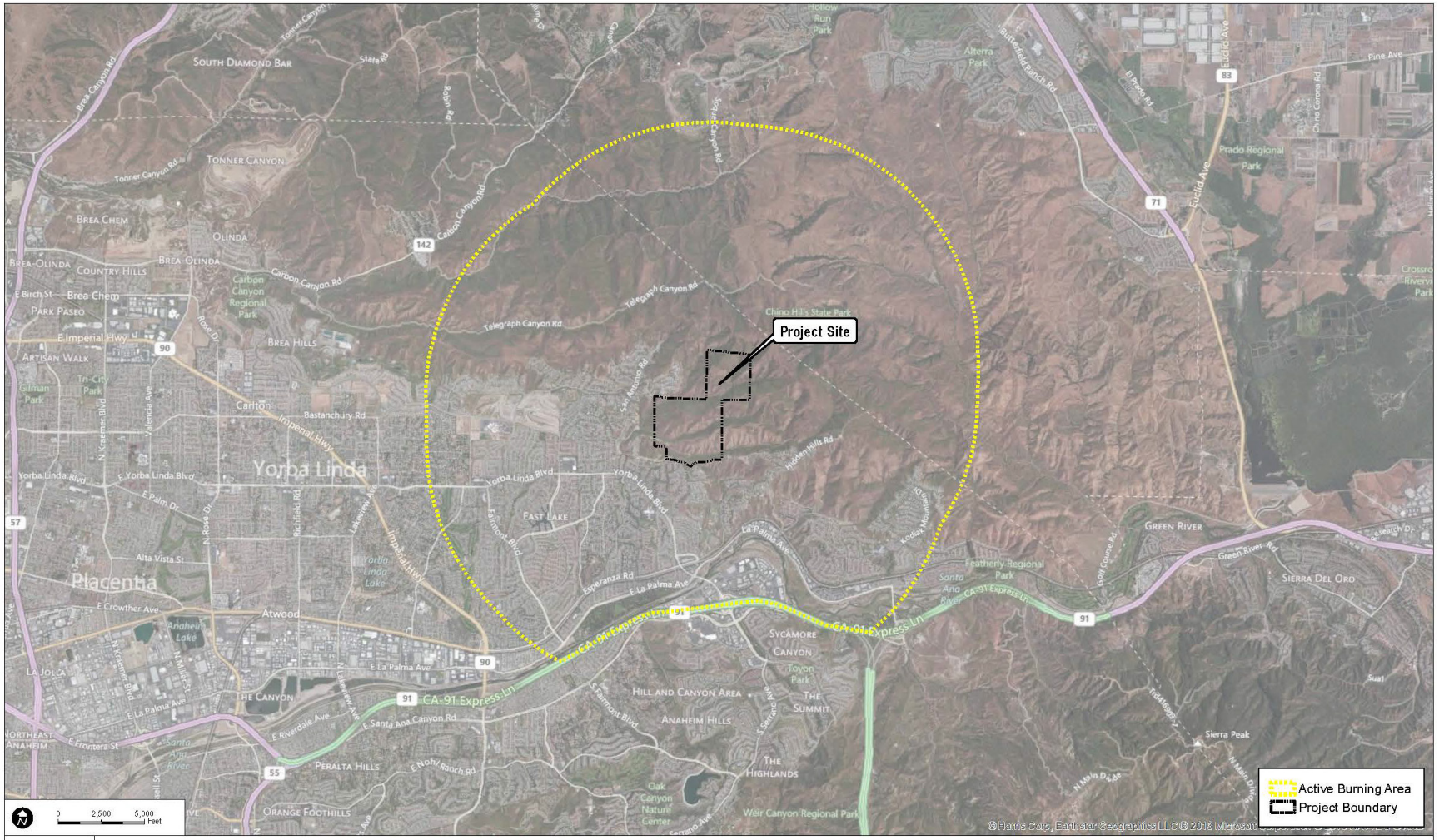



**Exhibit 5-79 – Potential Evacuation Trigger Threshold – Non-Red Flag Warning Period**

Priority evacuation procedures would be implemented immediately. However, if fire and law enforcement personnel determine that a higher risk to people exists during off-site evacuation options than if people were to temporarily seek protection inside their well-protected homes, the contingency on-site relocation plan will be initiated in communication with local fire authorities (when possible).

Residents cannot be mandated to follow on-site relocation directions, but resident education and training information will be provided and reinforced to raise awareness of the potential danger and potential options during a wildfire emergency. It is anticipated that law enforcement or fire officials would be involved with the decision to remain on-site, and therefore, should one or more residents refuse to remain on-site, they will be urgently apprised of the danger on the roadway and the need to remain in their home (or an alternate interior structure if they live in a perimeter home).

## 2. Fire Risk Assessment

To analyze post-development fire behavior for Options 1 and 2, separate fuel models were created using the existing vegetation coverage and reclassifying fuels based on location within the proposed development. All fuels within areas proposed for conversion to non-fuel types (e.g., roads and driveways) were reclassified as Fuel Model "0" to represent developed, non-combustible land uses.

Table 5-7-7 below provides a description of 10 fuel models coded for the post-development site condition that were subsequently used in the on-site, post-development FlamMap analysis for the Proposed Project.

**Table 5-7-7 Project Fuel Model Characteristics – Post-Development**

| Fuel Model | Description | Land Cover Classification | Canopy Cover |
|---|---|---|---|
| 0 | Non-burnable | Development | 0 |
| 1 | Short grass | Grassland, ruderal, savannah | 0 |
| 5 | Brush | Fuel modification zone D | 0 |
| 8 | Closed timber litter | Irrigated slopes, FMZ A, southern willow scrub | 21%-50% (irrigated slopes), 0 FMZ A |
| 9 | Hardwood litter | Coast live oak forest | 50%-80% |
| SCAL 18 | Sage/buckwheat | Scrub | 0 |
| GR1 | Short, sparse dry climate grass | Parks, FMZ B | 21%-50% (parks), 0 (FMZ B) |
| GS2 | Moderate load, dry climate grass-shrub | FMZ C, woodlands, mulefat scrub | 0 |
| SH5 | High load, dry climate shrub | Chaparral | 0 |
| TU2 | Moderate load, humid climate timber-shrub | Shaded fuel break | 21%-50% |

Flame length analysis was conducted using FlamMap model for both options. Exhibit 5-80 – FlamMap Fire Behavior Analysis, Option 1 - Flame Length Fall Fire maps the expected estimated flame length post-development for Option 1. Exhibit 5-81 – FlamMap Fire Behavior Analysis, Option 2 - Flame Length Fall Fire maps the expected estimated flame length post-development for Option 2. Once constructed, the Proposed Project's on-site fire potential will be significantly lower than in its existing condition. Flammable landscapes will be converted to ignition-resistant materials including protected structures, maintained and irrigated landscapes, roadways, parks, and other managed landscapes. Likewise, the fire risk in the general vicinity, especially to the south, east, and west, will be reduced. The Proposed Project converts fuels that carried fire and produced significant embers during the 2008 Freeway Complex Fire that ultimately resulted in structure loss to managed landscapes.

The significant canyons (particularly Blue Mud Canyon) that helped funnel the fire toward the City will be significantly improved (from a fire and habitat perspective) through restoration activities to remove non-native, flammable vegetation and provide native, riparian vegetation and also, in key areas, to create large fuel modification areas (fuel breaks) that were strategically located with the assistance of the OCFA and that will result in reduced fire intensity and spread rates along the southern project boundary in Blue Mud Canyon. Although implementation of the Proposed Project will greatly reduce the potential of wildfire emanating from the Project, given the climate, topography, and WUI, there is a potential for significant project impact from wildfire if not mitigated.

### 3. Emergency Response

Fire protection, suppression, inspection, and paramedic emergency medical services for the Proposed Project and the City are provided by the OCFA as described in Section 5.12, Public Services (beginning on page 5-493 of this DEIR). The OCFA's response time goal is for the first unit to arrive on scene within five minutes for 80% of the emergency calls for service. The OCFA has identified the potential need to increase capacity at existing Fire Station 10 in order to meet the potential needs of the Proposed Project. However, the FPEP states that fire service levels are not expected to be significantly impacted, as adding .17 calls per day is not anticipated to be a significant impact on Station 10's ability to serve Esperanza Hills or existing communities within its primary response area. The FPEP found that the Proposed Project is not expected to cause a decline in the OCFA overall response times or service level. Currently, Stations 10 and 53 can respond within 10 minutes, meeting the OCFA's goal for effective emergency response. In the event the OCFA disagrees with the recommendations contained within the FPEP, the Project Applicant will be required to enter into a Secured Fire Protection Agreement that will specify the Project Applicant's pro-rata fair share funding of capital improvements necessary to establish adequate fire protection facilities and equipment and/or personnel.

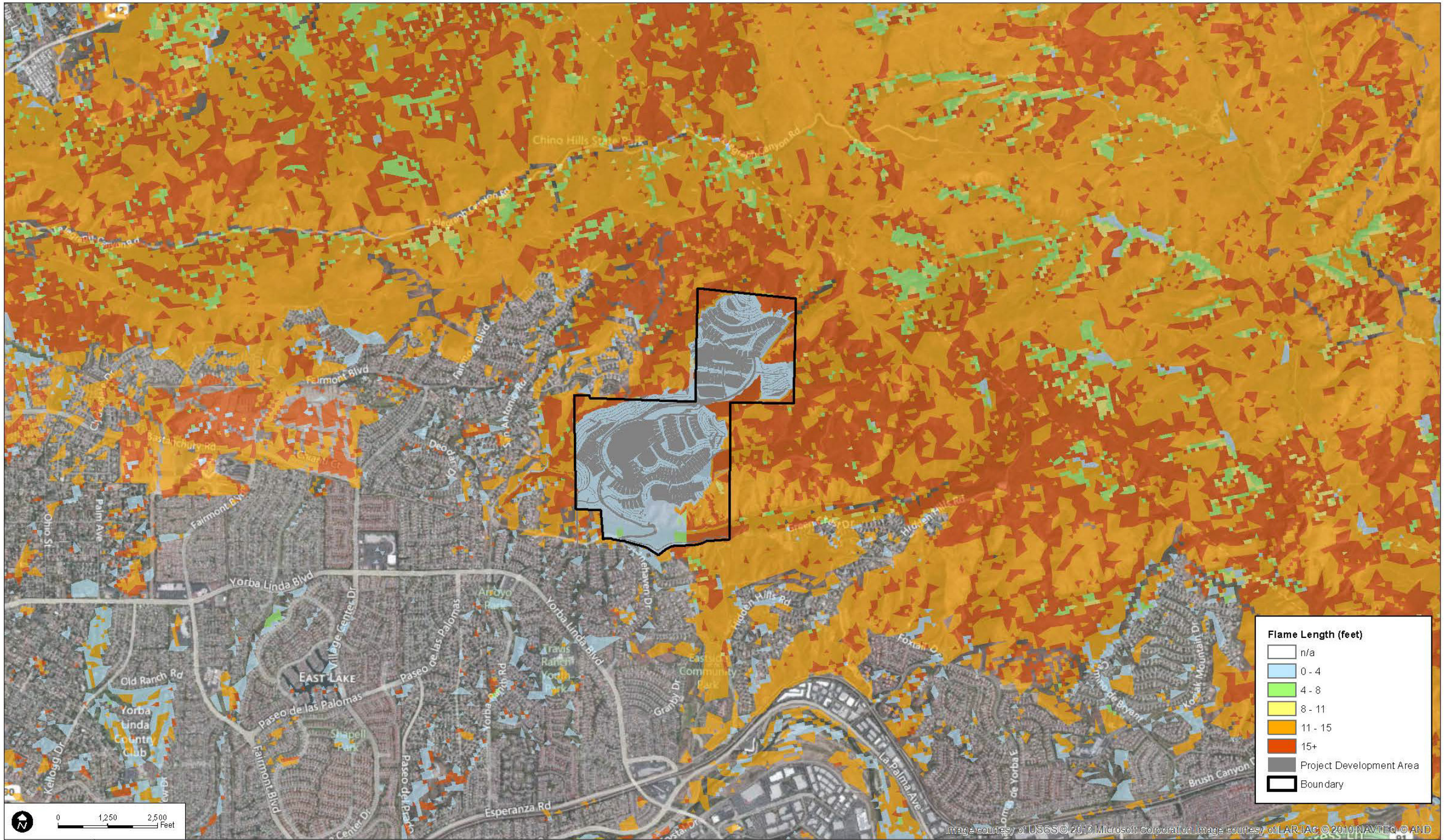



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**FIGURE 7**

**FlamMap Fire Behavior Analysis, Option 1 - Flame Length, Fall Fire**

ESPERANZA HILLS FIRE PROTECTION AND EMERGENCY EVACUATION PLAN

**Exhibit 5-80 – FlamMap Fire Behavior Analysis, Option 1 - Flame Length Fall Fire**

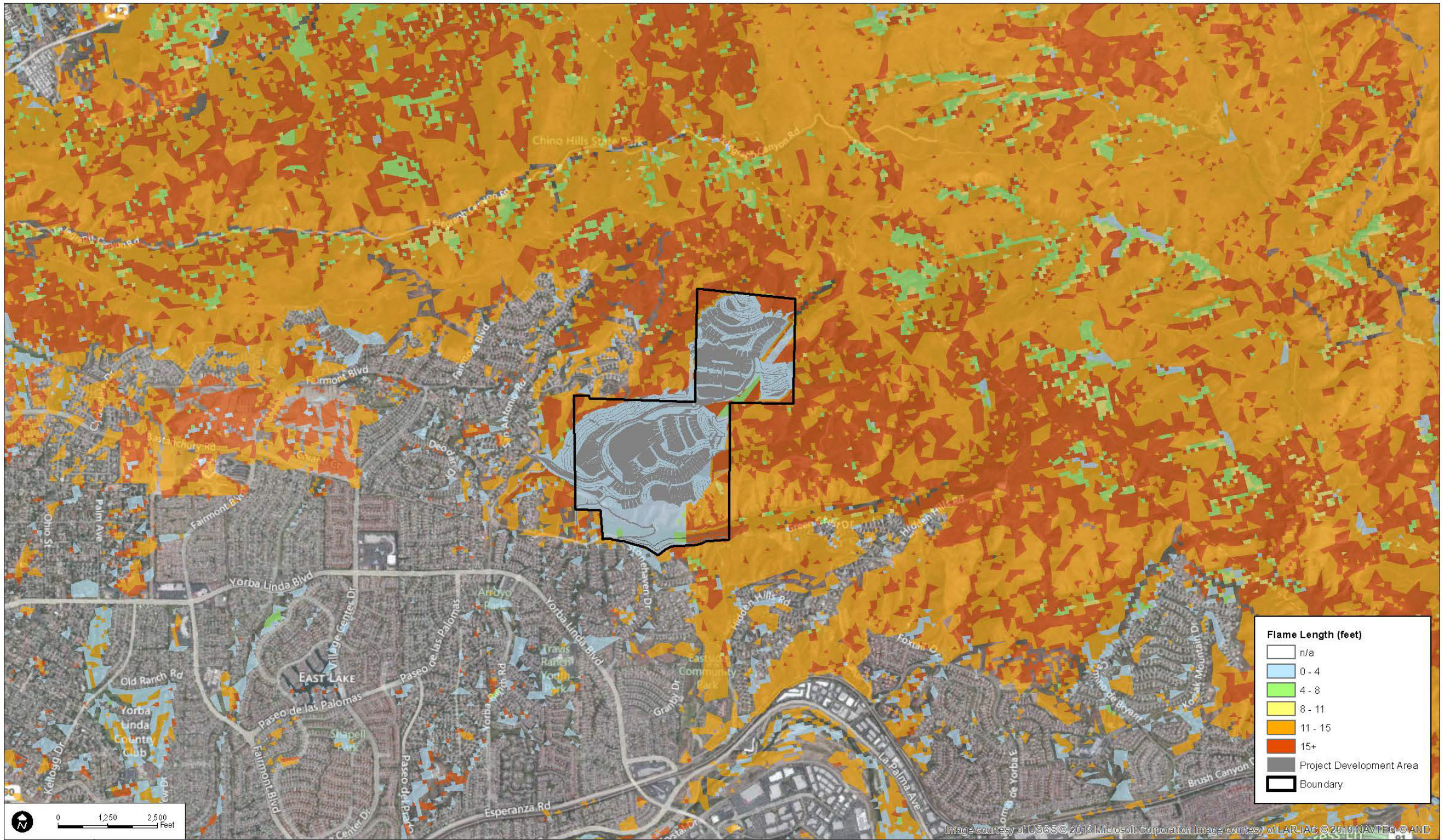



**Exhibit 5-81 – FlamMap Fire Behavior Analysis, Option 2 - Flame Length Fall Fire**

The current fair share funding fee is $600 per dwelling unit, which would result in a total of $204,000 for the maximum proposed 340 residential units. Mitigation has been included in Section 5.12, Public Services (beginning on page 5-493 of this DEIR) and included herein to ensure that the fee requirements are met.

## 4. Hazardous Materials

Hazardous materials associated with construction (short term) are regulated by the County of Orange during the building permit application process and regulation of hazardous materials is part of the 2010 Fire Code. The contractor is required to list any hazardous materials associated with construction and submit the form to the OCFA. The use of hazardous materials and potential release is not anticipated for the construction of the Project. There is a potential of accidental spill of fuel from construction equipment. Project design features concerning accidental spill of fuel from construction equipment are listed in Section 5.7.6, Project Design Features (page 5-332).

The Proposed Project itself does not have the potential to result in a significant hazard due to the transport, disposal, accidental upset, or storage of hazardous materials, because the 340-residence subdivision proposed will result in the normal use and storage of household materials, and no industrial or commercial uses are included in the project.

Residents of the Proposed Project will have the opportunity, free of charge, to dispose of any household hazardous waste at the Orange County Household Hazardous Waste collection facility located in Anaheim at 1071 N. Blue Gum. Yorba Linda Disposal, the waste service provider, provides a complete list of prohibited materials that cannot be placed in trash containers and must be disposed of at hazardous waste collection centers. The Anaheim Collection Center also is a receiving site for household e-wastes. Design features have been incorporated into the project to prevent the storage of pesticides and fertilizers on-site as part of best management practices under Section 5.7.6, Project Design Features (page 5-332).

## 5. Oil Well Operations

The OCFA has adopted guidelines (Guideline C-02 Requirements for the Construction of Structures Adjacent to Oil Wells) that apply to any structure within 100 feet of an oil well. No structure will be within 100 feet of an oil well. DOGGR provides regulations regarding placement of structures on abandoned well sites. The Proposed Project will be consistent with all regulations regarding active and abandoned wells.

The operation of oil wells, including above-ground storage tanks, have the potential of accidental or unauthorized release of oil or hydrocarbon product if disturbed during development of the property. A discussion of grading impacts on oil well operation is found in Section 5.5, Geology and Soils (beginning on page 5-203 of this DEIR). Hazardous emissions of oil or hydrocarbon product if disturbed during development of the property would be significant without mitigation. Hazardous emissions of

combustible gas/methane due to normal oil well operations would be significant without mitigation.

The Project Applicant shall ensure that a Phase II ESA is prepared identifying abandoned well locations, hidden pits, or accumulations of drilling mud. The Phase II ESA will verify regulatory compliance with previously abandoned wells. Mitigation Measure Haz-3 herein requires such preparation.

In the event the oil wells are closed, a Remedial Action Plan (RAP) will be prepared consistent with state law to address appropriate remedial measures required by the closure(s).

The two oil wells located in the southwest portion of the site may continue to operate on-site, pending the proposed development of the Cielo Vista project to the west. When the proposed Cielo Vista project receives approval of its proposed Area Plan, oil operators have the right to relocate the two oil wells to a drilling pad on the adjacent proposed Cielo Vista project, and will be required to cease production and abandon the wells pursuant to DOGGR regulations. Another well is located near the western boundary of the property owned by Yorba Linda Estates, LLC. There is litigation pending in Orange County Superior Court over the validity of the lease for that well. If the litigation is successful, the well will be abandoned at the expense of the current operator. If that lease is found to be valid, the well will continue to operate so long as it produces in accordance with the lease. The locations of all wells are depicted in Exhibit 5-67 – On-Site Oil Well Location Plan (page 5-293).

Any development over areas where there are abandoned wells depicted on Exhibit 5-67 as #13, #14, and #15 have to also satisfy DOGGR requirements.

### 5.7.6 Project Design Features

The following design features have been incorporated in to the Proposed Project:

PDF 17 The Proposed Project includes that the Esperanza Hills HOA will provide a list of approved and prohibited plant pallet to all buyers in a Private Property Owners' Guide for Fire Safe Vegetation Management on private lots. The HOA will be responsible for enforcement.

PDF 18 The Proposed Project includes a Precise Fuel Modification Plan that has been developed to provide a landscape transition area along the interface between residential development and adjacent open space to provide wildfire protection.

PDF 19 The Proposed Project includes that all new power lines will be underground, for fire safety during high wind conditions or during fires on a right of way which can expose above-ground power lines.

PDF 20 The Proposed Project includes that fuel management activities will be completed annually by June 1 and more often as needed for fire safety, as determined by the OCFA.

PDF 21 The Proposed Project includes that all structures will be in strict, ongoing compliance with all County and other applied Fire and Building Code requirements.

PDF 22 The Proposed Project includes that the HOA will maintain FMZs annually by June 1 and more often as needed for fire safety as determined by the OCFA.

PDF 23 The Proposed Project includes that the HOA will implement emergency evacuation routes in accordance with the approved Community Evacuation Plan. The Community Evacuation Plan includes a provision for annual review by residents through organized meetings and education outreach by the HOA.

PDF 24 The Proposed Project includes that automatic fire sprinkler systems will be installed for all homes, including in all attic spaces.

PDF 25 The Proposed Project includes a Fire Master Plan that has been approved by the OCFA providing enhanced construction features in certain areas adjacent to FMZs. These include enhanced fire sprinkler systems and construction features per California Building Code Chapter 7A.

PDF 26 The Proposed Project includes wildfire education materials will be distributed annually to each resident and annual evacuation planning meeting will be held by the HOA.

PDF 27 The Proposed Project includes that all site access, emergency access, road widths and turn outs will comply with the requirements of the OCFA and the approved Fire Master Plan.

PDF 28 The Proposed Project will include access gates that will comply with the Fire Code. Public roads will not be gated, per the Fire Code. Any gates on any private roads or on private driveways will be as follows, complying with the OCFA standards for electric gates.

- Access gates will be equipped with a KNOX key switch, which overrides all command functions and opens the gate for entrance of emergency vehicles into the area. Gates serving more than 1 parcel will be equipped with sensors for detecting emergency vehicle "Opticom" strobe lights from any direction of approach. Strobe detection and key switches will be provided on the interior and exterior of gates.
- Switches will be dual keyed, or two switches provided, for Fire and Law Enforcement.
- Gate activation devices will be equipped with a battery backup or manual mechanical disconnect in case of power failure.

## 5.7.7 Mitigation Measures

Haz-1 Prior to the issuance of building permits the Project Applicant shall provide a Combustible Gas/Methane Assessment Study for review and approval by the OCFA. The Project Applicant shall submit and obtain OCFA approval for a Methane Control Plan to control the release of combustible gas/methane from operation oil wells in the event that measurable quantity of methane gas is identified in the Combustible Gas/Methane Assessment Study.

Haz-2 Prior to the issuance of grading permits the Project Applicant shall ensure that a Phase II ESA is prepared for review and approval by the Manager of OC Planning. The Phase II ESA shall identify the abandoned well locations, and any hidden pits or accumulations of drilling mud in the vicinity of the wells. The assessment shall include a review of available well logs and abandonment documentation in order to verify regulatory compliance of previously abandoned wells. In the event pits are encountered during the Phase II ESA investigation or during grading, the pits will be sampled for hazardous substances and will be disposed of at a certified hazardous waste facility.

Haz-3 Prior to the issuance of grading permits, the Project Applicant shall ensure that an RAP is prepared for the previously abandoned oil wells to address the appropriate measures consistent with state law.

Haz-4 Prior to the closure of any existing oil wells, the Project Applicant shall ensure that the operators of the oil wells prepare an RAP to address appropriate measures for closure consistent with state law.

Haz-5 Prior to the issuance of any grading permit that results in the disturbance of any vegetation, the Project Applicant shall submit a Fire Master Plan for review and approval by the OCFA. The Fire Master Plan shall be based on the Esperanza Hills FPEP and shall contain details regarding evacuation roads, including road surface type, firefighting staging areas, emergency secondary access, turning radii, vegetation clearance buffers along roadways, exits, and locations of hydrants and reservoir.

Haz-6 Prior to the issuance of any occupancy permit, the Project Applicant shall submit a Community Evacuation Plan (CEP) for the Project for review by the OCFA and the OCSD and approved by the OCFA. The CEP will incorporate the information on community plans from the Orange County Office of Emergency Services and the San Diego Office of Emergency Services. The Esperanza Hills FPEP shall be the basis of the CEP, which shall include provisions for:

- Pre-fire planning and preparations
- Post-fire recovery actions
- Communications/registering with Alert OC (Orange County's Reverse 911 system and sign-up for cell phone/text notice)
- Prevention (maintenance of fuels around buildings, gutter and roof clearance, vent protection)
- Emergency contact numbers

- Annual evacuation training schedule
- Fire Prevention Measures during High Fire Danger and Red Flag Warning periods
- Annual review and update requirements
- Wildfire Emergency Evacuation Plan Details
- On-site partial relocation versus off-site evacuation
- Revisions/updates to the CEP shall be reviewed and approved by OCFA

Haz-7 Prior to the recordation of the final tract map, the Project Applicant shall record the deed restrictions for each residential lot. The deed restriction shall include any portion of the FMZs on the private lot, approved plant palettes, and prohibitions regarding combustible structures, including fencing and other accessory structures. Deed restrictions will run with the land and be conveyed to any subsequent owner of the private lot. The Esperanza Hills HOA will be responsible for enforcement.

Haz-8 Prior to the recordation of the Final Tract Map for Lots 7, 8, 9, 224, 225, 236, 237, 253, 254, ad 278 in Option 1 and Lots 8, 9, 10, 224, 225, 236, 237, 253, 254, and 278 in Option 2 that include an FMZ that extends beyond the private lot or development, the Project Applicant shall obtain written legal permission in the form of a Fuel Modification Easement from any off-site landowners. The Fuel Modification Easement shall be recorded for each lot. In any situations where the FMZ extends into biological open space or other sensitive biological areas, or other areas controlled by the County and/or resource agencies, formal written permission shall be obtained from all applicable agencies.

Haz-9 Prior to the issuance of building permits, the Project Applicant shall prepare a Private Property Owners' Guide for fire-safe vegetation management, which shall be distributed by the Esperanza Hills HOA to each new home buyer. The Guide shall be based on the Orange County Fire Authority Vegetation Management Guidelines as approved in the Fuel Modification Plan approved by the OCFA. Periodic inspections by the OCFA shall be at the expense of the Esperanza Hills HOA.

Haz-10 Prior to the recordation of the final tract map, the Project Applicant shall submit the Project Covenants, Conditions, and Restrictions (CC&Rs) to the Manager of OC Planning for review and acceptance by County Counsel and will include:

- A reference to the Esperanza Hills FPEP to ensure compliance with the features with the plan. The HOA is required to enforce compliance with the Plan. Owners of private lots will be notified in the project's CC&Rs and property disclosures that they are prohibited from conducting any vegetation management activities outside their private property.
- Provisions for continuous maintenance of common areas by the Esperanza Hills Homeowners' Association and individual properties by owners. Maintenance refers to anything needed to maintain the fuel modification area in a fire safe condition as required by the OCFA, including periodic removal of undesirable, combustible vegetation; replacement of dead and dying fire-resistant plantings; maintenance of the operational integrity and

programming of irrigation systems; and preservation of identification markers.

- A provision that the HOA is responsible for and has the authority to ensure long-term funding, and ongoing compliance with all provisions of the approved Fire Master Plan and Community Evacuation Plan, including vegetation planting, fuel modification, vegetation management, and maintenance requirements on all private lots, parks, common areas, roadsides, and open space under their control (if not considered biological open space). Any water quality basins, flood control basins, channels, and waterways should be kept clear of flammable vegetation, subject to the environmental restrictions.
- A provision that the HOA will annually fund and obtain an inspection and report from an OCFA-approved Wildland Urban Interface Fire Safety Inspector in June, certifying that vegetation management activities throughout the Project Site have been performed pursuant to the approved Fire Master Plan.

Haz-11 Prior to the issuance of building permits, the Project Applicant shall submit to the Manager of OC Planning plans demonstrating a water system for the Project capable of handling the minimum fire flow storage of 1,500 gallons per minute for a 2-hour duration with a minimum residual pressure of 20 pounds per square inch.

Haz-12 Prior to issuance of building permits, the Project Applicant shall provide a plan that depicts the appropriate number of fire hydrants and their specific locations to be constructed for each phase of development for review and approval by the OCFA Fire Marshal.

Haz-13 Prior to ground disturbance in environmentally sensitive areas that contain sensitive habitat, cultural sites, riparian areas, biological buffer areas, detention basins, etc., the Project Applicant shall obtain written permission from the OC Planning Manager, and the appropriate resource agencies (e.g., the CDFW, the USFWS, and the ACOE) prior to any vegetation management activities occurring.

Haz-14 Prior to the issuance of any building permit for access gates the Project Applicant shall submit for review and approval by the OCFA access gate plans consistent with the applicable Fire Code, and all operated gates shall be equipped with emergency opening devices approved by the OCFA.

## 5.7.8 Level of Significance after Mitigation

Implementation of the Proposed Project will not result in a significant hazard to the public or the environment through the transport, use, or disposal of hazardous materials, because the 340-residence subdivision will result in the normal use and storage of household materials, and no industrial or commercial uses are included in the Project. Therefore, the impact is less than significant concerning this topic.

The project has the potential for accidental release of combustible gas/methane from continued operation of on-site oil wells. Mitigation Measures Haz-1, Haz-2, and Haz-3 have been incorporated into the Project. Mitigation includes a Combustible Gas/Methane Assessment Study to assess release of combustible gas/methane, implementation of a Methane Control Plan if a measurable quantity of methane is detected, and preparation of an RAP prior to any oil well closure. With implementation of these mitigation measures, project impacts related to accidental release of hazardous materials into the environment are less than significant.

The Proposed Project will not produce hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter of an existing school. The Proposed Project involves the construction of single-family residential homes, and no hazardous or acutely hazardous materials, substances, or waste will be emitted by the normal operation of the Project. Oil wells within the Project Site have the potential to emit hazardous emissions. However, no existing or proposed schools are located within one-quarter mile of the Project Site and, therefore, the project impact is less than significant.

The Project is not located on a site that is included on a list of hazardous materials sites compiled pursuant to *California Government Code* §65962.5; therefore, the project impact is less than significant.

The Proposed Project is not located within an airport land use plan or within two miles of a public airport or public airport use that would result in a safety hazard for people residing or working in the Proposed Project. Therefore, the project impact from airport hazard is less than significant.

The Proposed Project is not located in the vicinity of a private airport that would result in a safety hazard for people residing or working in the Proposed Project. Therefore, the project impact from private airport hazard is less than significant.

The Project will not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Mitigation Measures Haz-5 and Haz-6 have been incorporated into the Project requiring preparation and implementation of a Community Evacuation Plan. Compliance with the OCFA Ready, Set, Go! Program requires early evacuation, and the HOA is required to conduct annual training of the project residents regarding evacuation procedures.

The City has not prepared a Community Evacuation Plan; however, the Esperanza Hills Community Evacuation Plan can be incorporated into the Yorba Linda Community Evacuation Plan when it is drafted. The Proposed Project also includes a mitigation measure that requires a Secured Fire Protection Agreement with the OCFA that will specify the Project Applicant's pro-rata fair share funding of capital improvements necessary to establish adequate fire protection facilities and equipment and/or personnel for the project. Therefore, with mitigation, project impacts to implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan are less than significant.

The Project has a potential to expose people or structures to a significant risk of loss, injury, or death involving wildfire given the climate, topography, and wildland-urban interface. The project will greatly reduce the potential of wildfire because the project is subject to the 2010 California Building Code and the 2010 Fire Code, which require strict regulations for ember- and ignition-resistant structure construction. The FMZs work in tandem with the other components of the fire protection system including interior automatic fire sprinklers (with the added attic heads in each structure), firefighting staging area, emergency access, and water flow and supply to provide protection for the site's structures. Implementation of the Proposed Project will reduce areas of native vegetation on the Project Site resulting in less burnable fuels, which reduces project impact of wildfire starting on the site.

Mitigation Measures Haz-7 through Haz-14 have been incorporated into the project to implement OCFA FMZs that surround the project, require fuel modification easements from adjacent property owners and fuel modification area deed restrictions, require educational material on fire-safe vegetation management to homeowners, require project CC&Rs provisions and notice on vegetation management and funding of annual Fire Safety inspection of FMZs, require adequate fire hydrants and water capabilities, and project entry gates that meet OCFA standards for entrance during emergency. With implementation of project design features and mitigation measures the likelihood of exposing people or structures to fire hazards will be reduced to a level of less than significant.

## 5.7.9 Cumulative Impacts

There are 13 active and 12 abandoned wells within the Project Area that are located on the Project Site, the Cielo Vista site, and within the surrounding community as shown on Exhibit 5-67 – On-Site Oil Well Location Plan (page 5-293 above). These existing oil wells have the potential of creating a significant hazard to the public or the environment through the accidental release of combustible gas/methane from continued operation of oil wells located within the Proposed Project and the Cielo Vista property. Operation of oil wells is subject to DOGGR regulations and oversight. The Project does not add to this cumulative impact, because Mitigation Measure Haz-1 has been incorporated into the Project requiring a Combustible Gas/Methane Assessment Study to assess release of combustible gas/methane. Mitigation includes mitigation of a Methane Control Plan if a measurable quantity of methane is detected. With implementation of this mitigation measure, project cumulative impacts related to accidental release of hazardous materials into the environment is less than significant.

The Proposed Project, as well as other proposed and/or foreseeable future projects in the area, will place additional homes within the wildland-urban interface zone, exposing residents to significant risk or loss, injury, or death involving wildfire. The project design and mitigation measures are included to reduce risk of wildfire compared with the existing condition. Implementation of the Proposed Project will convert a large area of highly flammable vegetation to lower flammability landscapes, such as irrigated, maintained landscapes and FMZs that result in a reduction of native

vegetation by 70%, significantly reducing the Project Site's fuel sources for a wildfire. The Proposed Project is designed with fire-hardened structures that are ember resistant, resulting in a significant reduction in the Project Site's being a source of embers into the surrounding area from on-site burning structures. Development of the Proposed Project will result in off-site YLWD water system improvements and Proposed Project water infrastructure improvements that will not only meet the demand of the future developments in the area but will also improve the water service reliability and fire protection for the surrounding area.

An Esperanza Hills Community Evacuation Plan will be prepared that includes a partial evacuation option that allows fire command to selectively evacuate homes within the Proposed Project in the case of wildfire. This will result in fewer impacts to roadways during community evacuation events. The partial evacuation included in the Esperanza Hills Community Evacuation Plan will allow the option for residents to shelter within their homes or in homes not on the direct fire line, resulting in fewer impacts to roadways for emergency evacuation of the surrounding community in the event evacuation is less safe or not practical. The impact to the existing roadway system during community evacuation will further be reduced because the Proposed Project will implement the OCFA Ready, Set, Go! Program so residents are knowledgeable regarding 1) preparing before the threat of a wildfire so their homes are "ready" to evacuate in case of fire; 2) packing their vehicles with emergency items and staying aware of news from local media and the local fire department so they are "set" to evacuate; and 3) knowing when to leave, what to take, and where to "go" while evacuating during a wildfire. The residents of the Proposed Project will know that their homes have been constructed to resist ignition and that FMZs will hinder the spread of wildfire into their homes, resulting in orderly evacuation from the community. As previously discussed, the OCSD has developed an evacuation plan for the area that will direct and reduce traffic on the main evacuation routes.

The Proposed Project includes emergency vehicle staging areas in three locations; two locations will be designed for five fire trucks in each, and one location will be designed for one engine. Access to fire hydrants that are gravity fed directly from the water reservoirs to be constructed on-site will aid firefighting for the surrounding community, because the firefighting equipment will be placed near the wildland areas and Chino Hills State Park.

Conditions adjacent to the Project Site at Chino Hills State Park, where the wildfire threat will exist post-development, are classified as medium to heavy fuel loads due to the dominance of shrubs. Shrub cover, although less likely to burn in the first 20 years following establishment during typical weather conditions, will burn at any age under extreme fire events. Once established, shrub cover will increase in volume and, after approximately 20 years, the hazard will increase with fuel age. The Proposed Project's redundant layers of fire protection systems, including FMZs, provide protection against wildfires spreading from Chino Hills State Park and significantly reduce the Project Site as an ignition source.

Implementation of the Proposed Project will result in lower fire hazard risk than currently exists at the undeveloped Project Site and will provide fire risk reduction benefits for the surrounding communities, including the City. Cumulative impacts associated with the implementation of the Proposed Project along with other future and proposed developments (Cielo Vista and Bridal Hills, LLC) are less than significant. The OCSD evacuation plan takes into account the Proposed Project and the proposed Cielo Vista and Bridal Hills developments.

## 5.7.10 Unavoidable Adverse Impacts

The development plan with incorporation of the design features and mitigation measures for the Proposed Project will not result in an unavoidable adverse impact to the public or the environment through the reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Mitigation requiring an assessment of combustible/methane gas from operating wells has been included in the Project that reduces this impact to a less than significant level.

The Proposed Project will not result in an unavoidable adverse impact of exposure of people to wildfire or structures to a significant risk or loss, injury, or death involving wildland fires, including where wildland is adjacent to urbanized areas. Although the Proposed Project is within the WUI, the Project includes design features and mitigation measures that reduce the impact to a less than significant level.

# 5.8 Hydrology and Water Quality

This section analyzes the surface drainage and on-site hydrological conditions as well as whether implementation of the Proposed Project would violate any water quality standards or waste discharge requirements, deplete ground-water supplies or interfere with ground water recharge, result in substantial erosion or siltation on-site or off-site, or provide substantial additional sources of polluted runoff. Issues concerning water supply and distribution systems are discussed in 5.15, Utilities and Service Systems (beginning on page 5-625).

The following analysis is based on the "Preliminary Drainage Reports for Esperanza Hills Property, Options 1 and 2" prepared by KWC Engineers, dated June 2013 (Drainage Reports, Appendix K) and the "Conceptual Water Quality Management Plan, Option 1 and Option 2" prepared by KWC Engineers, dated May 8,2013 (CWQMP, Appendix K). The studies provide the needed information to ensure that the Proposed Project's drainage facilities and water quality features are located and sized appropriately to meet regulatory criteria. The Drainage Reports and the Conceptual Water Quality Management Plans (CWQMPs) are also part of the CEQA review for all discretionary projects in the County of Orange. This eliminates the need for additional CEQA review later on when final project drainage facilities are designed and approved that conform to what was previously reviewed under this DEIR.

**Acronyms used in this section:**

| | |
|---|---|
| AMSL | above mean sea level |
| ACOE | U.S. Army Corps of Engineers |
| BMP | Best Management Practice |
| CC&Rs | Covenants, Conditions, & Restrictions |
| CEQA | California Environmental Quality Act |
| CDFW | California Department of Fish and Wildlife |
| cfs | cubic feet per second |
| COA | Condition of Approval |
| CTR | California Toxics Rule |
| CWQMP | Conceptual Water Quality Management Plan |
| DAMP | Drainage Area Management Plan |
| DCV | Design Capture Volume |
| DEIR | Draft Environmental Impact Report |
| DMA | Drainage Management Area |
| DOGGR | California Department of Oil, Gas, and Geothermal Resources |
| EPA | Environmental Protection Agency |
| ESCP | Erosion and Sediment Control Plan |
| FEMA | Federal Emergency Management Agency |
| FIRM | Flood Insurance Rate Map |
| HCOC | Hydrologic Condition of Concern |
| HOA | homeowners' association |
| LID | Low Impact Development |
| MG | million gallons |
| NPDES | National Pollution Discharge Elimination System |
| NTR | National Toxics Rule |
| PDF | Project Design Feature |
| RWQCB-SA | Regional Water Quality Control Board – Santa Ana |
| SCAQMD | Southern California Air Quality management District |
| SFHA | Special Hazard Area |
| SWPPP | Storm Water Pollution Prevention Plan |
| TMDL | total maximum daily load |
| USFWS | U.S. Fish & Wildlife Services |
| USGS | United States Geological Survey |
| VTTM | Vesting Tentative Tract Map |
| WQMP | Water Quality Management Plan |

## 5.8.1 Existing Conditions

### 1. Setting

The Proposed Project is located in unincorporated Orange County in the Chino Hills, also known as Puente Hills, and is generally characterized by a series of east-west trending hills separated by steep V-shaped canyons. Site elevations range from 600 to 1,540 above mean

sea level (AMSL). The site generally drains from northeast to southwest, in a natural canyon flow condition, with the flow line having an average slope of about 15% to 25%. Upstream adjacent land uses to the Proposed Project are undeveloped open space lands, Chino Hills State Park, and Tract 16186 (Casino Ridge), and the downstream land uses are developed residential tracts and proposed VTTM 17341 (Sage/Cielo Vista property). The Proposed Project is within the Santa Ana River watershed, the largest watershed in Orange County, covering 153.2 square miles, and is in the jurisdiction of the Santa Ana Regional Water Quality Control Board, Region 8 (RWQCB-SA). The river begins almost 75 miles away in the San Bernardino Mountains, crossing central Orange County before emptying into the Pacific Ocean. The river serves as the main tributary to the watershed. Project Site storm water runoff ultimately discharges into the Santa Ana River – Reach 2, located approximately 1.25 miles south of the Project Site.

Existing contaminants on-site consist of oil staining of soils in the area of oil wells and above-ground storage tanks, conveyance piping from the existing oil wells, and trash from illegal dumping and human activity. There have been no spills, leaks, or emergency responses requiring clean-up of the site. The oil wells have received California Department of Oil, Gas, and Geothermal Resources (DOGGR) permits and are in compliance with Southern California Air Quality Management District (SCAQMD) permits for carbon filter recovery systems for storage tanks.

## 2. On-Site Regulatory Drainage

The drainage in the vicinity of the Project Site consists of surface water runoff flowing only during rainfall and for a short duration after rainfall in the canyons that drain to the Santa Ana River to the south and southwest of the Project Site. There are three USGS (United States Geological Survey) designated drainage areas on-site (Exhibit 5-82 – Esperanza Hills Existing Topography and Drainage Areas). Canyon B joins with Canyon A west of the Project Site at the end of Aspen Way and then flow through a natural drainage in an open space area on land between San Antonio Road and Dorinda Road owned by the City of Yorba Linda (City), prior to flowing into the Orange County Esperanza Channel (Facility E06 Orange County Flood Control District) located along San Antonio Road between Via Corzo and Alder Avenue (see Exhibit 5-83 – Orange County Flood Control District, Existing Facilities, Sheet 9 Maps, 113-3. The entry is a rip-rap protected pad entrance to a 13′ wide × 11′ high trapezoidal channel about one mile downstream west from the property line. On the southern edge of the site lies Blue Mud Canyon, which has intermittent flow and is a drainage area under the jurisdiction of the U.S. Army Corps of Engineers (ACOE).

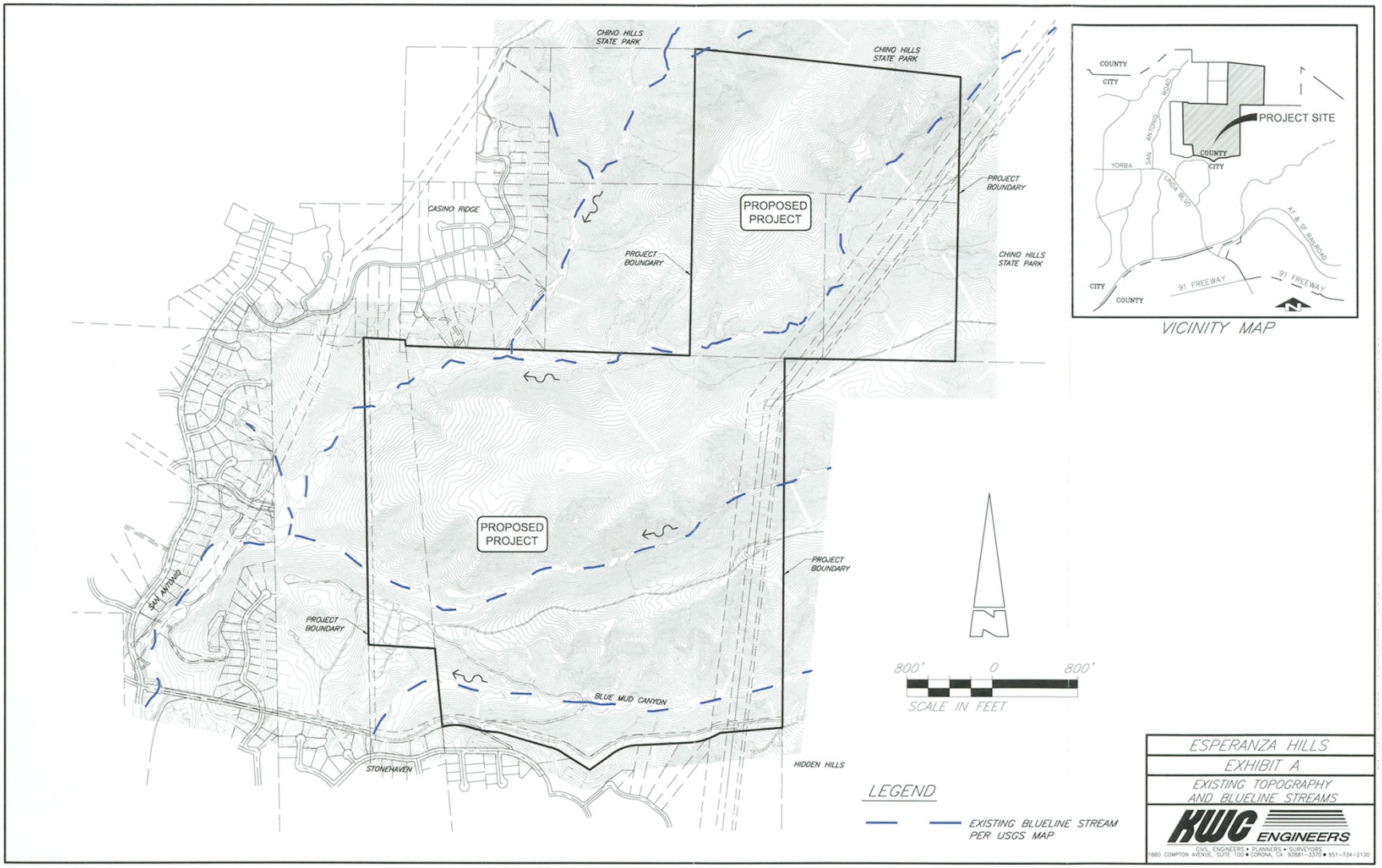



**Exhibit 5-82– Esperanza Hills Existing Topography and Drainage Areas**

## 3. Hydrology Conditions

The Puente Formation sediments found throughout the site have low permeability and limit deep percolation of rain water, thereby restricting groundwater to the canyon drainages. Storm water has a high runoff rate due to the steep hillsides and clayey soils.

Wet-weather and dry-weather runoff typically contains similar pollutants of concern. However, except for the first-flush concentrations following a long dry period between rainfalls, the concentration levels found in wet weather flows are typically lower than found in dry weather flows, because the larger wet weather flows dilute the amount of pollutants in runoff waters.

Development Options 1 and 2 differ in existing condition hydrology calculations given the different grading and drainage schemes for each access option, which results in different drainage areas for each development option. The Project Site is divided into two sub-drainage areas for analysis. The Orange County Modified Rational Method Hydrologic calculations (as described in the Orange County Hydrology Manual) were performed using the Civil Design Hydrology/Hydraulics computer program package 2005 by Bonadiman and Associates, Inc. Drainage hydrology is calculated using a "Return Period" that is defined as the long-term average number of years between occurrences of an event (precipitation) of a given depth (inches of rainfall) and duration (24-hour period). The Orange County Hydrology Manual uses a Return Period of 10-year, 25-year, and 100-year storm event to describe drainage characteristics and capacity. The existing condition watershed boundaries were delineated using aerial topography and USGS topographic maps. Soil types were determined by overlaying the Hydrologic Classification of Soils from the Orange County Hydrology Manual onto the existing topography and calculating the areas of each soil type within each sub-area. There are no existing drainage facilities upstream or within the Proposed Project boundaries, and storm runoff is conveyed via natural channel flow through the Project Site.

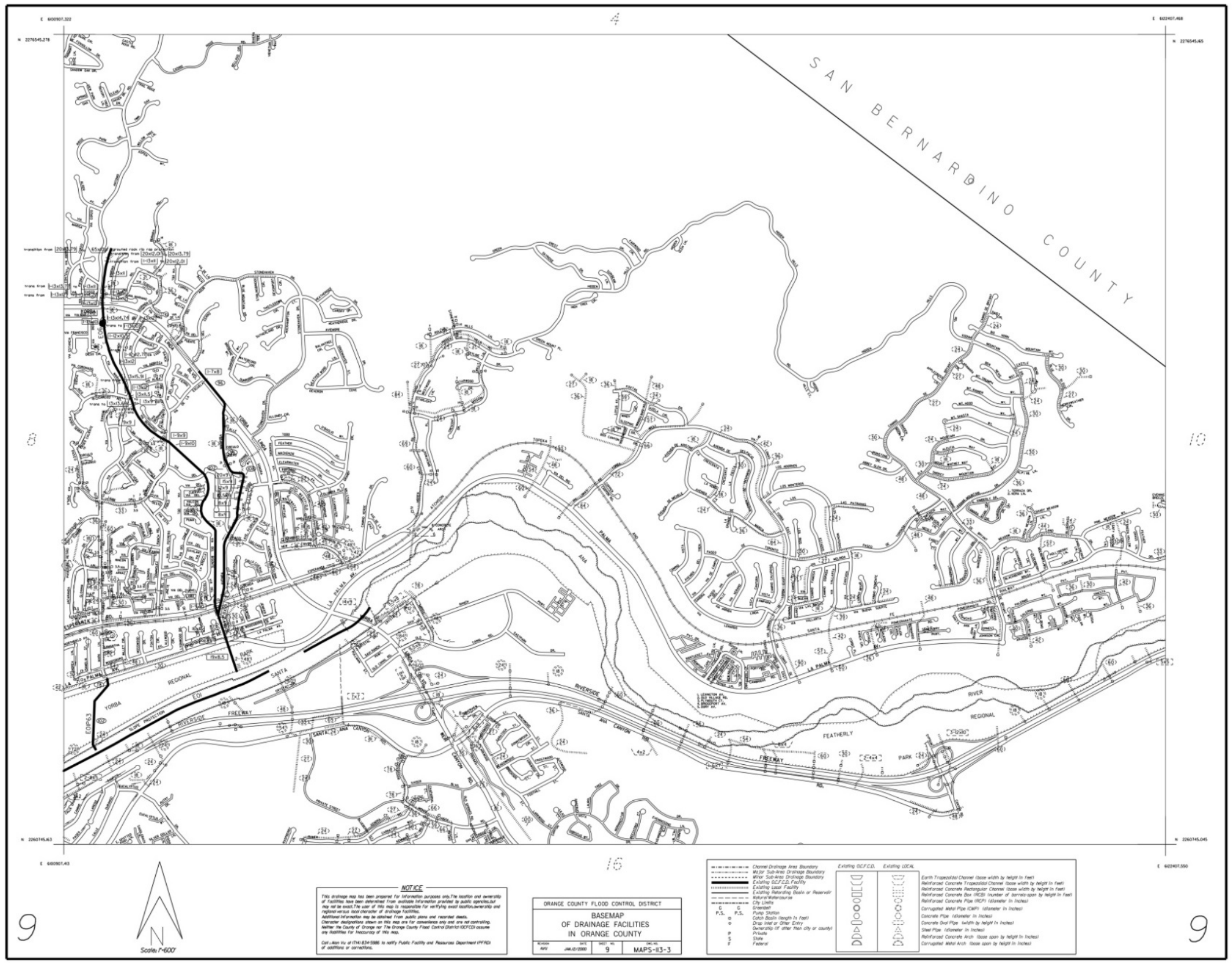



**Exhibit 5-83– Orange County Flood Control District, Existing Facilities, Sheet 9 Maps, 113-3**

- Option 1: Exhibit 5-84 shows the locations of the drainage sub-areas and peak flows at each sub-area. Under existing conditions, Canyon A, Canyon B and Canyon C drain into the site and have a total drainage area of 882.7 acres that generate 1,838 cubic feet per second (cfs) in the 100-year event, 1,374 cfs in the 25-year event, and 1091 cfs in the 10-year event, which must be accepted and conveyed through the site. Canyon C drains along the southerly side of the Project and has a total area of 647.3 acres that generate 1,140 cfs in the 100-year event, 845 cfs in the 25-year event, and 665 cfs in the 10-year event. This corresponds generally to a 1.2:1 ratio between the peak flow rate and the drainage area for the 10-year storm event.
- Option 2: Exhibit 5-85 shows the locations of the drainage sub-areas and peak flows at each sub-area. Under existing conditions, Canyon A, Canyon B, and Canyon C drain into the site from off-site waters. The total site drainage area comprises 1,366.5 acres that generate 3,401 cfs in the 100-year event, 2,543 cfs in the 25-year event, and 2,044 cfs in the 10-year event, which must be accepted and conveyed through the site. This corresponds generally to a 1.5:1 ratio between the peak flow rate and the drainage area for the 10-year storm event.

## 4. Flooding/Site Inundation

The National Flood Insurance Act (1968) established the National Flood Insurance Program, which is based on the minimal requirements for floodplain management and is designed to minimize flood damage within Special Flood Hazard Areas (SFHA). The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program. SFHAs are defined as areas that have a 1% chance of flooding within a given year. This is also referred to as the 100-year flood. Flood Insurance Rate Maps (FIRMs) were developed to identify areas of flood hazards within a community.

According to the FIRM catalog, there are two FIRMS produced by FEMA for the Project Site: Map Numbers 06059C0069J and O6059C0090J, revised December 3, 2009. The complete site is located within Zone X, which is an area outside the 0.2% annual chance of flood (500-year). However, these areas may be subject to flooding from severe storm activity or local drainage problems. Concerning site inundation from flooding, there are no floodways recognized by FEMA within the vicinity of the Project Site.

## 5. Ground Water

The Project Site is located north of the Santa Ana River and the Santa Ana River recharge area. The water flow regime in the vicinity of the Project Site consists of surface water runoff in the canyons that drain to the Santa Ana River to the south and southwest of the project. The low permeability of the Puente Formation sediments

(Soil Types C[13] and D[14]) throughout the Project Site limits deep percolation of rainwater restricting groundwater to the incised canyons drainages. Ground water in the site vicinity is confined to young alluvial sediments within the incised canyons. The direction of flow is controlled by local topographic conditions.

## 5.8.2 Regulatory Setting

The Esperanza Hills project may be required to process applications through the following resource agencies because of potential project impacts to intermittent drainage areas subject to the jurisdiction of the ACOE, other drainage systems, and potential surface water quality issues.

- U.S. Army Corps of Engineers (ACOE) approval of permits under Section 404 of the Clean Water Act
- California Department of Fish and Wildlife (CDFW) approval of future potential streambed alteration agreements, pursuant to §1600 of the *California Fish and Game Code*
- U.S. Fish & Wildlife Services (USFWS) consultation related to biological impact assessment, if requested by the ACOE
- Regional Water Quality Control Board, Santa Ana District (RWQCB-SA), National Pollutant Discharge Elimination System (NPDES) permits under Section 402 of the Clean Water Act as well as approval of Section 401 Water Quality Certification
- County of Orange

- The Clean Water Act[15] is the principal federal statute governing water quality. The goal of the Clean Water Act is to protect the physical, chemical, and biological integrity of the waters of the United States. The Clean Water Act requires the state to adopt water quality standards for water bodies and have those standards approved by the Environmental Protection Agency (EPA). Water quality standards consist of a designated use or uses for a particular water body, along with water quality criteria based upon these uses[16]. Designated uses of water bodies describe the appropriate uses of that water body, such as contact recreation, warm water wildlife propagation, and municipal or drinking water uses. Water quality criteria are set concentrations or levels of constituents (e.g., lead, suspended sediments, and fecal coliform bacteria) or narrative statements that represent the quality of water that support a particular use.

[13] *Class C Soil* is characterized as slow infiltration rates. Soils have layers impeding downward movement of water, or soils with moderately fine or fine textures.

[14] *Class D Soil* is characterized as very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

[15] *U.S. Code*, Title 33, §§1251, et seq.

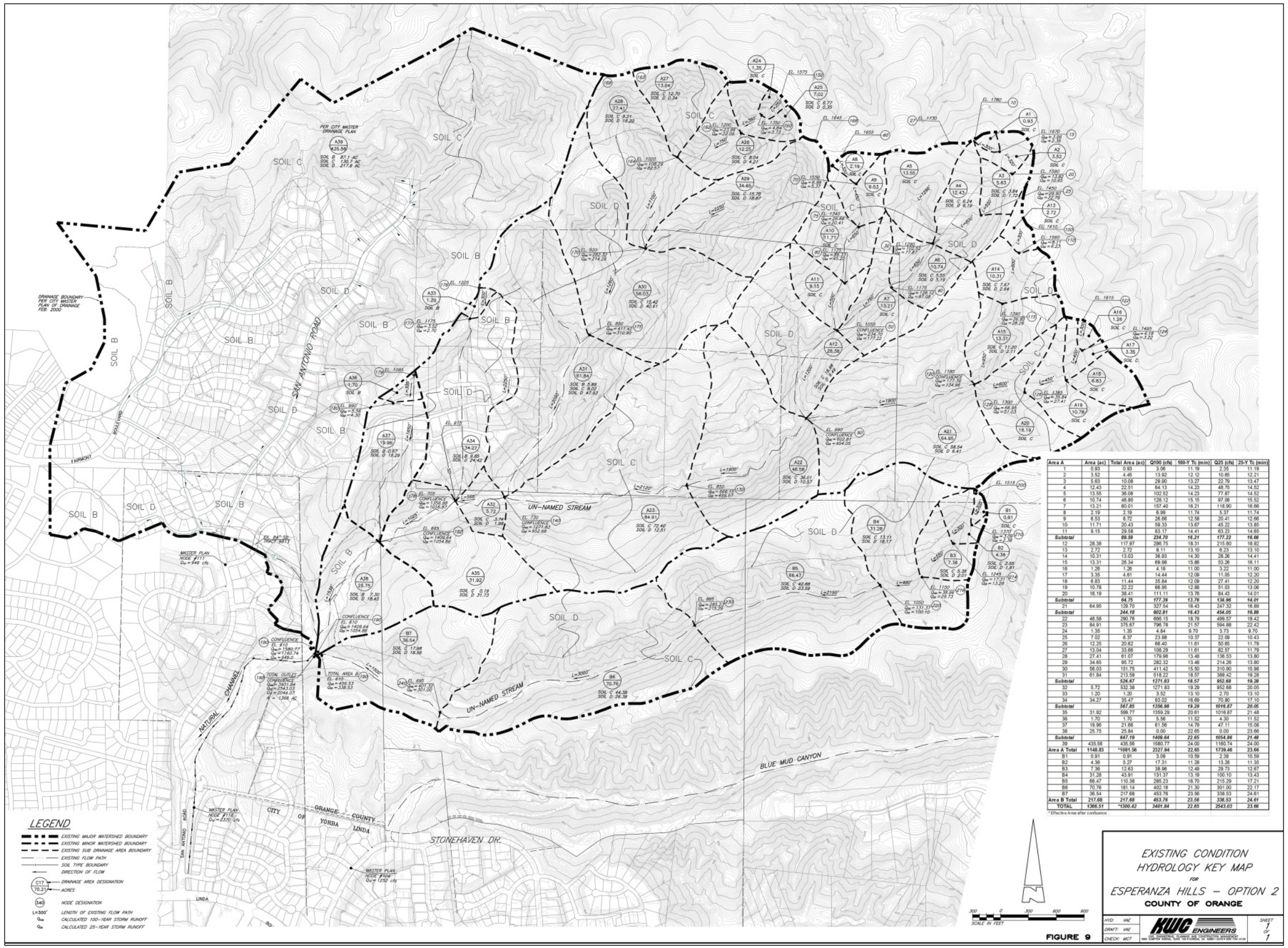
[16] *Code of Federal Regulations*, Title 40, §131.3(i))


| Area A | Area (ac) | Total Area (ac) | Q100 (cfs) | 100-Y Tc (min) | Q25 (cfs) | 25-Y Tc (min) |
|---|---|---|---|---|---|---|
| 1 | 0.93 | 0.93 | 3.06 | 11.19 | 2.35 | 11.19 |
| 2 | 3.52 | 4.45 | 13.92 | 12.12 | 10.65 | 12.21 |
| 3 | 5.63 | 10.08 | 29.90 | 13.27 | 22.79 | 13.47 |
| 4 | 12.43 | 22.51 | 64.13 | 14.23 | 48.75 | 14.52 |
| 5 | 13.55 | 36.06 | 102.52 | 14.23 | 77.87 | 14.52 |
| 6 | 10.74 | 46.80 | 128.12 | 15.15 | 97.08 | 15.52 |
| 7 | 13.21 | 60.01 | 157.40 | 16.21 | 118.90 | 16.66 |
| 8 | 2.19 | 2.19 | 6.99 | 11.74 | 5.37 | 11.74 |
| 9 | 6.53 | 8.72 | 26.66 | 12.58 | 20.41 | 12.66 |
| 10 | 11.71 | 20.43 | 59.33 | 13.67 | 45.22 | 13.85 |
| 11 | 9.15 | 29.58 | 83.17 | 14.41 | 63.23 | 14.65 |
| ***Subtotal*** | | ***89.59*** | ***234.70*** | ***16.21*** | ***177.22*** | ***16.66*** |
| 12 | 28.38 | 117.97 | 286.75 | 18.31 | 215.60 | 18.92 |
| 13 | 2.72 | 2.72 | 8.11 | 13.10 | 6.23 | 13.10 |
| 14 | 10.31 | 13.03 | 36.93 | 14.30 | 28.26 | 14.41 |
| 15 | 13.31 | 26.34 | 69.98 | 15.86 | 53.26 | 16.11 |
| 16 | 1.26 | 1.26 | 4.18 | 11.00 | 3.22 | 11.00 |
| 17 | 3.35 | 4.61 | 14.44 | 12.09 | 11.05 | 12.20 |
| 18 | 6.83 | 11.44 | 35.84 | 12.09 | 27.41 | 12.20 |
| 19 | 10.78 | 22.22 | 66.95 | 12.88 | 51.03 | 13.06 |
| 20 | 16.19 | 38.41 | 111.11 | 13.76 | 84.43 | 14.01 |
| ***Subtotal*** | | ***64.75*** | ***177.39*** | ***13.76*** | ***134.96*** | ***14.01*** |
| 21 | 64.95 | 129.70 | 327.54 | 16.43 | 247.32 | 16.89 |
| ***Subtotal*** | | ***244.18*** | ***607.81*** | ***16.43*** | ***454.95*** | ***16.89*** |
| 22 | 46.58 | 290.76 | 666.15 | 18.78 | 499.57 | 19.42 |
| 23 | 84.91 | 375.67 | 796.78 | 21.57 | 594.88 | 22.42 |
| 24 | 1.35 | 1.35 | 4.84 | 8.70 | 3.73 | 8.70 |
| 25 | 7.02 | 8.37 | 23.98 | 10.37 | 22.09 | 10.43 |
| 26 | 12.25 | 20.62 | 66.40 | 11.61 | 50.65 | 11.79 |
| 27 | 13.04 | 33.66 | 108.29 | 11.61 | 82.57 | 11.79 |
| 28 | 27.41 | 61.07 | 179.96 | 13.48 | 136.53 | 13.80 |
| 29 | 34.65 | 95.72 | 282.32 | 13.48 | 214.26 | 13.80 |
| 30 | 56.03 | 151.75 | 411.42 | 15.50 | 310.90 | 15.98 |
| 31 | 61.84 | 213.59 | 518.22 | 18.57 | 389.42 | 19.28 |
| ***Subtotal*** | | ***526.67*** | ***1271.83*** | ***18.57*** | ***952.68*** | ***19.28*** |
| 32 | 5.72 | 532.39 | 1271.83 | 19.29 | 952.68 | 20.05 |
| 33 | 1.20 | 1.20 | 3.52 | 13.10 | 2.70 | 13.10 |
| 34 | 34.27 | 35.47 | 93.02 | 16.69 | 70.80 | 17.10 |
| ***Subtotal*** | | ***567.85*** | ***1356.98*** | ***19.29*** | ***1016.87*** | ***20.05*** |
| 35 | 31.92 | 599.77 | 1359.29 | 20.61 | 1016.87 | 21.48 |
| 36 | 1.70 | 1.70 | 5.56 | 11.52 | 4.30 | 11.52 |
| 37 | 19.96 | 21.66 | 61.56 | 14.79 | 47.11 | 15.08 |
| 38 | 25.75 | 25.84 | 0.00 | 22.65 | 0.00 | 23.66 |
| ***Subtotal*** | | ***647.19*** | ***1409.64*** | ***22.65*** | ***1054.86*** | ***21.48*** |
| 39 | 435.56 | 435.56 | 1580.77 | 24.00 | 1160.74 | 24.00 |
| **Area A Total** | **1148.83** | ****1081.56*** | **2327.94** | **22.65** | **1739.46** | **23.66** |
| B1 | 0.91 | 0.91 | 3.09 | 10.59 | 2.38 | 10.59 |
| B2 | 4.36 | 5.27 | 17.31 | 11.28 | 13.28 | 11.35 |
| B3 | 7.36 | 12.63 | 38.96 | 12.49 | 29.73 | 12.67 |
| B4 | 31.28 | 43.91 | 131.37 | 13.19 | 100.10 | 13.43 |
| B5 | 66.47 | 110.38 | 285.23 | 16.70 | 215.29 | 17.21 |
| B6 | 70.76 | 181.14 | 402.16 | 21.30 | 301.00 | 22.17 |
| B7 | 36.54 | 217.68 | 453.76 | 23.56 | 338.53 | 24.61 |
| **Area B Total** | **217.68** | ***217.68*** | ***453.76*** | ***23.56*** | ***338.53*** | ***24.61*** |
| **TOTAL** | **1366.51** | ****1300.42*** | **3401.84** | **22.65** | **2543.03** | **23.66** |

* Effective Area after confluence

| | Area (sf) | Area (ac) | Total Area (ac) | Q100 (cfs) | 100-Y Tc (min) | Q25 (cfs) | 25-Y Tc (min) |
|---|---|---|---|---|---|---|---|
| K1 | 55600 | 1.28 | 1.28 | 4.10 | 11.65 | 3.16 | 11.65 |
| K2 | 171993 | 3.95 | 5.23 | 15.97 | 12.60 | 12.22 | 12.69 |
| K3 | 1208398 | 27.74 | 32.97 | 95.31 | 13.77 | 72.60 | 13.97 |
| K4 | 612348 | 14.06 | 47.03 | 136.12 | 13.77 | 103.73 | 13.97 |
| K5 | 2206918 | 50.66 | 97.69 | 259.54 | 18.01 | 196.98 | 18.38 |
| K6 | 3521778 | 80.85 | 178.54 | 430.84 | 18.66 | 324.99 | 19.23 |
| K7 | 2818861 | 64.71 | 243.26 | 535.47 | 21.57 | 401.65 | 22.36 |
| ***Subtotal*** | | ***243.26*** | ***243.26*** | ***535.47*** | ***21.57*** | ***401.65*** | ***22.36*** |
| K8 | 101421 | 2.33 | 2.33 | 8.23 | 10.15 | 6.36 | 10.15 |
| K9 | 1768408 | 40.60 | 42.93 | 138.04 | 11.84 | 106.55 | 11.77 |
| K10 | 4558265 | 104.64 | 147.57 | 404.66 | 15.16 | 309.64 | 15.55 |
| ***Subtotal*** | | ***390.83*** | ***390.83*** | ***873.40*** | ***15.16*** | ***657.74*** | ***15.55*** |
| K11 | 2843268 | 65.27 | 456.10 | 956.67 | 17.68 | 717.26 | 18.26 |
| K12 | 5542582 | 127.30 | 583.40 | 1092.81 | 22.61 | 813.70 | 23.56 |
| K13 | 2784732 | 64.16 | 647.56 | 1139.94 | 25.47 | 845.57 | 26.66 |
| *Total* | | ***647.56*** | ***647.56*** | ***1139.94*** | ***25.47*** | ***845.57*** | ***26.66*** |

**Exhibit 5-84 – Existing Condition Hydrology Key Map and Hydrology Summary Table – Option 1**




| Area A | Area (ac) | Total Area (ac) | Q100 (cfs) | 100-Y Tc (min) | Q25 (cfs) | 25-Y Tc (min) |
|---|---|---|---|---|---|---|
| 1 | 0.93 | 0.93 | 3.06 | 11.19 | 2.35 | 11.19 |
| 2 | 3.52 | 4.45 | 13.92 | 12.12 | 10.85 | 12.21 |
| 3 | 5.63 | 10.08 | 29.90 | 13.27 | 22.79 | 13.47 |
| 4 | 12.43 | 22.51 | 64.13 | 14.23 | 48.75 | 14.52 |
| 5 | 13.55 | 36.06 | 102.52 | 14.23 | 77.87 | 14.52 |
| 6 | 10.74 | 46.80 | 128.12 | 15.15 | 97.08 | 15.52 |
| 7 | 13.21 | 60.01 | 157.40 | 16.21 | 118.90 | 16.66 |
| 8 | 2.19 | 2.19 | 8.99 | 11.74 | 5.37 | 11.74 |
| 9 | 6.53 | 8.72 | 26.66 | 12.58 | 20.41 | 12.66 |
| 10 | 11.71 | 20.43 | 59.33 | 13.67 | 45.22 | 13.85 |
| 11 | 9.15 | 29.58 | 83.17 | 14.41 | 63.23 | 14.65 |
| **Subtotal** | | **89.59** | **234.70** | **16.21** | **177.22** | **16.66** |
| 12 | 28.38 | 117.97 | 286.75 | 18.31 | 215.60 | 18.92 |
| 13 | 2.72 | 2.72 | 8.11 | 13.10 | 6.23 | 13.10 |
| 14 | 10.31 | 13.03 | 36.93 | 14.30 | 28.26 | 14.41 |
| 15 | 13.31 | 26.34 | 69.98 | 15.86 | 53.26 | 16.11 |
| 16 | 1.26 | 1.26 | 4.18 | 11.00 | 3.22 | 11.00 |
| 17 | 3.35 | 4.61 | 14.44 | 12.09 | 11.05 | 12.20 |
| 18 | 6.83 | 11.44 | 35.84 | 12.09 | 27.41 | 12.20 |
| 19 | 10.78 | 22.22 | 66.95 | 12.88 | 51.03 | 13.06 |
| 20 | 16.19 | 38.41 | 111.11 | 13.76 | 84.43 | 14.01 |
| **Subtotal** | | **64.75** | **177.39** | **13.76** | **134.96** | **14.01** |
| 21 | 64.95 | 129.70 | 327.54 | 16.43 | 247.32 | 16.89 |
| **Subtotal** | | **244.18** | **602.81** | **16.43** | **454.05** | **16.89** |
| 22 | 46.58 | 290.76 | 666.15 | 18.78 | 499.57 | 19.42 |
| 23 | 84.91 | 375.67 | 796.78 | 21.57 | 594.88 | 22.42 |
| 24 | 1.35 | 1.35 | 4.84 | 9.70 | 3.73 | 9.70 |
| 25 | 7.02 | 8.37 | 23.98 | 10.37 | 22.09 | 10.43 |
| 26 | 12.25 | 20.62 | 66.40 | 11.61 | 50.65 | 11.79 |
| 27 | 13.04 | 33.66 | 108.29 | 11.61 | 82.57 | 11.79 |
| 28 | 27.41 | 61.07 | 179.96 | 13.48 | 136.53 | 13.80 |
| 29 | 34.65 | 95.72 | 282.32 | 13.48 | 214.26 | 13.80 |
| 30 | 56.03 | 151.75 | 411.42 | 15.50 | 310.90 | 15.98 |
| 31 | 61.84 | 213.59 | 518.22 | 18.57 | 389.42 | 19.28 |
| **Subtotal** | | **526.67** | **1271.83** | **18.57** | **952.68** | **19.28** |
| 32 | 5.72 | 532.38 | 1271.83 | 19.29 | 952.68 | 20.05 |
| 33 | 1.20 | 1.20 | 3.52 | 13.10 | 2.70 | 13.10 |
| 34 | 34.27 | 35.47 | 93.02 | 16.89 | 70.80 | 17.10 |
| **Subtotal** | | **567.85** | **1356.88** | **19.29** | **1016.87** | **20.05** |
| 35 | 31.92 | 599.77 | 1359.29 | 20.61 | 1016.87 | 21.48 |
| 36 | 1.70 | 1.70 | 5.56 | 11.52 | 4.30 | 11.52 |
| 37 | 19.96 | 21.66 | 61.56 | 14.79 | 47.11 | 15.08 |
| 38 | 25.75 | 25.84 | 0.00 | 22.65 | 0.00 | 23.66 |
| **Subtotal** | | **647.19** | **1409.64** | **22.65** | **1054.88** | **21.48** |
| 39 | 435.56 | 435.56 | 1580.77 | 24.00 | 1160.74 | 24.00 |
| **Area A Total** | **1148.83** | ***1081.56** | **2327.94** | **22.65** | **1739.46** | **23.66** |
| 81 | 0.91 | 0.91 | 3.09 | 10.59 | 2.38 | 10.59 |
| 82 | 4.36 | 5.27 | 17.31 | 11.28 | 13.38 | 11.35 |
| 83 | 7.36 | 12.63 | 38.96 | 12.49 | 29.73 | 12.67 |
| 84 | 31.28 | 43.91 | 131.37 | 13.19 | 100.10 | 13.43 |
| 85 | 66.47 | 110.38 | 285.23 | 16.70 | 215.29 | 17.21 |
| 86 | 70.76 | 181.14 | 402.18 | 21.30 | 301.00 | 22.17 |
| 87 | 36.54 | 217.68 | 453.76 | 23.56 | 338.53 | 24.61 |
| **Area B Total** | **217.68** | **217.68** | **453.76** | **23.56** | **338.53** | **24.61** |
| **TOTAL** | **1366.51** | ***1300.42** | **3401.84** | **22.65** | **2543.03** | **23.66** |

* Effective Area after confluence

**Exhibit 5-85– Existing Condition Hydrology Key Map and Hydrology Summary Table – Option 2**

Numeric water quality criteria for receiving waters have been established by EPA in the form of the National Toxics Rule (NTR)[17] and the California Toxics Rule (CTR)[18]. The NTR and the CTR provide water quality criteria that apply to receiving waters with certain beneficial uses specified for them. The CTR implementation plan does not apply to storm water discharges; instead, those discharges are regulated through municipal storm water permits and state storm water permits.

Discharges of pollutants into waters of the United States are not allowed, except in accordance with the permitting program of the Clean Water Act, the NPDES. Authority to implement and administer the NPDES program in California largely has been delegated by EPA to the state and regional water quality control boards. NPDES permits have been issued that apply to storm water discharges from large municipal storm sewer systems, specific industrial activities, and large construction activities. The County of Orange holds an NPDES permit governing its storm sewer systems. Also, the State of California has issued an NPDES permit relating to construction sites. The Proposed Project is within the jurisdiction of the RWQCB-SA. In May 2011 the RWQCB-SA approved the NPDES requirements under Order #R8-2009-030 and NPDES Permit #CA5618030. The County, as well as the City, and subsequently the Proposed Project, will be required to comply with the current waste discharge requirements.

Narrative and numeric water quality objective criteria are contained in the Basin Plan issued by RWQCB-SA. The Basin Plan establishes designated uses and water quality objectives for surface waters in the basin. The Municipal Separate Storm Sewer System Permit (R8-2009-0030 and CAS618030) (MS4 Permit for Santa Ana Region) establishes waste discharge requirements for Orange County, the Orange County Flood Control District and the incorporated cities of Orange County (including the City). The MS4 Permit relies primarily on the 2003 Orange County Drainage Area Management Plan (DAMP), which sets forth Best Management Practices (BMPs) and other water quality control measures to establish effluent limits for storm water discharges to the municipal storm drain system. The DAMP was written to meet permitting requirements by the RWQCB-SA and is administered by the County. The DAMP is the principal policy and guidance document of the countywide NPDES storm water program, and is designed to achieve compliance with Basin Plan standards through BMPs. BMPs are procedures designed to minimize the release of pollutants. In December 2012, the County released the "Orange County Stormwater Program Construction Runoff Guidance Manual," which updates County BMPs.[19]

NPDES permits require effluent limits necessary to meet water quality standards for pollutants that may cause or contribute to an exceedance of a state water quality standard[20]. NPDES permits may establish enforceable effluent limitations on discharges, require monitoring of discharges, designate reporting requirements, or

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[17] *Code of Federal Regulations*, Title40 §131.36

[18] *Code of Federal Regulations*, Title 40 §131.38

[19] Orange County Stormwater Program Construction Runoff Guidance Manuel, December 2012 https://media.ocgov.com/gov/pw/watersheds/documents/bmp/constructionactivities.asp (accessed July 2013)

[20] *Code of Federal Regulations*, Title 40, §122.44

require the permittee to implement BMPs. BMPs may be used in addition to numeric effluent limitations, or, in some cases, in lieu of numeric effluent limitations. When application of numeric effluent limitations is technically infeasible, such as in permits governing storm water discharges, effluent limitations are expressed as BMPs.

Where, despite the issuance of NPDES permits containing effluent limitations, water quality standards are not being achieved and the beneficial uses are not being met, the Clean Water Act requires identifying and listing that water body as "impaired" under Section 303(d). Once a water body has been deemed "impaired," a Total Maximum Daily Load (TMDL) must be developed for that water body. A TMDL is an estimate for the total load of pollutants, from point (discharges to air or water at a single location), non-point, and natural sources that a water body may receive without exceeding applicable water quality standard. Once established, the TMDL is allocated among current and future dischargers into the water body. Santa Ana River Reach 2 is listed as Unknown Toxicity and Indicator Bacteria (2010, 303d, List and Pollutants of Concern) related to the Proposed Project. A Watershed Infiltration and Hydromodification Management Plan (WIHMP) has not been issued for the Santa Ana River as of the date of this writing. However, for North Orange County, Susceptibility Analysis Santa Ana River from the Orange County Watershed Master Plan, there are susceptible channels downstream of the site and, therefore, there is a Hydrologic Condition of Concern (HCOC). An HCOC is identified when changes in the existing condition may cause an increase in sediments due to an increase in velocity or the amount of water entering the channel. The existing discharge point is an unstable earthen channel that is identified as the channel in the City's open space adjacent to San Antonio Road. Therefore, the Proposed Project will be designed to reduce sediment for the identified HCOC.

The County of Orange approved in concept the Conceptual Water Quality Management Plan (CWQMP) in May 2013. Prior to issuance of any grading permit, a Final Water Quality Management Plan (WQMP) for the Proposed Project will be prepared to comply with the Orange County Municipal Separate Storm Sewer System (MS4) permit and the County of Orange DAMP. The DAMP requires preparation of a project-specific Final WQMP in connection with new development projects and addresses post-construction, long-term water quality issues. The DAMP contains New Development BMPs as well as other applicable programs, such as fertilizer management and efficient irrigation programs.

In 2009, the SWRCB adopted order No., 2009-0009-DWQ, NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, NPDES No. CAS000002 Construction General Permit (CG Permit). The CG Permit requires that construction sites with one acre or greater of soil disturbance apply for coverage for discharges under the CG Permit, developing a Storm Water Pollution Prevention Plan (SWPPP), implementing BMPs to address construction site pollutants, and complying with the monitoring requirements of the CG Permit. The objectives of the SWPPP are to identify the sources of sediments and other pollutants from the construction site that affect the quality of storm water discharges, and to describe the practices to reduce sediments and other pollutants in storm water discharges generated from the construction site.

## 2. Master Plan of Drainage Facilities

### a. Orange County Master Plan of Drainage

The Orange County Esperanza Master Plan of Drainage, dated April 4, 1973, identifies drainage facilities for the Proposed Project Site Area. The Esperanza Channel is the regional drainage facility planned to improve flood control and conveyance from the southern slopes of the Puente Hills to the Sana Ana River.

The County prepared a Hydrology Report for the Esperanza Channel in 1977 providing proposed pipe design sizing for these facilities. As a result, the Orange County Flood District constructed Facility E06 as shown in Exhibit 5-83 – Orange County Flood Control District, Existing Facilities (page 5-345 above). Orange County drainage facilities E06-existing, P07, P08, P04, and S01 are identified within the Project Site Area.

County public storm drain lines facilities that are to be owned and maintained by Orange County Public Works shall be designed to convey the 100-year storm event.

Project private storm drain lines shall be designed based on the Orange County Local Drainage Manual criteria as listed below.

Protection Levels:

- Storm drains with tributary area less than 640 acres are to be designed for a minimum of 10-year storm event frequency below top of curb using a combination of street and storm drain flow.
- In sump conditions, catch basins and the connecting storm drains should be designed to a 25-year storm event frequency.
- Habitable structures shall have 100-year storm event flood protection.
- Minimum acceptable freeboard for catch basins from gutter flow line and detention basins from top of slope is 2.0 feet.

### b. Yorba Linda Master Plan of Drainage

The City of Yorba Linda Master Plan of Drainage, dated February 2000, is based on the Orange County Esperanza Hills Master Plan and includes a hydrologic analysis for the 10-year storm event for the Proposed Project Area to identify conceptual drainage improvements from anticipated development. The City's criteria for a storm drain, in order to be considered as a master planned facility, are for the storm drain facility to provide protection to prevent flood damage to properties and require a minimum of a 39-inch diameter reinforced concrete pipe.

The Master Plan of Drainage is based on the Yorba Linda General Plan (Yorba Linda GP) ultimate land use of open space with a small portion of the site as residential at a density of 0.5 to 18 dwelling units per acre. The calculated 10-year storm event proposed flow at Aspen Way was determined to be 1,813 cfs,

with an area of 956 acres. This results in a ratio of 1.9:1 between the peak flow rate and the drainage area for the 10-year storm event. This study also includes capital improvement project master plan drainage facilities, M-1 (P07 of county study) and M-2 (P08 of county study) that are located on the Project Site. The alignment of these facilities, overlaid onto the Proposed Site Plan for Option 1, with pipe sized for the 10-year storm event, is shown on Exhibit 5-86 – Master Plan Proposed Facilities.

The master plan provides an estimated cost analysis and concludes that the development fee for these proposed facilities is $14,000 per acre. It is anticipated that storm drainage fees for the Proposed Project and reimbursements will be determined during final engineering.

### 5.8.3 Thresholds of Significance

For the purposes of this DEIR, the thresholds of significance for evaluating project impacts are based upon suggested criteria from the CEQA Environmental Checklist (Appendix G of the CEQA Guidelines) and policies of the County of Orange. The project would result in a significant impact if it would:

a) Violate any water quality standards or waste discharge requirements.
b) 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 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).
c) 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 which would result in substantial erosion or siltation on-site or off-site.
d) 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 which would result in a substantial increase in the rate or amount of surface runoff in manner which would result in flooding on-site or off-site.
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.
f) Otherwise substantially degrade water quality.
g) 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.

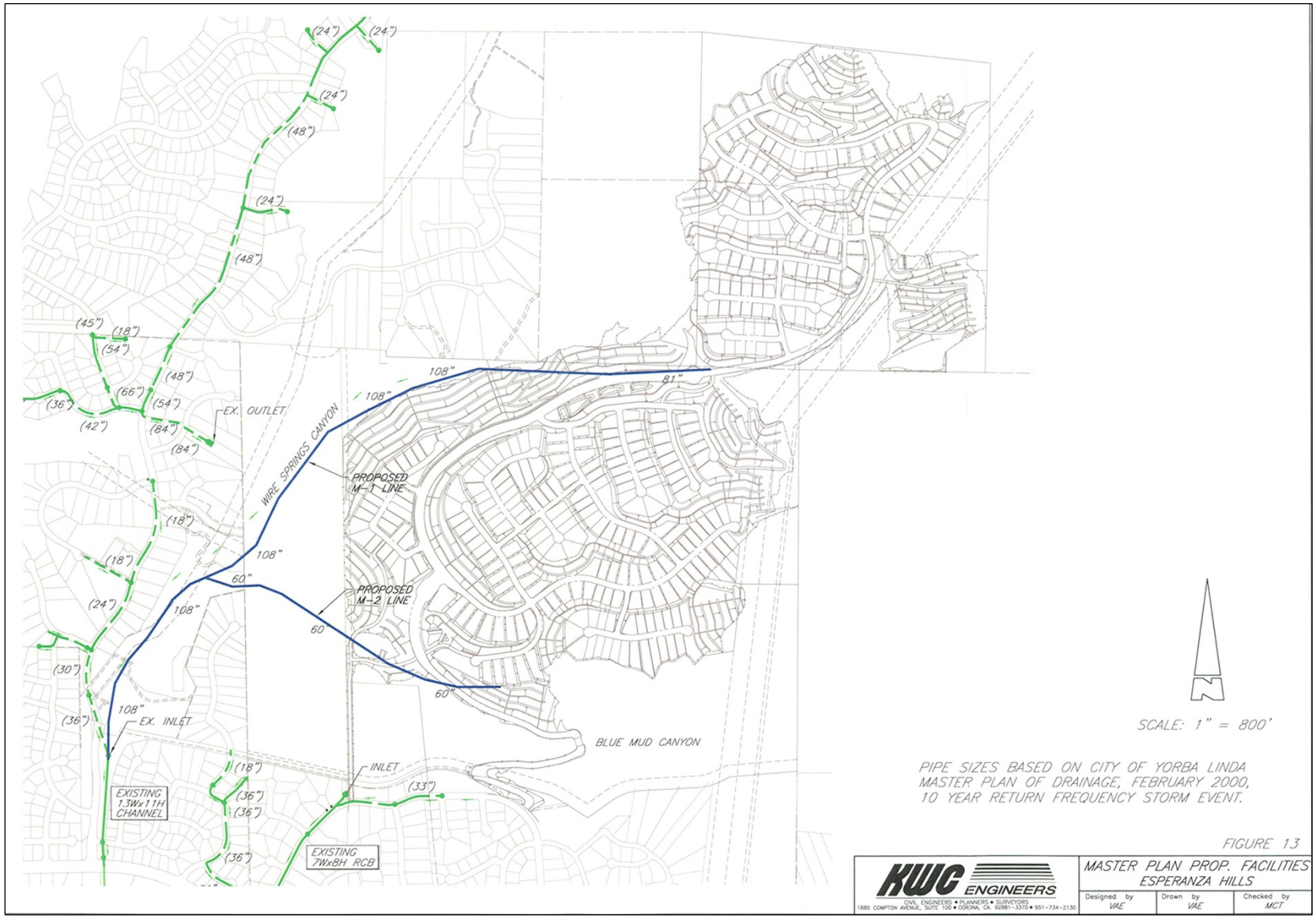



**Exhibit 5-86– Master Plan Proposed Facilities**

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows.
i) 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.

## 5.8.4 Project Impacts Prior to Mitigation

The Proposed Project has been designed with two entry street options:

- Option 1, Stonehaven Drive – Option 1 would provide a primary connection going south to Stonehaven Drive following an existing dirt road that has been used for oil well and utility access purposes. Option 1 is designed for 334 residential lots, including 2 estate lots.
- Option 2, Aspen Way – Option 2 would provide a primary connection going west from the site to Aspen Way, which then connects to San Antonio Road. Option 2 is designed for 340 residential lots, including 2 estate lots.

The Proposed Project will also include a gate house, private streets, driveways, and two underground water reservoirs. These items could potentially increase the imperviousness of the Project Area and, combined with the storm drain system, could alter the hydrologic response to storm events. The impermeable surface associated with each option is as follows:

- Option 1 – The total site area is 468.9 acres. In the post-project condition the Proposed Project will add approximately 77.2 acres (17%) of impervious area, which is made up of 46.6 acres of private streets and 30.6 acres of rooftops and driveways. The graded area is 328.9 acres and the impermeable surface will be approximately 23% of the graded area with 140.0 acres open space.
- Option 2 – The total site area is 468.9 acres. In the post-project condition the Proposed Project will add approximately 73.0 acres on-site and 2.6 offsite for a total of 75.6 acres (16%) of impervious area. The offsite impervious area is the entry extension from Aspen Way. The 73.0 acres onsite of impervious area is made up of 41.8 acres of private streets and 31.2 acres of rooftops and driveways. The graded area is 317.6 acres and the impermeable surface will be approximately 21% of the graded area with 151.3 acres open space.

The Project does not propose storage facilities, parking lots, or any commercial facilities. All landscape maintenance equipment, chemicals, supplies, and materials will be brought on-site as needed for a specific day of work. The Project does not propose any community facilities such as laundry, car wash areas, swimming pools, clubhouse, or restrooms.

Approximately 15 to 16 million cubic yards of remedial grading is associated with the Proposed Project for the development of residential, open space, and park pads along with supporting roadway grades. The Proposed Project grading and development will result in fill placement in Canyon B and Canyon C, thus substantially altering the existing drainage pattern on the site that, unless Project Design Features are incorporated into the Proposed Project, would result in substantial erosion or siltation (earth matter carried by moving or running water) on-site or off-site.

The Proposed Project has the potential to increase runoff volume, decrease infiltration, change time concentration, increase downstream erosion, and adversely impact downstream structures, which would be considered a significant impact if not mitigated by the design features. Storm water runoff can be divided into two categories:

1. *Dry weather urban runoff* occurs when there is no precipitation-general runoff. Typical sources include landscape irrigation runoff, driveway and sidewalk washing, noncommercial vehicle washing, groundwater seepage, fire flow, potable water line operations and maintenance discharges, and permitted or illegal non-storm water discharges.
2. *Wet weather urban runoff* refers collectively to non-point source (water and air pollution from diffuse sources) discharges that result from precipitation events, including storm water runoff. Storm water discharges are generated by runoff from land and impervious areas such as paved streets and building rooftops during rainfall events, which often contain pollutants in quantities that could adversely affect water quality. Most urban storm water discharges are considered non-point sources and are regulated by a National Pollution Discharge Elimination System (NPDES) Municipal General Permit or Construction General Permit.

Urbanization and the increase in population density from the Proposed Project will increase the potential for storm water runoff to be contaminated by human activities associated with the change in land use. Potential pollutants of concern include motor vehicle operations, oil and grease residue, fertilizers; chemicals associated with gardening, landscaping, household cleaners, and solvents, and increased coliform levels associated with household pets. These pollutants are more efficiently mobilized and transported by impervious surfaces on the site and the storm drain system. Pollutants such as pesticides may also be mobilized into the storm drain system during dry weather (excess irrigation and fertilizer/pesticides). Potential storm water pollutants that could result from implementation of the Proposed Project include suspended solids/sediments, nutrients, heavy metals (due to streets), pathogens, pesticides, oil and grease, toxic organic compounds (due to streets), and trash and debris.

The evaluation of potential impact is based on the following for a two-year frequency storm event because an HCOC exists for the Proposed Project:

- Increases in runoff volume;
- Decreases in infiltration;
- Changes in time of concentration;
- Potential for increases in post-development downstream erosion; and
- Potential for adverse downstream impact on physical structure.

The following is an analysis of the impacts on hydrology and water quality for Option 1 and Option 2. Each option has a unique hydrology footprint and design as well as water quality design features. This analysis will present information on both options when they differ.

## 1. Hydrological Modeling Results

### a. Option 1 Facilities Description

Storm water flows will enter the Project Site at upper elevations from off-site canyons and will be directed to four proposed basins, including two debris basins (#1 and #2) and two detention/debris facilities (#3 and #4), which are designed to detain the volume of storm water runoff for a minimum of 48 hours to allow particles and associated pollutants to settle. The street catch basins on-site, which are maintained by the homeowners' association (HOA), connect to the on-site storm drain system. The publicly maintained proposed on-site storm drain system will leave the Project Site in two locations into existing natural canyons at the property line. The four debris basins, Outlet Structure #1 and Outlet Structure #2 are shown on Exhibit 5-87 – Proposed Storm Drain Facilities, Option 1).

At each outlet structure, an energy dissipater and an erosion protection rip-rap pad designed per Orange County Public Works guidelines will reduce the discharge velocity to slower than the existing condition to lessen the potential for downstream erosion of the proposed Cielo Vista project and the City's open space. With the construction of the outlet structure the Proposed Project will not erode the downstream canyon.

To determine the hydrology characteristics of the Proposed Project for modeling purposes, the land use type of two dwelling units per acre was selected for the developed areas, and undeveloped (dense cover) was selected for the open space/landscaped areas. This results in an analysis that is consistent with the overall project density of 0.73 dwelling units per acre. The soils map from the hydrology manual was overlaid on the proposed condition hydrology maps and soil type areas were calculated for each sub-area.

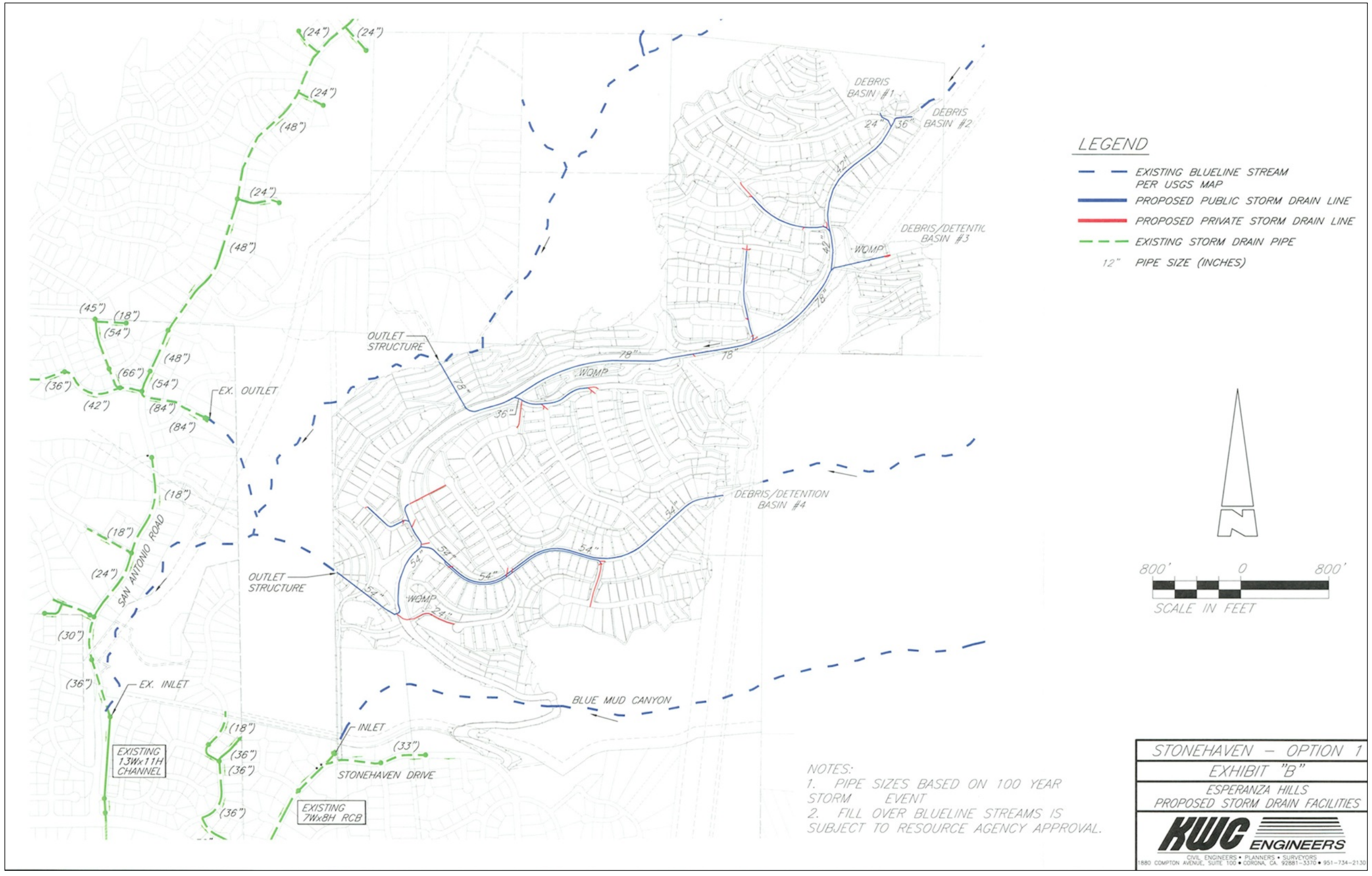



**Exhibit 5-87 – Proposed Storm Drain Facilities, Option 1**

The drainage area of the Option 1 development plan comprises 889.6 acres and generates 2,112 cfs in the 100-year storm event, 1,598 cfs in the 25-year storm event and 1,283 in the 10-year storm event, which is conveyed through the site and outlets at the property line. This corresponds generally to a 1.4:1 ratio between the peak flow rate and the drainage area for the 10-year storm event which is less than the master planned ratio of 1.9:1. Therefore, there will be less storm water runoff than predicted in the Yorba Linda Master Plan of Drainage. In fact, the master plan predicted more development in this tributary area than is currently proposed. Therefore, the discharge from the Proposed Project Site in Option 1 is less than what was predicted in the Master Plans.

The storm water design for Option 1 has two detention/debris basins, #3 and #4, that are designed to intercept the off-site storm water flow to reduce volume and velocity as it enters into the Proposed Project. The detention basins shall include a restricted outlet riser designed to Orange County Public Works standards. Table 5-8-1 below identifies the basin area, depth, and volume of storm water provided by each detention basin.

**Table 5-8-1 Detention Basin Summary, Option 1**

| Tributary Area | Basin # | Area of Basin | Depth of Basin | Volume Provided |
|---|---|---|---|---|
| A | 3 | 19,000 square feet | 6 feet | 2.6 acre-feet |
| B | 4 | 21,000 square feet | 6 feet | 2.9 acre-feet |

Table 5-8-2 below provides a summary of the Detention Basin Analysis for each outlet structure associated with Proposed Project Option 1. The table provides the tributary area, the drainage area discharge (Q), volume associated with the storm event frequency, and the velocity of the discharge.

**Table 5-8-2 Summary of Outlet Structures #1 and #2 – Option 1**

| | Existing Condition | Proposed Condition without Mitigation | Difference (Proposed-Existing) | Proposed Condition with Mitigation |
|---|---|---|---|---|
| Structure #1 | | | | |
| Area (acres) | 676.4 | 677.2 | 0.8 | 677.2 |
| Q 25 cubic feet per second | 1041.7 | 1167.7 | 126.0 | 1041.7 |
| Q 100 cubic feet per second | 1393.6 | 1551.2 | 157.6 | 1393.6 |
| Vol. 25 (acre-feet) | 165.2 | 135.9 | -29.2 | 135.9 |
| Vol. 100 (acre-feet) | 288.9 | 252/2 | -36/7 | 252.2 |
| Vel. 25 (feet per second) | 12.7 | 12/4 | -0.3 | 5 * |
| Vel. 100 (feet per second) | 13.7 | 13.3 | -0.4 | 5 * |
| Structure #2 | | | | |
| Area (ac.) | 206.4 | 212.5 | 6.1 | 212.5 |
| Q 25 (cfs) | 332.2 | 431.0 | 98.8 | 332.2 |
| Q 100 (cfs) | 444.5 | 561.6 | 117.1 | 444.5 |
| Vol. 25 (acre-feet) | 52.3 | 45.2 | -7.1 | 45.2 |
| Vol. 100 (acre-feet) | 91.2 | 80.8 | -10.3 | 80.8 |
| Vel. 25 (feet per second) | 10.2 | 69.5 | 59.3 | 5 * |
| Vel. 100 (feet per second) | 11.0 | 73.8 | 62.8 | 5 * |

*Energy Dissipater and erosion protection rip rap shall be designed in Final Engineering to lessen the velocity in proposed condition with mitigation.

The table shows that with the detention/debris basins (#3 and #4), as designed, the discharge velocity will be reduced to slower than the existing condition through incorporation of an energy dissipater and an erosion protection rip-rap pad located prior to the storm water flow exiting from the outlet structure. The area associated with Outlet Structure #2 is increased by 6.1 acres, because with implementation of the Proposed Project, 6.1 acres that currently drain into Blue Mud Canyon will be graded to drain through the development.

An analysis of the 10-year, 24-hour storm event was also conducted. The difference in peak flow for the worst case scenario is the 10-year 24-hour event at 174 cfs between the proposed and existing conditions. Comparing the proposed and existing condition hydrograph results in a detention volume of 5.5 acre-feet to mitigate the peak flow, as reflected in Table 5-8-1 above. As shown in Table 5-8-1, Detention/Debris Basin #3 with a volume capacity of 2.6 acre-feet and Detention/Debris Basin #4 with a volume capacity of 2.9 acre-feet are designed to provide a capacity of 5.5 acre-feet.

Option 1 facilities include four WQMP basins that incorporate Low Impact Development (LID) techniques to treat pollutants and HCOC that safely bypass the large storm events with a storm drain pipe. Refer to Section 5.8.4.8, Low Impact Development Features (page 5-376) for a description of WQMP basins.

### b. Option 2 - Facilities Description

The storm water flows will enter the Project Site at upper elevations from off-site canyons and will be directed to four proposed debris basins. Basin #3 will serve as a debris/detention basin. Privately maintained street catch basins on-site will connect to the publicly maintained on-site storm drain system. The Option 2 storm drain system proposes to exit the Project Site in a pipe or reinforced concrete box culvert under the extension of Aspen Way at the flow line of the existing canyon, as shown on Exhibit 5-88 – Proposed Storm Drain Facilities, Option 2. The outlet structure will include an energy dissipater and erosion protection rip-rap pad designed per Orange County Public Works guidelines to reduce the discharge velocity to slower than the existing condition to lessen the potential for erosion of the downstream open space property in the City. With the construction of the outlet structure the Proposed Project will not erode the downstream canyon.

The proposed drainage area at the local point of discharge from the Project Site comprises 610.1 acres and generates 1,445 cfs in the 100-year storm event, 1,090 cfs in the 25-year storm event, and 857 cfs in the 10-year storm event which is conveyed through the site and exits from the culvert under Aspen Way. This corresponds generally to a 1.41 ratio between the peak flow rate and the drainage area for the 10-year storm event which is below the master planned ratio. In fact, the master plan predicted more development in this tributary area than is currently proposed. Therefore, the proposed discharge from the Project Site is in conformance with the Master Plans.

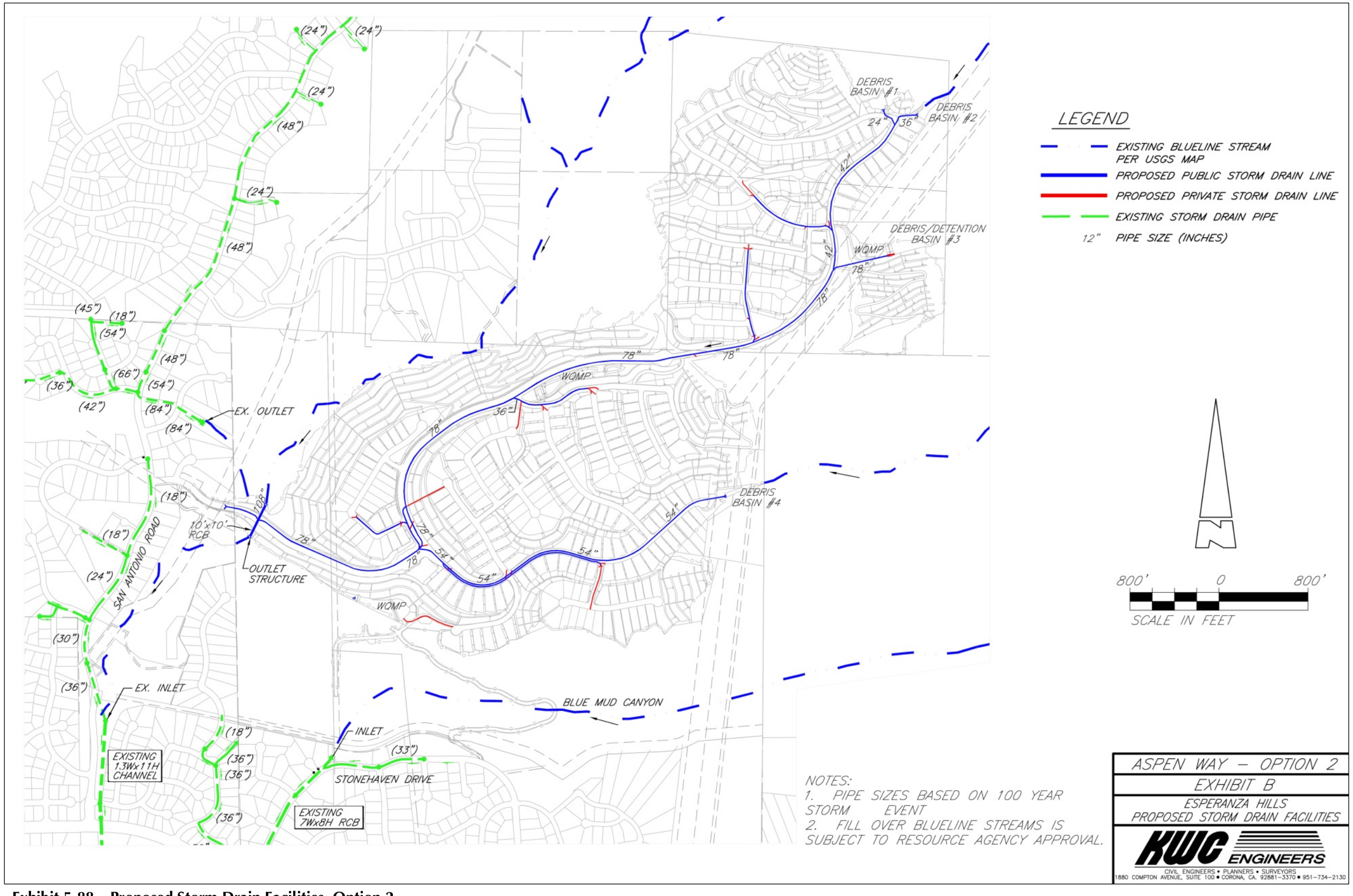



**Exhibit 5-88 – Proposed Storm Drain Facilities, Option 2**

Detention Basin #3 shall be designed to reduce volume and velocity of storm water runoff from higher off-site areas as it enters the Proposed Project Site. The detention basin will include a restricted outlet riser designed to Orange County Public Works standards.

Table 5-8-3 identifies the basin area, depth, and volume of storm water provided by the detention basin detention volume of 5.1 acre-feet to mitigate the peak flow.

**Table 5-8-3 Detention Basin Summary, Option 2**

| Tributary Area | Basin # | Area of Basin | Depth of Basin | Volume Provided |
|---|---|---|---|---|
| A | 3 | 28,000 square feet | 8 feet | 5.1 acre-feet |

Table 5-8-4 provides a summary of the Detention Basin Analysis for the outlet structure associated with Proposed Project Option 2. The table provides the tributary area, the drainage area discharge (Q), volume associated with the storm event frequency, and the velocity of the discharge.

**Table 5-8-4 Detention Basin Analysis, Option 2**

| | Existing Condition | Proposed Condition without Mitigation | Difference (Proposed-Existing) | Proposed Condition with Mitigation |
|---|---|---|---|---|
| Area (acres) | 610.1 | 610.1 | 0 | 610.1 |
| Q 25 (cubic feet per second) | 991.1 | 1,148.3 | 157.2 | 991.1 |
| Q 100 (cubic feet per second) | 1,352.3 | 1,269.3 | -83.0 | 1,269.3 |
| Vol. 25 (acre-feet.) | 113.7 | 122.3 | 8.6 | 113.7 |
| Vol. 100 (acre-feet) | 221.9 | 226.3 | 4.4 | 221.9 |
| Vel. 25 (feet per second) | 11.7 | 54.5 | 42.8 | 5 * |
| Vel. 100 (feet per second) | 12.6 | 59.3 | 46.7 | 5 * |

*Energy dissipater and erosion protection rip rap pad shall be designed in Final Engineering to lessen velocity in proposed condition with mitigation.

The table shows that with Detention/Debris Basin #3 the storm water discharge characteristics are the same or less when compared to the existing condition. The storm water velocity has been reduced with the incorporation of an energy dissipater and an erosion protection rip rap pad that is located prior to the storm water flow exit from the outlet structure.

The differences in volume in acre-feet between 25-year 24-hour storms and 100-year 24-hour storms are minor with the proposed condition a little more than the existing condition. However, the difference in flow increases by 157.2 cfs in the 25-year 24-hour storm. Therefore, a detention basin is required.

Comparing the proposed and existing condition hydrograph results in a detention volume of 5.1 acre-feet to mitigate the peak flow. As indicated in Table 5-8-3 above, Basin #3 has been designed to provide a detention capacity of 5.1 acre-feet.

## 2. On-Site Storm Drain System

The on-site storm drain system for Option 1 and Option 2 shall be owned and maintained by Orange County Public Works. If annexation of the Proposed Project Area into the City of Yorba Linda occurs, the ownership of the on-site storm drain systems would transfer to the City. Preliminary on-site drainage facilities for the Proposed Project were calculated by the rational method hydrology program and are presented in Table 5-8-5, Summary of Drainage Facilities, Option 1 and Table 5-8-6, Summary of Drainage Facilities, Option 2. The estimated sizes of these facilities and their approximate locations are intended for conceptual purposes only and will be refined in the design review and final engineering process. Pipe sizes from the debris basins are based on the 100-year storm event. Pipes were designed as reinforced concrete pipe in an open channel flow condition. Hydraulic calculations will be performed in the final engineering phase of the Proposed Project once an access option has been selected for the project.

Table 5-8-5 provides a description of proposed drainage facilities and the maintenance responsibilities for Option 1.

**Table 5-8-5 Summary of Drainage Facilities, Option 1**

| Type of Storm Drain Facility | Street Name | Approximate Length of Facility | Approximate Size of Facility | Maintenance Responsibility |
|---|---|---|---|---|
| Debris Basins (3) | - | - | 3± acres total | HOA |
| Detention / Debris Basin #3 | - | - | 10.33 acre park | HOA |
| Water Quality Basins (4) | - | - | 3± acres total | HOA |
| SD Pipe | Outlet Structure #1 to Debris Basin #3 | 4710’ | 78’ | OCPW* |
| SD Pipe | “S” Street | 720’ | 24” – 36” | OCPW* |
| SD Pipe | “X” Street | 770’ | 24” – 36” | OCPW* |
| SD Pipe | “W” Street | 1540’ | 42”‘ | OCPW* |
| SD Pipe | “EE” Street | 810’ | 18” – 30” | OCPW* |
| SD Pipe | “W” Street to Debris Basin #1 | 170’ | 24” | OCPW* |
| SD Pipe | “W” Street to Debris Basin #2 | 240’ | 36” | OCPW* |
| SD Pipe | Outlet Structure #2 to Esperanza Hills Pkwy. | 1360’ | 54” | OCPW* |
| SD Pipe | Esperanza Hills | 440’ | 30” – 36” | OCPW* |
| SD Pipe | “B” & “C” Streets | 460’ | 18” – 24” | OCPW* |
| SD Pipe | “G” & “K” Streets | 3130’ | 54” | OCPW* |
| SD Pipe | “G” Street | 1600’ | 24” – 36” | OCPW* |
| SD Pipe | All other laterals and catch basins | - | 18” | OCPW* |
| SD Pipe | All pipes to & from WQ basins | - | 18” | OCPW* |

* Pending approval from Orange County Public Works

Table 5-8-6 provides a description of proposed drainage facilities and the maintenance responsibilities for Option 2.

**Table 5-8-6 Summary of Drainage Facilities, Option 2**

| Type of Storm Drain Facility | Street Name | Approximate Length of Facility | Approximate Size of Facility | Maintenance Responsibility |
|---|---|---|---|---|
| Debris Basins (3) | - | - | 3± acres total | HOA |
| Detention/Debris Basin #3 | - | - | 10.33 acre park | HOA |
| Water Quality Basins (4) | - | - | 3± acres total | HOA |
| Box Culvert | Aspen Way | 300' | 20' X 10' | OCPW* |
| SD Pipe | Aspen Way | 355' | 18" + 2 CBs | OCPW* |
| SD Pipe | Aspen Way | 1600' | 78" | OCPW* |
| SD Pipe | "G" & "K" Streets | 3130' | 54" | OCPW* |
| SD Pipe | "G" Street | 1590' | 30"' | OCPW* |
| SD Pipe | "B" & "C" Streets | 540' | 18" – 24" | OCPW* |
| SD Pipe | Esperanza Hills Parkway | 450' | 18" – 30" | OCPW* |
| SD Pipe | Esperanza Hills Parkway to Debris Basin #3 | 5690' | 78" | OCPW* |
| SD Pipe | "S" Street to | 710' | 18" - 36" | OCPW* |
| SD Pipe | "X" Street | 840' | 24" - 36" | OCPW* |
| SD Pipe | "W" Street | 1520' | 42" | OCPW* |
| SD Pipe | "W" Street to Debris Basin #2 | 240' | 30" – 36" | OCPW* |
| SD Pipe | "W" Street to Debris Basin #1 | 170' | 24" | OCPW* |
| SD Pipe | All other laterals and catch basins | - | 18" | OCPW* |

* Pending approval from Orange County Public Works

Catch basins and storm drain laterals were placed at locations to keep the 25-year storm event flow below the top of curb and the 100-year storm event flow below the right-of-way. Catch basins are also placed in locations so that a single 21-foot-long (the largest size) catch basin can collect a majority of the projected street flow without bypassing to the next downstream catch basin. Preliminary sizing calculations are included in the Drainage Reports (Appendix K). Catch basins will be sized in the final engineering phase of the project once an access option has been selected for the project. The Proposed Project has been designed appropriately to meet the required design criteria.

### 3. Street Capacity

Preliminary on-site street capacity for Option 1 and Option 2 were calculated using the computer program FlowMaster by Bentley. The street sections as shown on the TTM that range from 44 to 90 feet were analyzed with variable street grades (1% to 10%). Flow to the top of curb was determined for the 25-year storm event street capacity and flow to the right of way was determined for the 100-year storm event, for the full street and the half street. The storm drain mainline pipes are sized for the 100-year storm event; therefore, the street will only contain local flows until catch basins intercept the 100-year storm event flow. The street capacity analysis with the rational method flows determined that the street sections are sufficient to meet the street capacity criteria established by Orange County Public Works. The street capacity is

also capable of conveying the flow in the unlikely situation that the proposed underground water reservoirs were to rupture. The Proposed Project street capacity has been designed to contain the predicted storm event design criteria.

## 4. Hydrological Conditions – Post-Development

The Proposed Project has been designed per the Orange County Public Works standards for local storm drain systems. Peak flows were calculated per the 1986 Orange County Hydrology Manual, Modified Rational Method and runoff volumes were calculated using the Unit Hydrograph Method. The CivilD 2005 computer software was used to generate the models and aerial topography was used to create the hydrology maps. Debris basins were sized using the ACOE Los Angeles District Method.

The conceptual drainage and water quality design features for the Proposed Project include the following. Any differences between Option 1 and Option 2 are identified.

- Debris Basins – Off-site storm water from the upper eastern canyons will flow into four debris basins which will be maintained by the HOA. Local private storms drain laterals will connect into the public mainline system.
- WQMP basins will include a Sediment Forebay, a level spreader dirt berm, sand and gravel layers, perforated underdrains, and an outlet structure. The outlet structure, a concrete box of CMP riser with a grate at the top, will allow the two-year volume to be treated and will provide for overtopping relief of the basin.
- Detention Basins – Basins #3 and #4 in Option 1 and Basin #3 in Option 2 will serve as detention basins for the site, sized large enough to detain the increase in peak flow from 10-year, 25-year, and 100-year storm events associated with the development. The detention basin will include a restricted outlet riser designed per Orange County Public Works standards.
- Bypass manholes will divert the two-year flow to private pipes discharging into private WQMP basins to treat the urban runoff for water quality requirements prior to connecting back to the on-site public storm drain system, while higher flows will continue down the storm drain pipe.
- Storm Drain Mainline Pipes – Public storm drain pipes within private streets designed per Orange County Public Works guidelines, will convey the 100-year storm event flow southwesterly within the project. The storm drain mainline pipes are proposed to be maintained by Orange County Public Works.
- Private Storm Drain Lateral Pipes – Local private storm drain laterals will connect curb opening catch basins to the public mainline. The private storm drain laterals, including pipes from the WQMP basins and catch basins will be maintained by the HOA.

- Storm flows and treated two-year flows will discharge out the storm drain system via energy dissipaters into existing channels.
- Outlet Structure –At the outlet of the public storm drain system an energy dissipater and erosion protection rip-rap pad designed per Orange County Public Works and other agency standard guidelines will reduce the discharge velocity to slower than the existing condition to reduce the potential for erosion of the downstream properties of the proposed Cielo Vista project and the City of Yorba Linda Open Space. With the construction of the outlet structure(s), the Proposed Project will not erode the downstream canyon.

Storm water discharge from the storm drain will flow through the existing downstream natural canyon prior to flowing into the existing Orange County Flood Control facility E06, a 13′ wide by 11′ high reinforced concrete box located southwest of the Project Site adjacent to San Antonio Road.

## 5. Summary of Drainage System Designs

The difference in the two options concerning drainage system design is summarized below.

- Option 1 proposes to outlet the public storm drain mainline at two locations into existing natural canyons prior to the property boundary. At the outlet of the public storm drain systems, an energy dissipater and an erosion protection rip-rap pad designed per Orange County Public Works and other agency standard guidelines will reduce the discharge velocity to slower than the existing. Option 1 has two detention basins of 19,000 square feet with a capacity of 2.6 acre-feet and 21,000 square feet with a capacity of 2.9 acre-feet, as described in Table 5-8-1 on page 5-363).
- Option 2 proposes a storm drain mainline to one outlet into an existing natural canyon at the downstream end of the proposed culvert at the extension of Aspen Way. At the outlet of the public storm drain system, an energy dissipater and an erosion protection rip-rap pad designed per Orange County Public Works and other agencies' standard guidelines will reduce the discharge velocity to slower than the existing. Option 2 has one detention basin of 28,000 square feet with a capacity of 5.1 acre-feet.

## 6. Short-Term Construction Impacts to Water Quality

Approximately 15 to 16 million cubic yards of remedial grading associated with the Proposed Project for the development of residential, open space, and park pads along with supporting roadway grades will occur during the construction phase of the Proposed Project. The removal of native vegetation will be associated with grading, and the potential exposure of large areas of barren soil will result in the increase in erosion and sedimentation impacts on down-gradient streams, thereby increasing the deposition of sediment runoffs into drainage channels and ending up in storm drain

systems. Erosion impacts are most serious along freshly graded slopes during the rainy season.

Grading may expose drilling muds from abandoned oil wells that may include contaminants. Mitigation measures to address soil contaminants from oil well operations are included in Section 5.7, Hazards and Hazardous Materials (beginning on page 5-275) and are included herein. It is anticipated that the grading will be balanced on-site; therefore, no import of soil is anticipated during grading operations. The potential for increased erosion and sedimentation will occur as a result of substantial amounts of cut, fill, and grading activities as the direct result of the proposed development. Construction of residential homes, the gate house, and utilities will also have short-term construction impacts on water quality. Table 5-8-7 below provides a list of potential short-term construction impacts by potential pollutant category.

**Table 5-8-7 Potential Pollutants from Construction Activities**

| Activity | Potential Pollutant Category | | |
|---|---|---|---|
| | Sediment/ Erosion | Non-Sediment | Non-Storm Water |
| Demolition of existing structures | X | X | |
| Earthwork (e.g., grading; trenching; and excavation, import, export and stockpiling of soil) | X | | |
| Construction of erosion control measures (e.g., desilting basins, storm drain system, sand bag dikes) | X | X | |
| Underground Utility Installation | X | X | |
| Concrete waste management (including rock crushing and concrete or pavement recycling) | X | X | |
| Street sweeping and cleaning | X | X | X |
| Vehicle and construction equipment storage, cleaning, maintenance, fueling and stored fuel management | | X | X |
| Dewatering | | | X |
| Management of contaminated soils | X | X | |
| Solid and hazardous waste management (including disposal) | | X | |
| Material delivery and storage | X | X | |
| Portable sanitary and septic waste management | | X | |

Table 5-8-8 analyzes construction material and equipment that may have a potential to contribute to the discharge of pollutants to storm water or non-storm water discharges. General classes of materials, where applicable, are meant to include the specific.

**Table 5-8-8 Potential Construction Material and Equipment Summary**

| Material/Equipment | Potential Pollutant Category | | |
|---|---|---|---|
| | Sediment/ Erosion | Non-Sediment | Non-Storm Water |
| Concrete and concrete slurry | | X | |
| Curing compounds | | X | |
| Petroleum products | | X | |
| Natural earthen materials (including: sand, sandblast grit, gravel and topsoil) | X | X | |
| Packaging materials | | X | |
| Paints and solvents | | X | |
| Plaster and other products | | X | |
| Construction debris | | X | |
| Cleaning solutions and detergents | | X | |
| Air conditioning condensate | | X | X |
| Acids | | X | |
| Antifreeze | | X | |
| Adhesives | | X | |
| Portable toilet waste | | X | |
| Waste water from dewatering operations | | X | X |
| Equipment parts and fluids (inducing hydraulic fluid and batteries) | | X | |
| Domestic wastes, food containers and cigarettes | | X | |
| Demolition equipment | X | X | |
| Earth moving equipment (including: bulldozers, scrapers and compactors) | X | X | |
| Water Trucks | X | X | X |
| Concrete trucks | X | X | |
| Street cleaning trucks (including sweepers) | X | X | X |
| Delivery and material trucks | X | X | |
| Cranes | X | X | |
| Personal vehicles | X | X | |

## 7. Construction Best Management Practices

Prior to the start of grading activities, an SWPPP must be prepared and submitted to the County that addresses two major objectives: 1) to help identify the sources of sediment and other pollutants that affect the quality of storm water discharges; and 2) to describe and ensure the implementation of Best Management Practices (BMPs), such as scheduling of construction activities, maintenance procedures, education/training, and other management practices that reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges.

BMPs collectively refer to a variety of pollution prevention controls and design techniques implemented throughout the Project Site at various times of the project. BMPs are specifically aimed at controlling pollution in storm water runoff during the construction phase of the project. The major construction BMP categories are Erosion

Control, Sediment Control, Wind Erosion Control, Tracking Control, Non-Storm Water Management, and Waste Management and Materials Pollution Controls. Table 5-8-9 below discusses the titles and basic description of BMPs that might be used on the Project Site to control erosion, sediment, tracking, wind erosion during construction activities.

**Table 5-8-9 Sediment and Erosion Control BMPs**

| Best Management Practice* | General Description |
|---|---|
| EC 1: Scheduling | Sequencing the project to reduce the amount and duration of soil exposed. |
| EC 2: Preservation of Existing Vegetation | Controlling erosion through preserving existing trees, shrubs, and/or grasses. |
| EC 3: Hydraulic Mulch | Stabilizing soil with sprayed on mulch. |
| EC 4: Hydro seeding | Stabilizing soils with sprayed on seeding and fertilizer. |
| EC 5: Soil Binders | Chemical stabilizing materials to prevent soil erosion and dust. |
| EC 6: Straw Mulch | Detaining sediment-laden water and preventing runoff with straw mulch barriers. |
| EC 7: Geotextiles and Mats | Stabilizing soils with erosion matting of natural and synthetic materials. |
| EC 8: Wood Mulching | Stabilizing soils and erosion with wood mulching materials in area that vegetation is not appropriate. |
| EC 9: Earth Dike and Drainage Swales | Managing runoff, desilting, or channeling water with earthen berms. |
| EC 10: Velocity Dissipation Devices | Reducing runoff velocity and trapping sediment to prevent scour of the soil caused by concentrated, high velocity flows. |
| EC 11: Slope Drain | Draining slopes and channeling water with pipe drops, down drains or V-ditches. |
| EC 15: Slope Roughening/Terracing | Reducing runoff velocity and trapping sediment by creating microclimates and increasing infiltration and sedimentation. |
| EC 16: Non Vegetation Stabilization | Non-vegetative stabilization methods are used for temporary or permanent stabilization of areas prone to erosion and should be used only where vegetative options are not feasible. |
| SE 1: Silt Fence | Detaining sediment-laden water with, primarily, fabric fencing or fencing combined with sandbags. |
| SE 2: Sediment Basin | Retaining and detaining sediment laden water. |
| SE 3: Sediment Trap | Providing sedimentation with excavated bermed areas. |
| SE 4: Check Dams | Reducing the velocity of water with berms and sandbag dikes. |
| SE 5: Fiber Rolls | Intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide removal of sediment from the runoff. |
| SE 6: Gravel Bag Berms | Intercepts and slows sheet flow runoff, causing temporary ponding |
| SE 7: Street Sweeping and Vacuuming | Reduces dust and sediments from entering receiving waters. |
| SE 8: Sand Bag Barriers | Detaining sediment-laden water and preventing hazardous material runoff with sandbag barriers. |
| SE 9: Straw Bale Barriers | Detaining sediment-laden water with straw bales. |
| SE 10: Storm Drain Inlet Protection | Stabilizing drain outlets with rock and other velocity and erosion reducing devices. |
| SE 13: Compost Stock Berms | Three-dimensional biodegradable filtering structures to intercept runoff where sheet flow occurs |
| SE 14: Biofilter Bags | Detaining flow and allowing a slow rate of discharge through the wood media |
| TC 1: Stabilizing Entrance and Exit | Stabilizing points of ingress and egress and points where paved and unpaved roads meet. |
| TC 2: Stabilizing Construction Roadways | Stabilizing vehicle routes through watering, berms or paving. |
| TC 3: Entrance Outlet Tire Wash | Stabilizing construction access points to remove sediment from tires and under carriages and to prevent sediment from being transported onto public roadways. |
| WE 1: Wind Erosion Control | Controlling fugitive dust through, primarily, watering exposed areas. |

EC = erosion control, SE = sediment control, TC = tracking control, WE = wind erosion control

Table 5-8-10 discusses the titles and basic descriptions of the BMPs that might be used on the Project Site to control non-storm water pollutants and waste management and materials pollution controls (typically, BMPs that deal with contractor activities and practices during construction activities.)

**Table 5-8-10 Non-Storm Water and Waste Management BMPs during Construction**

| Best Management Practice* | General Description |
|---|---|
| NS 1: Water Conservation Practices | Water conservation practices are activities that use water during the construction of a project in a manner that avoids causing erosion and the transport of pollutants off-site. These practices can reduce or eliminate non-storm water discharges. |
| NS 2: Dewatering Operations | Regulates disposal of non-storm water |
| NS 3: Paving Operations | Requires runoff prevention, proper disposal of wastes and employee training |
| NS 4: Temporary Stream Crossing | A temporary stream crossing is a temporary culvert, ford, or bridge placed across a waterway to eliminate erosion and downstream sedimentation caused by vehicles. |
| NS 5: Clear Water Diversion | Clear water diversion consists of a system of structures and measures that intercept clear surface water runoff upstream of a project, transport it around the work area, and discharge it downstream with minimal water quality degradation from either the project construction operations or the construction of the diversion. |
| NS 6: Illicit Connection/Discharge | Procedures and practices designed for construction contractors to recognize illicit connections or illegally dumped or discharged materials on a construction site and report incidents. |
| NS 8: Vehicle and Equipment Cleaning | Requiring off-site cleaning |
| NS 9: Vehicle and Equipment Fueling | Requires off-site fueling, when possible. Requires on-site fueling in designated or secured areas, discouraging on-site fuel storage, implementing spill controls and requiring employee training. |
| NS 10: Vehicle and Equipment Maintenance | Compelling off-site maintenance, if possible, on-site maintenance in designated or secured areas, cover for materials stored outside, inspection for leaks and spills, immediate containment of leaks and spills and employee training. |
| NS 12: Concrete Curing | Discharges of storm water and non-storm water exposed to concrete during curing may have a high pH and may contain chemicals, metals, and fines. Requires procedures and employee training. |
| NS 13: Concrete Finishing | Storm water and non-storm water exposed to concrete finishing by-products may have a high pH and may contain chemicals, metals, and fines. Proper procedures and implementation of appropriate BMPs can minimize the impact that concrete-finishing methods may have on storm water and non-storm water discharges. |
| WM 1: Material Delivery | Requiring minimization of materials stored on-site, storage of materials in stabilized or secured areas, storage of certain materials in secondary containment, and employee training. |
| WM 2: Material Use | Compelling use of alternative products, minimizing of hazardous material use and employee training. |
| WM 3: Stockpile Management | Stockpile management procedures and practices are designed to reduce or eliminate air and storm water pollution from stockpiles of soil, soil amendments, sand, paving materials such as Portland cement concrete (PCC) rubble, asphalt concrete (AC), asphalt concrete rubble, aggregate base, aggregate sub base or pre-mixed aggregate, asphalt minder (so called “cold mix” asphalt), and pressure treated wood. |
| WM 4: Spill Prevention Control | Prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees. |
| WM 5: Solid Waste Management | Requiring designated waste collection areas, and when possible, the regular and proper disposal of materials and employee training. |
| WM 6: Hazardous Waste Management | Compelling the minimization of hazardous material use, proper disposal of hazardous materials and employee training. |
| WM 7: Contaminated Soil Management | Requiring the detection, treatment, and/or disposal of contaminated soils. |
| WM 8: Concrete Waste management | Requiring off-site washout areas, when possible, designated and secured on-site washout areas and employee training. |

| Best Management Practice* | General Description |
|---|---|
| WM 9: Sanitary/Septic Waste Management | Requiring the provision of convenient and well-maintained facilities, placement of those facilities away from paved areas or in secured areas, and provision of regular service and disposal. |
| WM 10: Liquid Waste Management | Liquid waste management includes procedures and practices to prevent discharge of pollutants to the storm drain system or to watercourses as a result of the creation, collection, and disposal of non-hazardous liquid wastes. |

NS = non-storm water, WM = waste management

## 8. Low Impact Development Features

The Proposed Project has been designed to incorporate Low Impact Development (LID) techniques by designing the site grading to respect the existing drainage boundaries for each canyon, to provide for WQMP basins to treat pollutants and HCOC, and to safely bypass the large storm events with a storm drain pipe. The Simple Method Runoff Coefficient for Volume-Based BMP Sizing was used to calculate the design storm capture volume for each of the five drainage management areas (DMA) within the development area of the Proposed Project. Table 5-8-11 summarizes the characteristics of each DMA for each option.

**Table 5-8-11 Drainage Management Area Characteristics**

| | Basin | Area (acres) | Impervious Ratio | Design Capture Volume (acre-feet) |
|---|---|---|---|---|
| Option 1 | 1 | 60.3 | 0.24 | 1.49 |
| | 2 | 45.0 | 0.23 | 1.08 |
| | 3 | 55.7 | 0.29 | 1.53 |
| | 4 | 107.1 | 0.28 | 2.90 |
| | 5 | 6.6 | 0.56 | 0.50 |
| Option 2 | 1 | 60.3 | 0.24 | 1.49 |
| | 2 | 45.0 | 0.23 | 1.08 |
| | 3 | 55.7 | 0.29 | 1.53 |
| | 4 | 118.0 | 0.26 | 3.05 |
| | 5 | 6.6 | 0.56 | 0.31 |

Due to the steepness of the site grading, with most proposed streets above 5% grade, BMPs that require flatter grades could not be used. In consideration of the landslide potential of the steep existing and proposed slopes on-site, the earthwork required to grade the site, the shallow bedrock on-site, and the site primarily consisting of Type D soils, infiltration BMPs are not feasible for this project. Therefore, Dry Extended Detention Basins were chosen as the primary BMP for treatment of the hydrology conditions of concern (HCOC).

Dry extension detention basins are designed to detain the volume of storm water runoff from a water quality design storm for a minimum of 48 hours to allow particles and associated pollutants to settle. Additional pollutant removal is provided by maximizing the opportunity for the volume to infiltrate, evaporate, and surface wet. Unlike wet ponds, these facilities do not have a large permanent pool. Storm water enters the basin through a forebay where any trash, debris, and sediment accumulate for easy removal. The Proposed Project includes formation of an HOA that will be

responsible for compliance with the CWQMP as identified in Table 5-8-5 (page 5-368) and Table 5-8-6 (page 5-369). Flows from the forebay enter the basin, which will be vegetated with native shrubs, plants, and small trees to create an ecological garden for local residents to enjoy. Low flows or incidental dry weather flows will be conveyed to the basin bottom to be treated and absorbed through an engineered soil mulch layer designed to filter and absorb pollutants so they do not enter the gravel and the sub-drain layer that connects to the storm drain system. Any additional flows will be detained in the basin for an extended period by incorporation of an outlet structure that is more restrictive to extend the drawdown times, which results in further settlement of particles.

Exhibit 5-89– Esperanza Hills CWQMP Best Management Practices – Option 1, Stonehaven Drive and Exhibit 5-90– Esperanza Hills CWQMP Best Management Practices Exhibit – Option 2, Aspen Way provide the graphic area of each DMA and the locations of proposed water quality detention basins. The drainage design includes the following features:

- Existing upstream canyons will drain into four proposed debris basins that serve as the upstream end of the on-site storm drain system. One of these basins will be designed as the detention basin to mitigate the 10-, 25-, and 100-year storm events.
- Street catch basins on-site connect to an on-site public storm drain system.
- Bypass manholes will divert the two-year flow to private pipes discharging into private WQMP basins to treat the urban runoff for water quality requirements prior to connecting back to the on-site public storm drain system while higher flows will continue down the storm drain pipe
- WQMP basins will include a sediment forebay, a level spreader dirt berm, sand and gravel layers, perforated under-drains, and an outlet structure. The outlet structure, a concrete box or a CMP riser with a grate at the top, will allow the two-year volume to be treated and will provide for overtopping relief of the basin.
- Storm flows and treated two-year flows will discharge out of the storm drain system via energy dissipaters into existing channels.

The proposed WQMP basins are designed to capture the storm water volume as represented by the design capture volume (DCV). Table 5-8-12 below demonstrates that 75% of the DCV can be met by the WQMP basins and 25% of the DCV can be met in the sediment forebay for each option.

**Table 5-8-12 Design Capture Volume**

| | Basin | Basin Area (square feet) | Basin Depth (feet) | Basin Volume (acre-feet) | 75% DCV (acre-feet) |
|---|---|---|---|---|---|
| Option 1 | 1 | 22,000 | 2.5 | 1.26 | 1.11 |
| | 2 | 8,700 | 5 | 1.00 | 0.81 |
| | 3 | 14,300 | 4 | 1.31 | 1.15 |
| | 4 | 12,400 | 6* | 2.18 | 2.18 |
| Option 2 | 1 | 22,000 | 2.5 | 1.26 | 1.11 |
| | 2 | 8,700 | 5 | 1.00 | 0.81 |
| | 3 | 14,300 | 4 | 1.31 | 1.15 |
| | 4 | 33,400 | 4 | 3.07 | 2.29 |
| | **Basin** | **Forebay Area (square feet)** | **Forebay Depth (feet)** | **Forebay Volume (acre-feet)** | **25% DCV (acre-feet)** |
| Option 1 | 1 | 7,000 | 2.5 | 0.40 | 0.37 |
| | 2 | 6,000 | 2.5 | 0.34 | 0.27 |
| | 3 | 6,000 | 3.0 | 0.41 | 0.38 |
| | 4 | 5,900 | 6.0 | 0.73 | 0.73 |
| Option 2 | 1 | 7,000 | 2.5 | 0.40 | 0.37 |
| | 2 | 6,000 | 2.5 | 0.34 | 0.27 |
| | 3 | 6,000 | 3.0 | 0.41 | 0.38 |
| | 4 | 20,400 | 2.5 | 1.17 | 0.76 |

*A 3.5-foot-thick gravel subgrade included to obtain the required DCV

## 9. Hydromodification Control BMPs

The Proposed Project was analyzed for HCOC impacts of increased volume, time of concentration, infiltration, and erosion between the existing and proposed conditions. The Proposed Project has been designed to collect the two-year storm within four basins, as described above. Each basin was analyzed specifically for impacts to HCOC. The total volume of runoff for the 2-year, 24-hour storm event increased from the existing to the proposed condition by 6.21 acre-feet. The time of concentration decreased from the existing condition to the proposed condition an average of seven minutes without mitigation. The infiltration potential for the Proposed Project increased from the existing condition because of the flat residential pads with landscaping, landscaped parkways along streets, and four basins allowing runoff time for infiltration. The erosion impact decreased as compared to the existing condition in steep slopes prone to erosion and landslides, and the proposed condition includes stabilized grading, landscaping, streets, and flat residential pads associated with the Project design.

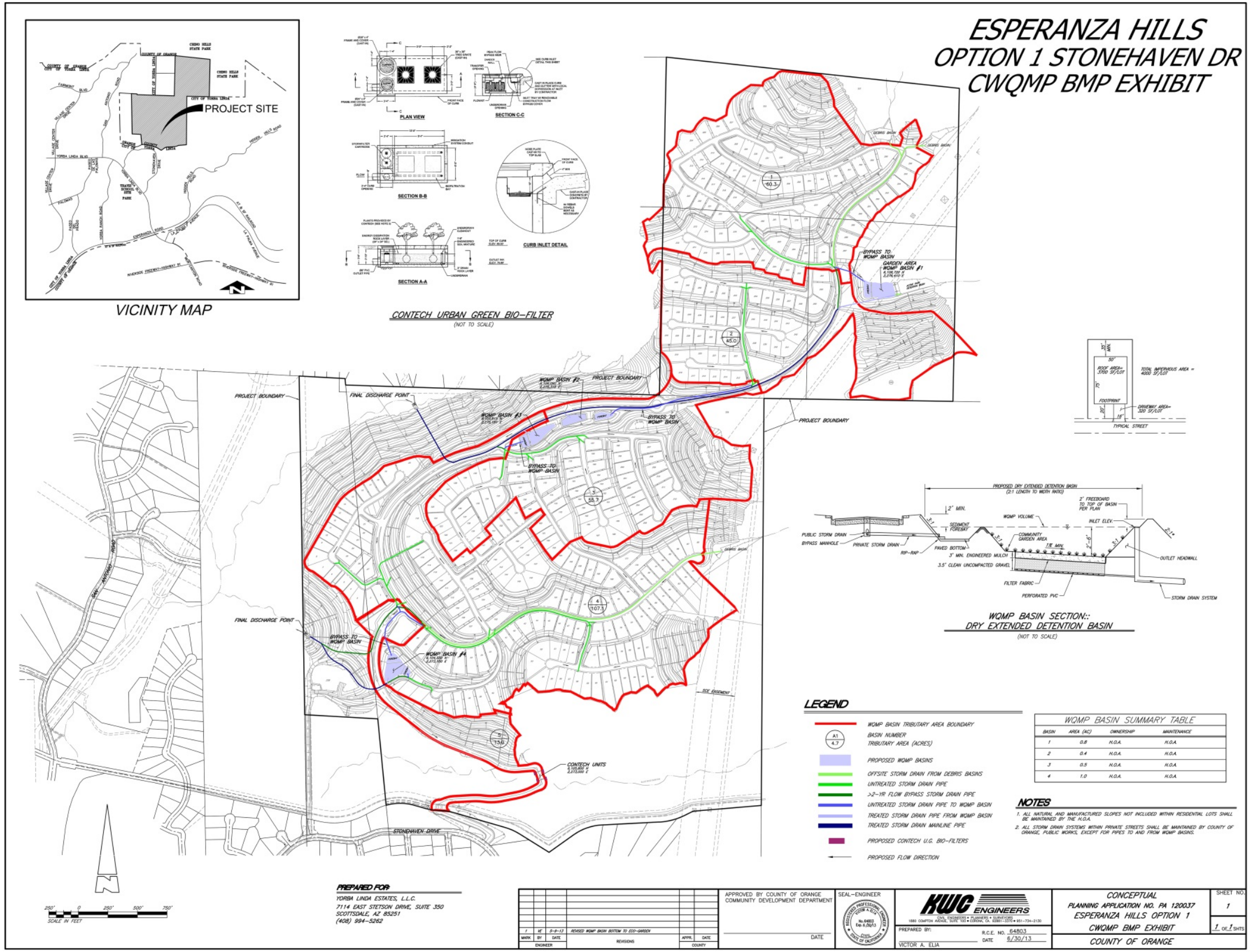



**Exhibit 5-89 – Esperanza Hills CWQMP Best Management Practices – Option 1, Stonehaven Drive**

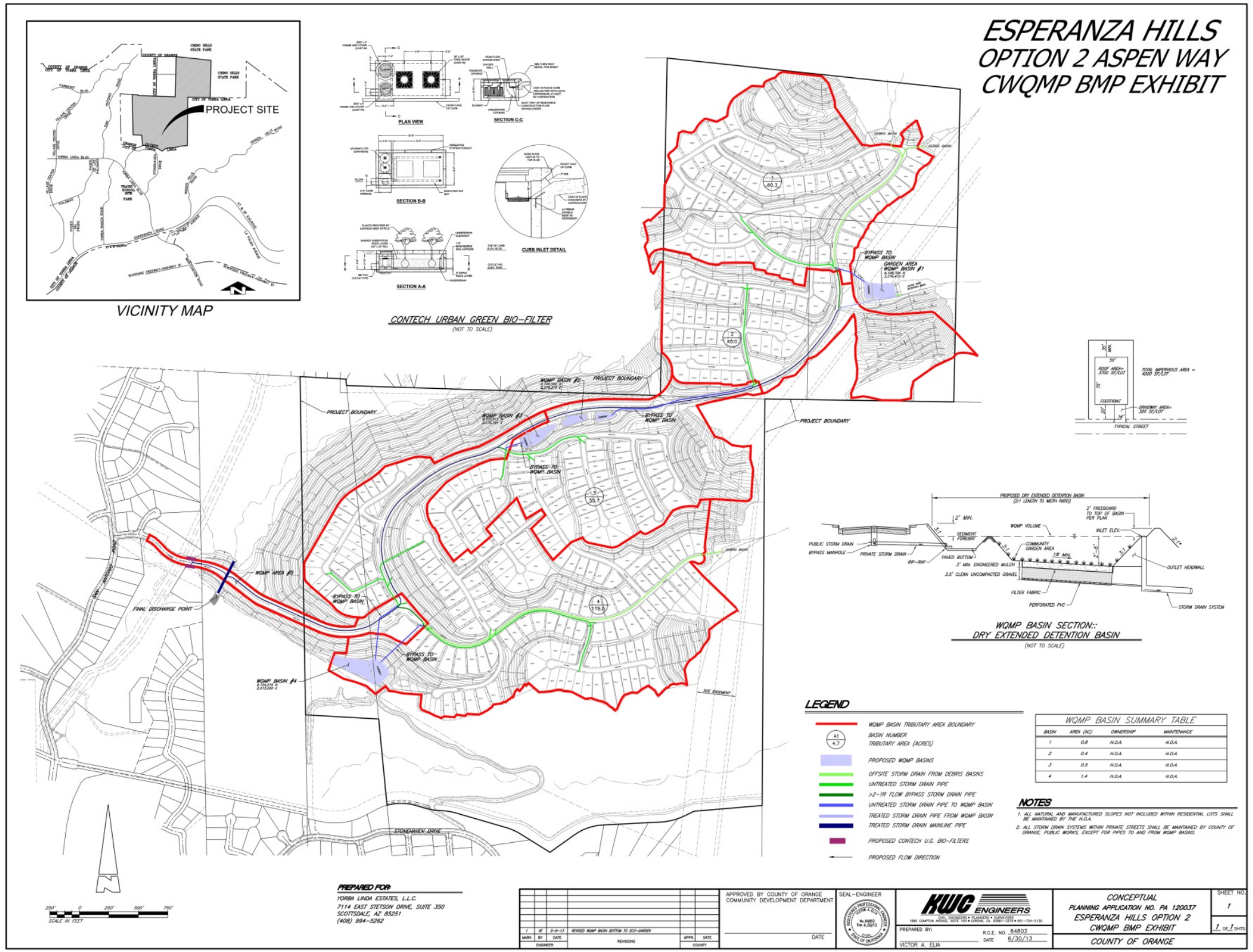



**Exhibit 5-90 – Esperanza Hills CWQMP Best Management Practices Exhibit – Option 2, Aspen Way**

As shown in Exhibit 5-91 – Conceptual WQMP Bio-Retention Basin #2, dry extended detention basins are designed to detain the volume of storm water runoff for a minimum of 48 hours to allow particles and associated pollutants to settle. Additional pollutant removal is provided by maximizing the opportunity for the volume to infiltrate, evaporate, and surface wet. Unlike wet ponds, these facilities do not have a large permanent pool. Storm water enters the basin through a forebay where any trash, debris, and sediment accumulate for easy removal. Flows from the forebay enter into the basin, which will be vegetated with native shrubs, plants, and small trees. As shown on Exhibit 5-92 – Section Dry Extended Detention Basin, low flows or incidental dry weather flows will be conveyed to the basin bottom to be treated and absorbed through an engineered soil mulch layer designed to filter and absorb pollutants so they do not enter the gravel and sub-drain layer that connects to the storm drain system. Any additional flows will be held in the basin for an extended period by incorporating an outlet structure that is sized to detain the peak flow to match the existing condition via a restricted outlet, which results in further settlement of particles.

## 10. Bio-Treatment BMP Features

Small portions of each development option cannot be treated with WQMP basins; therefore, a bio-treatment BMP is proposed.

- Under Option 1, a 13-acre tributary area that drains into Blue Mud Canyon on the south side of the Project Site consisting of the entry road and landscaped slopes does not have sufficient space for a WQMP basin; therefore, a proprietary bio-treatment BMP is proposed for this location as shown on Exhibit 5-89 – Esperanza Hills CWQMP Best Management Practices – Option 1, Stonehaven Drive (page 5-379 above) for Area 5.
- Under Option 2, Aspen Way access, the low point for the drainage areas is found in Area 5, which includes the public entry street located within Cielo Vista's property. Therefore, a BMP that fits within the street has been included in the project design to treat the street runoff prior to discharge into the natural channel downstream from the Project Site as shown on Exhibit 5-90 – Esperanza Hills CWQMP Best Management Practices Exhibit – Option 2, Aspen Way (page 5-381 above).

The proposed bio-treatment BMP for Option 1 and Option 2 is the Contech Urban-Green BioFilter, a precast concrete box with a tree and engineered mulch, to be located at the low point of the street along the curb and gutter prior to the bridge crossing in Option 1 and within the street below the curb and gutter in Option 2. The Contech Urban-Green BioFilter incorporates four levels of treatment: infiltration where the site conditions allow, bio filtration through engineered mulch, pollutant absorption from the planted tree, and media filtration to expand the capacity. For fact sheet and details, refer to "Conceptual Water Quality Management Plan" found in Appendix K of this DEIR.

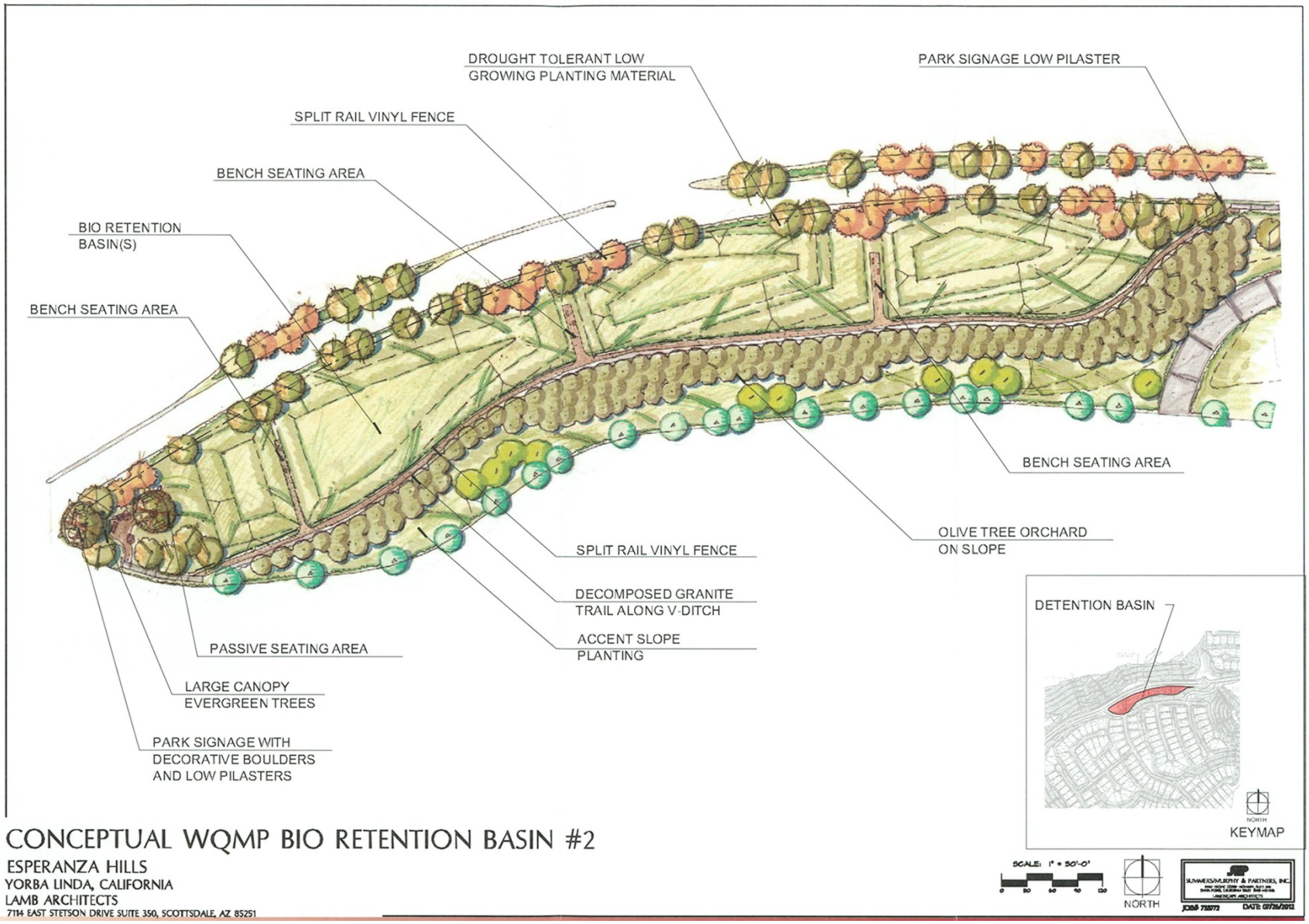



**Exhibit 5-91 – Conceptual WQMP Bio-Retention Basin #2**

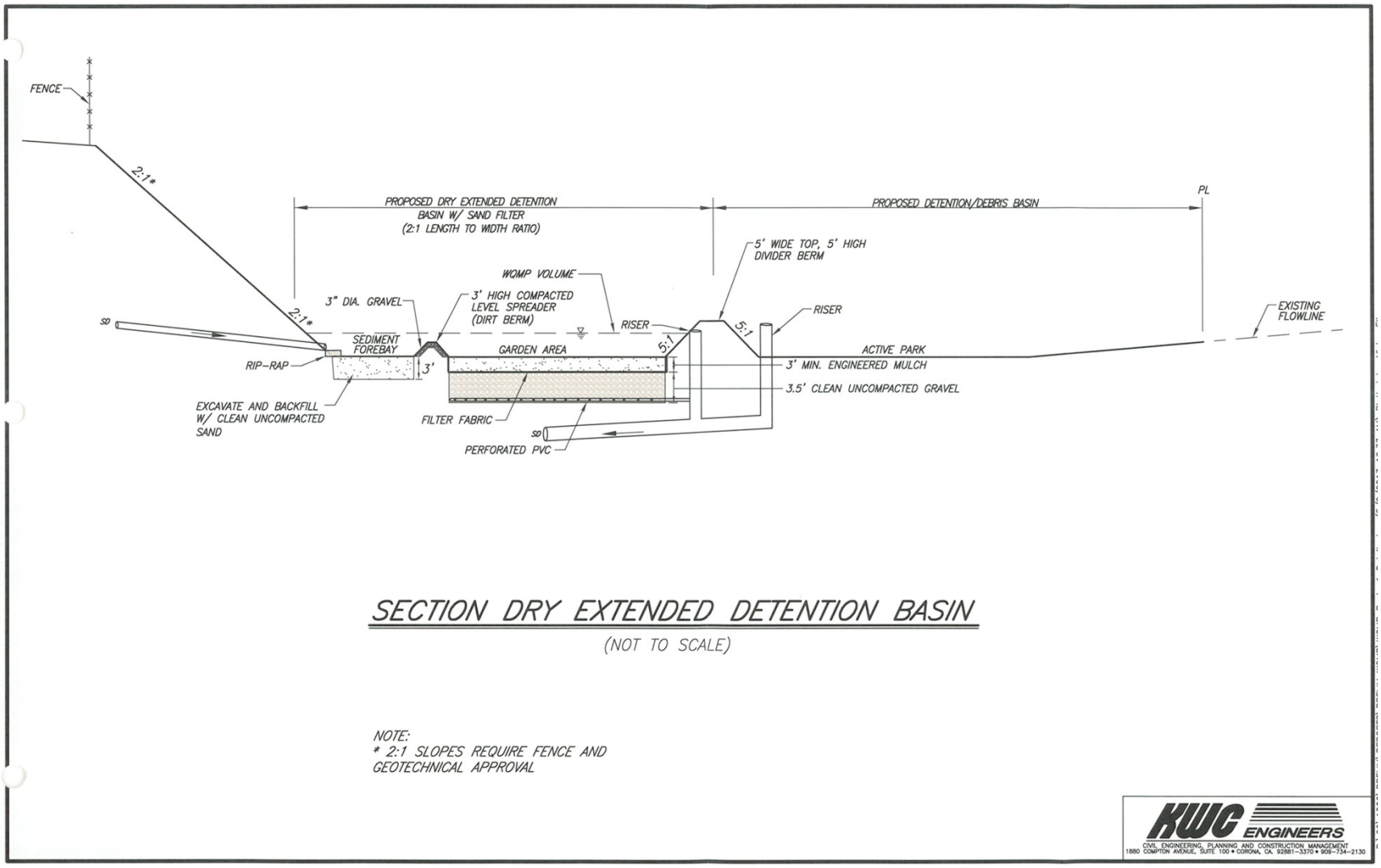



**Exhibit 5-92 – Section Dry Extended Detention Basin**

## 11. Source Control BMPs

Source control BMPs reduce the potential for storm water runoff and pollutants from coming into contact with one another. Source Control BMPs are defined as any administrative action, design of a structural facility, usage of alternative materials, and operation, maintenance, inspection, and compliance of an area that aims to eliminate or reduce storm water pollution. Table 5-8-13 and Table 5-8-14 below list applicable Structural and Non-Structural Source Control BMPs for the Proposed Project:

**Table 5-8-13 Structural Source Control Best Management Practices for Esperanza Hills Specific Plan**

| Identifier | Structural Source Control Best Management Practice |
|---|---|
| S1 | Provide storm drain system stenciling and signage |
| S4 | Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control |
| S5 | Protect slopes and channels and provide energy dissipation |
| S12 | Hillside landscaping |

**Table 5-8-14 Non-Structural Source Control Best Management Practices for Esperanza Hills Specific Plan**

| Identifier | Non-Structural Source Control Best Management Practice |
|---|---|
| N1 | Education for property owners, tenants and occupants |
| N2 | Activity restrictions |
| N3 | Common area landscape management |
| N4 | BMP maintenance |
| N11 | Common area litter control |
| N15 | Street sweeping private streets and parking lot |

A complete description of each applicable Structural and Non-Structural Source Control BMP is provided in the CWQMPs that are included in Appendix K of this DEIR. Final structural and non-structural source control BMPs that will be incorporated into the Proposed Project will be determined with the Final WQMP and incorporated into the Proposed Project's CC&Rs.

## 12. Project WQMP Basins and BMPs Maintenance

The Proposed Project includes the formation of an HOA that will be responsible for the maintenance of privately (i.e., HOA) maintained streets, parks, natural hillsides, fuel modification zones (FMZs), and landscaped slopes. The HOA will be responsible for compliance with the Final WQMP and the associated Operation and Maintenance Plan that will include maintenance of the WQMP basins and bio-treatment BMP (Contech Urban-Green Filter). Annual inspection prior to the rainy season will be required by the HOA.

### 13. Flooding/Inundation

As depicted on Exhibit 5-93 – FIRM – Flood Insurance Rate Map, Orange County, the Project Site is designated as "Zone X." Zone X flood areas have been determined to be outside the 500-year flood plain; therefore, the Project Site is not located within any flood zone. As a result, implementation of the Proposed Project will not be subjected to flooding in the event of a 100-year storm event.

There are two underground water reservoir storage tanks proposed with this project consisting of .70 MG located at 1,200 AMSL and will be constructed in Planning Area 1 and .40 MG located at elevation 1,390 AMSL and will be constructed in Planning Area 2. Since the tanks are located underground, inundation from tank rupture is not likely. However, the project designed street capacity could handle water from the underground tank reservoir without flooding. There is no impact from site inundation associated with the underground water reservoir.

## 5.8.5 Project Design Features

PDF 29 The project has been designed to treat development flows (runoff) with a dry extended detention water quality basin, while implementing the following low impact development techniques:

- Conservation of natural areas, including existing trees, other vegetation and soils
- Keeping streets at minimum standard widths
- Minimizing the impervious footprint of the project
- Minimizing disturbances to natural drainages

PDF 30 The project will be designed to include the following best management practices to promote infiltration and slow down surface flows:

- Impervious area dispersion
- Native drought-tolerant landscaping/efficient irrigation

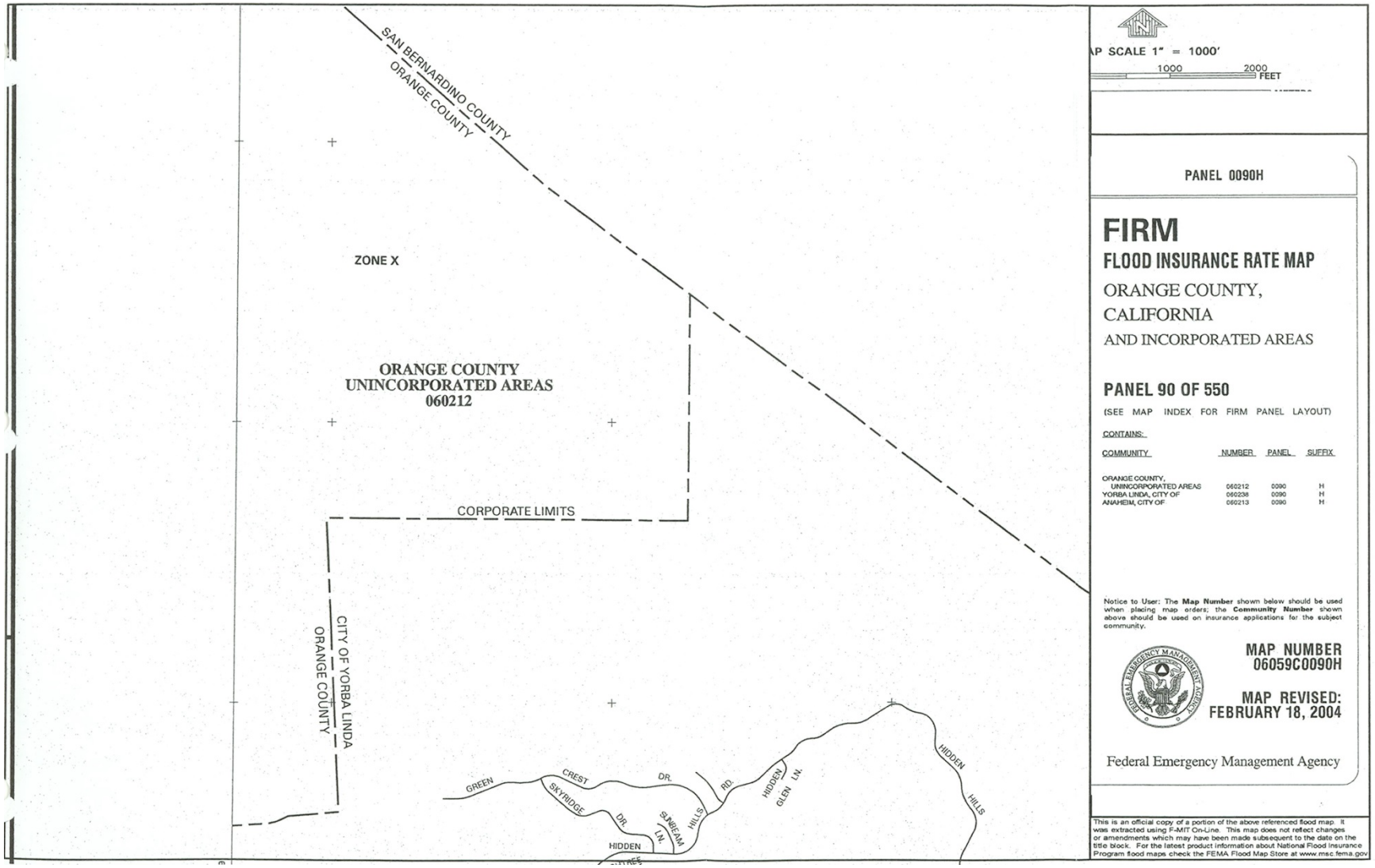



**Exhibit 5-93 – FIRM – Flood Insurance Rate Map, Orange County**

## 5.8.6 Conditions of Approval

COA-1 Prior to the issuance of grading permit, the Project Applicant shall submit the following drainage studies for approval by the County Manager, Permit Services:

1. A final drainage study of the project incorporating the Preliminary Drainage Report for Esperanza Hills Property drainage features pursuant to the approved development option; and

2. Detailed drainage studies indicating how the project grading, in conjunction with the drainage conveyance systems including applicable swales, channels, street flows, catch basins, storm drains, and flood water retarding, will allow building pads to be safe from inundation from rainfall runoff which may be expected from all storms up to and including the theoretical 100-year flood.

COA-2 Prior to the issuance of any certificates of use and occupancy, the Project Applicant shall not grant any new easements over any property subject to a requirement of dedication or irrevocable offer to the Orange County Flood Control District, unless such easements are expressly made subordinate to the easements to be offered for dedication to the County. Prior to granting any of said easements, the subdivider shall furnish a copy of the proposed easement to the County Manager, Permit Services for review and approval.

COA-3 Prior to the recordation of a subdivision map (except for financing and conveyance purposes only), the Project Applicant shall participate in the applicable Master Plan of Drainage in a manner meeting the approval of the Manager, Permit Services, including payment of fees and the construction, or provide evidence of financial security (such as bonding), of the necessary facilities. The applicant shall enter into an agreement with the County of Orange concerning payment and reimbursement of Master Plan Drainage Fees to the City as a condition of any future annexation for drainage facilities transferred from OCPW to the City.

COA-4 Prior to the issuance of any grading or building permits, the Project Applicant shall demonstrate compliance under California's General Permit for Storm Water Discharges Associated with Construction Activity by providing a copy of the Notice of Intent submitted to the State Water Resources Control Board and a copy of the subsequent notification of the issuance of a Waste Discharge Identification Number; or other proof of filing in a manner meeting the satisfaction of the Manager, Permit Services. Projects subject to this requirement shall prepare and implement a SWPPP. A copy of the current SWPPP shall be kept at the Project Site and be available for County review on request.

COA-5 Prior to the issuance of any grading or building permit, the Project Applicant shall submit an Erosion and Sediment Control Plan (ESCP) in a manner meeting approval of the Manager, Permit Services, to demonstrate compliance with the County's NPDES Implementation Program and state water quality regulations for grading and construction activities. The ESCP shall identify how all construction materials, wastes, grading or demolition debris, and stockpiles of soil, aggregates, soil amendments, etc.

shall be properly covered, stored, and secured to prevent transport into local drainages by wind, rain, or tracking. The ESCP shall also describe how the applicant will ensure that all BMPs will be maintained during construction of any future public right-of-ways. A copy of the current ESCP shall be kept at the Project Site and be available for County review on request.

COA-6 Prior to the issuance of any grading or building permits, the Project Applicant shall submit for review and approval by the Manager, Permit Services, a final WQMP specifically identifying BMPs that will be used on-site to control predictable pollutant runoff. The Project Applicant shall utilize the DAMP, the Model WQMP, and Technical Guidance Manual for reference, and the County's WQMP template for submittal. This final WQMP shall update the project's CWQMP based on the final design and include the following:

- Detailed site and project description
- Potential storm water pollutants
- Post-development drainage characteristics
- Low impact development (LID) BMP selection and analysis
- Structural and non-structural source control BMPs
- Site design and drainage plan (CWQMP BMP Exhibit)
- GIS coordinates for all LID and treatment control BMPs
- Operation and Maintenance (O&M) Plan that: (1) describes the long-term operation and maintenance requirements for BMPs identified in the BMP Exhibit; (2) identifies the entity that will be responsible for long-term operation and maintenance of the referenced BMPs; and (3) describes the mechanism for funding the long-term operation and maintenance of the referenced BMPs

The BMP map exhibit from the approved final WQMP shall be included as a sheet in all plan sets submitted for plan check and all BMPs shall be depicted on these plans. Grading and building plans must be consistent with the approved BMP map exhibit.

COA-7 Prior to the recordation of any subdivision map, the Project Applicant shall prepare Covenants, Conditions & Restrictions (CC&Rs) for review and acceptance by the Manager of Permit Services for the HOA, including a section for surface water quality protection and the following prohibited activity restrictions:

- Blowing, sweeping, or hosing of debris (e.g., leaf litter, grass clippings, litter) into storm drain inlets or other conveyances
- On-site fueling
- Dumping of any toxic substance or liquid waste on the pavement, on the ground, or toward a storm drain
- Use of pesticides if rain is expected
- Mixing or preparation of pesticides for application near storm drain inlets
- Allowing wash water to enter storm drain

The CC&Rs shall require the HOA to maintain the debris basins, detention/debris basin #3 and water quality basins on an annual basis in order to maintain flood protection associated with the design of the Project's drainage system.

COA-8 Prior to the issuance of a certificate of use and occupancy, the Project Applicant shall demonstrate compliance with the County's NPDES Implementation Program in a manner meeting the satisfaction of the Manager, OC Inspection:

- Demonstrate that all structural best management practices (BMPs) described in the BMP exhibit from the project's approved WQMP have been implemented, constructed and installed in conformance with approved plans and specifications;
- Demonstrate that the Project Applicant has complied with all non-structural BMPs described in the project's WQMP;
- Submit for review and approval, an Operations and Maintenance Plan for all structural BMPs (the plan shall become an attachment to the WQMP);
- Demonstrate that copies of the project's approved WQMP (with attached Operations and Maintenance Plan) are available for each of the initial occupants;
- Agree to pay for a Special Investigation from the County for a date 12 months after the issuance of a Certificate of Use and Occupancy for the project to verify compliance with the approved WQMP and Operations and Maintenance Plan;
- Demonstrate that the Project Applicant has recorded one of the following:

  a) The CC&Rs (that must include the approved Water Quality Management Plan and Operations and Maintenance Plan) for the project's HOA;
  b) A water quality implementation agreement that has the approved Water Quality Management Plan and Operations and Maintenance Plan attached; or
  c) The approved final Water Quality Management Plan and Operations and Maintenance Plan

COA-9 Prior to the issuance of grading permit, the Project Applicant shall record a grant of easement for on-site public storm water pipes to the Orange County Flood Control District.

## 5.8.7 Mitigation Measures

No mitigation measures are required

## 5.8.8 Level of Significance after Mitigation

As designed with incorporation of the LID, hydromodification control, bio-treatment, and source control BMPs, the Proposed Project does not violate any water quality standard or waste discharge requirement. Implementation of the Proposed Project will result in the same total volume of runoff as in the existing condition, a decrease in time of concentration, an increase in infiltration potential, and a decrease in erosion as compared to the existing condition. The Proposed Project would be in compliance with the Regional Water Quality Control Board – Santa Ana Region, and would

incorporate requirements and standards of the Orange County Drainage Area Management Plan (DAMP) and the intent of the non-point source NPDES Permit for Waste Discharge Requirements for the County of Orange, Orange County Flood Control District, and the incorporated cities of Orange County within the Santa Ana Region. Therefore, the project impact on water quality standards and discharge requirements is less than significant.

The Proposed Project does not 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. This is further addressed in Section 5.15, Utilities and Service Systems (beginning on page 5-625) under the Water Supply analysis. The groundwater below the Project Site is deep. The site is located outside the North Orange County Mapped Depth to First Groundwater Map. The existing soils are associated with low water absorption and the groundwater on the Project Site is very deep based on regional maps. The on-site WQMP Basins will alleviate any potential pollutants due to development prior to discharging off-site. Detention and WQMP Basins will allow for groundwater replenishment to the extent feasible to lessen the increase in permeable area. The Proposed Project will have the same volume of storm water runoff after development as the existing condition; therefore, the impact to groundwater supplies and groundwater recharge is less than significant.

Approximately 15 to 16 million cubic yards of remedial grading will occur associated with the Proposed Project for the development of residential, open space, and park pads along with supporting roadway grades. The Proposed Project grading and development will result in fill placement in Canyon A and Canyon B, thus substantially altering the existing drainage pattern on the site, which could result in substantial erosion or siltation on-site or off-site unless design features and conditions of approval are incorporated into the Proposed Project. The Proposed Project has included design features such as dry detention basins, rip rap pads, flow restrictors, and BMPs to reduce erosion or siltation from storm water runoff. Conditions of Approval COA-4, COA-5, COA-6, COA-7, and COA-8 have been incorporated into the Project to lessen erosion and siltation impact on-site and off-site. The Project with these design features and conditions of approval does not result in substantial erosion or siltation on-site or off-site associated with the development of the Project. Therefore, the impact to existing drainage pattern is less than significant.

The Proposed Project grading and development will result in fill placement in Canyon B and Canyon C, thus substantially altering the existing drainage pattern on the site, which could substantially increase the rate or amount of surface runoff in a manner that would result in flooding on-site or off-site unless design features are incorporated into the Proposed Project. The overall on-site surface runoff velocities, volume, and peak flow rates are in conformance with the planned capacity in the Orange County Esperanza Channel Master Plan of Drainage. In fact, the master plan predicted more development in this tributary area than is currently proposed. The Proposed Project consists of a storm drainage system designed to accommodate and

moderate long-term surface runoff drainage impacts. The project design include preserving and enhancing natural drainage courses where applicable, installing debris basins, using energy dissipating devices, designing development areas that result in surface drainage to be directed to street frontage, and designing drainage systems that will not result in downstream flooding or damage. Therefore, the Proposed Project impact on an increase in the rate or amount of surface runoff in a manner which would result in flooding on-site or off-site is less than significant.

The Proposed Project does not create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff. Peak storm flows caused by the Proposed Project will not exceed the design capacity of on-site and downstream conveyance channels. The Proposed Project on-site surface runoff velocities, volume, and peak flow rates are consistent with the Orange County Esperanza Channel Master Plan of Drainage. The project includes Water Quality Basins and debris basins and includes guidelines for BMPs to reduce and diminish erosion impacts and pollutants associated with residential development. Mitigation measures have been incorporated into the Proposed Project that would ensure that the runoff water shall not exceed the capacity of existing or planned storm water drainage systems or provide an additional source of runoff pollutants. Therefore, the project impact to existing and planned storm water drainage system and runoff pollutants is less than significant.

The construction grading permit requires that the Project Applicant and subsequent owners develop and implement a SWPPP based on applicable BMPs. The construction grading permit specifies that BMPs must satisfy the best available technology (BAT) and best conventional technology (BCT) standards. With compliance with the County's NPDES Implementation Program, the state water quality regulations for grading and construction activities, along with the implementation of the SWPPP for the Proposed Project, potential construction-related water quality impacts would be reduced to less than significant levels.

The Proposed Project will not otherwise degrade water quality. The Proposed Project design includes low impact development techniques and best management practices and Conditions of Approval that reduce the Project's impact on water quality to less than significant levels.

The Proposed Project has been designed to eliminate any exposure of people or structures to significant risk of loss, injury, or death involving flooding. The Proposed Project has been designed to eliminate any exposure of people or structures to the significant risk of loss or injury. In the unlikely event that the two underground tanks ruptured, the street capacity is designed to convey water without resulting in any flooding. The debris/detention basins are designed and sized to capture mudflow associated with off-site drainage. Therefore, the project impact is less than significant.

## 5.8.9 Cumulative Impacts

Future development within the Project Area (including areas surrounding the Project Site, Cielo Vista, Bridal Hills LLC parcel, and the Yorba Linda Land LLC parcel) could potentially increase impervious surfaces and increase the potential for flooding in the area. Cumulative development in the Project Area could result in alterations to the drainage pattern and flow rates in the project vicinity. Impacts will be mitigated on a project-by-project basis by construction of project specific drainage improvements consistent with the Orange County Esperanza Master Plan of Drainage and the Orange County Local Drainage Manual. Storm drain improvements for the Proposed Project and other projects in the area will be designed to provide projected levels required by the Orange County Hydrology Manual and the County NPDES county-wide permit. The County requires all new development to design and implement Low Impact Development that mimics the pre-development existing flows, volumes, and water quality prior to discharge from the individual Project Site. The Proposed Project will not generate an increase in runoff from the Project Site and will generate less than predicted in this tributary. Project discharge to downstream storm drain facilities will provide equal or greater water quality compared with of existing conditions. With implementation of regional drainage plans, combined with future project-specific improvements upon drainage and flood control, the Proposed Project, when considered with other potential projects, will not result in significant cumulative impacts.

## 5.8.10 Unavoidable Adverse Impacts

Implementation of the recommended project design features and conditions of approval specified above will reduce the potentially significant impacts relating to hydrology and water quality to a less than significant level. The Proposed Project drainage system, as designed, will not generate an increase in storm water runoff or derogate water quality beyond the existing condition. Three stages are associated with water quality impacts and the development of the Proposed Project: existing conditions, construction, and post-construction. Each stage has specific characteristics of storm water runoff in terms of quality and drainage patterns. Changes to storm water characteristics due to development include remediation of any contaminated soil, increased runoff due to increased impervious area, site stabilization due to development, reduced erosion potential, storm water quality improvement over existing conditions due to inclusion of Low Impact Development design, and inclusion of structural and non-structural best management practices. The Proposed Project will not result in unavoidable adverse impacts to hydrology or water quality.

# 5.9 Land Use and Planning

## 5.9.1 Existing Conditions

### 1. Regional Setting

The Project Site is located within the northeastern area of unincorporated Orange County, adjacent to the City of Yorba Linda (City), approximately 3.0 miles north of the SR-91 Freeway, directly southwest of Chino Hills State Park, which lies between developed land in Orange, San Bernardino, and Riverside counties and adjacent to existing residential development in the City. The Project Site is one-third mile east of San Antonio Road and directly north of Stonehaven Drive. The Project Site is within the Local Agency Formation Commission (LAFCO) designated Sphere of Influence (SOI) for the City. The Proposed Project is a portion of the area commonly referred to in the City of Yorba Linda General Plan (Yorba Linda GP) and Zoning Map as the "Murdock Property," which also includes the proposed Cielo Vista project to the west and the Yorba Linda Land, LLC and Bridal Hills, LLC parcels to the northwest The entire Proposed Project Site was burned in the 2008 Freeway Complex Fire.

**Acronyms used in this section:**

| | |
|---|---|
| AMSL | above mean sea level |
| BMP | Best Management Practice |
| CEQA | California Environmental Quality Act |
| CDOGGR | California Department of Conservation, Division of Oil, Gas and Geothermal Resources |
| DEIR | Draft Environmental Impact Report |
| DU/ac | dwelling units per acre |
| FMZ | Fuel Modification Zone |
| GHG | greenhouse gas |
| HOA | homeowners' association |
| LAFCO | Local Agency Formation Commission |
| LOS | Level of Service |
| MWD | Metropolitan Water District |
| NEAPS | Northeast Area Planning Study |
| OCFA | Orange County Fire Authority |
| OCWD | Orange County Water District |
| RHNA | Regional Housing Needs Assessment |
| RTP/SCS | Regional Transportation Plan/Sustainable Communities Strategy |
| SCAG | Southern California Association of Governments |
| SCE | Southern California Edison |
| SOI | Sphere of Influence |
| UWMP | Urban Water Management Plan |
| USFWS | US Fish and Wildlife Service |
| VHFHSZ | Very High Fire Hazard Severity Zone |
| YLWD | Yorba Linda Water District |

#### a. On-Site Land Uses

The Project Site has been utilized historically for animal grazing and oil production, starting in the mid-1950s. Today the major use of the site is as open space, for energy transmission associated with the Southern California Edison (SCE), for water transmission for the Metropolitan Water District and the Yorba Linda Water District (YLWD), and for some limited oil production. These existing and past land use practices are consistent with the current County of Orange General Plan Land Use designation of Open Space (5) and Zoning Code designation of General Agricultural (A1) and with a General Agriculture/ Oil Production overlay (O) for the property.

The rolling hills and ravines that characterize the Project Site support a mix of habitats and land use types. This includes non-native/native grasslands with locally dominant stands of coastal sage scrub, chaparral, small stands of walnut, blue elderberry, and oak woodlands, and limited areas of riparian habitat. The Project Site also includes disturbed habitats characterized as ruderal and disturbed/ developed areas. Four blueline drainages occur on-site.

### b. Surrounding Land Uses

The surrounding land uses are predominantly residential development and open space. The Proposed Project is bordered by Chino Hills State Park on the north and east. To the south and northwest lie existing single-family residential communities previously approved and developed in the City including Dominguez Ranch, Green Hills, Casino Ridge, Travis Ranch, and Yorba Linda Hills.

The proposed Cielo Vista project to the west (also referred to as the Sage property), is a proposed single-family residential subdivision in the County, owned by Amos Travis Trust to the west and the Virginia Simmons Trust to the southwest. Undeveloped parcels located west and northwest of Esperanza Hills include the Bridal Hills, LLC parcel and the Yorba Linda Land, LLC parcel. Access to both parcels will be provided for in the Proposed Project street design. Surrounding land uses are depicted on Exhibit 5-94 – Surrounding Land Use.

## 5.9.2 Regulatory Setting

The Proposed Project is governed by state, local, and regional land use regulations. The primary land use regulation mechanisms of the County include the County of Orange General Plan and the Zoning Code. These documents provide a blueprint for development throughout the planning area. Due to the project location within the City's SOI, City regulatory and policy documents, including the Yorba Linda GP and the Zoning Code, will also be discussed, along with LAFCO annexation policy. Due to the Proposed Project's location adjacent to the Chino Hills State Park, the Chino Hills State Park General Plan goals and policies will be discussed.

### 1. County of Orange General Plan

The Proposed Project is located within the unincorporated area of Orange County and is therefore under the regulatory jurisdiction of the County of Orange. The County of Orange General Plan comprises nine elements addressing Land Use, Transportation, Public Services and Facilities, Resources, Recreation, Noise, Safety, Housing and Growth Management. The most recent comprehensive update to the County of Orange General Plan was adopted on March 27, 2011, by Board of Supervisors Resolution 11-044[21]. In addition, the Housing Element was certified by the California Department of Housing and Community Development on April 22, 2011.

[21] County of Orange General Plan, March 27, 2011, cover and title

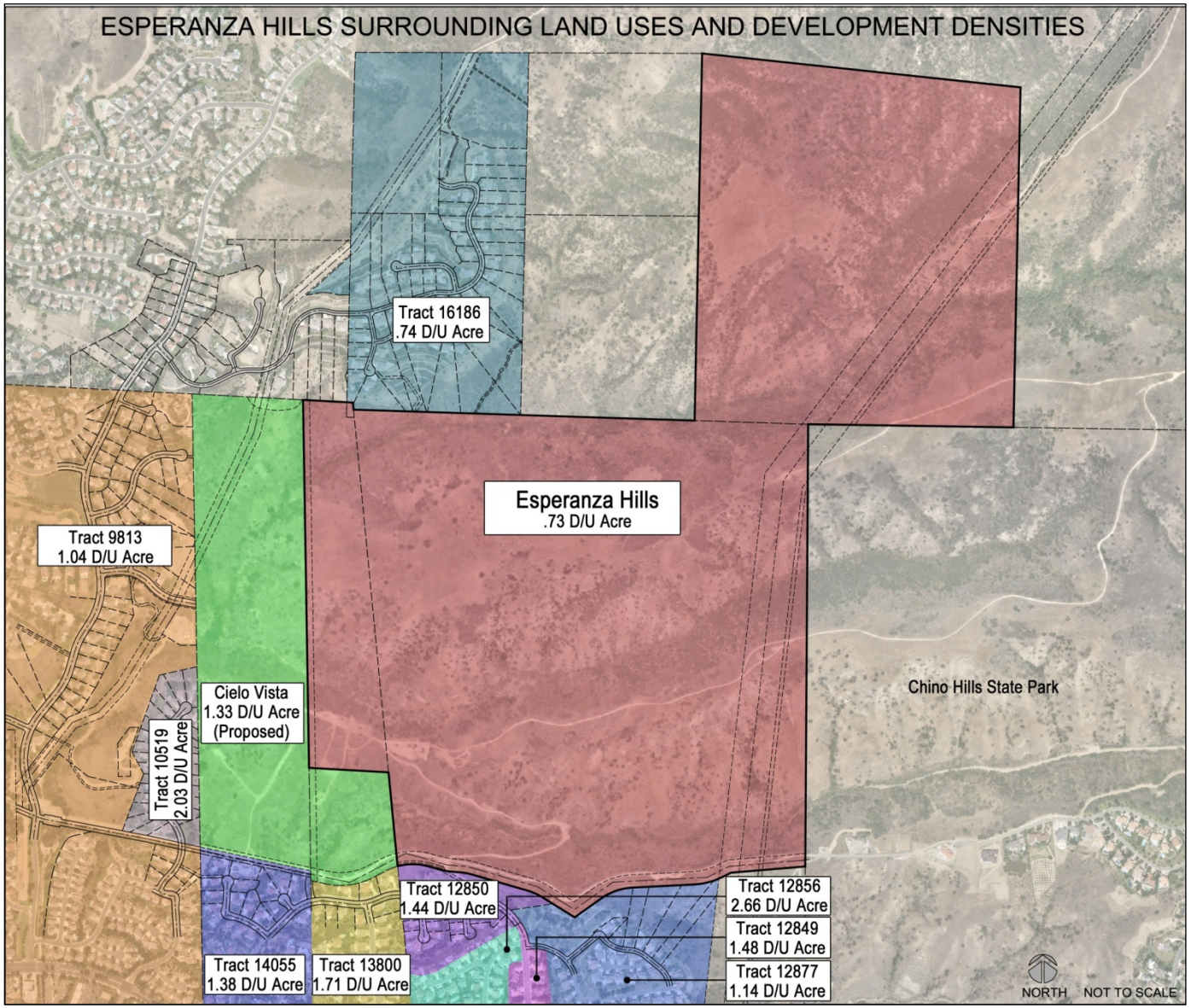



**Exhibit 5-94 – Surrounding Land Uses**

The Land Use Element of the County of Orange General Plan describes objectives, policies, and land use patterns for all unincorporated territory. The County of Orange has applied a land use designation of Open Space (5) category to the Project Area (Exhibit 5-95– Orange County Land Use Map). The Open Space category indicates the current and near-term use of the land. The Open Space category is not necessarily an indication of a long-term commitment to permanent open space uses but, due to market pressures to serve a growing County population, the areas in the Open Space Category may ultimately be developed in other ways.

The Proposed Project includes a General Plan Amendment that will change the land use designation from Open Space (5) to Suburban Residential (1B). The Suburban Residential designation is characterized with a wide range of housing types, from estates on large lots to attached dwelling units, and permits the greatest flexibility for residential development. Suburban Residential allows a development density of 0.5 to 18 dwelling units per acre (DU/ac) and an intensity/density characteristic and standard of 2.59 persons per dwelling unit and 1 to 47 persons per acre.[22]

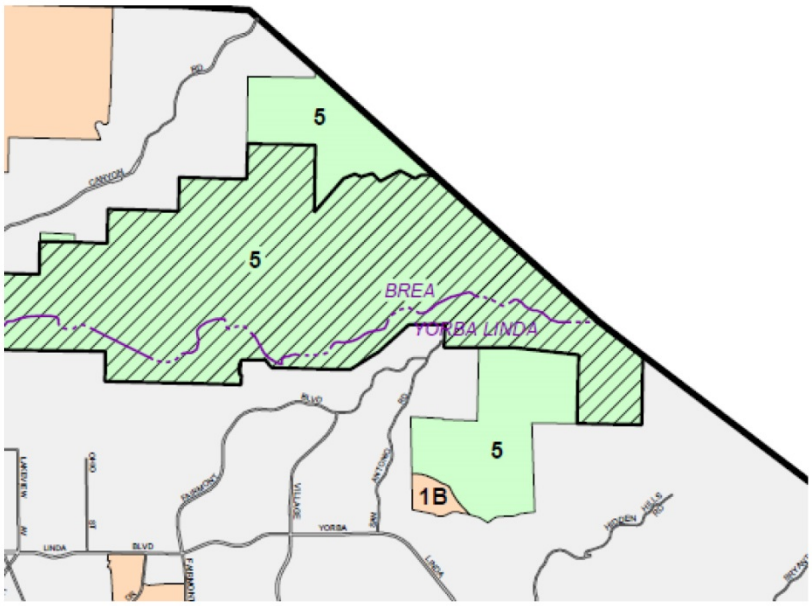
## 2. County of Orange Zoning Code

The project is zoned "A1" (General Agriculture) with an "O" (Oil Production) overlay district by the County of Orange (Exhibit 5-96 – Orange County Zoning Map). The A1 zone provides for agricultural uses with a four-acre minimum site area and a maximum of 1 dwelling unit per site. In addition, Section 7-9-55 of the County's zoning ordinance indicates that the A1 district "may be used as an interim zone in those areas which the General Plan may designate for more intensive urban uses in the future." The Oil Production zone (§7-9-117) overlay designation provides for oil drilling and production of oil, gas and other hydrocarbon substances. Such activity is subject to the regulations of the Orange County Oil Code (§7-8-1 through §7-8-53). The Proposed Project includes a zone change from A1 (O) to a Specific Plan.

## 3. Esperanza Hills Specific Plan

The Proposed Project includes a proposal for a specific plan. A specific plan is a tool for the systematic implementation of the General Plan. It effectively establishes a link between implementing policies of the General Plan and the individual development proposals in a defined area. A specific plan may be as general as setting forth broad policy concepts, or as detailed as providing direction to every facet of development from the type, location and intensity of uses to the design and capacity of infrastructure; from the resources used to finance public improvements to the design guidelines of a subdivision.

[22] County of Orange General Plan, Land Use Element, March 27, 2011, page III-22




LAND USE DESIGNATIONS

RESIDENTIAL

1A — Rural Residential
*Rural Residential Communities (.025 - 0.5 DU/Ac.)*

1B — Suburban Residential
*Suburban Residential Communities (0.5 - 18 DU/Ac.)*

1C — Urban Residential
*Urban Residential Communities (18 and above DU/Ac.)*

COMMERCIAL

2A — Community Commercial

2B — Regional Commercial

EMPLOYMENT

3 — Employment

PUBLIC FACILITIES

4 — Public Facilities

4 (LS) — Landfill Site
(An overlay designation)

OPEN SPACE

5 — Open Space

5 — Open Space Reserve
*Generalized reserve boundaries for informational purposes only.*

Cleveland National Forest
*For informational purposes only. May contain private inholdings.*

URBAN ACTIVITY CENTER

6 — Urban Activity Center

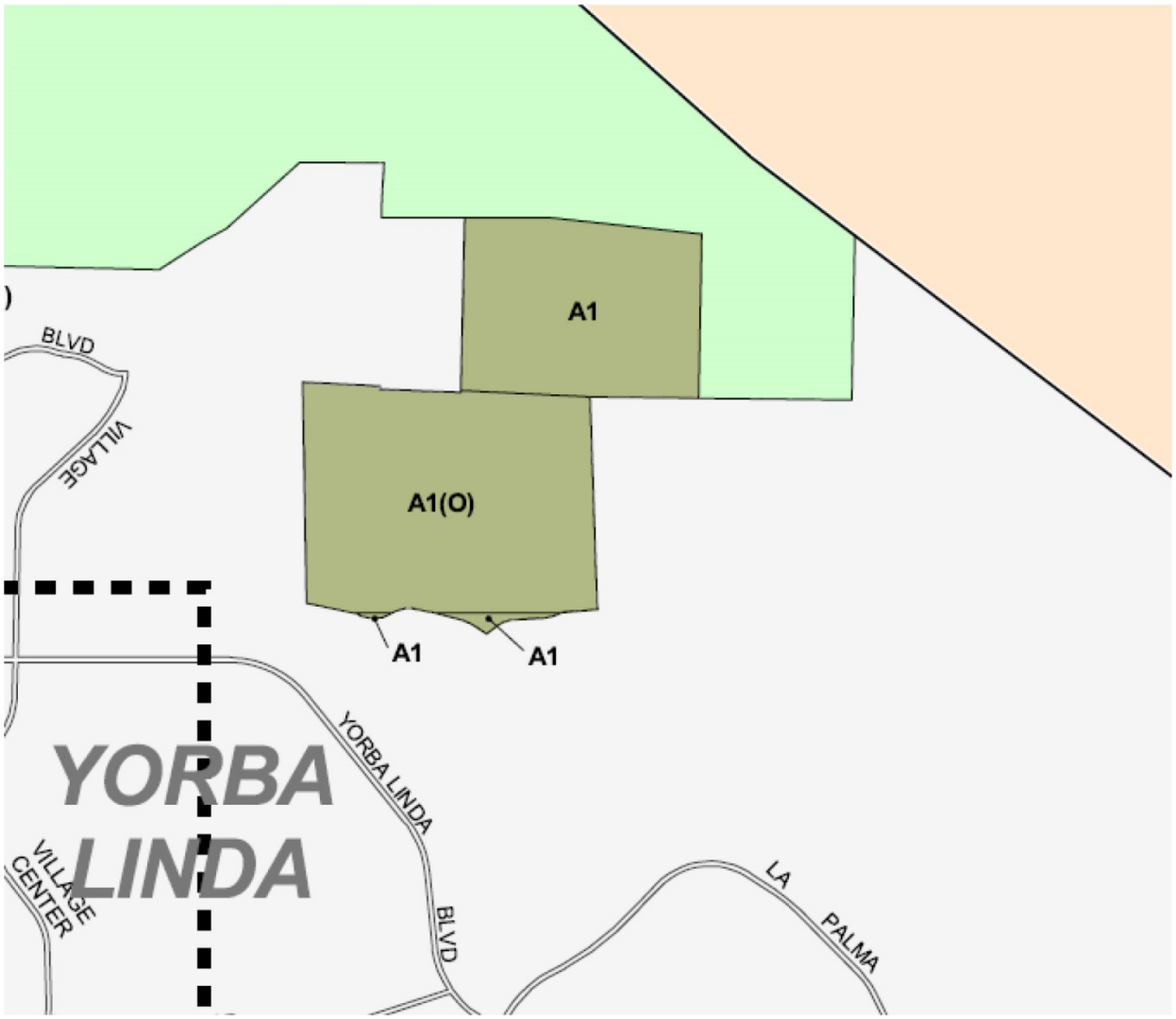
Cleveland National Forest Congressional Boundary

Sphere of Influence Boundary

Note: This map is for informational purposes depicting unincorporated areas within city spheres of influence for which these cities have adopted General Plans. Please refer to city plans for long-term land uses.

Source: Orange County Land Use Map - 2005

**Exhibit 5-95– Orange County Land Use Map of Site Area**




Source: Orange County Zoning Map of Project Area

**Exhibit 5-96 – Orange County Zoning Map of Site Area**

Specific plans are subject to §§65450-65457 of the *California Government Code*. These provisions require that a specific plan be consistent with the adopted General Plan of the jurisdiction within which it is located. In turn, all subsequent subdivision and individual development projects, public works projects and zoning regulations must be consistent with the specific plan. The adoption of a specific plan is a legislative act similar to adoption of a general plan or zoning ordinance. The proposed specific plan will be consistent with the Suburban Residential (1B) category and the project will require a General Plan Amendment as discussed above.

## 4. City of Yorba Linda General Plan

The project is within the City's SOI and has been designated within Area Plan C – Murdock Property on the Land Use Map Update, dated March 18, 2010. The Yorba Linda GP, adopted in 1993, designates the property as Opportunity Area A5 Murdock Property. The definition of "opportunity" in the Yorba Linda GP is "A portion of the community in which change is either likely and requires guidance or in which change is desired and requires stimulation." The Yorba Linda GP Housing Element and Implementation Program was adopted in November 2011 and certified by the State Department of Housing and Community Development in January 2012.

Opportunity Area Preferred Alternative from the Yorba Linda General Plan EIR is included as Appendix One in the Yorba Linda GP and describes a preferred alternative for the Murdock Property that is defined as consisting of six associated northern sphere of influence properties of a total of 630 acres. Esperanza Hills is a 468.9-acre portion of the Murdock Property area consisting of three entities: Yorba Trails, LLC; Yorba Linda Estates, LLC; and Nicholas/Long Family. The other three properties that make up the remainder of the Murdock Property are the parcels owned by Yorba Linda Land, LLC; Bridal Hills, LLC; and the proposed Cielo Vista project owned by the Virginia Richards Trust and the Amos Travis Trust.

The preferred alternative in the Yorba Linda GP is annexation into the City of Yorba Linda of the 630-acre Murdock Property as well as a 547-acre City-owned parcel that is adjacent as low density residential (1 dwelling unit per acre) and a golf course development. The preferred alternative contemplates one or more specific plans, composed of all eight properties, or compatible combinations of property owners, to provide a comprehensive development and circulation system. The City-owned 547 acres was subsequently dedicated to the Chino Hills State Park. The General Plan states that there is a potential of 630 dwelling units with an overall density of 1.0 dwelling units per acre over the entire 630 acres. Residential units will be clustered for provision of open space and recreation/golf course facilities, as well as in response to the topography of the property. The General Plan anticipates circulation improvements to San Antonio Road and Via del Agua/Stonehaven Drive to support the property development.[23]

[23] Yorba Linda General Plan, 1993, Appendix One

## 5. Yorba Linda: Comprehensive General Plan Update

The City is currently in the process of preparing a comprehensive update to the 1993 General Plan. A series of community workshops were held in June 2012 that resulted in three recommended vision statements that have not been adopted by the City Council:

> Vision Statement 1: The City of Yorba Linda is a family-oriented, multi-generational, business supported community. We value our rich sense of history and equestrian environment.
>
> Vision Statement 2: The City of Yorba Linda is a beautiful small town with a great historic heritage that values its education and housing and a safe community atmosphere.
>
> *Vision Statement 3:* The City of Yorba Linda is a safe, family-oriented, and business-friendly City with a small town feel. We value our historic semi-rural community, and take pride in our extraordinary schools, parks, and trails and equestrian culture.

The General Plan update does not have a scheduled completion date, and a Notice of Preparation has not been filed for the General Plan Update EIR with the State Clearinghouse.

The Yorba Linda GP includes the 2008-2014 Housing Element. The Housing Element contains a variety of information relative to a community's housing needs along with proposed goals, policies, and programs designed to respond to those needs. The City is currently in the process of updating the Housing Element as required by state law for cities within the Southern California Association of Governments (SCAG) area. A draft of the 2014-2021 Housing Element, dated May 2013 is available for review. For further discussion on the Yorba Linda GP Housing Element refer to Section 5.11, Population and Housing (beginning on page 5-483 of this DEIR).

## 6. City of Yorba Linda Zoning Ordinance

The City has the authority to "pre-zone" areas within its SOI in order to plan for the future land use of an area in anticipation of annexation. However, the City has not taken this step with respect to this Proposed Project or any of the Murdock Property.

If the Project Area were to be annexed to the City prior to Project approval through the County of Orange, applicable zoning regulations would include: Hillside Development/Grading/Fire Protection; Yorba Linda Right to Vote Amendment; and Land Use Right to Vote.

The Hillside Development/Grading/Fire Protection ordinance was adopted in 2004 and is intended to establish standards and guidelines for hillside development that include the following site design principles: protecting aesthetics views from surrounding neighborhoods; limits on retaining wall heights; preservation of natural hillsides and ridgelines; preservation of significant trees and other vegetation. Hillside

grading and drainage guidelines include design of retaining walls and drainage devices to lessen view impact to surrounding neighborhoods and Chino Hills State Park. Planting design guidelines include design of hillside plant materials that provide erosion control, fire resistance, and drought tolerance with the ability to enhance the color and texture of the surrounding landscape as well as plant materials that follow downhill alignments, that are irregularly spaced and that do not block views. Transitional slope planting that requires a Fuel Modification Plan approved by the OCFA. The Hillside Development/Grading/Fire Protection ordinance also establishes residential development standards in hillside areas including preservation of ridgelines to the degree possible, streets to be located below crest of natural ridgelines, building pads to not be located so as to be on the crest of a natural ridgeline, and buildings placed against land forms to prevent structures visible against the horizon or the sky when viewed from the canyon floor. Development standards for residential developments within viewscape of Chino Hills State Park require that the grading and landscaping plans include, for each lot so determined to be viewed, specific measures, including height limits, setbacks, landscaping, berms, and/or other measures that will assure that any structure built on the lot will not be viewed from Chino Hills State Park or otherwise be screened to the extent feasible.

The Yorba Linda Right to Vote Amendment and the Land Use Right to Vote ordinances were adopted in 2006. These ordinances require a city-wide vote of the majority of the electorate for an applicant sponsored ballot measure that results in any major amendment to any planning policy documents defined as the general plan, zoning text, land use diagram, any specific plan, and any development agreement. The Right to Vote ordinance defines *major amendment* as any amendment that results in any of the following changes to the development standards for any parcel of land affected by the proposed amendment:

1) Increases the number of residential units which may be constructed on a parcel designated for residential uses.
2) Increases the number of separate parcels which may be created from an existing parcel.
3) Changes any residential land use to allow any other land use.
4) Changes any non-residential land use to allow any residential land use greater than ten (10) net dwelling units per acre or allow a mix of commercial and residential uses.
5) Increases the allowed maximum height of development.
6) Provides for the private development of land owned by a government entity within five years of the date of the approval to develop the land.
7) Repeals any of the Planning Policy Documents.

## 7. Chino Hills State Park General Plan

The 11,770-acre Chino Hills State Park is a natural open-space area in the hills of Santa Ana Canyon near Riverside County, and is surrounded by development on all sides within the cities of Yorba Linda, Brea, Chino Hills, Chino, and Corona. The park

is a critical link in the Puente-Chino Hills biological corridor. It encompasses stands of oaks and sycamores and rolling, grassy hills that stretch nearly 31 miles, from the Santa Ana Mountains to the Whittier Hills (Exhibit 5-97 – Chino Hills State Park Trails Map). The Project Site borders Chino Hills State Park on the eastern and northern boundary. Blue Mud Canyon originates in Chino Hills State Park and traverses the southern portion of the Project Site. The Old Edison Trail is located within Chino Hills State Park and terminates at the eastern edge of the Project Site above Blue Mud Canyon. San Juan Hill, a 1,781-foot peak, is located within the Chino Hills State Park to the north and east of the Project Site. San Juan Hill forms a ridge to the north of the Project Site that is traversed by South Ridge Trail. The Chino Hills State Park General Plan designates areas within the park as Management Zones (Exhibit 5-98 – Chino Hills State Park General Plan). The management zones consist of Natural Open Space Zone, Core Habitat Zone, Historic Zone, and Recreation and Operations Zone. The area of Chino Hills State Park adjacent to the Project Site is designated as Natural Open Space Zone.

This zone is characterized as:

> The Natural Open Space Zone protects natural, cultural, and aesthetic resources, and at the same time allows for recreational opportunities at the park. The zone generally has less biological sensitivity than the Core Habitat Zone but contains patches of higher resource sensitivity within its boundaries that will receive greater protection. [24]

The Chino Hills State Park General Plan discusses the aesthetics value of long distance views of natural terrain and vegetation that is available from selected locations within the park.[25] Acquisition plans for the park have, among other things, emphasized the value of acquiring ridgelines to protect the viewsheds within the park, particularly from the San Juan Hill viewpoint. However, additional guidelines are needed to help the California Department of Parks and Recreation staff evaluate the desirability of proposed land acquisitions at Chino Hills State Park.[26]

[24] Chino Hills State Park General Plan, 1999, Management Zones, page 51

[25] Chino Hills State Park General Plan, 1999. Existing Conditions and Issues: Park Summary, page 3

[26] Chino Hills State Park General Plan, 1999. Existing Conditions and Issues: Issues, page 44


source: http://www.ci.yorba-linda.ca.us/~ci26/images/stories/pdf/trails.pdf

**Exhibit 5-97 – Chino Hills State Park Trails Map**

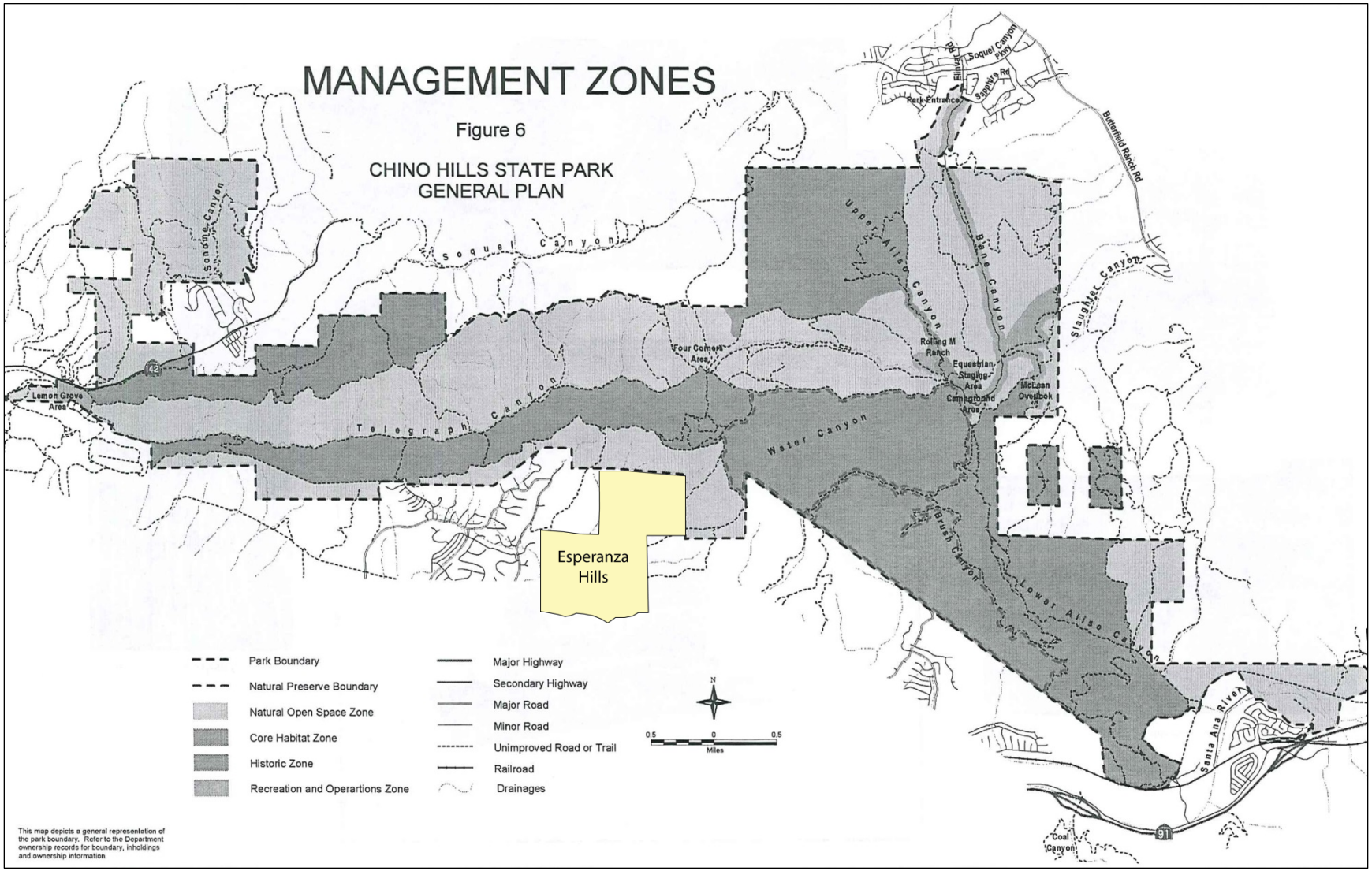



**Exhibit 5-98 – Chino Hills State Park General Plan**

## 8. Other Relevant Planning Documents

There are several other planning documents that provide guidance relevant to the Esperanza Hills site. In alphabetical order, they include:

- City of Yorba Linda Master Drainage Plan – The City has long had a process for addressing the drainage impacts resulting from new development. The Master Plan of Drainage identifies the level of storm drain facilities required, on-site and systemwide, and establishes a fee program to help pay for constructing and improving storm drain facilities identified in the Plan. Under the program, project developers are required to pay the City a fee based on the acreage of property developed. Revenues generated by the program are then used for making improvements to the overall drainage system to ensure that, as the community is built out, the system has the capacity to handle anticipated storm flow.

  Established in 1968, the Master Plan of Drainage fee program has been utilized to implement the construction of the Master Plan of Drainage improvements. A fee was developed on a per-acre basis to cover the costs necessary to implement the Master Plan of Drainage. The Master Plan of Drainage was updated in February 2000, and the fees were adjusted accordingly. The current drainage fee is $14,000 per acre.

- City of Yorba Linda Master Plan of Sewers – The sewer system serving the City is owned and controlled by the YLWD. The sewer system for the Proposed Project will be owned and controlled by the YLWD.

- Orange County Fire Authority Ready, Set, Go! Program – Orange County Fire Authority Ready, Set, Go! program provides public education resources to residents in wildfire impact areas throughout Orange County. The program provides tools for protecting homes, and provides education to prepare residents regarding evacuation prior to a wildfire. The program includes opportunity for home assessments as well as a newsletter to keep residents aware of wildfire protection strategies.[27]

- Yorba Linda Water District – The Yorba Linda Water District (YLWD) is the water purveyor and the sewer purveyor for the Proposed Project. YLWD is a member of the Orange County Water District (OCWD), which manages the groundwater for retail providers within the boundary of OCWD. The Project Area, along with other areas of the eastern portion of the City, are not currently within the service boundary area of OCWD. Currently, YLWD has proposed to annex approximately 6,100 acres into the OCWD. OCWD, on April 4, 2013, prepared a draft environmental impact report for the proposed annexation by the City of Anaheim, Irvine Ranch Water District, and YLWD into the OCWD service boundary.

[27] Orange County Fire Authority, Ready, Set, Go website: http://readysetgooc.org/

The YLWD prepared the Final Northeast Area Planning Study (NEAPS) in March 2013. The purpose of the NEAPS is to evaluate the capacity of existing distribution system facilities and size new infrastructure required to provide water under anticipated operational conditions for future demands. The study specifically analyzes the future demands of the proposed Cielo Vista and Esperanza Hills projects. The study includes evaluation and recommendations for storage capacity, pump stations, pipelines and water quality. Further discussion can be found in Section 5.12, Public Services (beginning on page 5-493 of this DEIR).

- Urban Water Management Plan dated 2010 – In 2011, the YLWD adopted the Urban Water Management Plan (UWMP) as required by the 1983 Urban Water Management Planning Act, Water Code §§10610-10656. The plan's requirements are to demonstrate water supply reliability during normal, dry, and multiple dry years over a 25-year period, detail water supply shortage contingency planning for 50% reduction and interruption of service, describe current and planned water demand management measures, and identify planned water supply including recycling and desalination, description of water use targets to meet required 20% per capita reduction, and implementation of water conservation measures. The UWMP concludes that, based on the planning assumptions of Metropolitan Water District of Southern California and the Metropolitan Water District of Orange County, the YLWD is projected to have sufficient water supplies under the hydrologic scenarios defined in the Urban Water Management Plan Act.
- Yorba Linda Water District Sewer Master Plan – The YLWD updated the 2010 Sewer Master Plan in February 2011. The YLWD provides all sewer services to the City and will supply sewer services to the Proposed Project.

## 9. Regional Planning Programs

County-wide and regional plans affecting planning in the Project Area include the 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), the Regional Housing Needs Assessment (RHNA), the Quality Management Plan prepared by the South Coast Air Quality Management District, the Orange County Flood Control District's Master Plan of Drainage, and the County's Integrated Waste Management Plan.

## 10. Local Agency Formation Commission (LAFCO) and Yorba Linda Sphere of Influence (SOI)

A Sphere of Influence (SOI) designates a city's probable future physical boundary and service area. The Proposed Project is located within jurisdiction of the County of Orange and within the City of Yorba Linda SOI, as depicted on Exhibit 5-99 – Sphere of Influence Map. An annexation occurs when a city, together with the landowner, incorporates additional territory to its boundary. The Orange County LAFCO is the responsible agency for annexations within the County of Orange. Esperanza Hills has filed a petition with Orange County LAFCO to begin annexation discussions with the County of Orange, the YLWD, and the City, and a focused stakeholder process has begun. Because potential annexation of the property to the City is a reasonably foreseeable condition, this DEIR provides analysis of project compliance with the City regulations and policies, where appropriate, and the infrastructure requirements necessary for the various utility and public service providers.

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (*California Government Code* §56000, et seq.) provides Orange County LAFCO with its powers, procedures, and functions. This law gives Orange County LAFCO power to "approve or disapprove with or without amendment, wholly, partially or conditionally" proposals concerning the formation of cities and special districts, and other changes in jurisdiction or organization of local governmental agencies. In reviewing proposals, Orange County LAFCO is required to consider certain factors such as the conformity between city and county plans, current service levels and need for future services to the area, and the social, physical, and economic effects that agency boundary changes present to the community.

## 11. Sphere of Influence Policy Guidelines

A subcommittee made up of members from the County and Orange County cities, along with consultation from the League of Cities and the Building Industry Association, prepared Sphere of Influence Policy Guidelines to guide development and the provisions of municipal services in city SOIs. On July 27, 1999, the Board of Supervisors approved the policy guidelines by Resolution No. 99-301 which states "the guidelines are not intended to direct or influence development, rather they serve solely as the framework for cooperation among affected agencies and landowners and only become a formal policy with regard to individual city SOIs when this Board and the City Council reach agreement on their adoption and implementation." The Sphere of Influence Policy Guidelines and adopting resolution are incorporated by reference.

The policies include provision of municipal services, timing of annexation, and the requirement for cities to develop plans concerning their SOI areas and applicable land use and development standards for development proposals. The SOI Policy Guidelines also detail flexible processing options that include the county and city presenting development processing time and cost proposals for the landowner's consideration, pre-annexation agreements, and incentives to the landowner to promote early annexation.

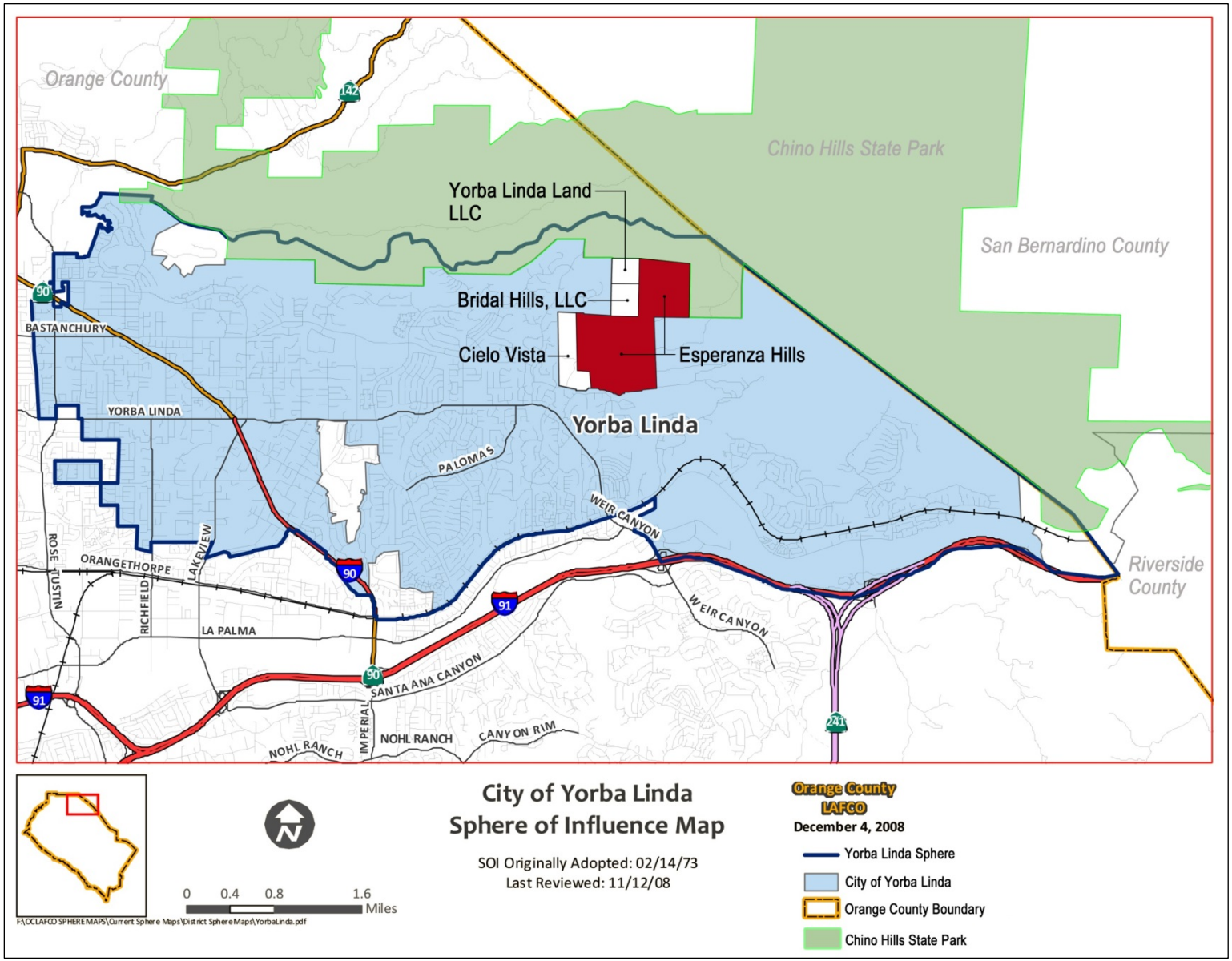



**Exhibit 5-99– Sphere of Influence Map**

The SOI Policy Guidelines recognize that the County will have ultimate responsibility for the application of development standards within a sphere of influence area and that compatibility with city infrastructure and public safety regulations may facilitate the ultimate annexation of the development to the city. The SOI Policy Guidelines are not binding with respect to review of this project under CEQA. However, the intent of the guidelines is recognized throughout this DEIR by providing analysis of City regulations under various relevant topical areas.

## 5.9.3 Thresholds of Significance

For the purposes of this DEIR, the thresholds of significance for evaluation of project impacts are based upon suggested criteria from the County of Orange Environmental Checklist and the California Environmental Quality Act (CEQA) Environmental Checklist found within Appendix G of the CEQA Guidelines. This project would result in a significant impact if it would:

a) Physically divide an established community
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
c) Conflict with an applicable habitat conservation plan or natural community conservation plan

## 5.9.4 Project Impacts Prior to Mitigation

Two options for roadway access to the Proposed Project have been designed.

1. Option 1 would provide a primary connection going south to Stonehaven Drive following an existing dirt road that has been used for oil well and utility access purposes. A separate ingress/egress road for emergency purposes only would extend south along the western edge of the Project through the adjacent Cielo Vista property.

2. Option 2 would provide a primary connection going west from the site to Aspen Way, which then connects to San Antonio Road. Option 2 provides a separate ingress/egress exit for emergency purposes only, exiting south from the Proposed Project to Stonehaven Drive and following the existing road currently used for oil well and utility access purposes.

When referring to the project in general, 340 residential lots are noted as the maximum number of units. In cases where project impacts are different between the two options, the option impacts are both described.

## 1. On-Site and Surrounding Land Uses

Implementation of the Proposed Project will alter existing on-site land uses from open space to residential development with associated site access/circulation uses, open space/recreation, and continued oil production. The project proposes a maximum of 340 residential units at a density of .73 dwelling units per acre along with neighborhood parks, open space, trails, and infrastructure (two below-ground water reservoirs).

Table 5-9-1 provides a summary of the Proposed Project and describes the gross acres, dwelling units, number of lots and average lot size associated with each development option.

**Table 5-9-1 Project Density for Option 1 and Option 2**

| Development | Gross Area (acres) | Dwelling Units per Acre | Number of Lots (dwelling units) | | Average Lot Size (square feet) | |
|---|---|---|---|---|---|---|
| | | | Option 1 | Option 2 | Option 1 | Option 2 |
| Esperanza Hills | 468.90 | 0.73 | 334 | 340 | 18,755 | 18,553 |

Average lot size for the Proposed Project excludes the two estate lots, which have lot sizes that are 21.78 acres and 2.08 acres, and would increase average lot sizes. Average residential building pad areas are 70'×140' for Planning Area 1, and 90'×110' for Planning Area 2. Minimum lot size is 12,000 square feet. The proposed density for Option 1 and Option 2 is less than the surrounding residential tracts. The average density of other surrounding residential land uses is 1.42 dwelling units per acre.

The Proposed Project will permanently alter the existing land uses on-site and the character of the area to a permanent developed condition with low-density single-family residential uses. The Proposed Project could impact implementation of the Orange County General Plan, the Orange County Zoning Code, and other regional plans listed in Section 5.9.2, Regulatory Setting (beginning on page 5-396 above) if not consistent with such plans and/or policies.

Implementation of the Proposed Project would also result in potential on-site land use compatibility impacts due to the ongoing oil production combined with residential uses. It should be noted that the OCFA standards prohibit the construction of any residential units within 100 feet of any operating well head. This will apply to the development near the oil well that is to remain on the site. The operation and closure of the oil facilities is subject to the Orange County Oil Code, Sections 7-8-1 through 7-8-53 of the Orange County Code of Ordinances. The Project has been designed to avoid locating any residential units within 100 feet of any operation well head; therefore, the Proposed Project is consistent with this adopted OCFA requirement and is therefore compatible with ongoing oil production.

## 2. Consistency with the Orange County General Plan

### a. Land Use Element

The proposed land use designation of Suburban Residential (1B) will allow a building intensity range of 0.5 to 18 dwelling units per acre for the site. The Suburban Residential land use designation allows a wide range of housing types, from estates on large lots to attached dwelling units (townhomes, condominiums, and clustered arrangements). The land uses proposed include low-density single-family residential lots and two residential estate lots; active and passive recreational parks; open space consisting of natural open space, landscaped areas, fire breaks, and fuel modification zones (FMZs); and improved and unimproved walking, biking, hiking, and equestrian use trails as well as infrastructure and other improvements. These land uses within the Proposed Project are consistent with the General Plan land use designation of Suburban Residential.

The Proposed Project will have an average building intensity of .73 dwelling units per acre, which is on the low end of the Suburban Residential (1B) density range, and will yield an average lot size of 18,755 square feet for Option 1 and 18,553 square feet for Option 2. Lots range from 12,044 square feet to 39,354 square feet (exclusive of the estate lots). The two estate lots are custom building sites that consist of a 21.78-acre lot and a 2.08-acre lot with building pads limited to 2.65 acres and 1.11 acres, respectively.

The Proposed Project is evaluated in the table below for compliance with the following applicable Land Use Element policies of the Orange County General Plan.

**Table 5-9-2 Orange County General Plan Land Use Element Consistency**

| Policy | Analysis |
|---|---|
| OC LUE Policy 1. Balanced Land Use - To plan urban land uses with a balance of residential, industrial, commercial, and public land uses | The Proposed Project is a balanced community made up of a maximum of 340 single-family detached homes (including two estate lots), open space, recreation, and riding and hiking trails that are directly adjacent to a developed urban community with access to major transportation modes, several retail centers, schools, recreation, and employment centers. This policy does not require completely self-contained communities. The notion of balanced land use in part is that residential development is able to take advantage of its proximity to employment opportunities. |
| OC LUE Policy 2. Phased Development - To phase development consistent with the adequacy of public services and facilities within the capacity defined by the General Plan | The purpose of the Phased Development Policy is to ensure that development coincides with the adequacy of public services and facilities, especially where the public health, safety, and welfare are concerned. The Proposed Project and associated infrastructure improvements are located directly adjacent to an existing developed community with access to major transportation modes, existing retail centers, schools and employment centers. The project will incrementally add to the demand for public facilities in the region, but the new development will not overload existing facilities. (Refer to Section 5.12, Public Services, beginning on page 5-493, for additional information.) |

| Policy | Analysis |
|---|---|
| OC LUE Policy 3. Housing Densities - To provide a variety of residential densities which permit a mix of housing opportunities affordable to the county's labor force | The mix of densities is intended to make it possible to develop housing that is affordable to the County's labor force and offer those who work in Orange County a reasonable choice of living accommodations. The Proposed Project consists of low-density single-family dwellings located in the foothills of northern Orange County. High-density housing for the Project Site is in conflict with the Orange County Grading Ordinance and the Yorba Linda GP and Zoning Code. High-density housing is not compatible with the surrounding community of low-density single-family dwellings. Higher density housing cannot be achieved on this site and, therefore, the Proposed Project does not provide a mix of housing opportunities affordable to the County's labor force. |
| OC LUE Policy 4. Land Use/Transportation Integration - To plan an integrated land use and transportation system that accommodates travel demand | The purpose of the Land Use/Transportation Integration Policy is to ensure that transportation planning is assimilated into the land use planning process. The collector and local streets form the backbone circulation system for Esperanza Hills providing for the safe, efficient movement of vehicles and emergency access through the community as well as a backbone for a comprehensive system of bikeways. Internal streets will include landscaped parkways and pedestrian walkways separated from the street. The density assumed for the site is consistent with the Yorba Linda GP, which anticipates one dwelling unit per acre for the areas in the vicinity of the Proposed Project, and adequate roadway capacity exists as detailed in Section 5.14, Transportation and Traffic (beginning on page 5-543). |
| OC LUE Policy 6. New Development Compatibility - To require new development to be compatible with adjacent areas | The Proposed Project is consistent and compatible with the existing surrounding land uses. The project is bounded on the west and south by existing and proposed urban development of low density residential uses (approximately 1 du/ac). The project borders the Chino Hills State Park to the east and north. The project has been designed to be sensitive to the adjacent open space areas, minimizing off-site views from Chino Hills State Park and providing open space buffers that provide a transition between land uses. |
| OC LUE Policy 7. Creative Design Concepts - To encourage innovative concepts which contribute to the solution of land use problems | The purpose of the Creative Design Concepts Policy is to encourage the use of innovative planning ideas that give variety to the character of development and solve certain site development problems. The topographic and geographic features of the land within the Esperanza Hills project define distinct residential neighborhoods. The land plan is sensitive to existing ridgelines with preservation of major ridgelines. The residential lots have been clustered to preserve open space areas and provide for FMZs. Streets are laid out in a manner responsive to the terrain in order to minimize the large amount of grading for a project of this nature and provide emergency access and staging areas for firefighting. The retaining walls will be designed to imitate the natural hillside. Street and other lighting will be minimized, shielded, and directed downward to promote night sky visibility. |

| Policy | Analysis |
|---|---|
| OC LUE Policy 8. Enhancement of Environment - To guide development so that the quality of the physical environment is enhanced | Natural and enhanced open space areas proposed for Esperanza Hills will primarily include areas supporting native plant communities. Natural open space consists of areas that will not be graded, such as Blue Mud Canyon. However, due to the very high probability of wildfires, the existing plant palette will be modified to promote regeneration of historic native habitat such as the black walnut trees together with other native vegetation that is more fire resistant. The enhanced open space areas primarily consist of nine parks, each with a different theme commemorating Orange County's agricultural heritage. The Water Quality Management Plan basins have been designed as bio-retention facilities for the treatment and filtration of storm water runoff. These facilities provide passive and active park uses in addition to their functional uses. This policy does not suggest that environmental enhancement precludes development. It recognizes the need to improve the manmade and natural environments. |
| OC LUE Policy 10. Childcare Improvement - To encourage and facilitate provision of childcare facilities to address the growing County demand | The Proposed Project consists of single-family homes that will generate the need for childcare facilities. The project is located adjacent to a mature community of Yorba Linda with access to several existing childcare facilities within a two-mile radius of the Proposed Project. In addition the Placentia-Yorba Linda Unified School District offers before and after school childcare and preschool programs at most elementary schools.[28] |
| OC LUE Policy 13 Urban and Storm Runoff Regulations - The following policies establish a framework for the reduction of water pollution. The policies describe updated objectives for responding to current water pollution regulations referenced on page VI-56 of the County's Resources Element | The Proposed Project will incorporate several design features to minimize water pollution from urban and storm water runoff through the incorporation of hydromodification control Best Management Practices (BMPs), bio-treatment BMPs, source control BMPs, and low-impact development features with flow-by and detention/debris basins, along with landscaped swales, preservation of natural open space areas, buffer areas near blue line drainage areas and protection of slopes and channels. Urban and storm water runoff facilities are discussed in greater detail in Section 5.8, Hydrology and Water Quality (beginning on page 5-341). |

[28] Placentia-Yorba Linda Unified School District Childcare Services, website: pylusd.k12.ca.us/Education/Child-care

### b. Transportation Element

The Transportation Element of the Orange County General Plan contains three components:

- Circulation Plan
- Bikeways Plan
- Scenic Highway Plan

The Proposed Project is evaluated below for compliance with the following applicable Transportation Element policies of the General Plan.

**Table 5-9-3 Orange County General Plan Transportation Element Consistency**

| Policy | Analysis |
|---|---|
| Policy 1.2 - Apply conditions to land use development projects to ensure that the direct and cumulative impacts of these projects are mitigated consistent with established level of service policies. | The Proposed Project will provide a circulation system and roadway improvements for the safe and efficient movement of vehicles within the Project Site. The project-specific traffic study has been prepared for the Proposed Project and discussed in detail within Section 5.14, Transportation and Traffic of this DEIR (beginning on page 5-543). The traffic study analyzes the traffic impacts associated with the Proposed Project and recommends mitigation measures to ensure that intersections impacted by the project will maintain a peak hour LOS D or better. |
| Objective 2.1 - Plan, develop and implement a circulation system in the unincorporated areas, which is consistent with the Master Plan of Arterial Highways and circulation plans of adjacent jurisdictions. | Depending on the access option selected, the Proposed Project has been designed to connect to existing two-lane local roadways, which ultimately connect to major arterial roadways within the City of Yorba Linda. |
| Policy 2.4 - Apply conditions to development projects to ensure compliance with OCTA's transit goals and policies. | OCTA has regularly scheduled bus service available on Yorba Linda Boulevard and Imperial Highway. The Proposed Project will not impact OCTA's transit goals and policies. |
| Policy 2.5 - Apply conditions to development projects to ensure implementation of the Circulation Plan as applicable. | The Proposed Project will enhance circulation in the Project vicinity with implementation of proposed roadway improvements included as mitigation measures. |
| Policy 3.1 - Maintain acceptable levels of service on arterial highways pursuant to the Growth Management Element of the General Plan. | The Traffic Impact Analysis analyzes the traffic impacts associated with the Proposed Project and recommends mitigation measures to ensure that intersections impacted by the Proposed Project will maintain a peak hour LOS D or better as required by the County. |
| Policy 3.2. - Ensure that all intersections within the unincorporated portion of Orange County maintain a peak hour level of service "D", according to the County Growth Management Plan Transportation Implementation Manual. | The traffic study analyzes the traffic impacts associated with the Proposed Project and recommends mitigation measures to ensure that intersections impacted by the Proposed Project will maintain a peak hour LOS D or better. |
| Policy 3.3. - Evaluate all proposed land use phasing plans for major development projects to ensure maintenance of acceptable Levels of Service on arterial highway links and intersections. | The Traffic Impact Analysis considered 18 related projects in the Proposed Project vicinity. With implementation of mitigation measures incorporated in the EIR, the County threshold of LOS D will be maintained. |
| Policy 5.1 - Establish "traffic impact fees" for application to county development projects with measurable traffic impacts, as defined in the Growth Management Plan Element of the General Plan. These fees may serve as local matching funds for Orange County Measure 'M', state and federal highway funding programs. | Fair Share fees have been identified as mitigation to reduce potential impacts to specific intersections. No other traffic impact fees are required. |

| Policy | Analysis |
|---|---|
| Policy 5.2 - Use uniform analytical methods, in conformance with the Growth Management Plan, Measure M, and the Congestion Management Program (CMP), to aid in transportation planning and impact evaluation and support the development and utilization of sub-area models to address detailed transportation issues. | The Traffic Impact Analysis prepared for the Proposed Project utilized existing state, county, and city methods and models for assessing impacts due to project-related traffic. |
| Policy 5.5 - Require as conditions of approval that the necessary improvements to arterial highway facilities, to which a project contributes measurable traffic, be constructed and completed within a specified time period or ADT/peak hour milestone to attain a Level of Service "D" at the intersections under the sole control of the County. LOS 'C' shall be maintained on Santiago Canyon Road links until such time as uninterrupted segments of the roadway (i.e., no major intersections) are reduced to less than three miles. | Fair Share fees have been required as mitigation for project-related traffic impacts. The intersections impacted are within the City of Yorba and there are no intersections under the sole control of the County that will require improvements to maintain LOS D. |
| Policy 5.7 - Require, as a condition of approval, that a development mitigation program, development agreement or developer fee program be adopted to ensure that development is paying its fair share of the costs associated with that development pursuant to Policy 5.1. | The Proposed Project includes mitigation measures requiring payment of fair share fees and school impact fees for project-related impacts to infrastructure and school facilities. Payment of these required fees is assured through implementation of the Mitigation Monitoring and Reporting Program (MMRP), which must be adopted by the County. |
| Policy 6.2 - Encourage new developments to support means of enhanced pedestrian and bikeway use by providing linkages between land uses such as residential areas, parks, schools, businesses and commercial areas which typically generate a large number of peak hour trips. | Bicycle trails and pedestrian walkways are an integral element to promote alternative methods of travel within the Proposed Project. Both Option 1 and Option 2 provide continued pedestrian and bicycle access via improved and unimproved trails through the community to the Chino Hills State Park as well as access to San Antonio Park via San Antonio Road and the equestrian center located where Aspen Way terminates. This system will link residents and surrounding residential neighborhoods to schools as well as employment centers such as Savi Ranch and business parks along the SR-91 Freeway corridor. |
| Policy 6.7 - Require developers of more than 100 dwelling units, or 25,000 square feet of non-residential uses to: a) demonstrate consistency between the local transportation facilities, services, and programs, and the regional transportation plan; and b) submit, as part of their development proposal (nonresidential), a Transportation System Management/ Transportation Demand Management (TSM/TDM) plan which includes strategies, implementation programs and an annual monitoring mechanism to ensure a reduction of single occupant automobile travel associated with development. | The Proposed Project is a residential development with no through traffic connections to surrounding uses beyond the Project access options included in the DEIR. Access points will connect to existing street systems and will not conflict with transportation facilities, services, programs, or the regional transportation plan. |

### c. Public Services and Facilities Element

The Public Services and Facilities Element of the Orange County General Plan contains policies for the planning and providing of public services and facilities that are necessary for orderly growth and development. The Proposed Project is evaluated below for compliance with the applicable Public Services and Facilities Element policies of the General Plan.

**Table 5-9-4 Orange County General Plan Public Services and Facilities Element Consistency**

| Policy | Analysis |
|---|---|
| General Policy 1 - Phasing and Funding: To implement public facilities in a manner that supports the implementation of the overall land use development policies and the needs of County residents and is consistent with the funding capabilities of the County. Proponents of planned communities or tentative tract or parcel maps in conventionally zoned communities shall provide ultimate, fair share infrastructure improvements for regional services as required by County and service provider plans in effect at the time of project implementation. Proponents shall also participate, on a fair share basis, in provision of community level facilities. The County and service providers shall strive to provide facilities and services necessary to complete the service system. | Development will be phased as appropriate levels of infrastructure, community facilities, and open space reservations are provided. Phasing sequencing is subject to change over time to respond to various market factors, and individual phases may overlap or develop concurrently. Development phasing will be implemented through the approval by the County of a vesting tentative tract map, which will require appropriate levels of infrastructure and community facilities and through the site development permit approval process. Option 1 and Option 2 will be developed in two major phases and divided into ten minor phases as depicted on the Vesting Tentative Tract Map and the Maintenance Plan. |
| Policy 3 - Land Use Compatibility: To coordinate facility planning in a manner compatible with surrounding land uses and to review planned land uses adjacent to facilities for their compatibility with facility operations. | The DEIR includes analysis of existing and proposed facilities related to water, sewer, drainage, electricity, gas, solid waste disposal, and telephone and cable. As reflected in the analysis presented in the DEIR, all utilities and service systems can be provided and will be compatible with surrounding land uses. |
| Goal 2 - Encourage the funding and development of public services and facilities to meet the County's existing and future demand. | Public services will be provided compatible with surrounding land uses. Funding for schools under SB 50 will be provided. New infrastructure for all necessary utilities has been identified, designed, and included in the DEIR. |
| Objective 2.1 - To achieve target service levels through the coordination of funding programs and planning efforts. | All necessary services for the Proposed Project have been identified and mitigation has been included to require the review and coordination with appropriate providers. Fees for schools will be provided as required. |
| Local Special Districts Policy 2 - Land Use Review: Through the project review process, land use proposals shall be required to incorporate appropriate construction and landscape designs and materials to minimize the costs for public slope, median, and roadside maintenance. | Site design related to grading, roads and landscaping is included in the DEIR. The Proposed Project will be maintained by a Homeowners' Association (HOA) that will be responsible for related maintenance costs. |
| Water Supply Policy 1 - System Capacity and Phasing To ensure the adequacy of water system capacity and phasing, in consultation with the service providing agency(ies), in order to serve existing and future development as defined by the General Plan. | The Project applicant, in coordination with the Yorba Linda Water District, has designed a water supply system which includes water transmission lines and two underground water reservoirs. The water system has been designed to supply the needs of the Proposed Project. |

| Policy | Analysis |
|---|---|
| Waste Water System Policy 1 - To protect quality in both delivery systems and groundwater basins through effective wastewater system management. | Infrastructure for wastewater has been included in the Project design to protect water quality on-site and off-site. |
| Waste Water System Policy 3 - To ensure the adequacy of wastewater system capacity and phasing in consultation with the service providing agency(ies) in order to serve existing and future development as defined by the General Plan. | The Project Applicant, in coordination with Orange County Sanitation District and Yorba Linda Water District, has designed sewer improvements in accordance with YLWD standards and specifications. Proposed sewer lines will connect with existing facilities, and adequate treatment capacity is available to accommodate existing and future development. |
| OCFA Goal 1 - Provide a safe living environment ensuring adequate fire protection facilities and resources to prevent and minimize the loss of life and property from structural and wildland fire damages. | A Fire Protection and Emergency Evacuation Plan has been prepared for the Proposed Project to reduce the potential for fire damage. The Plan includes fuel modification zones, managed landscapes, fire-resistant structures, and emergency evacuation plans. |
| OCFA Goal 2 - To provide an adequate level of paramedic service for emergency medical aid in order to minimize trauma of injury or illness to patients. | The OCFA provides emergency response in the Project area and maintains five fire stations within close proximity as discussed in Section 5.12, Public Services. |
| OCFA Policy 2 - Phased Development: Require phased development whereby land use proposals shall display the ability to provide adequate fire and paramedic services prior to project development. The service provision shall include station site acquisition, construction, equipment, and station staffing. The level of service shall be established in accordance with the criteria identified in the above policy. | The OCFA is the primary fire and paramedic service agency for the Project Site. Provision of fire and paramedic services is discussed in greater detail in Section 5.12, Public Services (beginning on page 5-493). Two underground water reservoirs will be installed on-site to provide gravity flow fire flow for this project and possibly surrounding projects, three staging areas with direct gravity-fed fire hydrants will be constructed, and fire breaks and fuel modification features will be constructed and maintained to reduce fire threats from wildland fires, which features should reduce the relative need to increase existing infrastructure located in the area. |
| Sheriff/Coroner Goal 1 - Refer to the General Public Safety Component goals found in the General Goals and Objectives section at the beginning of the Public Safety Component. | The Proposed Project has been designed to address potential geologic and seismic hazards through adherence to state, county, and local building codes. |
| Sheriff/Coroner Objective 1.1 - To maintain adequate levels of Sheriff patrol services through coordinated land use and facility planning efforts. | The Orange County Sheriff's North Patrol provides police services for unincorporated areas. A substation is located in close proximity to the Project site on Yorba Linda Boulevard. The OCSD has indicated that an adequate level of service will be maintained. |
| Sheriff/Coroner Policy 1 - To determine those areas of investigation where land use regulation can most effectively reduce incidence of crime. | The Proposed Project is a gated community, which will deter and reduce the opportunity for crime. |
| Library Goal 1 - Assure that an adequate level of library service is provided within the service area of the Orange County Public Library. | The Yorba Linda Library is a city facility that is determined currently to be inadequate to meet the needs of the existing Yorba Linda population. In August 2011, the City Council authorized funding for a new library to meet the needs of a population of 70,000. The existing library is located at 18181 Imperial Highway and the new library will be located in the Town Center Specific Plan area. It is anticipated that the new library will provide adequate library services for the City, including the Esperanza Hills residents. Additional discussion on library services is found in Section 5.12, Public Services (beginning on page 5-493). |

| Policy | Analysis |
|---|---|
| Library Objective 1.1 - To achieve desired level of public library service through coordinated land use and facility planning. | As noted, the proposed new library to be constructed in Yorba Linda will adequately serve the area population, including the Proposed Project. |
| Library Policy 2 - Phased Development: Require phased development whereby land use proposals shall display the availability of, or the ability to attain adequate public library service prior to project development. The service provision shall include a library site, construction, collection, furniture, and equipment. | As noted, the proposed new library to be constructed in Yorba Linda will adequately serve the area population, including the Proposed Project. |
| Schools Goal 1 - Encourage the funding and development of adequate school facilities to meet Orange County's existing and future demand. | The Proposed Project includes mitigation requiring the payment of school impact fees per SB 50. |
| Schools Objective 1.1 - To achieve the desired level of school facilities through coordinated land use and facility planning. | The Placentia-Yorba Linda School District will serve the Proposed Project. Enrollment has been predicted to decline in the future and, therefore, it is unlikely additional school facilities will be required. However, the Proposed Project will contribute SB 50 school impact fees to meet any potential future demand. |
| Schools Policy 1 - To coordinate land use proposal reviews with appropriate school districts to assure that facility needs shall be adequately addressed, including the notification and participation of school district planners in initial County studies of all major developments. | The Proposed Project is located within the Placentia-Yorba Linda Unified School District, which provides educational facilities and services for grades K-12. The developer will pay school fees, pursuant to *California Government Code* §65995, et seq., as amended, to address the school needs of the Proposed Project. An expanded discussion of the project school impacts and mitigation is provided in Section 5.12, Public Services (beginning on page 5-493). |
| Schools Policy 3 - To continue to require compliance with AB 2926. | The Proposed Project is consistent with AB 2926 which authorizes school districts to levy development fees. As noted, the Project will contribute school impact fees as required by mitigation. |

### d. Resources Element

The Resources Element of the Orange County General Plan contains six components:

1. Natural Resources
2. Energy Resources
3. Water Resources
4. Air Resources
5. Open Space
6. Cultural-Historical

The Proposed Project is evaluated below for compliance with the following applicable policies contained in the Natural Resources component, the Energy Resources component, and the Open Space component of the Resources Element.

**Table 5-9-5 Orange County General Plan Resources Element Consistency**

| Policy | Analysis |
|---|---|
| **Natural Resources Policies** | |
| Goal 1 - Protect wildlife and vegetation resources and promote development that preserves these resources.<br><br>Resources Policy 1 - Wildlife and Vegetation: To identify and preserve the significant wildlife and vegetation habitats of the County | The Proposed Project will preserve and enhance areas within the Project Site as natural open space which currently provide habitat areas for sensitive plants and wildlife. The Project Site contains special-status plant communities that consist of Braunton's milk-vetch *(Astragalus brauntonii)*, Catalina mariposa lily *(Calochortus catalinae)*, Southern California walnut *(Juglans californica)*, blue elderberry *(Sambucus nigra)*, and small flowered microseris *(Microseris douglasii var. platycarpa)*.<br><br>Mitigation measures have been included in the Proposed Project to mitigate impacts to blue elderberry and Southern California walnut woodland (Bio-1), intermediate mariposa lily (Bio-2), and Braunton's milk-vetch (Bio-3) that require a replanting program.<br><br>The Project Site has the potential to support some sensitive species of wildlife that typically occur in the coastal sage scrub, riparian and woodland habitats. Ten special status wildlife species have been observed in the project area including Cooper's hawk, golden eagle, grasshopper sparrow, least Bell's vireo, northern harrier, peregrine falcon, sharp-shinned hawk, southern California rufous-crowned sparrow, yellow-breasted chat, and yellow warbler. The Project Site falls entirely within Unit 9 of the existing critical habitat for coastal California gnatcatcher as designated by the U.S. Fish and Wildlife Service (USFWS). A protocol gnatcatcher survey was completed by Glenn Lukos & Associates in June 2013, certifying that no gnatcatchers have been detected. This followed earlier surveys going back to 1998, which also failed to detect any gnatcatchers on-site.<br><br>Mitigation measures have been incorporated into the Proposed Project to mitigate direct impacts to lease Bell's vireo habitat (Bio-4 and Bio-5), as well as impacts to ACOE and CDFW jurisdictional impacts (Bio-6) that require revegetation of mulefat scrub, black willow riparian forest, and coast live oak riparian woodland. Mitigation Measure Bio-11 has been incorporated into the Proposed Project to mitigate indirect impacts to least Bell's vireo by restricting grading operation during specific months of the year, requiring per-construction least Bell's vireo survey and restrictions on noise levels during grading operations.<br><br>Mitigation Measure Bio-7, Habitat Mitigation Monitoring Program, has been incorporated into the Proposed Project to ensure the success of the habitat mitigation. Mitigation Measure Bio-8 has been incorporated into the Proposed Project to restrict grading operations to mitigate potential project impact to all areas of ACOE and CDFW jurisdiction.<br><br>Mitigation Measure Bio-9 has been incorporated into the Proposed Project to mitigate potential impacts to nesting birds as a result of grading operations. Mitigation Measure Bio-10 has been incorporated into the Proposed Project to mitigate potential indirect project impacts to special status plant communities, sensitive plant communities, Chino Hills State Park, and open space with a resident environmental awareness program.<br><br>With incorporation of these mitigation measures, the Proposed Project is consistent with Resource Goal 1 and Policy 1. Additional information is provided in Section 5.3, Biological Resources (beginning on page 5-91 of this DEIR). |

| Policy | Analysis |
|---|---|
| Resources Policy 4 - Mineral Extraction: To ensure opportunities for the extraction of minerals in the County and to protect the environment during and after these minerals are being extracted | The Project Site currently has three oil wells in operation on the western portion of the site. It is anticipated that the development of the site will result in the closure of one well, with the two other wells to remain, unless they are abandoned and relocated to a drilling pad on the Cielo Vista property pursuant to an agreement between the owners and developers of the proposed Cielo Vista project and the Santa Ana Canyon Development, the well operators. The oil well that is anticipated to be closed is located at the western edge of the Yorba Linda Estates LLC property, currently operated by the Darco Oil Company. The two oil wells that remain are located on the southwestern portion of the site as depicted in Exhibit 4-8 – Physical Characteristics (page 4-10). The major elements of the operation are subject to the County of Orange Oil Code. Any oil wells to be abandoned are subject to the County of Orange Oil Code and will be permitted through the California Department of Conservation, Division of Oil, Gas and Geothermal Resources (CDOGGR). In the event that wells are abandoned, CDOGGR will approve an abandonment plan, inspect the abandonment procedure, and certify the completed process. The well casing will be buried a minimum of 10 feet below the finish grade in areas to be developed, or existing grade in areas to remain natural. No residential structure will be built over an abandoned well. Building setbacks will follow the current OCFA standards. Any methane venting requirements and short- and long-term methane monitoring requirements will be subject to the CDOGGR and OCFA guidelines and requirements. |
| Resources Policy 5. Landforms - To protect the unique variety of significant landforms in Orange County through environmental review procedures and community and corridor planning activities. | Preparation of this DEIR constitutes a large part of the compliance with environmental review procedures. The Orange County General Plan does not provide for a formal landform management program, although there are individual programs which provide for the management, conservation, protection, and preservation of the natural environment in the public interest. The Orange County General Plan does not identify any specific significant landforms features in the project area. Primarily, the County's Grading Ordinance regulates hillside grading with regard to soil stability. Cut and fill slopes are generally limited to a ratio of two horizontal to one vertical. It also provides for erosion control measures at the time of development.<br><br>The Project Site is characterized as rolling hills that range in elevation from approximately 600 feet above mean sea level (AMSL) at the southwest boundary to approximately 1, 540 feet AMSL at the northern boundary of the property. To the extent possible, the property's topographical features will be retained in the proposed development through use of contour grading techniques, clustering of development and preservation of open space, including the retention of the upper ridgeline between the Project Site and Chino Hills State Park. The project design is sensitive to the existing topography through preservation of Blue Mud Canyon on the southern boundary of the Project Site, the preservation of the northern and eastern ridgelines adjacent to Chino Hills State Park and use of contour grading and natural appearing retaining structures. The project is consistent with the County's landform policy because of project compliance with the Grading Ordinance and the overall grading sensitivity and preservation of the more prominent landform features. Additional discussion on landforms is found in Section 5.5, Geology and Soils (beginning on page 5-203). |
| **Energy Resources Policies** | |
| Policy 1. Land Use - To plan urban land uses with a balance of residential, industrial, commercial, and public land uses as set forth in the Land Use | The Proposed Project is a balanced community made up of a maximum of 340 single-family homes (including two estate lots), open space, recreation, riding, and hiking trails, and public facilities in accordance with the long-term goals and objectives envisioned by the County's Land Use Element. It will be served by an |

| Policy | Analysis |
|---|---|
| Element | adjacent developed urban community with access to major transportation modes, several retail centers, schools and employment centers. |
| Policy 3 Energy Conservation: To encourage and actively support the utilization of energy conservation measures in all new and existing structures in the County. | The Proposed Project will include the use of energy-efficient appliances, low flow faucets, and water-efficient landscaping, and will conform with Title 24 for energy conservation. |
| Policy 7 - Solar Access: To support and encourage voluntary efforts to provide solar access opportunities in new developments | Residential development within Esperanza Hills will be located and designed to provide opportunity for use of passive solar energy. |
| **Water Resources Policies** | |
| Policy 1. Water Supply – To ensure the adequacy of water supply necessary to serve existing and future development as defined by the General Plan | Please refer to Section 5.15, Utilities and Service Systems (beginning on page 5-625 of this DEIR) for evaluation and discussion of project-related water demand and adequacy of the water supply. The YLWD has concluded that the Proposed Project will not pose a significant impact to water services and adequate water supply is available to serve the project, as indicated in the YLWD 2005 Master Plan and the March 2013 NEAPS report. |
| Policy 2. Conservation - To reduce per capita and total water consumption through conservation and reclamation programs and the support of new technologies | The Proposed Project will incorporate water conservation programs through the use of native and drought tolerant landscape materials and low water use plumbing fixtures. The YLWD and the City do not currently have wastewater reclamation facilities; therefore, no reclaimed water is available for the project. |
| Policy 5. Water Quality – To protect water quality through management and enforcement activities | Please refer to Section 5.8, Hydrology and Water Quality (beginning on page 5-341 of this DEIR) for evaluation and discussion of project water quality impacts and proposed water quality measures including structural and non-structural BMPs. With implementation of Project Design Features, potentially significant impacts to water quality will be reduced to less than significant level. |
| **Air Resources Policies** | |
| Policy 1 - To develop and support programs which improve air quality or reduce air pollutant emissions | The Proposed Project includes Mitigation Measures AQ-1 through AQ-3 , GHG-1, and GHG-2 to improve or reduce air pollution emissions. Mitigation Measures AQ-1, AQ-2, and AQ-3 are measures to reduce pollutant emissions during project construction, and Mitigation Measures GHG-1 and GHG-2 are measures to improve air quality and reduce air pollutant emissions during the operation of the Project. Please refer to Section 5.2, Air Quality (beginning on page 5-65 of this DEIR) for evaluation and discussion of project compliance with adopted air quality programs and plans. |
| Policy 1.3 - To seek out, evaluate, and take advantage of special opportunities to obtain open space as these opportunities become available and when the available open space meets or helps to meet established open space goals and objectives | The Proposed Project will include approximately 140 acres to 150 acres of natural open space to ensure the preservation of the riparian corridors and preservation of native habitat. In addition to the natural open space there are 126.6 acres to 135.8 acres of landscaped and irrigated slopes and 12.8 acres to 13.6 acres of landscaped parks and detention basins that serve to retain the character and natural beauty of the environment comprising Esperanza Hills. This open space area contains habitat areas of certain species of sensitive plants and wildlife that offer scenic and educational opportunities. A multi-purpose trail and an equestrian trail within this open space area provide public recreational opportunities. |

| Policy | Analysis |
|---|---|
| **Cultural-Historic Resources Policies** | |
| Objective 3.1 - Undertake actions to identify, preserve, and develop unique and significant cultural and historic resources | No cultural or historic resources are known to exist on the Project Site. Please refer to Section 5.4, Cultural Resources (beginning on page 5-183 of this DEIR) for evaluation of potential project impacts, compliance with County policies and recommended mitigation measures for this topical area. |
| Goal 2 - To encourage through a resource management effort the preservation of the county's cultural and historic heritage | No cultural or historic resources are known to exist on the Project Site. Please refer to Section 5.4, Cultural Resources for evaluation of potential project impacts to county's cultural and historic heritage. |
| Objective 2.2 – Take all reasonable and proper steps to achieve the preservation of archaeological and paleontological remains, or their recovery and analysis to preserve cultural, scientific, and educational values. | The "Archaeological and Paleontological Resources Assessment Update" for the Proposed Project determined that there is no evidence of historical resources, archaeological resources, or human burials within the project boundaries. No fossils are known within the Project Area or a one-mile radius. Fossils are known nearby from some of the same rock units that occur in the Project Area. Mitigation Measures CR-1 and CR-2 have been incorporated into the Project that provide regulations during grading if cultural resources are discovered and the preparation of a Paleontological Resources Mitigation Plan. Please refer to Section 5.4, Cultural Resources for evaluation of potential project impacts, compliance with County policies and recommended mitigation measures for this topical area. |
| Objective 2.3 – Take all reasonable and proper steps to achieve the preservation and use of significant historic resources including properties of historic, historic architectural, historic archaeological, and/or historic preservation value. | No cultural or historic resources are known to exist on the Project Site. Please refer to Section 5.4, Cultural Resources for evaluation of potential project impacts, compliance with County policies and recommended mitigation measures for this topical area. |
| Objective 2.4 - Provide assistance to County agencies in evaluating the cultural environmental impact of proposed projects and reviewing EIRs. | The "Archaeological and Paleontological Resources Assessment Update" for the Proposed Project determined that there is no evidence of historical resources, archaeological resources, or human burials within the project boundaries. No fossils are known within the Project Area or a one-mile radius. Fossils are known nearby from some of the same rock units that occur in the Project Area. |

### e. Recreation Element

Please refer to Section 5.13, Recreation (beginning on page 5-511 of this DEIR) for analysis of project consistency with applicable County recreation and parkland policies.

**Table 5-9-6 Orange County General Plan Recreation Element Consistency**

| Policy | Analysis |
|---|---|
| Goal 1 - Provide adequate local park sites to meet the recreation needs of existing and future residents and preserve natural resources within unincorporated Orange County. | The Proposed Project includes a maximum of 13.16 acres of active and passive parks and in excess of 230 acres of open space area. |

| Policy | Analysis |
|---|---|
| Policy 2.32 - To acquire park lands by requiring residential developers to provide a minimum of 2.5 net acres of usable local park land (i.e., park land that is relatively level, served by utilities, for multipurpose playfields, court sports, etc.) for each prospective 1,000 residents. | The Proposed Project provides a maximum of 13.16 acres of active and passive parks which far exceeds the County requirement of 4 acres. |
| Policy 2.4 - To acquire local park lands in unincorporated areas to provide active recreation facilities to meet the needs of present and future residents through dedications, or irrevocable offers of dedication, in fee title from residential developers. | Parks will be owned and maintained by an HOA and there will be no cost to the County for maintenance or operation. |

### f. Noise Element

Please refer to Section 5.10, Noise (beginning on page 5-459 of this DEIR) for analysis of project consistency with applicable County noise policies.

**Table 5-9-7 Orange County General Plan Noise Element Consistency**

| Policy | Analysis |
|---|---|
| Goal 4 - Noise Monitoring and Abatement -To require that noise from motors, appliances, air conditioners, and other consumer products does not disturb the occupants of surrounding properties | Residential lot sizes are approximately 12,000 to 39,000 square feet, which provides distance attenuation for adjacent residences. New appliances, air conditioners, and other products will be installed that will utilize the most current technology for interior noise abatement. |
| Policy 4.1 - To enforce the County's Noise Ordinance to prohibit or mitigate harmful and unnecessary noise within the County | Construction noise will be subject to the County's Noise Ordinance for hours and days of construction. Operational noise will be typical of a residential area and will not exceed County standards. |
| Goal 5. Noise/Land Use Planning Integration - To fully integrate noise considerations in land use planning to prevent new noise/land use conflicts. | As noted, the Proposed Project consists of residential dwelling units and will be surrounded by similar development as well as Chino Hills State Park. |
| Policy 5.1 - To utilize the criteria of acceptable noise levels for various types of land uses as depicted on Tables VIII-2 and VIII-3 in the review of development proposals. | The residential development proposed will include typical noise sources. Construction noise will be short term and subject to the County's Noise Ordinance for days and hours. |
| Policy 5.4 - To stress the importance of building and design techniques in future site planning for noise reduction. | Lots average 18,000 square feet, which provides for adequate site planning regarding building location. |
| Goal 6 - Sensitive Land Uses. To identify and employ mitigation measures in order to reduce the impact of noise levels and attain the standards established by the Noise Element, for both interior areas and outdoor living areas for noise sensitive land uses. | As noted in Section 5.10, Noise, depending on the access option selected, there will be increases in traffic noise levels above the +3 dB CEQA threshold. Neither interior nor exterior noise levels will exceed the thresholds established by the County; however, the anticipated perceptible increase of 3 dB or more would be significant. |
| Policy 6.2 - To continue enforcement of Chapter 35 of the Uniform Building Code, currently adopted edition, and the California Noise Insulation Standards (Title 25 California Administrative Code). | The Proposed Project will be built according to current building standards for noise insulation as well as any other building code standards applicable at the time of construction. |

| Policy | Analysis |
|---|---|
| Policy 6.3 - To require that all new residential units have an interior noise level in living areas that is not greater than 45 decibels CNEL with it being understood that standard construction practices reduce the noise level by 12 decibels CNEL with the windows open and 20 decibels CNEL with the windows closed. Higher attenuation than listed above may be claimed if adequate field monitoring or acoustical studies are provided to and approved by the County | Existing noise standards for interior noise levels will be adhered to through use of standard construction practices. The Project Site is surrounded by residential development, open space and the Chino Hills State Park with a generally low ambient noise background. |
| Policy 6.4 - To require that all new residential units have an interior noise level in habitable rooms that does not exceed acceptable levels as caused by aircraft fly-overs or as caused by individual passing railroad trains. | The Project site is not within close proximity to either an airport or railroad line and there will be no unacceptable increase in noise levels due to aircraft or trains that would exceed acceptable limits. |
| Policy 6.5 - All outdoor living areas associated with new residential uses shall be attenuated to less than 65 decibels CNEL. | Use of standard construction practices will ensure that outdoor living areas will not be subject to noise levels in excess of 65 dB CNEL under normal circumstances. |
| Policy 6.7 - To apply noise standards as defined in the Noise Element for noise-sensitive land uses. | The Project has been conditioned to adhere to the County's Noise Ordinance standards. |

### g. Safety Element

This project is located in a Very High Fire Hazard Severity Zone (VHFHSZ) adjacent to Chino Hills State Park, which currently has no fire management plan in place. The design of this Project provides for installation of minimum 170-foot FMZs around all habitable structures, installation of two fire breaks in Blue Mud Canyon, construction of three staging areas for OCFA to fight potential wildfires from Chino Hills State Park, and construction of two underground reservoirs to provide gravity fed fire flows to protect this project and surrounding communities. Please refer to Section 5.12, Public Services (beginning on page 5-493) and Section 5.7, Hazards and Hazardous Materials (beginning on page 5-275).

**Table 5-9-8 Orange County General Plan Safety Element Consistency**

| Policy | Analysis |
|---|---|
| Safety Goal 1 - Provide for a safe living and working environment consistent with available resources. | The Proposed Project has been designed to include fuel modification zones, provide fault setbacks and include fire safe landscaping and building materials and comply with all applicable building and safety code requirements to provide for a safe living environment. |
| Safety Objective 1.1 - To identify public safety hazards and determine the relative threat to people and property in Orange County | The DEIR analyzed threats from fire, seismicity, soils conditions, flooding, and the presence of oil well operations and provided mitigation to ensure public safety. |
| Goal 2 - Minimize the effects of public safety hazards through implementation of appropriate regulations and standards which maximize protection of life and property. | Mitigation measures and project design features have been included in the Proposed Project as identified in Section 5.5, Geology and Soils, to maximize protection of life and property. |
| Objective 2.1 - To create and maintain plans and programs which mitigate the effects of public safety hazards. | The HOA will provide on-going site inspection and evacuation plans and procedures to mitigate hazards from emergency occurrences. |

| Policy | Analysis |
|---|---|
| Crime Policy 5 To continue to coordinate land use proposal reviews with the County Sheriff-Coroner Department to assure that Sheriff patrol services are adequately addressed. | The Project applicant has coordinated with the OC Sheriff's Department to identify potential areas of concern and address emergency evacuation plans and policies that will ensure provision of Sheriff Department services. Recently increased Sheriff's Department staff will provide adequate patrol and protection to the Project site. |

### h. Housing Element

The applicable County Housing Element policy, Strategy 5a. states: Encourage the use of energy conservation features in residential construction, remodeling and existing homes. The Proposed Project is consistent with Strategy 5A through the incorporation of design control measures identified in Section 5.6, Greenhouse Gas Emissions (beginning on page 5-257). The project will include energy efficient appliances, water efficient landscaping, low flow fixtures and conform with Title 24 requirements for energy efficiency.

Please refer to Section 5.11, Population and Housing (beginning on page 5-483 of this DEIR).

### i. Growth Management Element

**Table 5-9-9 Orange County General Plan Growth Management Element Consistency**

| Policy | Analysis |
|---|---|
| Goal 1 - Reduce traffic congestion | The Proposed Project includes mitigation measures identified in the Traffic Impact Analysis that will reduce project-related traffic impacts to a less than significant level. Implementation will require payment of fair share fees and approval of the proposed improvements by the City of Yorba Linda. |
| Goal 2. Ensure that adequate transportation facilities, public facilities, equipment, and services are provided for existing and future residents | As indicated in Section 5.12, Public Services adequate supporting facilities and services are available in the Project vicinity to meet the needs of existing and future residents. |
| Objective 2 - The circulation system shall be implemented in a manner which achieves the established Traffic Level of Service Policy. | The Proposed Project is a balanced residential community made up of a maximum of 340 single-family homes (including two estate lots), open space, recreation, riding, and hiking trails, and public facilities served by an adjacent developed urban community with access to major transportation modes and facilities, several retail centers, schools and employment centers to serve the new community. The proposed circulation system and improvements will maintain adequate service levels at both intersection and along roadways in the project area. |

| Policy | Analysis |
|---|---|
| Policy 2 - Balanced Community Development shall be established which encourages employment of local residents and provides for employment and employee housing opportunities within the County or Growth Management Area except in "Transition Areas for Rural Communities" which may be established pursuant to this Element or where a Specific Plan or Feature Plan dictates otherwise | Development of the Proposed Project is consistent with the intent of the Orange County General Plan which applied the Open Space designation as a future development placeholder allowing the site to be re-designated for residential uses to meet the County's RHNA allocation, as well as demands for housing in the County. Employment opportunities will be provided through project construction and through long-range maintenance of the community. |
| Policy 3 - Traffic Level of Service Policy: It is the policy of the County that within three years of the issuance of the first use and occupancy permit for a development project or within five years of the issuance of a finished grading permit or building permit for said development project, whichever occurs first, that the necessary improvements to arterial highway facilities, to which the project contributes measurable traffic, are constructed and completed to attain Level of Service (LOS) "D" at the intersections under the sole control of the County. LOS "C" shall also be maintained on Santiago Canyon Road links until such time as uninterrupted segments of the roadway (i.e., no major intersections) are reduced to less than three miles. | The Project Traffic Impact Analysis determined that Level of Service D can be attained at all project-related intersections with implementation of the proposed mitigation measures. As noted, the impacted intersections are within the City of Yorba Linda and fair share fees will be provided to implement the recommended improvements. In addition, LOS D or better will also be maintained on all roadway segments in the project area. |
| Policy 4 - Traffic Improvement Programs: Comprehensive traffic improvement programs shall be established to ensure that all new development provides necessary transportation facilities and intersection improvements as a condition of development approval. Participation in such programs shall be on a pro-rata basis and shall be required of all development projects except where an increased level of participation exceeding these requirements is established through negotiated legal mechanisms, such as a public facilities development agreement. | As noted, the Project will contribute fair share fees to implement construction of recommended improvements within the City of Yorba Linda to reduce impacts to identified intersections. No County intersections will be impacted by the Proposed Project. |

## 3. Consistency with the Orange County Zoning Code

The Project Site is zoned A1 "General Agriculture." The A1 zoning designation allows single-family dwellings at one building per site per each four acres. As currently proposed, the project would not be consistent with the provisions of the County's Zoning Code (§7-9-55). However, the ordinance also indicates that the A1 district is intended to be used as an interim zone in those areas that the General Plan may designate for more intensive urban uses in the future. As discussed above, the General Plan designates the Project Area as Open Space (5), not as Open Space Reserve (OSR), which identifies areas that will always remain open space. The general Open Space (5) category indicates areas that may ultimately be developed for other uses. The County has anticipated a potential change in the land use designation would occur when a development project is proposed for this site.

Approval of the proposed Esperanza Hill Specific Plan would provide development standards for all development within the project and would establish the zoning for

the Project Site consistent with the proposed General Plan designation of Suburban Residential (1B).

## 4. Consistency with Esperanza Hills Specific Plan

Due to the unincorporated status of the Project Site, all discretionary permits allowing development of the property must be approved by the County and be consistent with the County General Plan and the Zoning Code. The Proposed Project includes a General Plan Land Use designation of Open Space and a Zoning designation of A1 General Agriculture and A1(O) General Agriculture/Oil Production. The General Plan Amendment changes the Land Use designation to Suburban Residential (1B) to allow for the development of 340 residential units. The adoption of the Specific Plan replaces the A1 and A1(O) zoning designations to regulate and guide development of the property.

The Specific Plan includes the following:

### Introduction

The Esperanza Hills project is a low-density residential subdivision located on approximately 468.9 acres in the unincorporated area of Orange County within the Sphere of Influence of the City of Yorba Linda. This Specific Plan for Esperanza Hills establishes a land use plan that is compatible with the land form and less dense than adjacent existing subdivisions and planned developments while conforming to the intent and framework of the General Plans for Orange County and the City of Yorba Linda. Large areas of open space have been preserved while minimizing the visual impacts of this low-density residential community to the existing adjacent communities within the City of Yorba Linda. Two access options are presented herein – one to Stonehaven Drive, which plans for 334 lots, and one to Aspen Way, which plans for 340 lots. When referring to the project in general, 340 lots are noted as a maximum number of units. A third access option (Option 2A) is contemplated via San Antonio Road south of Aspen Way, and exhibits depicting this access option are presented herein. Option 2A is substantially consistent with the other two options addressed in this Specific Plan. Detail is provided herein where Option 2A differs from Option 2.

### Purpose Statement

The purpose and intent of the Esperanza Hills Specific Plan (SP) is to provide policies and regulations for the development of a low-density luxury master planned residential community in accordance with the policies of the Orange County General Plan within the density guidelines of the General Plan of the City of Yorba Linda. The objectives sought to be achieved by the SP are creation of a well-engineered and designed subdivision compatible with the surrounding neighborhoods, incorporation of fire safety protection for the Specific Plan Area and the surrounding community, preservation of open space, development of

active and passive theme parks, planning within the landform and retention of ridgelines, creation of multi-use trails (hiking, equestrian, biking) connecting to Chino Hills State Park and other existing trails on adjacent open space, and use of hydromodification principles in the design of drainage and detention areas.

## Specific Plan Principles and Objectives

The Specific Plan provides land use and design criteria for infrastructure construction and buildout of the Esperanza Hills community. These goals reflect the intent of the development plan – to provide a mix of high-quality residential, recreation, and open space uses in harmony with the surrounding community while preserving the ridgelines and natural character of the site. Key planning principles and objectives include the following:

- Create clustered residential neighborhoods with abundant open space.
- Design compatible land uses within the project and to surrounding areas.
- Create a low-density luxury single-family development.
- To the extent possible, preserve open space, natural landforms, vegetation
- Preserve the northern ridgelines adjacent to Chino Hills State Park.
- Develop safe and effective circulation systems servicing the project and the adjacent land uses, including hiking and equestrian trail systems.
- Implement a program of sensible and proactive fire prevention methods to reduce the risk associated with wildland fires to Esperanza Hills and the surrounding developments.
- Provide firefighting staging areas, access points, fire flow, and emergency ingress/ egress plans to enhance safety to the residents and the surrounding community.
- Provide construction standards and requirements consistent with OCFA requirements for communities bordered by wildland areas.
- Enhance the visual quality of the areas around the oil extraction operations.
- Integrate hydromodification principles with biological resources to create bioretention and biodetention areas, passive parks, and aesthetically pleasing landscape features.

The Specific Plan also contains sections which provide regulation on Land Use Planning, Circulation, Parks and Open Space, Fuel Modification, Public Services, Infrastructure and utilities, Development Standards, Design Guidelines, an Implementation Plan and Administration provisions in accordance with state law and County policy. The Specific Plan is not only consistent with the County General Plan, but the development permitted by the Specific Plan is consistent and compatible with the type, character, and density of the existing development within the Project Area.

## 5. Consistency with City of Yorba Linda General Plan

### a. General

The Proposed Project is within the City's SOI and has been designated within Area Plan C – Murdock Property on the Land Use Map Update, dated March 18, 2010 (refer to Exhibit 5-100 – Yorba Linda General Plan Land Use Map) and the Yorba Linda GP, adopted in 1993, which designates the property as Opportunity Area A5 Murdock Property. The definition of "opportunity" in the Yorba Linda GP is: "A portion of the community in which change is either likely and requires guidance or in which change is desired and requires stimulation."

The City's vision for the 630-acre Murdock Property area, as stated in its General Plan, is for low density residential that averages one dwelling unit per acre over the entire area with a golf course on a 547-acre City-owned parcel. The proposed Esperanza Hills project is consistent with the City's vision for the Murdock Property in that the overall building density averages 0.73 dwelling units per acre over the approximately 468.9-acre Project Site, which is less than envisioned by the Yorba Linda GP. The maximum number of dwelling units for the Proposed Project is 340, including 2 estate lots.

The City's vision for the 630-acre Murdock Property area, as stated in its General Plan, is for low density residential that averages one dwelling unit per acre over the entire area with a golf course on a 547-acre City-owned parcel. The proposed Esperanza Hills project is consistent with the City's vision for the Murdock Property in that the overall building density averages 0.73 dwelling units per acre over the approximately 468.9-acre Project Site, which is less than envisioned by the Yorba Linda GP. The maximum number of dwelling units for the Proposed Project is 340, including 2 estate lots.

The City's vision for the 630-acre Murdock Property area, as stated in its General Plan, is for low density residential that averages one dwelling unit per acre over the entire area with a golf course on a 547-acre City-owned parcel. The proposed Esperanza Hills project is consistent with the City's vision for the Murdock Property in that the overall building density averages 0.73 dwelling units per acre over the approximately 468.9-acre Project Site, which is less than envisioned by the Yorba Linda GP. The maximum number of dwelling units for the Proposed Project is 340, including 2 estate lots.

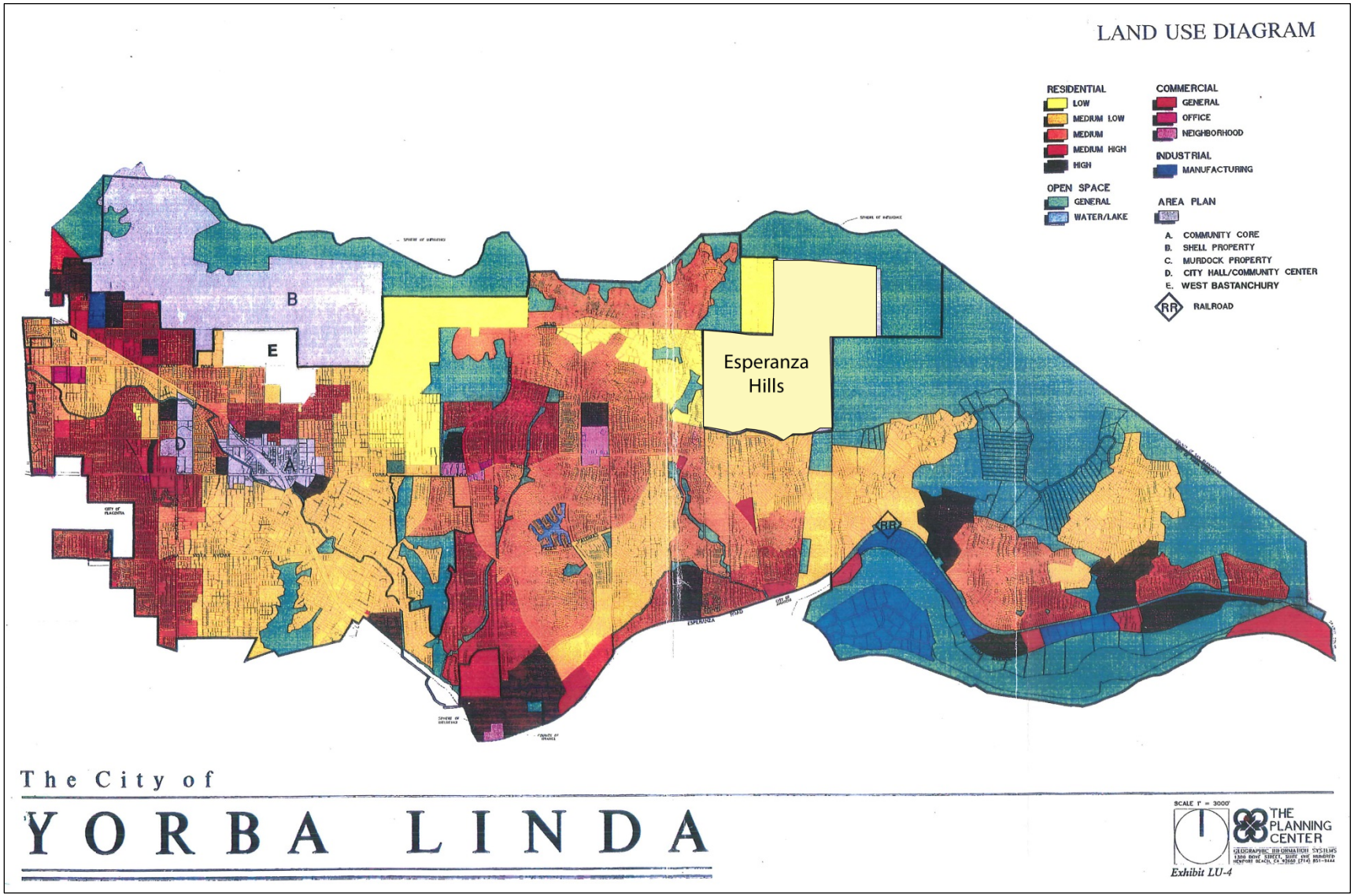



**Exhibit 5-100 – Yorba Linda General Plan Land Use Map**

The preferred Opportunity Area A5 Murdock Property alternative contemplates one or more specific plans, including all eight properties that comprise the area, or compatible combinations of property owners to provide a comprehensive development and circulation system. The Proposed Project has nearly one-half the development density of the adjacent proposed Cielo Vista project (.73 dwelling units per acre versus 1.33 dwelling units per acre), lower density than any surrounding development, and provides access to the adjoining Yorba Linda Land, LLC and Bridal Hills, LLC parcels to accommodate future development of these properties.

The City anticipated that the project will take access to San Antonio Road and Stonehaven Drive, and this is consistent with both options of the Proposed Project. Section 5.14, Transportation and Traffic (beginning on page 5-543) describes project impacts to San Antonio Road and Stonehaven Drive and provides mitigation required for the Proposed Project.

Table 5-9-10 below provides a list and description of the surrounding land uses and their associated gross acres, density, number of lots, and average lot size.

**Table 5-9-10 Surrounding Land Uses and Densities**

| Development | Gross Area (acres) | Dwelling Units per Acre | Number of Lots (dwelling units) | Average Lot Size (square feet) |
|---|---|---|---|---|
| Casino Ridge – Tract No. 16186 (M.M. 848/7-14) | 68.60 | 0.74 | 51 | 45,740 |
| Tract No. 9813 (M.M. 568/8-20) | 129.10 | 1.04 | 134 | 28,750 |
| Tract No. 10519 (M.M. 451/48-50) | 13.80 | 1.9 | 28 | 18,730 |
| Tract No. 10455 (M.M. 535/14-20) | 38.50 | 1.38 | 53 | 33,100 |
| Tract No. 13800 (M.M. 623/25-30) | 19.30 | 1.71 | 33 | 27,800 |
| Tract No. 12850 (M.M. 579/46-47) | 13.20 | 1.44 | 19 | 20,910 |
| Tract No. 12856(M.M. 576/16-28) | 18.10 | 2.65 | 48 | 13,326 |
| Tract No. 12849 (M.M. 579/31-35) | 31.77 | 1.48 | 47 | 23,782 |
| Tract No. 12877 (M.M. 580/26-31) | 29.81 | 1.14 | 34 | 28,254 |

In the 1993 General Plan the City anticipated that the City-owned 547 acres east of the Proposed Project would be developed with a golf course. The City-owned land was dedicated to the Chino Hills State Park by the City and will not be developed with a golf course.

The Proposed Project is consistent with the Yorba Linda GP vision that the residential units within the Murdock Property be clustered to provide open space and in response to the topography of the property. The Proposed Project is designed to cluster residential pads to maximize open space preservation and to preserve the natural ridgelines and topography of the site to the degree possible, including all of the major ridgelines to the north and east bordering Chino Hills State Park.

### b. Land Use Element

The Proposed Project would be substantially consistent with the overall goals and policies of the Yorba Linda GP Land Use Element. An analysis of the project's consistency with the relevant goals and policies is provided in the table below.*

**Table 5-9-11 Yorba Linda General Plan Land Use Element Consistency**

| Policy | Analysis |
|---|---|
| Goal 1 - A mixture of land uses that meet the housing, commercial, educational, industrial, recreational, cultural, and social needs of the existing residents and future population growth. | The Proposed Project is consistent with Goal 1 in that the 340 residential units will provide housing and access to public trails in the Chino Hills State Park for existing residents and future population growth in accordance with the adopted long-range plans for the subject property. |
| Policy 1.1 - Maintain within the City limits the average 2.8 dwelling unit per base acre low density residential character of the community through General Plan land use designations, and ensure that appropriate residential densities are included in future residential projects. At no time should the City average density exceed 2.8 dwelling units per acre, although individual residential developments may vary in density. | The Proposed Project would be consistent with Policy 1.1 in that the average density is .73 dwelling units per acre, less than the 1 dwelling unit per acre provided in the General Plan. |
| Policy 1.2 - Designate the currently undeveloped Shell and Murdock properties in the Sphere of Influence as Area Plans. Permit development at an average density of 1.0 dwelling units per base acre for the Murdock property; permit development of an average density not to exceed 2.8 dwelling units per base acre for the Shell property, supportive of the overall low density character of the Community | The Proposed Project would be consistent with Policy 1.2 in that the average density is .73 dwelling units per acre, less than the 1 dwelling unit per acre provided in the General Plan. |
| Policy 1.5 - Designate public parks in the City as Open Space, and establish standards and requirements for the development of a minimum of 4 acres per 1000 population of new parks to provide for the needs of future population growth. | The Proposed Project will provide up to 13 acres of active and passive parks, far exceeding City of County requirements for parkland. |

| Policy | Analysis |
|---|---|
| Goal 3 - Compatible relationships between land uses provided in the community | The Proposed Project would be consistent with Goal 3 of the General Plan in that the project density of 0.73 dwelling units per acre is less than the surrounding residential single-family neighborhoods, which average 1.46 dwelling units per acre, and is consistent with Casino Ridge, which is .74 dwelling units per acre. The Proposed Project will have multi-use trials extending to Chino Hills State Park, and will retain open space as a buffer to existing residential communities. A habitat restoration area is proposed in Blue Mud Canyon. Underground reservoirs will be constructed that will enhance and balance the existing system in place maintained by the YLWD consistent with the YLWD Master Plan. The Proposed Project also provides fire protection features that will improve the fire protection, not only for the Project Site but also for the surrounding community, as described in Section 5.7, Hazards and Hazardous Materials (beginning on page 5-275). Any environmental impacts to surrounding infrastructure will be mitigated, and potential oil production impacts (e.g., methane release) to development will be mitigated pursuant to OCFA standards. |
| Policy 3.4 - Provide land use compatibility through appropriate community design and development policies. | The Proposed Project would be consistent with Policy 3.4 because it has been designed to be compatible with the surrounding community by providing a low density single-family housing of .73 units per acre, incorporation of open space, grading design to cluster and eliminate landslides, use of non-glare glass, lighting that is directed downward and confined to the development area, use of low impact development techniques and hydromodification to reduce storm water runoff volumes and velocity and treat water quality. |
| Goal 5 - New and existing development supported by adequate public infrastructure. | The Proposed Project would be consistent with Goal 5 of the General Plan. Section 5.12 – Public Services (beginning on page 5-493) discusses the project impact on public services. The public services are anticipated to be adequate to serve residents in the Proposed Project. The Proposed Project will provide two underground water reservoirs that provide adequate on-site and off-site redundant water supply for residential and emergency use. The addition of a gravity-fed water supply will directly address existing deficiencies, as well as potential project-related issues with firefighting throughout portions of the eastern wildland urban interface areas of the City. For additional discussion on water supply and fire hazards refer to Section 5.15, Utilities and Service Systems (beginning on page 5-625 and Section 5.7, Hazards and Hazardous Materials (beginning on page 5-275). The City has established a level of service of LOS D as the minimum acceptable standard for all key intersections. The Proposed Project, with mitigation, meets this standard for all of the 15 key intersections study. Refer to Section 5.14, Transportation and Traffic (beginning on page 5-543) for additional information. |
| Policy 5.1 - Implement public infrastructure improvements necessary to serve land uses included in the Land Use Plan (as defined by the Circulation Element). | The Proposed Project would be designed at a density that is less than the density of 1 unit per acre allocated in the Land Use Plan for the "Murdock" properties and therefore has less of an impact than was anticipated in the Circulation Element. For additional discussion on public infrastructure improvements necessary to serve the Project refer to Section 5.14, Transportation and Traffic (beginning on page 5-543 of this DEIR) for additional information. |
| Policy 5.3 - Coordinate the timing of the implementation and siting of public infrastructure and public facilities with other related public facilities and development | Coordination with Yorba Linda Water District, as identified in the DEIR Chapter 5.15, Utilities and Service Systems will ensure that proposed infrastructure will sited and constructed in coordination with the District. |

| Policy | Analysis |
|---|---|
| Policy 5.4 - Support the school district in its efforts to obtain financing and new sources of funding for the rehabilitation and improvement of existing facilities to meet increased need. | The Proposed Project is conditioned to pay SB 50 development impact fees to the Placentia-Yorba Linda School District for additional or improved school facilities. |
| Policy 5.6 - Encourage the use of public sewer systems in new and infill development rather than septic systems. | The Proposed Project would connect to the YLWD sewer system. Coordination with the District will continue to ensure that such infrastructure connections have been appropriately designed and sited. |
| Goal 6 - Achieve a unified and contiguous City area through voluntary annexation by residents of developed County Islands located in the City's Sphere of Influence. | A petition for annexation has been filed with LAFCO, and the focused stakeholder process has been initiated between the County of Orange, the City, and the YLWD. In the event this process is not successful at this time, it is anticipated that annexation may occur in the future. In that case, future residents of the Proposed Project will determine whether to voluntarily annex into the City. Please refer to Subsection 5.9.4.11, Consistency with Sphere of Influence Guidelines (page 5-450) for additional information. |
| Goal 7 - New development opportunities offered by large undeveloped properties located in the sphere of influence. | Although the Proposed Project would be approved as a specific plan by the County of Orange, the low density land use, development standards, and infrastructure provided to support the development would be consistent with City regulations and standards. The County of Orange requires all infrastructure improvements required for the Proposed Project to be constructed or funded prior to occupancy of that phase of development requiring the improvement. |
| Policy 7.1 - Seek the annexation of Shell, Murdock and other undeveloped properties within the northern sphere of influence based upon development plans that ensure access, infrastructure and land use concepts which are acceptable to the City. | An application for annexation has been filed between the City of Yorba Linda and LAFCO and is in the process of review as of this date. |
| Policy 7.2 - Require developers of undeveloped properties to complete improvements for required infrastructure and/or provide funds for required infrastructure (both on-site and related improvements) in accord with City determined service levels. | The Project Applicant has prepared and submitted infrastructure design and siting plans to the appropriate City and County agencies for coordination, approval and implementation of such plans. |
| Policy 7.3 - Designate the Shell and Murdock properties for an Area Plan designation and require that a Specific Plan, Planned Community (PC) or Planned Residential Development (PRD) development plan process, or other similar regulatory mechanisms acceptable to the City be prepared to implement the intent of the Area Plans as primarily low density residential communities. | The Proposed Project would be consistent with the General Plan discussion for the Murdock property. The density of the Proposed Project is .73 dwelling unit per acre, which results in less density than the planned 1.0 dwelling unit per acre average allocated to the site in the Yorba Linda GP. |

| Policy | Analysis |
|---|---|
| Policy 7.4 - Permit development at an average density of 1.0 dwelling unit per base acre for the Murdock property; permit development at an average density not to exceed the City's target density of 2.8 dwelling units per base acre for the Shell property. | The Proposed Project would be consistent with Policy 7.4 of the General Plan. The Project provides an average density of .73 unit per acre, which is less than the proposed average density of 1.0 dwelling unit per acre for the Murdock property. |
| Goal 8 - Low density residential development in the hillside areas which protects the unique natural and topographic character. | The Proposed Project would be consistent with Goal 8 of the General Plan. The Project's low density and clustered building pads would preserve the northernmost ridgeline, the eastern ridgeline, and the lower ridgeline near Blue Mud Canyon, as well as significant natural resources, while providing slope stability, adequate drainage, and fire protection. For additional discussion, refer to the Section 5.3, Biological Resources (beginning on page 5-91), Section 5.7, Hazards and Hazardous Materials (beginning on page 5-275), and Section 5.4, Cultural Resources (beginning on page 5-183) of this DEIR. |
| Policy 8.1 - Target lower densities to hillside areas with yield based on slope severity and stability, topographic conditions, and natural resource protection and other environmental conditions. | The Proposed Project would be consistent with Policy 8.1 of the General Plan. The Project's low density and clustered building pads would preserve the northernmost ridgeline, the eastern ridgeline, and the lower ridgeline near Blue Mud Canyon, as well as significant natural resources, while providing slope stability, adequate drainage, and fire protection. For additional discussion, refer to the Section 5.3, Biological Resources, Section 5.7, Hazards and Hazardous Materials (beginning on page 5-275), and Section 5.4, Cultural Resources (beginning on page 5-183) of this DEIR. |
| Goal 9 - Preservation and enhancement of the natural setting of the City. | The Proposed Project would be consistent with Goal 9 of the General Plan. The design of the Proposed Project would not significantly impact the most important aesthetics features. The Proposed Project has been designed with features to enhance the visual qualities of the hillsides and ridgelines by providing significant open space, creating landscaped areas, and using low lighting, contour grading, landscaped or natural-colored retaining walls, housing paint colors, and roofing materials that are similar to the natural surroundings in order to reduce glare, thereby blending the development to the natural setting. |
| Policy 9.1 - Preserve sensitive open space areas within the City. | The Proposed Project would be consistent with Policy 9.1 of the General Plan. The design of the Project would restrict storm water runoff to the same volume and velocity and improved water quality than in the existing condition thereby preserving sensitive open space areas. Revegetation of special status species on-site is required to provide no net loss of habitat. |
| Policy 9.2 - Protect the scenic and visual qualities of hillside areas and ridgelines. | The Proposed Project would be consistent with Policy 9.2 of the General Plan because the Project has been designed to preserve major ridgelines, consist of low-density single-family residential clustered to maximize open space areas, lighting shielded and confined to the developed areas, building colors consistent with the natural background and building materials to reduce glare. |
| Policy 9.3 - Ensure that land uses within designated and proposed scenic corridors are compatible with scenic enhancement and preservation. | There are no General Plan designated or proposed scenic corridors within or near the Proposed Project. |

| Policy | Analysis |
|---|---|
| Goal 10 - Provision of adequate school facilities according to the standards of the School District. | The Proposed Project would be consistent with Goal 10 of the General Plan. The Proposed Project will pay applicable school fees to the Placentia-Yorba Linda Unified School District assessed on each residential square foot constructed. The DEIR has fully analyzed the Proposed Project's indirect impacts on surrounding schools from traffic, air quality, and noise pollution. Refer to 5.12 – Public Services (beginning on page 5-493) of this DEIR for a detailed discussion of public facilities. |
| Policy 10.1 - Facilitate coordination between the School District and the developer to ensure that school facilities are adequately sized, located and funded to serve the present and projected needs of the area according to the standards of the School District. | The Project will provide SB 50 development impact fees to the Placentia-Yorba Linda Unified School District to ensure that adequate school facilities are available to residents of the proposed project. |
| Policy 10.2 - Require that any new development contribute its fair share toward the costs of expanding, upgrading or providing school facilities to serve the population generated by the development, or provide the required facilities as a condition of approval. | As noted, the Project has been conditioned to pay development impact fees per SB 50 to the Placentia-Yorba Linda Unified School District. |
| Goal 11 - Ensure urban/storm water runoff and water quality protection principles are properly considered in the land use decision making process. | The Proposed Project would be consistent with Goal 11 of the General Plan. The City must comply with the NPDES permit issued to the County of Orange by the Regional Water Control Board, Santa Ana Region. The Proposed Project is consistent with the City and the County of Orange permits. The Proposed Project has been designed to incorporate BMPs, which include low impact development features in the form of bio-retention basins that will provide a plant palette to filter storm water runoff to meet or exceed the current standards and design criteria for storm water runoff and water quality protection. The initial WQMP design has been approved by the County of Orange. For additional discussion on water quality protection refer to Section 5.8, Hydrology and Water Quality (beginning on page 5-341) of this DEIR.<br><br>The Proposed Project has been designed to be consistent with the goals and policies of the Land Use Element of the Yorba Linda GP. An analysis of the Proposed Project's consistency with goals and polices of other elements of the City's General Plan are discussed in the respective sections of this DEIR. For CEQA purposes, even if the Proposed Project were found to be inconsistent with the provisions of the Yorba Linda GP, no significant impacts would result, as the Proposed Project is under the jurisdiction of the County of Orange General Plan. |
| Policy 11.1 - Limit disturbance of natural water bodies and drainage systems; conserve natural areas; protect slopes and channels; and minimize impacts from stormwater and urban runoff on the biological integrity of natural drainage systems and water bodies. | The Proposed Project would be consistent with Policy 11.1 because the Project has been designed to limit disturbance of natural drainage systems, conserve natural areas, and protect slopes and channels with the incorporation of Project Design Features and Mitigation Measures for the preservation and enhancement of Blue Mud Canyon. The Project has been designed to minimize impacts from storm water and urban runoff on the biological integrity of the natural drainage systems by the incorporation of Low Impact Development features, BMPs and hydromodification BMPs that reduce velocity and volume of storm water runoff and urban runoff as well as provide water quality treatment prior to discharge off of the Project Site. |

| Policy | Analysis |
|---|---|
| Policy 11.2 - Minimize changes in hydrology and pollutant loading; require incorporation of controls, including structural and non-structural BMPs, to mitigate the projected increases in pollutant loads and flows; ensure that post development runoff rates and velocities from a site have no significant adverse impact on downstream erosion and stream habitat; minimize the quantity of stormwater directed to impermeable surfaces and the MS4s (storm drain system); and maximize the percentage of permeable surfaces to allow more percolation of stormwater into the ground. | The Proposed Project would be consistent with Policy 11.2 because Project Design Features, Conditions of Approval, and Mitigation Measures have been incorporated into the Project to minimize projected changes in hydrology and pollutant loading. The Project has incorporated Project Design Features that include hydromodification BMPs, bio-treatment BMP, source control BMPs and Low Impact Development features of debris/detention basins and outlet structures that treat and reduce volume and velocity of storm water runoff and prior to discharge off-site. The Proposed Project includes less density and more permeable surfaces than the Yorba Linda Master Plan of Drainages anticipated for the MS4s storm drain system. The Proposed Project as designed and with the Project Design Features and Mitigation Measures would have no significant adverse impact on downstream erosion and stream habitat. |
| Policy 11.5 - Provide for appropriate permanent measures to reduce stormwater pollutant loads in stormwater from the development site. | The Proposed Project would be consistent with Policy 11.5 because the Project incorporates Low Impact Development features in the form of debris/detention, WQMP basins and bio-treatment BMP that reduce storm water pollutant loads in storm water from the development site. |

### c. Circulation Element

**Table 5-9-12 Yorba Linda General Plan Public Services and Facilities Element Consistency**

| Policy | Analysis |
|---|---|
| Goal 1 - To develop a circulation system that meets the needs of current and future residents of the City, has adequate capacity for projected future traffic demands at acceptable levels service, and facilitates the safe and efficient movement of people and goods throughout the City. | An internal circulation system that connects with existing streets within the City has been designed for the Proposed Project. The system would also serve the adjacent Bridal Hills project, if developed. However, the Project site is bounded by Chino Hills State Park, City open space and other existing and proposed development. No additional access beyond that proposed and approved is likely, due to these existing constraints. |
| Policy 1.1 - Develop and maintain a road system that is based upon, and is in balance with, the Land Use Element of the General Plan. | Access to the Project site will occur via linkages to the existing roadway system in the Project Area within the City of Yorba Linda. |
| Policy 1.5 - Establish local street design standards that discourage their use for through traffic movement through residential communities. | Traffic movement will be limited to the Proposed Project site and potentially to the Bridal Hills site, if developed. No through traffic will occur or would be facilitated by the Proposed Project, because it is a gated community with only limited opportunity to connect to other communities. |
| Policy 1.6 - Locate new developments and their access points in such a way as to discourage through traffic from utilizing local and residential streets. | The Proposed Project will consist of either one or two access points depending on the access option selected. No through traffic will result as the only other development that will utilize the street system is Bridal Hills, if developed. |
| Policy 1.8 - Require that proposals for major new developments include traffic impact analysis which identifies measures to mitigate the traffic impacts of such new developments. | A Traffic Impact Analysis was prepared for the Proposed Project and is included herein. Analysis of the project-related traffic is discussed further in Section 5.13 - Transportation and Traffic. Mitigation measures have been included to reduce impacts from project-related traffic. |

| Policy | Analysis |
|---|---|
| Goal 3 - Maximize the efficiency of the City's circulation system through the use of transportation system management and demand management strategies. | The Proposed Project's internal circulation system has been designed to maximize daily and emergency traffic use and efficiency. Access will be via options that connect to the existing city streets and highways. |
| Policy 3.7 - Require that new developments provide Transportation Demand Management Plans, with mitigation monitoring and enforcement plans, as part of required Traffic Studies, and as a standard requirement for development processing. | The Proposed Project is entirely residential, and Transportation Demand Management Plans are not applicable. However, the Project Applicant will work with the City to develop such plans/programs that maximize efficiency in the circulation system. |
| Goal 5 - Development of an Efficient Public Transportation System. | The Proposed Project is located within close proximity to existing bus service on Yorba Linda Boulevard and Imperial Highway. No expansion of the existing system is required with implementation of the Proposed Project. |
| Policy 5.4 - Promote improved shuttle service in Yorba Linda, including "Dial-A-Ride" service. | The Proposed Project does not provide an opportunity to improve existing shuttle service. However, Project residents will have the opportunity to support the existing system through regular use. |
| Policy 5.5 - Implement the development of currently planned and future "Park and Ride" facilities. | As noted, the Proposed Project does not provide an opportunity to participate in the development of "Park and Ride" facilities or other such public transportation facilities. |
| Goal 9 - Develop an efficient parking system that supports a safe vehicular transportation system, while minimizing the friction between parked and moving vehicles | The Proposed Project consists of residential development and no commercial uses are included requiring parking systems. Adequate parking for such residential uses will be provided within the development. |
| Policy 9.4 - Require that all new developments provide adequate parking to meet the parking demands generated by their development. | Adequate parking will be designed and included for the residential units within the Proposed Project. |

### d. Recreation and Resources Element

**Table 5-9-13 Yorba Linda General Plan Recreation and Resources Element Consistency**

| Policy | Analysis |
|---|---|
| Goal 1 - To permanently preserve and maintain public and private open space. | The Proposed Project will retain approximately 230 acres of open space including natural open space, landscaped areas, and fuel modification areas. |
| Policy 1.2 - Preserve and protect the scenic and visual quality of canyon and hillside areas as a resource of public importance. | Project design has taken into consideration existing topography by clustering and terracing building pads, preservation of large areas of open space and protecting the most prominent ridgelines, thereby preserving the integrity of the scenic and visual quality of the site. |
| Policy 1.3 - Achieve the retention of permanent open space through dedication as a part of the development site plan and subdivision/review process | As noted, the Proposed Project will retain approximately 230 acres of open space. |
| Goal 3 - Provide park facilities to meet the needs of existing and future residents, including acreage to offset the current deficit and provide for projected population growth. | The park acreage provided by the Proposed Project is in excess of that required by the City of Yorba Linda. A maximum of 13.16 acres of parks will be developed within the community to support the projected population of the Project. |
| Policy 3.1 - Require that 4.0 acres per 1,000 population be maintained as the City's parkland standard. | As noted, the Project will provide a maximum of 13.16 acres of parks, which far exceeds the City's requirement. In addition, several miles of pedestrian and equestrian trails will be provided with linkages to existing trail systems. |

| Policy | Analysis |
|---|---|
| Goal 4 - Ensure adequate funding sources for acquisition, operation and maintenance of park and recreation facilities within the City. | No additional funding will be required with the Proposed Project as parkland will be in excess of the City's requirements. |
| Policy 4.1 - Continue to require developers of residential subdivisions to provide land or in-lieu fees based on the City's formula of number of units and cost of land to fund parkland acquisition and improvements. Fees shall be reviewed annually. | As noted, no additional funding will be required as parkland will be in excess of the City's requirements. |
| Goal 5 - Establish a trail system that meets the riding, hiking and bicycling needs of residents. | A trail system has been designed for the Proposed Project to accommodate pedestrian and equestrian use, in some cases providing linkages to existing trails. |
| Policy 5.1 - Require the dedication of right-of-way and construction of public trails as a condition of approval of development projects. | As noted, a trail system has been designed and included in the Project for pedestrian and equestrian uses. |
| Policy 5.5 - Complete the equestrian trail network through the community, with particular emphasis on extension of trails through the Shell and Murdock Properties, and connections into Chino Hills State Park | The Proposed Project is part of the Murdock Property identified in the City's General Plan. Trails have been designed and included throughout the Project Site. |
| Goal 7 To permanently preserve natural resource areas of community and regional significance | A Specific Plan has been prepared which identifies the Proposed Project components related to the planned development including residential areas, open space that supports sensitive habitat and important biological resources, parks and trails. |
| Policy 7.5 - Require the delineation of permanent open space areas within the Shell and Murdock Area Plans through more detailed development planning so that the steep slopes and important natural resource areas can be properly preserved and protected through specific plans or other appropriate development regulations. | As indicated above, the Specific Plan has been prepared which identifies the Proposed Project components related to the planned development including residential areas, open space, parks, and trails. |
| Policy 7.6 - Require development proposals in areas expected to contain important plant communities and wildlife habitat to provide detailed biological assessments. | The project site has been surveyed extensively and biological resources identified and mapped. The EIR includes a thorough analysis of project-related impacts to biological resources and has identified mitigation measures to reduce impacts to a less than significant level. |
| Goal 8 - To permanently preserve and protect sensitive hillside areas within and adjacent to the community. | The Proposed Project includes the retention of 230 acres of open space, including sensitive habitat. |
| Goal 8.1 - Provide for the preservation of sensitive hillside and canyon areas within the City. | Ridgeline and canyon areas have been avoided to the extent feasible. |
| Policy 8.2 - Respect the natural landform as a part of site planning and architectural design to minimize grading and visual impact. | Clustered development will minimize grading and landform alteration and contour grading will be employed to retain the integrity of the natural landform. |
| Policy 8.5 - Preserve significant natural features, including sensitive hillsides as part of the new development. | Approximately 230 acres of open space, including hillsides, will be preserved. |
| Policy 8.6 - Require analysis of visual quality impacts of proposed development projects on a project-by-project basis. | Potential visual impacts of the proposed project have been evaluated in the Draft EIR (refer to Section 5.1, Aesthetics). A series of view simulations have been included in the analysis that depict post-development views of the proposed project from 12 locations. |

### e. Noise Element

**Table 5-9-14 Yorba Linda General Plan Noise Element Consistency**

| Policy | Analysis |
|---|---|
| Policy 3.2 - Develop and implement measures to reduce noise generated by construction activities. | The Proposed Project has been conditioned to comply with the County of Orange Noise Ordinance regarding construction noise. The City of Yorba Linda has adopted the same standards and thresholds for construction noise. |
| Goal 5 - Project approvals that include conditions to mitigate noise impacts. | Construction noise will be subject to the County's Noise Ordinance. Long term operational noise impacts have been identified related to traffic, which exceeds the +3dB CNEL threshold for CEQA impacts. However, the noise levels will remain within the County and City exterior noise thresholds of 65 dB CNEL. |

### f. Public Safety Element

**Table 5-9-15 Yorba Linda General Plan Public Safety Element Consistency**

| Policy | Analysis |
|---|---|
| Goal 1 - Protect the community from hazards associated with geologic instability. | No habitable structures will be constructed on active faults and graded soils will be compressed to assure building stability. The preliminary geotechnical report identified several mitigation measures, in addition to the California Building Code and local grading ordinances, to ensure that geologic hazards and constraints have been adequately addressed to protect the existing and future structures and residents. |
| Policy 1.1 - Require review of soil and geologic conditions to determine stability and relate to development decisions, especially in regard to type of use, size of facility, and ease of evacuation of occupants. | A Geotechnical Report and Fault Hazard Assessment Report were prepared for the Proposed Project. Findings and conclusions are included in Section 5.5, Geology and Soils herein. The reports analyzed all geological and soils conditions based on the proposed development footprint and included mitigation measures to ensure geologic stability. |
| Policy 1.3 - Provide standards and requirements for grading and construction to mitigate the potential for landslides and seismic hazards in the City. | As noted, Section 5.5, Geology and Soils of this EIR provides analysis and mitigation regarding geologic stability and seismic hazards. |
| Policy 1.6 - Prohibit the location of habitable facilities within an Alquist-Priolo Special Study Zone (APSSZ) or within 50 feet of either side of the centerline of an active or potentially active fault. | As required by state law, no habitable structures will be constructed on active faults. Future residential structures will be located at least 50 feet from the active fault that has been mapped on the site. |
| Goal 3 Protect the lives and property of residents and visitors of the City from flood hazards. | Hydrology and drainage studies have been prepared, and drainage facilities have been incorporated into the project design. No portion of the proposed residential development is located within a flood hazard zone. |
| Policy 3.1 Identify flood hazard areas and provide appropriate land use designations and regulations for areas subject to flooding. | The Proposed Project is in FIRM Zone X, which is outside the 0.2% annual change of flood (500 years). |
| Policy 3.2 Maintain natural drainage courses and keep them free of obstructions. | Blue Mud Canyon will be maintained through the project site. Drainage plans and facilities have been incorporated into the Proposed Project in order to adequately accommodate surface flows through the site. |

| Policy | Analysis |
|---|---|
| Goal 4 Protect people and property from brush fire hazards. | The Proposed Project includes a Fire Protection and Evacuation Plan, fuel modification zones, and buildings designed to resist embers and protect structures and residents from potential fire hazards. |
| Policy 4.3 Enforce fire inspection, code compliance, fuel modification, and weed abatement programs. | A fuel modification program is incorporated into the Proposed Project that complies with OCFA requirements for fire protection in high fire hazard areas. |
| Policy 4.4 Educate the public as to the risk associated with wildfire hazards and encourage wildfire reduction activities by residents | The HOA will be responsible for providing educational information to residents regarding evacuation plans. |
| Goal 5 - Provide community protection from hazards associated with urban fires and crime. | Section 5.7, Hazards and Hazardous Materials analyzes the potential for wildfires and provides mitigation measures, including evacuation planning, to provide protection to the residents and adjacent communities from fires. |
| Policy 5.2 - Ensure that law enforcement and crime prevention concerns are considered in the review of planning and development proposals in Yorba Linda. | The Orange County Sheriff's Department provides police protection to the unincorporated area as well as the City of Yorba Linda. Consultation with the OCSD has been on-going regarding their ability to serve the project. |
| Policy 5.3 - Require that adequate police and fire service facilities and personnel are maintained to provide service at sufficient levels. | As noted, the Orange County Sheriff's Department has recently expanded its personnel for the Project area and the City of Yorba Linda to adequately serve the residents. |

### g. Growth Management Element

**Table 5-9-16 Yorba Linda General Plan Growth Management Element Consistency**

| Policy | Analysis |
|---|---|
| Goal 1A - An adequate transportation/circulation system that supports regional and local land uses at adopted Level of Service (LOS) standards and complies with requirements of the Countywide Traffic Improvement and Growth Management Program (Measure M). | The Proposed Project related traffic will not exceed the Level of Service standards adopted by the County of Orange or the City of Yorba Linda with the inclusion of mitigation measures recommended for implementation by the City. The Project has been required to contribute a fair share contribution towards the recommended mitigation measures. |
| Policy 1.1 - All feasible mitigation measures shall be designated to achieve the target standard LOS D unless it can be demonstrated that the unacceptable level of service is a direct result of regional traffic. | As noted, the Project has been conditioned to contribute a fair share payment to implement recommended mitigation measures to maintain the Level of Service standards adopted by the City. |
| Policy 1.2 - Each signalized intersection that has been improved to its maximum feasible configuration and still does not meet the target level of service shall be placed on the deficient intersection list. | The traffic signal proposed at Yorba Linda Boulevard and Via del Agua will meet the City's level of service at that intersection for project-related and cumulative traffic impacts. |
| Policy 2.2 - All new development shall be required to participate in the City's Transportation Fee Program(s). These fee programs shall be designed to ensure that all development projects fund their pro rata share of the necessary long-term transportation improvements identified in the Circulation Element of the General Plan or the Circulation Technical Report. | The Project will provide a fair share contribution to implement improvements required to maintain an acceptable level of service for intersections within the City of Yorba Linda. |

| Policy | Analysis |
|---|---|
| Policy 2.3 - Require all new development to pay its share of the costs associated with that project, including regional traffic mitigation. | The Project will provide a fair share contribution to implement improvements required to maintain an acceptable level of service for intersections within the City of Yorba Linda. |
| Policy 2.4 - Where a new development project contributes measurable traffic, require that the necessary improvements to transportation facilities are constructed and completed pursuant to the following conditions:<br>• -Within three years of the issuance of a building permit for project; or,<br>• -Within five years of the issuance of a grading permit for the development project, whichever comes first.<br>The City may establish a Level of Service "D" or the existing LOS as the mitigated LOS goal standard for intersections solely under the control of the City. | The Project has been conditioned to pay fair share fees towards the recommended traffic-related improvements. However, because the County cannot compel the City to implement the proposed improvements, the City will determine approval and timing of such improvements. |

### h. Housing Element

**Table 5-9-17 Yorba Linda General Plan Housing Element Consistency**

| Policy | Analysis |
|---|---|
| Goal 3 - Provide adequate housing sites to accommodate regional housing needs and achieve a variety and diversity of housing. | The Proposed Project consists of up to 340 single family homes on large lots, reducing the opportunity for a variety of diverse housing. The Project will accommodate the need for housing based on the Regional Needs Housing Assessment for the area. |
| Policy 3.1 - Encourage the production of housing that meets all economic segments of the community, including lower, moderate, and upper income households, to maintain a balanced community. | Housing proposed by the Project will contribute to meeting housing needs for the above moderate income category. |
| Policy 3.6 - Pursue the annexation of undeveloped properties, including the Murdock area, within the northern Sphere of Influence to increase the City's capacity to accommodate future housing growth. | An application for annexation is being considered by LAFCO as of this date. |

## 6. Consistency with Yorba Linda General Plan Update: Community Vision Statements

The City is currently updating the 1993 General Plan. The City has not made public any drafts of the proposed general plan, nor is there a schedule for the completion of the document. The City held community workshops in June 2012 and presented three vision statements to the City Council as part of the General Plan Update Status Report. The community vision statements have not yet been adopted by the City. The Proposed Project will be consistent with the community workshop vision statements. The project average density of 0.73 dwelling units per acre is less than all of the surrounding residential neighborhoods. The Proposed Project provides extensions of pedestrian access with multi-purpose and equestrian trails that provide connection to Chino Hills State Park and support the existing equestrian community.

## 7. Consistency with City of Yorba Linda Zoning Ordinance

As noted previously, the City has not established pre-zoning for the Project Site. If the Project Site is annexed to the City, the proposed Esperanza Hills Specific Plan could serve as the City's zoning. The Esperanza Hills Specific Plan outlines the development standards and permitted land uses within the Project Site that have been designed to be substantially consistent with the City's development standards. In addition, applicable City zoning regulations include the Hillside Development/Grading/Fire Protection Ordinance. This DEIR examines all environmental impacts of any future annexation of the Proposed Project into the City. Project consistency with the Hillside Development/Grading/Fire Protection is evaluated below.

## 8. Consistency with the City of Yorba Linda's Hillside Development/Grading/Fire Protection Ordinance

The Proposed Project is consistent with the City's Hillside Management Ordinance. The major site design principles of Chapter 18.30 of the City's zoning ordinance are to consider views from the neighborhood and other off-site locations, preserve a more natural slope appearance, partially screen buildings on ridgelines with landscaping, preserve trees and other vegetation, and preserve the natural hillsides and ridgelines through the use of slope undulation, limited retaining walls, blending, and other features to reflect the natural terrain. The Hillside Development/Grading/Fire Protection Ordinance establishes standards and guidelines for hillside grading, drainage, planting design, fuel modification, and residential development.

The design of the Proposed Project has taken the Hillside Development/Grading/Fire Protection ordinance into consideration. The Proposed Project utilizes cluster patterns wherever possible to preserve open space and undisturbed natural habitat on the site, and preserves the northern and eastern ridgelines, which border Chino Hills State Park, as well as the lower ridgeline along Blue Mud Canyon. Grading will re-contour existing natural terrain to provide for residential lots, new streets, recreation facilities, and detention basins. The Esperanza Hills Specific Plan requires home colors to be consistent with the surrounding natural landscape and with the color value of the specific hue close to the immediate landscape. Colors of homes visible from outside the Proposed Project will be predominantly earth tones. The project landscape design meets the intended objective of this ordinance by integrating features that will be harmoniously interwoven with the natural hillside by utilizing trees, naturalized scrubs, and grasses. Plant materials have been selected to complement the scale of the architecture and view opportunities will be considered from the neighborhoods to the surrounding landscape, enhancing views outside the immediate project limits wherever possible.

The Proposed Project is consistent with the major principles of the ordinance. The Hillside Development/Grading/Fire Protection Ordinance limits retaining walls visible from off-site to a maximum of six feet and specifies that they be planted with vines or other landscape screening. However, the ordinance allows approval of up to three

retaining walls placed one above the other with a minimum of 4 feet of horizontal landscaped terrace placed between each wall or an alternative retaining wall design if better for engineering and aesthetics. Due to the steep terrain, Option 1 will use a retaining wall system along the proposed access road off Stonehaven Drive in order to protect the natural drainage of Blue Mud Canyon by reducing grading impacts. This retaining wall is fully landscaped and is minimally visible from off-site views, because the retaining wall is located at a low elevation within the narrow canyon.

The Proposed Project will use Verdura, or similar, retaining walls in which vegetation can grow and provide an aesthetically compatible "green" wall. An alternative to the Verdura wall in steep areas will be the use of a Shotcrete retaining wall in which a shear retaining wall will be covered in a naturalistic-colored concrete that would be detailed by skilled craftsmen to mimic naturally occurring rock outcroppings and provide pockets of vegetation. As detailed in Section 5.5, Geology and Soils (beginning on page 5-203), select project retaining walls will exceed six feet in height. All slopes are designed to meet the minimum state and county standards and per recommendations of the soil engineer.

The City and unincorporated Orange County are both served by OCFA and subject to OCFA review and approval of the project's fuel modification plan. The developed areas will be surrounded by a minimum 170-foot FMZ consistent with the Hillside Development/Grading/Fire Protection Ordinance and OCFA standards, except for three lots that have proposed alternative methods and materials due to off-site slopes. The project also provides two locations for firefighting staging areas and water reservoirs to supply gravity feed water to hydrants. (Refer to Section 5.7, Hazards and Hazardous Materials beginning on page 5-275).

The Proposed Project is consistent with the surrounding residential developments that are also built on area ridgelines, such as Casino Ridge, and Heather Ridge among others.

The Proposed Project is consistent with the Hillside/Grading/Fire Protection Ordinance concerning viewscapes from Chino Hills State Park. The ordinance requires that grading and landscape plans include, for each lot viewed, specific measures, including height limits, setbacks, landscaping, berms and/or other measures that will assure that any structure built on the lot will not be viewed from Chino Hills State Park or otherwise be screened to the extent feasible. Estate Lot 1 is viewed from San Juan Hill lookout within Chino Hills State Park. The structure is proposed to be two stories in height. Due to fuel modification requirements to protect from wildfire, the structure cannot be screened with landscaping. Estate Lot 1 has a driveway access in front of the view that will prevent construction of berms to screen the structure. The structure colors will be of earth tones to mimic the background natural landscape. The landscape will be harmoniously interwoven with the natural hillside by utilizing trees, naturalized scrubs, and grasses consistent with the Fuel Modification Plan. The site lighting will be directed toward the on-site structures and not direct illumination outside property boundaries. Although Estate Lot 1 is viewed at a distance from the San Juan Hill lookout in Chino Hills State Park, the Proposed Project is consistent with

the Yorba Linda Hillside Development/Grading/Fire Protection Ordinance, because the Project has incorporated all feasible measures to minimize this visual impact.

## 9. Consistency with Regional Planning Programs

Countywide and regional plans affecting planning in the Project Area include SCAG's 2012-2035 Regional Transportation Plan and Sustainable Community Strategy (RTP/SCS). The RTP/SCS includes SCAG's RHNA and the Air Quality Management Plan prepared by the South Coast Air Quality Management District and the County's Integrated Waste Management Plan. In addition, all of these plans are included in the State Implementation Plan. The federal clean air laws require areas with unhealthy levels of ozone, inhalable particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide to develop plans, known as State Implementation Plans (SIPs). SIPs are comprehensive plans that describe how an area will attain national ambient air quality standards (NAAQS).

SCAG, functioning as the Metropolitan Planning Organization for Southern California, is mandated by federal and state law to develop regional plans for transportation, growth management, housing development, air quality, and other issues of regional significance. The document that provides that the primary reference for SCAG's project review activity is the RTP/SCS. The purpose of the RTP/SCS and the Compass Blueprint program is to guide regional development and provide a strategic vision for handling the region's land use, housing, economic development, transportation, environmental sustainability , and overall quality of life. The recommendations are not mandates to local jurisdictions.

The regional goals listed below reflect the wide-ranging challenges facing transportation planners and decision-makers in achieving the RTP/SCS vision. The goals demonstrate the need to balance many priorities in the most cost-effective manner.

The following Table 5-9-18 is a project consistency analysis to the SCAG 2012-2035 RTP/SCS Goals. The goals provide guidance for considering the Proposed Project within the context of regional goals and policies. The nine RTP/SCS goals are listed in the table along with a statement of consistent, not-consistent, or not applicable with a reference to the DEIR section and page number.

**Table 5-9-18 SCAG 2012-2035 RTP/SCS Goals**

| Goal | | Analysis |
|---|---|---|
| RTP/SCS G1: | Align the plan investments and policies with improving regional economic development and competitiveness. | Consistent: The Proposed Project will provide executive housing to the region, provide short-term employment during all phases of construction, and provide operational employment opportunities associated with the maintenance of the community and services to the future residents. The future population will support the economy of the surrounding area in its demand for goods and services.<br>Refer to Section 5.11, Population and Housing beginning on page 5-483. |

| Goal | | Analysis |
|---|---|---|
| RTP/SCS G2: | Maximize mobility and accessibility for all people and goods in the region. | Consistent: The Proposed Project provides mobility and accessibility for all people and goods in the region in that the Proposed Project provides street and intersection improvements that will retain the existing LOS D or better. While the Weir Canyon Road at SR-91 EB Ramps is forecast to operate at LOS E, the proposed Option 1 and Option 2 Project is expected to add less than 0.010 to the ICU value and, therefore, is not considered to be significantly impacted by the Proposed Project. The Proposed Project incorporates facilities that connect existing bike lanes, OCTA bus routes 20 and 26, and Metrolink at Anaheim Canyon Station.<br>Refer to Section 5.14, Transportation and Traffic beginning on page 5-543. |
| RTP/SCS G3: | Ensure travel safety and reliability for all people and goods in the region. | Not Applicable: The Proposed Project meets the Orange County street design standards and level of service, but it is the responsibility of state, county, and local governments to implement this goal. |
| RTP/SCS G4: | Preserve and ensure a sustainable regional transportation system. | Consistent: While the Weir Canyon Road at SR-91 EB Ramps is forecast to operate at LOS E, the proposed Option 1 and 2 Project is expected to add less than 0.010 to the ICU value and, therefore, is not considered to be significantly impacted by the Proposed Project. Mitigation Measure T-2 above provides for the payment of a fair share contribution to widen and re-stripe the westbound approach at Yorba Linda Boulevard at Savi Ranch Road. Implementation of this Mitigation Measure and the associated improvements to that inspection will reduce Year 2035 cumulative impacts with a forecast level of service (LOS) D that is within the minimum acceptable standard.<br>Refer to Section 5.14, Transportation and Traffic beginning on page 5-543. |
| RTP/SCS G5: | Maximize the productivity of our transportation system. | Not Applicable: The Proposed Project meets the Orange County street design standards and level of service, but it is the responsibility of State, County and local governments to implement this goal. |
| RTP/SCS G6: | Protect the environment and health for our residents by improving air quality and encouraging active transportation (non-motorized transportation, such as bicycling and walking.) | Consistent: The project will have less than significant impacts with the exception of greenhouse gas (GHG) emissions. The project will incorporate standard construction practices per the Southern California Air Quality Management District (SCAQMD) Handbook and project design features to reduce GHG impacts. The site includes pedestrian, bicycle, and equestrian trails connected to the existing County trails.<br>Refer to Section 5.2, Air Quality beginning on page 5-65. |
| RTP/SCS G7: | Actively encourage and create incentives for energy efficiency, where possible. | Consistent: The Proposed Project will meet Title 24 of the California Building Code that incorporates energy saving building materials into the development of all structures. The Proposed Project incorporates a standard for night lighting that will result in reduced energy use for lighting. The Proposed Project will incorporate low water use landscaping and natural occurring species that will result in reduced water use.<br>Refer to Section 5.1, Aesthetics beginning on page 5-1 and Section 5.3 Biological Resources beginning on page 5-91. |
| RTP/SCS G8: | Encourage land use and growth patterns that facilitate transit and non-motorized transportation. | Consistent: The Proposed Project is located directly adjacent to existing residential land use. The Proposed Project has incorporated street access to existing street system, sidewalks, trails, and bike lanes that connect the project to OCTA bus routes 26 and 20, SR-91 and Metrolink trains at the Anaheim Canyon station.<br>Refer to Section 5.14, Transportation and Traffic beginning on page 5-543. |

| Goal | | Analysis |
|---|---|---|
| RTP/SCS G9: | Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies. | Not applicable: Goal 9 is the responsibility of State and regional agencies to implement; the proposed residential project has no jurisdiction to implement this goal. |

The Proposed Project is consistent with the applicable regional goals in that the project is consistent with all applicable design standards and project impacts are mitigated to a level of no significant impact. The project has been designed to provide access to alternative transportation; including sidewalk connection to bus stops, bicycle lanes, and multi-purpose trails that provide a connection to Chino Hills State Park at the Old Edison Trail, and schools, employment, and goods and services.

## 10. Consistency with Chino Hills State Park General Plan

The Proposed Project is evaluated below for consistency with the applicable goals of the Chino Hills State Park General Plan adopted in 1999.

The Proposed Project will preserve the northern and eastern ridgelines that are adjacent to Chino Hills State Park.

The Chino Hills State Park General Plan has adopted several goals for the implementation of park policies and management (Table 5-9-19 below).

**Table 5-9-19 Chino Hills State Park General Plan Consistency**

| Goal | Analysis |
|---|---|
| Buffers Goal: Establish, maintain, and protect buffers adjacent to Chino Hills State Park. | The Proposed Project is consistent with this goal by providing a ridgeline buffer to the east, a ridgeline buffer to the north, an approximately one-quarter mile buffer through Blue Mud Canyon to the east, and a minimum 170-foot buffer between the estate lot and the Park to the east. The proposed planting palette has been selected to promote naturally occurring regenerating plants and to eliminate non-native species.<br><br>Refer to Section 5.3, Biological Resources (beginning on page 5-91) for additional information on plant species and planting mitigation. |
| Wildlife Management Goal: Protect, perpetuate, and restore native wildlife populations and native aquatic species at Chino Hills State Park. | Proposed Project is consistent with this goal with the inclusion of a regulation that prohibits outdoor cats and requires that dogs be restrained within the Project Site. Educational material will be distributed to each property owner concerning pet regulations, restriction on planting certain species, wildlife protection, and access to Chino Hills State Park. |

| Goal | Analysis |
|---|---|
| Aesthetics Resources Goal: Protect scenic features from man-made intrusions and preserve the visitor's experience of the natural landscape by minimizing adverse impacts to aesthetic resources. | The Proposed Project is designed to be sensitive to off-site views of the development area from Chino Hills State Park. Although a limited portion of the Project will be viewed from San Juan Hill, the highest point within the park, all feasible Project Design Features have been incorporated into the Proposed Project to minimize visual impacts from that location. Additional discussion on aesthetics is found in Section 5.1, Aesthetics (beginning on page 5-1 of this DEIR). The development areas are set back and below the major ridgeline, and all artificial lights shall be designed and located so that direct light rays shall be confined to the development area footprint consistent with night sky lighting practices to minimize artificial light impacts to the park. Design guidelines for the development of the Proposed Project include design features to reduce glare and a natural color palette to emulate the natural surroundings. Manufactured walls will be graded and planted to blend into natural adjoining slopes. |
| Pedestrian Access Goal: Create appropriate pedestrian access points to meet the needs of the park and the local jurisdictions that are contiguous to the park boundary. | The Proposed Project will provide continued pedestrian and biking access through the project via trail linkages to connect with existing Chino Hills State Park's Old Edison Trail. Section 5.13, Recreation (beginning on page 5-511) provides additional information related to proposed trails, including a Conceptual Trails Plan. Establishment of non-designated trails will be prohibited in the project regulations. |
| Acquisitions Goal: Protect and enhance park resources and improve visitor's enjoyment and education in the park through appropriate land acquisitions. | The Chino Hills State Park General Plan establishes guidelines for the consideration of land acquisitions. The guidelines state that land acquisitions should support the park's resource management goals by enhancing watershed protection and adding significant or unique resources, habitats, or features to the park. Create buffer areas (areas between developments and park resources) and include ridgelines whenever possible, increase the size and improve the effectiveness of biocorridors, and establish park facilities outside sensitive resource areas. There are no sensitive biocorridors on-site. No land acquisition by Chino Hills State Park is proposed for the Esperanza Hills project, and the Chino Hills State Park rejected a proposal to include the northeast portion of the Project into the park years ago. |

## 11. Consistency with Sphere of Influence Guidelines

The Proposed Project is consistent with the SOI Guidelines. An annexation application has been submitted by Esperanza Hills to Orange County LAFCO, and the focus stakeholder process has been initiated between the County of Orange, the City, and the YLWD. The Proposed Project is a portion of the property described in the Yorba Linda GP as the "Murdock Property," which allows for a land use density of 1 dwelling unit per acre over the entire property. The Proposed Project is a low-density residential development of 0.73 dwelling units per acre, which is less than 1 dwelling unit per acre allocated for the Murdock property in the Yorba Linda GP, and is therefore consistent with the City's plans for this area of their SOI.

The SOI Guidelines also require a plan for services and infrastructure consistent with the surrounding community. Table 5-9-20 is a summary of the policies, standards, and regulations between the City and the County and how the Proposed Project meets those standards. The Yorba Linda Library is a City facility that is determined currently to be inadequate to meet the needs of the existing City population. In August 2011 the City Council authorized funding for a new library to meet the needs of a projected population of 70,000. The existing library is located at 18181 Imperial Highway, and

the new library will be located in the Town Center Specific Plan area. It is anticipated that the new library will provide adequate library services for the City, including the Proposed Project residents after annexation. Currently, the Yorba Linda Library issues a library card to any resident of California. Therefore, there is no significant difference for library services before or after annexation.

The Proposed Project is consistent with the SOI Guidelines that require a plan for services and infrastructure to be consistent with the surrounding community. As indicted in the table, the project meets or exceeds all policies, standards, and regulations.

**Table 5-9-20 Sphere of Influence Policy Guidelines Consistency Analysis**

| Policy/Standard/ Services | Yorba Linda | County of Orange | Proposed Project |
|---|---|---|---|
| **Land Use** | The Project Site is designated as Opportunity Area A5-Murdock Property in Yorba Linda GP. The city has designated this area for residential with an overall density of 1 unit per acre. | General Plan designation is Open Space (5) category and the County zoning code designation of Agriculture (A1) with an Oil Production Zone (O) overlay. | The Proposed Project would result in a general plan amendment for Suburban Residential (1B) with an overall density of 0.73 unit per acre and adoption of a Specific Plan that prescribes development standards. The Proposed Project is consistent with the City's polices and standards prior to and after annexation. |
| **Traffic/Transportation** Level of Service Standard (LOS) | LOS D | LOS D | The Proposed Project, with mitigation, meets a LOS D or better at all 15 key intersections analyzed in the project traffic study. There is no significant impact prior to annexation or after annexation to the City. |
| **Public Services** | | | The Proposed Project meets all standards for public services and infrastructure as established by the regulatory agencies. The public services provided to the Proposed Project are the same prior to annexation or after annexation to the City. |
| Fire | Orange County Fire Authority | Orange County Fire Authority | |
| Police | Orange County Sherriff | Orange County Sherriff | |
| Water | Yorba Linda Water District | Yorba Linda Water District | |
| Sewer | Yorba Linda Water District | Yorba Linda Water District | |
| Schools | Placentia-Yorba Linda Unified School District | Placentia-Yorba Linda Unified School District | |
| Library | Yorba Linda City Library | Orange County Library | |
| **Parks** | 4 acres per 1,000 populations or 4.35 acres of parkland based on a project population of 1,088 residents. | 2.5 acres per 1,000 populations or a minimum of 2.72 acres of parkland based on a project population of 1,088 residents. | The Proposed Project would provide 12 to 13 acres of active and passive parks depending upon the access option selected. Either development option would exceed the City and County of Orange parkland standards. Therefore, the Proposed Project would be consistent with City policies and regulations prior to and after annexation. |
| **Air Quality** | South Coast Air Quality Management District (SCAQMD) | South Coast Air Quality Management District (SCAQMD) | The Proposed Project will result in significant and unavoidable impacts related to greenhouse gas emissions |

| Policy/Standard/ Services | Yorba Linda | County of Orange | Proposed Project |
|---|---|---|---|
| **Biological** | US Fish & Wildlife Service<br>California Department of Fish and Wildlife<br>State and Federal Endangered Species Act | U.S. Fish and Wildlife Service (USFWS)<br>California Department of Fish and Wildlife (CDFW)<br>State and Federal Endangered Species Act | The Proposed Project is subject to the same biological resources regulations prior to and after annexation. Therefore, the project will be consistent with the City's policies and regulations prior to and after annexation. |
| **Water Quality** | Yorba Linda General Plan<br>The County of Orange | The U.S. Environmental Protection Agency (EPA)<br>The California State Water Resources Control Board (SWRCB)<br>The California Regional Water Quality Control Board – Santa Ana Region (SARWQCB)<br>The County of Orange | The City is subject to the County of Orange's NPDES permit and must have consistent policies with Orange County regulations. Therefore, the Proposed Project is consistent with the City's policies and regulations prior to and after annexation. |
| **Hydrology, Drainage and Water Quality** | U.S. Army Corps of Engineers (ACOE) approval of permits under Section 404 of the Clean Water Act (CWA)<br>CDFW approval of future potential streambed alteration agreements, pursuant to §1600 of the *California Fish and Game Code*<br>USFWS consultation related to biological impact assessment, if requested by ACOE<br>SARWQCB-SA, (NPDES) Section 402 of the CWA as well as approval of Section 401 Water Quality Certification | U.S. Army Corps of Engineers (ACOE) approval of permits under Section 404 of the Clean Water Act (CWA)<br>CDFW approval of future potential streambed alteration agreements, pursuant to §1600 of the *California Fish and Game Code*<br>USFWS consultation related to biological impact assessment, if requested by ACOE<br>SARWQCB-SA, (NPDES) Section 402 of the CWA as well as approval of Section 401 Water Quality Certification | The Proposed Project is regulated by the same state and federal agencies and regulations. Drainage facilities are maintained by the County of Orange, not the City. Therefore, the Proposed Project is consistent with the City's policies and regulations prior to and after annexation. |

## 12. Consistency with Annexation and Property Tax Exchange Process

It is anticipated that proposed Project Site may be annexed to the City subsequent to the issuance of building permits and certificates of use and occupancy under the jurisdiction of the County of Orange under pre-annexation agreements and municipal service agreements between the Project Applicant, the City, the County of Orange, and the YLWD. In the event that this annexation is not initiated by the City under a pre-annexation agreement, it may occur in the future if the residents vote to be annexed into the City. However, it is also possible that the Proposed Project may never be annexed into the City and will remain in the County of Orange. Under current law, the City cannot compel annexation without the approval of the property owner.

There will be no financial impact to the City for the initial provision of utilities and services, because initial start-up costs associated with such services will be included in the approval and permitting process for development of the Proposed Project.

Section 5.15, Utilities and Service Systems (beginning on page 5-625) herein provides analysis regarding the availability and provision of the identified services.

The following is a description of the process by which the City could initiate annexation subsequent to an agreement for annexation between the property owner and the City.

The Yorba Linda GP states that the City shall pursue annexation of lands within its SOI. This goal applies to areas that are logical, contiguous extensions of the City's development patterns. The General Plan specifically identifies the Murdock Property, of which the Proposed Project is a part, for potential development and annexation.

The City may prepare an analysis to present fiscal, operational, and procedural information to the City Council to assist in determining whether to initiate the annexation process. The analysis may include other one-time costs and continuing annual expenses to the City. It may also include one-time and continuing additional revenues to be received by the City as a result of annexation and identify the costs and benefits associated with the proposed annexation. As indicated herein, development will occur under the jurisdiction of the County, and annexation would not occur prior to issuance of permits and certificates of occupancy by the County.

An application to initiate the process must be prepared and submitted to the Orange County LAFCO. The following steps would be required in order for annexation to occur and would include possible land use planning actions that the City may pursue.

1. Based on agreement to annex the Proposed Project to the City between the property owners and the City, the City would submit an application to the Orange County LAFCO containing the following information and related materials:

    - LAFCO processing fees in effect at the time of application submittal.
    - Project application form to initiate the application process, which includes a justification of proposal. The justification would describe the changes of organization, the purpose of each change of organization, an explanation of how the proposal provides more logical boundaries and/or improves the provision of service, and whether the proposal has the 100% approval of all property owners.
    - A Plan for Services identified as administration and facilities for public services such as police, fire, sewers, water, and schools that currently exist or are planned for the future. The Plan should show the level of services to be provided compared to levels provided within the City.
    - CEQA documents prepared for the development of the property.
    - Resolutions by the affected agencies agreeing to a transfer/split of property tax revenues generated by the subject property.
    - A Specific Plan, a Planned Community, or a Planned Residential Development, or other similar regulatory mechanism.

2. Within 30 days of the application, LAFCO submits a status letter notifying the City that the application is complete or incomplete.

3. Approximately 30 days after the submission of the application:

   - LAFCO notices the County Assessor of the proposal;
   - The Assessor determines which Tax Rate Areas are involved and calculates the total assessed valuation of the affected property;
   - The Assessor issues a report of the Tax Rate Areas and the assessed valuation to the County Auditor;
   - The Auditor determines the total property tax revenues for the area proposed for annexation and issues a report to the City and the County of the total revenues involved; and
   - The City and County are notified that they have 60 days to reach an agreement on the transfer of property tax revenue from the County to the City.

4. Upon determination by the LAFCO Executive Officer that the application is complete, the Executive Officer issues a Certificate of Filing and sets a hearing date for the proposal.

5. LAFCO notices and holds a public hearing on the proposed annexation and its Commission takes one of the following actions:

   - Approves the application subject to terms and conditions; or
   - Approves the application with modifications and subject to terms and conditions.

6. Within 35 days of the hearing, LAFCO adopts a resolution making determinations and approving the application and sends a copy of the resolution to the applicant.

7. If the application is approved, LAFCO sets a protest hearing for the annexation.

8. If the annexation is ordered, LAFCO sends a Certificate of Completion to the County Recorder's Office, following a 30-day reconsideration period, and upon satisfaction of all terms and conditions in the resolution ordering the annexation.

Upon recordation, LAFCO sends documents and fees, which are paid by the applicant, to the State Board of Equalization for the purpose of altering its TRAs to reflect the change of organization.

### 5.9.5 Mitigation Measures

None are required.

## 5.9.6 Level of Significance after Mitigation

The Proposed Project will not divide an established community. The Proposed Project will be an extension of the low-density single-family residential development located on the lower slopes of the Chino Hills. Although the Project Site is located within the County of Orange, the Proposed Project has been designed to be consistent with the Yorba Linda GP and the Zoning Ordinance. All public services, including police, fire, and water, are provided by the same agencies as the surrounding community. Annexation of the Project Site into the City could occur pursuant to a pre-annexation agreement or in the future by a vote of the project residents. Therefore, there is no Project impact associated with a divided established community. The Proposed Project will not result in physically dividing the City of Yorba Linda. Because the Project Site is located within the City's SOI, annexation of the Project Site has been anticipated by the City, and the City's General Plan designates the land use as single-family residential at a density of 1 dwelling unit per acre. Therefore, the impact on the City is less than significant.

The Proposed Project does not conflict with any applicable land use policy or regulation of any agency with jurisdiction over the project. With the approved general plan amendment and zone change, the Proposed Project will be consistent with the Orange County General Plan and zoning code. The Proposed Project, with mitigation, is consistent with all regulations concerning avoiding or, to the extent feasible, mitigating environmental effect concerning geology and seismicity, hazards, hydrology, water quality, noise, transportation/ circulation, aesthetics, biological resources, and air quality.

The Proposed Project consists of the creation and implementation of Esperanza Hills Specific Plan and associated Vesting Tentative Tract Map. The project itself creates conformance with the Land Use Element of the Orange County General Plan policies and compliance with zoning regulations. In addition, the project provides densities that are lower than those identified for the property in the Yorba Linda GP. Mitigation measures for specific project impacts related to Transportation and Traffic, Air Quality, Noise, Aesthetics, Recreation, Hazards, Public Services and Utilities and Service Systems are found in those sections of this DEIR. Short-term impacts would be eliminated or reduced through proper implementation of mitigation measures identified in the above-referenced DEIR sections and would cease upon completion of construction. With the exception of GHG emissions and noise, long-term project-related impacts would be mitigated to a less than significant level. The project has not avoided mitigating any significant environmental effect; therefore, the Project's impact to applicable land use plans is less than significant.

The Proposed Project does not conflict with any applicable habitat conservation plan or natural community conservation plan. Although the Project Site falls entirely within Unit 9 of the existing critical habitat for coastal California gnatcatcher as designated by the USFWS, no California gnatcatchers were detected in a protocol gnatcatcher survey completed in June 2013, and none have been detected in the various studies conducted on this site since 1998. The project impacts with mitigation will be reduced

to a less than significant level. Therefore, the proposed land use and density for the Proposed Project will not result in unavoidable adverse impacts.

## 5.9.6 Cumulative Impacts

The proposed Cielo Vista project, which is adjacent to and west of the Proposed Project, proposes 112 single-family residential units on 84 acres, resulting in a project density of 1.33 dwelling units per acre. The Proposed Project, combined with other development and future developments in the cities of Yorba Linda, Anaheim, and Brea, will serve to increase the intensity of the land use in the area of the Proposed Project, as summarized in Table 5-9-21 below.

**Table 5-9-21 Cumulative Projects List**

| No. | Related Project | Land Use Description |
|---|---|---|
| **City of Yorba Linda Development** | | |
| 1 | North Yorba Linda Estates | 364 single-family residential dwelling units<br>110 condo/townhomes |
| 2 | Cielo Vista | 112 single-family residential dwelling units |
| 3 | Hover/Bastanchury Holding Co. | 48 single-family residential dwelling units |
| 4 | Yorba Linda Town Center | 32 single-family residential dwelling units<br>119 condo/townhomes<br>1,200-seat performing arts center<br>24,000-square-foot library<br>5,200 square feet of general office uses<br>61,600 square feet of commercial retail uses<br>16,400 square feet of restaurant uses |
| 5 | Oakcrest Terrace | 69 apartments |
| 6 | Canal Annex – Savi Ranch | 84 apartments |
| 7 | Nixon Archive Site | 59 single-family residential dwelling units |
| 8 | SWC Bastanchury/Lakeview | 180 apartments<br>109 single-family residential dwelling units |
| 9 | Friends Christian High School | 1,200 students |
| 10 | Prospect (Greenhouse) | 55 single-family residential dwelling units |
| 12 | Wabash & Rose | 17 single-family residential dwelling units |
| 12 | Yorba Linda/Prospect | 122 apartments |
| 13 | Postal Annex SE Lemon & Eureka | 5 single-family residential dwelling units |
| 14 | 4622 Plumosa | 10 apartments |
| 15 | Lakeview & Mariposa | 149 apartments |
| 16 | Palisades at Vista del Verde | 143 condo/townhomes |
| **City of Anaheim Development** | | |
| 17 | Mountain Park | 1,675 single-family residential dwelling units<br>825 condo/townhomes<br>3,000-square-foot convenience market<br>800-student elementary school<br>15-acre park |

| No. | Related Project | Land Use Description |
|---|---|---|
| **City of Brea Development** | | |
| 18 | La Floresta Development | 398 medium-density residential dwelling units<br>787 high-density residential dwelling units<br>150 mixed-use residential dwelling units<br>156,800 square feet of mixed-use commercial<br>18-hole golf course<br>20,000-square-foot community center<br>5.30-acre public facility (active adult)<br>75.60 acres of natural open space |

On a county-wide basis, the increased land use intensity will result in significant unavoidable impacts such as loss of open space, increased human activity, and increase in traffic, noise, and light and glare. As the City and surrounding areas continue to build out, significant land use changes will result, along with associated vegetation loss, necessary drainage improvements, traffic and noise increases, increased air emissions and greenhouse gases, aesthetic impacts and greater demand on utilities and services. Cumulative land use impacts are individually mitigated on a project-by-project basis, and mitigation is also effective through implementation of programs establishing alternative modes of transportation, land use intensity near employment centers, open space, and park areas such as through the Orange County General Plan and SCAG's RTP/SCS plans. As demonstrated above the Proposed Project is consistent with the Orange County General Plan policies, the Yorba Linda General Plan, and other relevant local and regional planning documents; therefore, the cumulative impacts are less than significant.

## 5.9.7 Unavoidable Adverse Impacts

No unavoidable adverse impacts to Land Use are associated with the Proposed Project.

# 5.10 Noise

This section summarizes the potential short-term and long-term noise impacts associated with the Proposed Project. Typical noise sources resulting in impacts may include traffic noise, aircraft noise, construction noise, operational noise, and noise from surrounding uses. The information in this section was based on a "Noise Impact Analysis" (Noise Analysis) prepared by Giroux & Associates, dated July 2013. A "Noise Addendum" prepared by Giroux & Associates, dated October 23, 2013, provided results of additional meter readings to determine baseline noise levels along Stonehaven Drive and San Antonio Road. A copy of both reports is included herein as Appendix N.

This analysis also relies on information contained in the Orange County General Plan and the City of Yorba Linda General Plan (Yorba Linda GP) related to noise standards.

## 5.10.1 Existing Conditions

The Project Site consists of largely undeveloped rolling hills and ravines surrounded by residential development to the south and the northwest. Chino Hills State Park is to the north and east of the site. The existing noise levels derive mainly from vehicular sources on adjacent roadways resulting in a low baseline level for purposes of analysis. Oil well operations exist on the site; however, noise sources are primarily the result of intermittent vehicular access to the oil well locations.

The ambient existing noise levels on the Project Site were analyzed by Giroux & Associates. Along Aspen Way, noise levels are approximately 46 decibels (dB) at mid-day. Along San Antonio Road, the existing ambient noise levels are 60 dB or less during mid-day hours. These readings indicate that existing ambient noise levels are low.

The Noise Addendum states that mid-day noise levels at the Stonehaven Drive meter averaged 45 to 49 dB CNEL. The meter at San Antonio Road averaged 57 to 59 dB CNEL.

**Acronyms used in this section:**

| | |
|---|---|
| CalEEMod | California Emissions Estimator Model |
| CEQA | California Environmental Quality Act |
| CNEL | Community Noise Equivalent Level |
| dB | decibel |
| dBA | A-weighted decibel |
| DEIR | Draft Environmental Impact Report |
| FHWA | Federal Highway Administration |
| GP | General Plan |
| RMS | root mean square |
| VdB | vibration decibel |

### 1. Ambient Noise Levels

Existing noise levels on the Proposed Project Site consist mainly of vehicular sources on the adjacent roadways. Noise measurements were taken at two locations on November 6, 2012 between 2:00 p.m. and 3:00 p.m. Monitoring experience shows that 24-hour weighted CNELs can be reasonably well estimated from mid-afternoon noise readings.

Meter 1 was located along Aspen Way near the Proposed Project access. Meter 2 was located along San Antonio Road, south of Aspen Way. The locations are depicted on Exhibit 5-101 – Noise Meter Locations, Meter 1 (Aspen Way) and Meter 2 (San Antonio Drive south of Aspen Way).

It should be noted that the noise levels at Meter 3 and Meter 4 were modeled in the original Noise Analysis. Subsequent to the original analysis, additional field measurements were conducted. The actual metered measurements are provided in the Addendum and showed that the prior modeling conformed to the results of the field-metered measurements. These additional noise measurements were conducted from October 18 through October 21 at two locations (Exhibit 5-102 – Noise Meter Location, Meter 3 (off Stonehaven Drive along current Water District Access Road) and Exhibit 5-103 – Noise Meter Location, Meter 4 (San Antonio Road at Proposed Project Access Road).

Meter 3 was located along the project access road off Stonehaven Drive along the current water district road. The meter was placed at the existing gate, approximately 200 feet from the Stonehaven Drive centerline. Measured CNELs at the gate were in the mid to upper 40s. This would equate to CNELs of 51-55 dB at 50 feet from the Stonehaven Drive centerline. Modeled existing noise levels are 53-55 dB CNEL at 50 feet from the centerline of Stonehaven Drive. Meter 4 was located along San Antonio Road approximately 50 feet from the roadway centerline at the approximately locale of the project access road option. Measured CNELs were in the 57-59 dB CNEL range. Modeled noise levels are approximately 57 dB CNEL at 50 feet from the centerline.

Table 5-10-1 below summarizes the results of the short-term noise measurements from all four meter locations.

**Table 5-10-1 Measured Noise Levels (dBA)**

| | Leq | Lmax | Lmin | L10 | L33 | L50 | L90 |
|---|---|---|---|---|---|---|---|
| Meter 1 | 46.3 | 63.0 | 39.0 | 45.5 | 42.0 | 41.5 | 40.0 |
| Meter 2 | 56.6 | 69.0 | 39.0 | 61.5 | 53.5 | 47.0 | 41.0 |
| Meter 3 | 54.4 | 79.4 | 31.4 | 43.1 | 39.2 | 37.2 | 33.3 |
| Meter 4 | 57.9 | 75.5 | 39.2 | 61.8 | 52.9 | 44.1 | 41.2 |

Results for Meter 1, along Aspen Way, indicate that existing noise levels are low with observed noise readings of 46 dB Leq. The Noise Analysis notes that monitoring experience has shown that 24-hour weighted CNELs can be reasonably well estimated from mid-afternoon noise readings. CNELs are approximately equal to mid-afternoon Leq plus 2 to 3 dB (per Caltrans Technical Noise Supplement, 2009). This would equate to an existing CNEL of 48 to 49 dB at the proposed site, well within the County's residential compatibility guidelines.

Results for Meter 2, along San Antonio Road south of Aspen Way, indicate that the observed Leq of almost 57 dB would equate to a CNEL of 59 to 60 dB. The readings demonstrate that existing ambient noise levels in the Project Area are low and do not indicate an impediment to the proposed residential development. However, the low baseline levels do suggest that the Proposed Project Area is sensitive to even a moderate increase in traffic noise.


**Exhibit 5-101 – Noise Meter Locations, Meter 1 (Aspen Way) and Meter 2 (San Antonio Drive south of Aspen Way)**

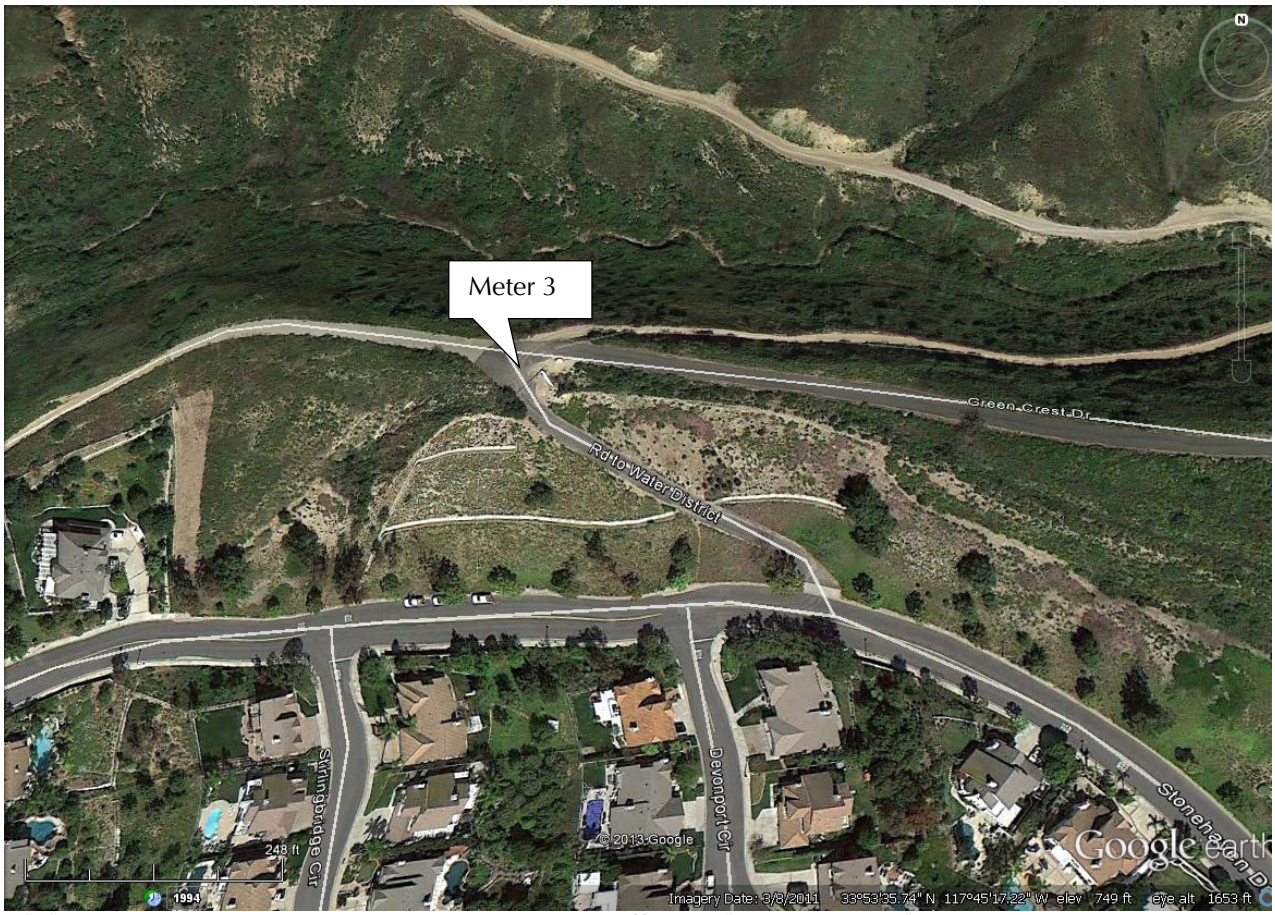



**Exhibit 5-102 – Noise Meter Location, Meter 3 (off Stonehaven Drive along current Water District Access Road)**


**Exhibit 5-103– Noise Meter Location, Meter 4 (San Antonio Road at Proposed Project Access Road)**

Results for Meter 3 show that measured and modeled traffic noise levels are in agreement and the results do not exceed the recommended 65 dB CNEL noise compatibility threshold for residential use.

As with Meter 3, measured and modeled traffic noise levels for Meter 4 are in agreement, and the results do not exceed the recommended 65 dB CNEL noise compatibility threshold for residential use.

## 2. Noise Descriptors

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air and is characterized by various parameters that describe the physical properties of sound waves. These properties include the rate of oscillation (frequency), the distance between successive troughs or crests, the speed of propagation, and the pressure level or energy content of a given sound wave. The most common descriptor used to characterize the loudness of an ambient sound level is the sound pressure level.

### a. Decibels

Sound pressures can be measured in units called microPascals. More commonly, sound pressure levels are described in logarithmic units of ratios of actual sound pressures called bels. A bel is subdivided into 10 decibels (dB) in order to provide a finer resolution. Sound or noise can vary in intensity by over one million times within the range of human hearing. However, the human ear is not equally sensitive to all sound frequencies within the entire spectrum. Noise levels at maximum human sensitivity from 500 to 2,000 cycles per second are factored more heavily into the A-weighting process. The perceived noise volume relative to human sensitivity is known as the A-weighted decibel (dBA) and is subjective to the hearer.

"Leq" is a time-averaged sound level, a single number value that expresses the time-varying sound level for the specified period as though it were a constant sound with the same total sound energy as the time-varying level. This unit is the decibel (dB). The most common averaging period for Leq is hourly.

Since decibels are logarithmic units, sound pressure levels cannot be added or subtracted by ordinary arithmetic means. For example, if an automobile produces a sound pressure level of 70 dB when passing an observer, two automobiles passing together would produce a sound pressure level of 73 dB rather than 140 dB. Therefore, doubling traffic volumes or the speed would increase the noise level by only 3 dB. Conversely, reducing the traffic volume by half would result in a 3 dB reduction in the noise level.

### b. Community Noise Equivalent Level (CNEL)

A given level of noise may be more or less tolerable depending on the duration of exposure. Because community receptors are more sensitive to unwanted noise

intrusion during more sensitive evening and nighttime hours, state law requires that an artificial dBA increment be added to quiet time noise levels. The 24-hour noise descriptor with a specified evening and nocturnal penalty is called the Community Noise Equivalent Level (CNEL). The California Department of Transportation's Division of Aeronautics and the California Department of Housing and Community Development have adopted the CNEL. The CNEL scale represents a time weighted 24-hour average noise level based on the A-weighted decibel. The measure weights the average noise levels for the evening hours (7:00 p.m. to 10:00 p.m.), increasing them by 5 dB, and weights the late evening and morning hour noise levels (10:00 p.m. to 7:00 a.m.) by 10 dB. The daytime noise levels are combined with these weighted levels and averaged to obtain a CNEL value. Counties and cities adopt noise levels based on CNEL as further described in Section 5.10.2, Regulatory Setting below.

#### c. Vibration

Vibration is most commonly expressed in terms of the root mean square (RMS) velocity of a vibrating object. RMS velocities are expressed in units of vibration decibels. The range of vibration decibels (VdB) is as follows:

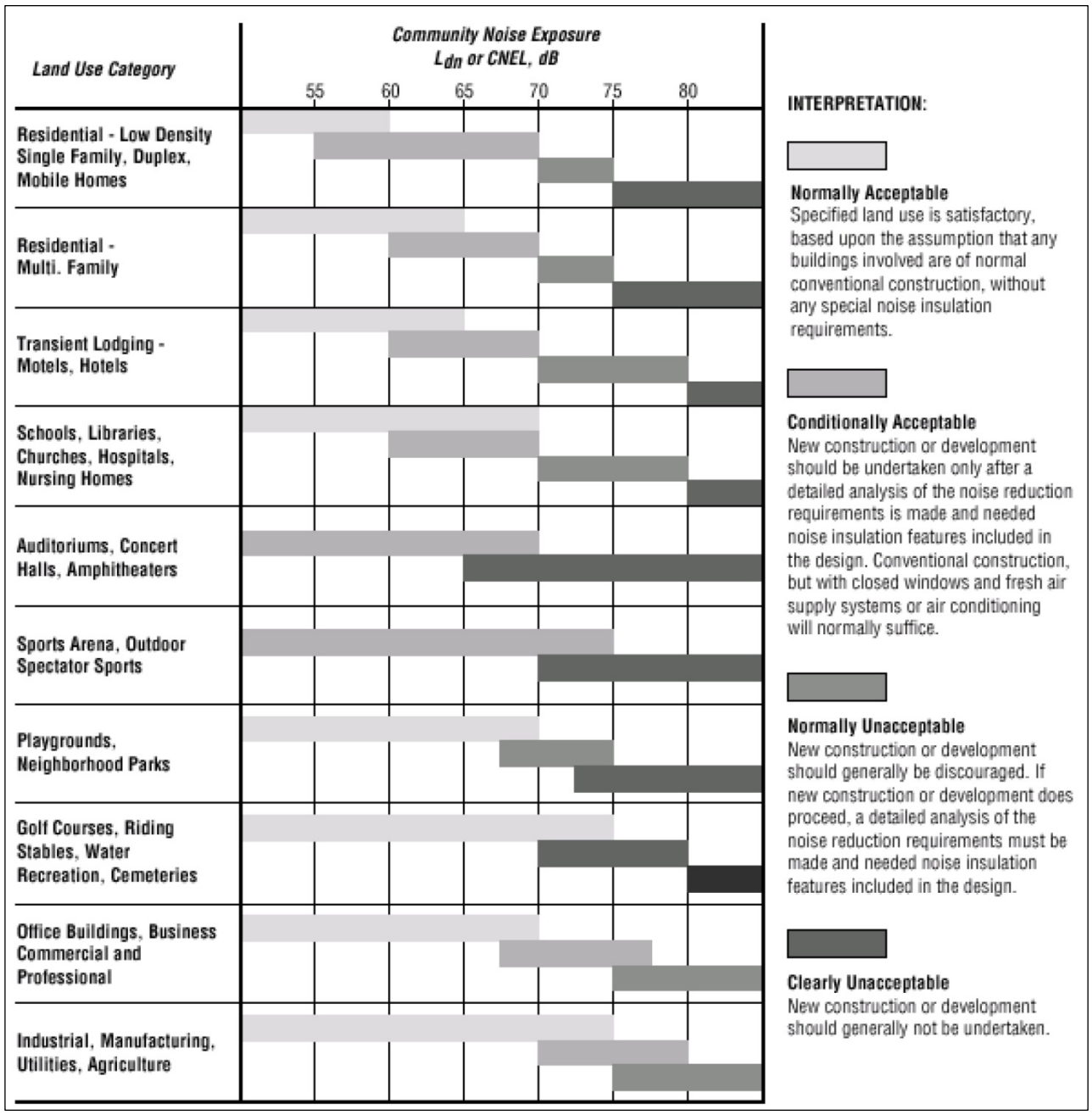
65 VdB - threshold of human perception
72 VdB - annoyance due to frequent events
80 VdB - annoyance due to infrequent events
94-98 VdB minor cosmetic damage

## 5.10.2 Regulatory Setting

### 1. County of Orange Planning Standards

The County of Orange has developed guidelines based on the State of California's model for acceptable community noise levels. The guidelines are based upon the CNEL rating scale and ensure that noise exposure is considered in any development. Exhibit 5-104 depicts the County Land Use Compatibility Matrix for Community Noise Exposure. CNEL-based standards apply to noise sources whose noise generation is pre-empted from local control (e.g., on-road vehicles, trains, airplanes). The standards are used to make land use decisions regarding the suitability of a specific site for its intended use and are found in the Noise Element of the County General Plan.

As shown in Exhibit 5-104, a number of overlapping CNELs are present within several criteria. The County developed a more clear-cut matrix of acceptable noise levels in order to reduce the potential ambiguity within the conditionally acceptable levels. The matrix is presented in Table 5-10-2. The table identifies the noise levels for each type of use listed. For example, a residential use (3) is prohibited in a 65 dB CNEL contour for airports, but is allowed in other areas if the noise level can be mitigated. The table then provides the interior and exterior standards for the residence (a. interior CNEL of less than 45 dB in habitable rooms and b. exterior CNEL of less than 64 dB in outdoor living areas).




Source: Appendix C: Noise Element Guidelines, "General Plan Guidelines, 2003", State of California Governor's Office of Planning and Research

**Exhibit 5-104 – Orange County Land Use Compatibility Matrix for Community Noise Exposure**

The County recommends an exterior noise level of 60 to 65 dB CNEL and an interior noise level of 45 dB CNEL for new residential uses. The exterior level applies to outdoor recreational uses such as yards, patios, and spas. Interior standards apply to habitable rooms. Typical noise attenuation with closed, double-paned windows in modern frame and stucco construction is 20 to 30 dB CNEL. Noise attenuation with partially open windows is 10 to 15 dB CNEL. Interior standards can, therefore, be met without mitigation if exterior levels are 55 to 60 dB CNEL with open windows. Exterior levels of 65 to 75 dB CNEL can be accommodated with closed dual-paned windows while still meeting interior standards.

**Table 5-10-2 Compatibility Matrix for Orange County Land Uses and Community Noise Equivalent Levels (CNEL)**

| Types of Use | 65+ dB CNEL | 60-65 dB CNEL |
|---|---|---|
| Residential | 3a, b, e | 2a, e |
| Commercial | 2c | 2c |
| Employment | 2c | 2c |
| Open Space | | |
| Local | 2c | 2c |
| Community | 2c | 2c |
| Regional | 2c | 2c |
| Educational Facilities | | |
| School (K through 12) | 2c, d, e | 2c, e, e |
| Preschool, college, other | 2c, d, e | 2c, d, e |
| Places of worship | 2c, d, e | 2c, d, e |
| Hospitals | | |
| General | 2a, c, d, e | 2a, c, d, e |
| Convalescent | 2a, c, d, e | 2a, c, d, e |
| Group quarters | 1a, b, e, e | 2a, c, e |
| Hotels/motels | 2a, c | 2a, c |
| Accessory uses | | |
| Executive apartments | 1a, b, e | 2a, e |
| Caretakers | 1a, b, c, e | 2a, c, e |

**Explanation and Definitions**

**Action Required to Ensure Compatibility between Land Use and Noise from External Sources**

1. Allowed if interior and exterior community noise levels can be mitigated.
2. Allowed if interior levels can be mitigated.
3. New residential uses are prohibited in areas within the 65-decibel CNEL contour from any airport or air station; allowed in other areas if interior and exterior community noise levels can be mitigated. The prohibition against new residential development excludes limited "in-fill" development within an established neighborhood.

**Standards Required for Compatibility of Land Use and Noise**

a. Interior Standard: CNEL of less than 45 decibels (habitable rooms only)
b. Exterior Standard: CNEL of less than 64 decibels in outdoor living areas
c Interior Standard: Leq(h)=46 to 65 decibels interior noise level, depending on interior use
d. Exterior Standard: Leq(h) of less than 645 decibels in outdoor living areas
e. Interior Standard: As approved by the Board of Supervisors for sound events of short duration such as aircraft flyovers or individual passing railroad trains

Lea(h) – The A-weighted equivalent sound level averaged over a period of "h" hours. An example would be Leq(12) where the equivalent sound level is the average over a specified 12-hour period (such as 7:00 a.m. to 7:00 p.m.). Typically, time period "h" is defined to match the hours of operation of a given type of use.

## 2. County of Orange Noise Standards

The County's noise standards for non-transportation sources are found in the Noise Ordinance. Division 6, Section 4-6 of the Orange County Code regulates noise from one land use crossing the property line of an adjacent property. As shown in Table 5-10-3 below, the County Code limits noise levels to 55 dBA (day) and 50 dBA (night) at any residential property line from noise generated on an adjacent property with some allowable deviation for specified periods of time. The larger the deviation from the baseline standard, the shorter the allowed duration of the event up to a maximum of 20 dB. After 10:00 p.m., all thresholds are decreased by 5 dB. The City has established identical noise standards (55 dBA day and 50 dBA night).

**Table 5-10-3 Residential Exterior Noise Standards, Orange County**

| Noise Zone | Noise Level | Time Period |
|---|---|---|
| 1 | 55 dB(A)<br>50 dB(A) | 7:00 a.m. to 10:00 p.m.<br>10:00 p.m. to 7:00 a.m. |

It shall be unlawful for any period 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, when the foregoing causes the noise level, when measured on any other residential property, either incorporated or unincorporated, to exceed:
The noise standard for a cumulative period of more than 30 minutes in any hour, or

- +5 dB for a cumulative period of more than 15 minutes in any hour, or
- +10 dB for a cumulative period of more than 5 minutes in any hour, or
- +15 dB for a cumulative period of more than 1 minute in any hour, or
- +20 dB or the maximum measured ambient level for any period of time.

In the event the alleged offensive noise consists entirely or impact noise, simple tone noise, speech, music, or any combination thereof, each of the noise levels shall be reduced by five dB(A).

In the event the ambient noise level exceeds any of the noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise levels.

The County Noise Ordinance also provides construction noise requirements, limiting grading or construction to weekdays (including Saturday) from 7:00 a.m. to 8:00 p.m. Division 6 (Sec. 4-6-1, et seq.) of the County Code also contains standard requirements related to the distance separation between construction activities and any occupied dwellings. Construction noise levels are exempt from the numerical performance standards in the noise ordinance. However, the County's Standard Condition for Approval N10, which may be applied during project review and approval, requires that:

1. All powered equipment operating within 1,000 feet of a dwelling must have a properly operating and maintained muffler.
2. Stockpiling and staging activities must be located as far as practicable from dwellings.

### 3. City of Yorba Linda

The City has established similar noise compatibility thresholds as shown in Table 5-10-4 below. Therefore, both jurisdictions have a residential noise standard of 65 dBA CNEL exterior and 45 dB CNEL interior.

**Table 5-10-4 Yorba Linda General Plan Land Use Noise Standards (dB CNEL)**

| General Plan Land Use Designation | Interior Standard | Exterior Standard |
|---|---|---|
| Residential, including public institutions and hospitals | 45 | 65 |
| Neighborhood Commercial | -- | 70 |
| Office Commercial | 50 | 70 |
| Light Industry/Business Park | 55 | 75 |
| Open Space | -- | 70 |

Source: City of Yorba Linda General Plan, 1993, Table N-2

The City similarly exempts construction-related activities from noise regulations provided they take place between the hours of 7:00 a.m. and 8:00 p.m. on weekdays and Saturday. No construction is allowed at any time on Sunday or a federal holiday.

## 5.10.3 Thresholds of Significance

The state encourages local agencies to adopt their own thresholds, but it is not required. According to Appendix G of the CEQA Guidelines, the Proposed Project would have a potentially significant impact with respect to noise if the project will result in:

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.
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
e) 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, exposure of persons residing or working in the Project Area to excessive noise levels.
f) For a project within the vicinity of a private airstrip, exposure of persons residing or working in the Project Area to excessive noise levels.

As shown in Table 5-10-3, Residential Exterior Noise Standards, Orange County above, the County has adopted noise standards for residential uses. The exterior noise standard for Orange County for residential uses is 65 dBA CNEL in usable outdoor space. If required, attenuation through setback and project perimeter barriers is

anticipated to reduce traffic noise to the 65 dBA CNEL goal. However, an inability to achieve this goal through the application of reasonably available mitigation measures would be considered a significant impact.

Impacts may also be significant if they create a substantial permanent or temporary increase. The term "substantial" is not quantified in the CEQA Guidelines. Typically, "substantial" is taken to mean a level that is clearly perceptible to humans. As analyzed in the Giroux Noise Analysis, a +3 dB increase was considered a significant increase if it causes the most stringent residential noise/land use guidelines of 65 dBA CNEL to be exceeded on a temporary or permanent basis. The following noise impacts due to project-related traffic would be considered significant:

1. If construction activities were to audibly intrude into adjacent residential areas during periods of heightened noise sensitivity, such as evening or night time hours.
2. If project traffic noise were to cause an increase by a perceptible amount (+3 dB CNEL) and expose receivers to levels exceeding the Orange County compatibility noise standards.

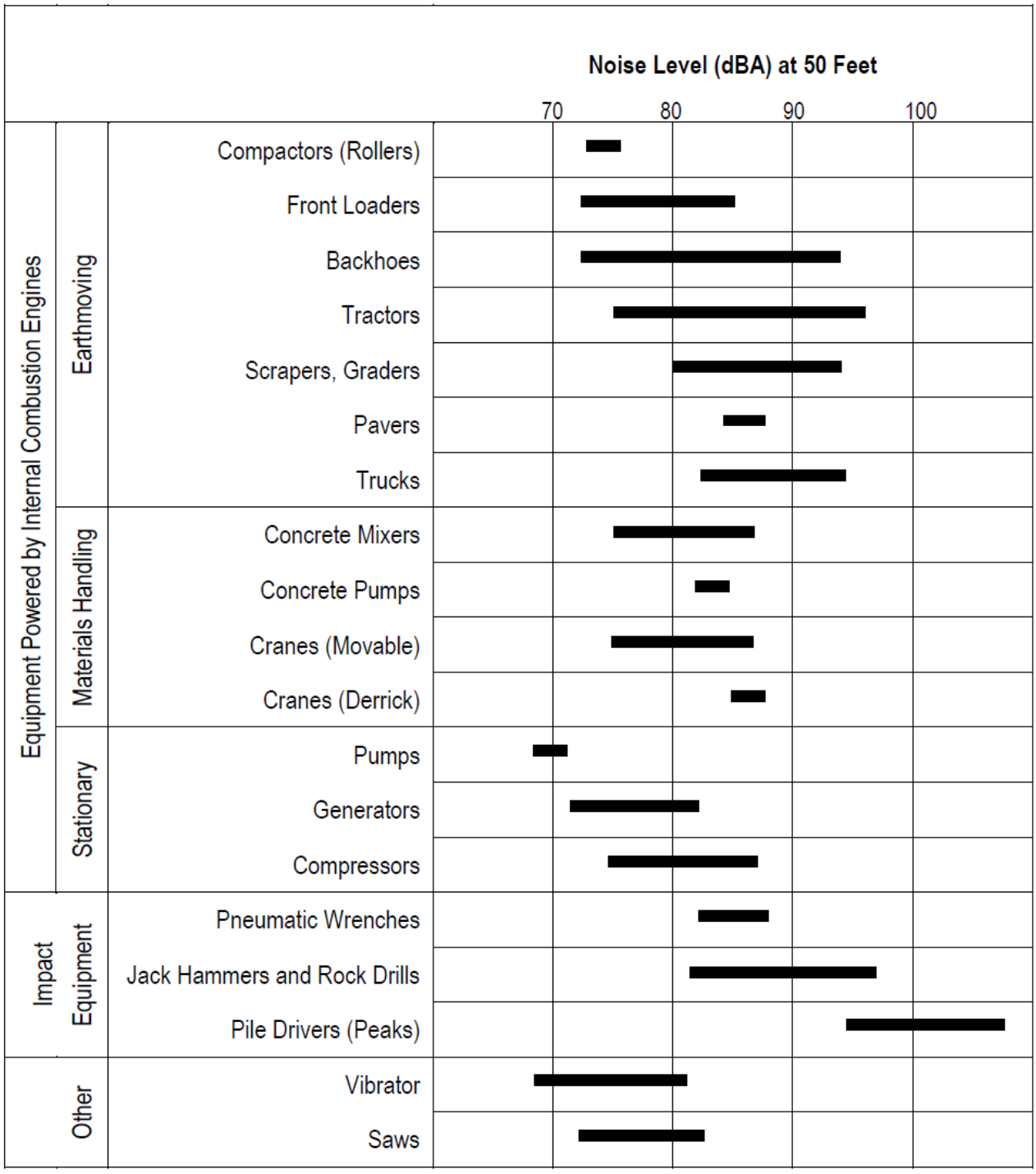
## 5.10.4 Project Impacts Prior to Mitigation

### 1. Construction Noise

#### a. Heavy Equipment

Short-term temporary construction noise impacts tend to occur in phases related to grading, foundation, and construction activities. The equipment used for each phase ranges widely and, therefore, the noise impacts will vary. The earth-moving equipment is the noisiest, typically ranging from 75 to 90 dBA at 50 feet from the source. Exhibit 5-105 – Typical Construction Equipment Noise Generation Levels depicts the range of noise emissions for various pieces of construction equipment.

Point sources of noise emissions are attenuated by a factor of 6 dBA per doubling of distance through geometrical (spherical) spreading of sound waves. At a distance of approximately 200 feet, quieter noise sources will drop to a 65 dBA exterior/45 dBA interior noise level. The loudest equipment (tractors, backhoes, jack hammers, pile drivers) may require over 1,000 feet distance from the source to achieve the same reduction to a 65 dBA exterior exposure level. This estimate assumes a clear line of sight from the source to the receiver. There are noise-sensitive receivers within 1,000 feet of planned construction activities. However, variations in terrain elevation or existing structures act as noise barriers that may interrupt equipment noise propagation. Construction noise impacts are, therefore, somewhat less than that predicted under idealized input conditions.




Source: EPA PB 206717, Environmental Protection Agency, December 31, 1971, "Noise from Construction Equipment and Operations."

**Exhibit 5-105 – Typical Construction Equipment Noise Generation Levels**

The Federal Highway Administration (FHWA) has developed a construction activity noise model that is an industry standard for assessing construction activity noise impacts. Quantitatively, the primary noise prediction equation is expressed as follows for the hourly average noise level (Leq) at distance D between the source and receiver (dBA):

Leq = Lmax @ 50′ - 20 log(D/50′) + 10log (U.F.%/100) - I.L.(Bar)
Where:
Lmax @ 50′ is the published reference noise level at 50 feet
U.F.% is the usage factor for full power operation per hour
I.L.(bar) is the insertion loss for intervening barriers

Published reference noise levels for heavy construction equipment used in clearing, excavation and grading include the following (Noise Control for Buildings, BBN, 1987):

- Dozers - 85 dBA
- Tractors - 80 dBA
- Backhoes - 86 dBA
- Excavators - 86 dBA
- Graders - 86 dBA

Assuming three large pieces of equipment operate in close proximity, their combined Lmax reference level is 91 dBA at 50 feet. Under a clear line of sight and a typical usage factor of 40%, the hourly noise level as a function of distance is shown in Table 5-10-5.

**Table 5-10-5 Distance/Noise Level**

| Distance to Source | Hourly Level |
|---|---|
| 100 feet | 81 dBA |
| 200 feet | 75 dBA |
| 300 feet | 71 dBA |
| 400 feet | 69 dBA |
| 500 feet | 67 dBA |
| 640 feet | 65 dBA |
| 800 feet | 63 dBA |
| 1,000 feet | 61 dBA |

County standards restrict construction activities using heavy equipment to hours of lesser residential sensitivity if occupied residences are nearby. Levels of 65 dBA can interfere with comfortable conversation and levels of 75 dBA can intrude into quiet interior activities even with closed windows. It is not anticipated that noise levels at adjacent residential uses will reach 75 dBA Leq during construction. However, equipment noise may reach 65 dBA at the closest existing homes, which are approximately 600 feet from the nearest residential lot within the Project Site. Noise attenuation can be achieved as the terrain changes and structures and walls associated with the Proposed Project are completed, providing buffers between equipment

operations and adjacent uses, thereby reducing noise impacts from construction operations.

As noted, the Orange County Municipal Code permits construction during the hours of 7:00 a.m. to 8:00 p.m. on weekdays and Saturdays. Construction is not permitted on Sundays or federal holidays. Construction permits are conditioned to these limits to minimize adverse construction noise impacts. The City of Yorba Linda has adopted these standards with respect to construction noise, which is exempted as long as there is compliance with the daytime and nighttime requirements.

### 2. Movement of Construction Equipment and Workers

The movement of construction equipment onto and from the site and the daily ingress and egress of construction workers will generate temporary traffic noise along access routes. The major pieces of heavy equipment moving into the development areas could also impact currently low ambient noise levels. The project proposes two potential access points. Option 1 utilizes Stonehaven Drive for access and Option 2 utilizes an extension of the existing terminus of Aspen Way.

Depending on final site design, several alternative access points for construction traffic could be developed. The CalEEMod computer model predicts the peak construction day for the most intensive traffic period in terms of worker traffic, vendor trucks, and heavy-duty diesel vehicles delivering equipment and building supplies. The forecast peak daily traffic is presented in the table below.

**Table 5-10-6 Peak Daily Construction Traffic**

| Source | Trips Per Day |
|---|---|
| Worker trips | 136/day |
| Vendor (medium) trucks | 20/day |
| Vendor (heavy) trucks | 20/day |
| Total Trips Per Day | 176/day |

Assuming the traffic occurs between 7:00 a.m. and 3:00 p.m., the calculated CNEL is 54 dB at 50 feet from the centerline. The measured daytime baseline noise level was 46 dB Leq. CNEL is typically 2 to 3 dB higher than daytime Leq levels due to nocturnal noise penalties in the CNEL calculation. A background level of 49 dB CNEL is considered representative at homes near candidate access points. As noted, the Orange County General Plan standard for usable outdoor residential space is 65 dB CNEL. The City standard is also 65 dB CNEL.

For purposes of the Noise Analysis, three access points were considered where construction traffic noise was calculated as follows:

**Table 5-10-7 Construction Traffic Noise Locations**

| Access Location | Distance to Receiver |
|---|---|
| Stonehaven Drive | 50 feet |
| Aspen Way | 50 feet |
| San Antonio Road south of Aspen Way | 250 feet |

The calculated peak daily construction traffic noise, compared to the measured baseline and the General Plan standard is shown in the table below.

**Table 5-10-8 Construction Noise Comparison**

| Access Location | Peak Noise (dB CNEL) | Compared to | |
|---|---|---|---|
| | | Baseline | GP Standard |
| Stonehaven Drive | 54 dB | +5 dB | -11 dB |
| Aspen Way | 54 dB | +5 dB | -11 dB |
| San Antonio Road | 47 dB | -2 dB | -18 dB |

As noted above, construction noise is exempt from noise regulation by the County and the City if the activity is restricted to hours of lesser sensitivity (7:00 a.m. to 8:00 p.m.). While peak construction activity traffic will be temporary, as a general rule, increases of +5 dB above the baseline are often considered a clearly noticeable increase. Therefore, peak daily construction access noise would be temporarily noticeable at Stonehaven Drive and Aspen Way, but less than background at San Antonio Road.

## 3. Vibration

Background vibration levels in residential areas are usually 50 VdBA (vibration decibels) or less, below the threshold of human perception. Typically, such vibrations are attributed to the operation of heating and air conditioning units, doors slamming or street traffic. Some of the most common external sources of vibration that are perceptible inside residences are construction and traffic.

Construction activities generate groundborne vibration when heavy equipment travels over unpaved surfaces or when it is engaged in soil movement. Effects of groundborne vibration could include discernible movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls and rumbling sounds. Vibration related problems generally occur due to resonances in the structural components of a building because structures amplify groundborne vibration. Ground vibration is quickly damped out within the "soft" sedimentary surfaces of much of southern California and is almost never annoying to people who are outdoors.

While very few jurisdictions have adopted significance thresholds for vibration, such thresholds have been adopted by counties and cities for major public works construction projects. Such thresholds mostly relate to structural protection rather than to human annoyance.

Table 5-10-9 below provides estimates of vibration levels induced by construction equipment at various distances in order to determine the potential impacts from the Proposed Project's construction activities.

**Table 5-10-9 Approximate Vibration Levels Induced by Construction Equipment**

| | Vibration Decibels (VdBA)* | | | | |
|---|---|---|---|---|---|
| Equipment | 25 feet | 50 feet | 100 feet | 600 feet | 1000 feet |
| Large bulldozer | 87 | 81 | 75 | 59 | 55 |
| Loaded truck | 86 | 80 | 74 | 58 | 54 |
| Jackhammer | 79 | 73 | 67 | 51 | 47 |
| Small bulldozer | 58 | 52 | 46 | 30 | 26 |

*FTA Transit Noise & Vibration Assessment, Chapter 12, Construction, 2006)

As shown in Table 5-10-9, the maximum potential vibration will be created by the large bulldozer. The nearest existing residence is approximately 600 feet from the nearest lot in the Proposed Project, at which point the vibration dissipates to 59 VdB and below the threshold of human perception. Most construction equipment will operate at greater distance separation. However, some grading activity could occur at a distance less than the nearest residential lot. This will be a short-term impact and, based on the table above, would reach the level of annoyance at distances of 100 feet. Therefore, construction activity vibration could cause perceptible noise impacts depending on distance from the nearest residence. However, vibration impacts are less than significant because vibration will dissipate as distances increase and construction activity will occur only during the hours specified by the County and City noise standards.

## 4. Long Term Vehicular Noise

Long-term noise impacts will primarily be due to mobile sources on project roadways. Analysis of potential noise impacts was conducted using the California specific vehicle noise curves (CALVENO) in the federal roadway noise model (FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108). The model calculates the Leq noise level for a particular reference set of input conditions and then makes a series of adjustments for site-specific traffic volumes, distances, roadway speeds, or noise barriers. Typical Orange County day-night travel percentages and auto-truck vehicle mixes are then applied to convert one-hour Leq levels to a weighted 24-hour CNEL.

Utilizing data from the traffic analysis prepared for the project by Linscott, Law & Greenspan, Inc., three timeframes were evaluated: Existing Conditions With and Without Project, Year 2020 With and Without Project, and Year 2035 With and Without Project. The 24-hour CNEL level at 50 feet from the roadway centerline was calculated along adjacent roadway segments. Two project options were evaluated with differing project access points.

- Option 1 provides access via Stonehaven Drive
- Option 2 provides access via Aspen Way

The results of the near-term traffic noise analysis are depicted in Table 5-10-10 below.

The results of the Year 2020 project related noise impacts are depicted in Table 5-10-11 below.

The results of the Year 2035 project related noise impacts are depicted in Table 5-10-12 below.

Vehicular traffic volumes and roadway travel speeds were obtained from the Traffic Impact Analysis for this project. It is unlikely that build-out would occur immediately with a project this large. By 2020 and 2035, when area build-out occurs, the project impacts are diluted and not as significant as under current conditions. Therefore, existing conditions were overlaid with project traffic to provide a worst case impact analysis even though project build-out will not occur for several years. Analysis determined that each option will cause a significant noise increase along the primary access route, because the Project-related noise increase will exceed 3.0 dBA, which is considered to be a perceptible increase in noise levels.

## Option 1 (Stonehaven Drive)

Option 1, which provides access via Stonehaven Drive, causes a significant impact along Via del Agua and Stonehaven Drive. As shown in Table 5-10-10 above near-term traffic noise would result in a 3.1 dB increase in noise levels from 58.6 dB (existing) to 61.8 dB (existing + Option 1), which is above the CEQA threshold of 3.0 dB. Table 5-10-11 above shows that noise levels would increase 3.0 dB from 59.0 dB (existing) to 61.9 dB (2020 + Option 1). Table 5-10-12 shows an increase of 2.0 dB from 59.6 (existing) to 61.6 (2035 + Option), which is less than the CEQA impact threshold. However, even at area build-out in horizon year 2035, the "With Project" traffic noise levels at 50 feet from the roadway centerline are less than 65 dB CNEL, which is the recommended compatibility threshold for sensitive uses. The increase in noise resulting from Project-related traffic would exceed 3.0 dBA, which is a perceptible increase in noise and exceeds the CEQA threshold. However, the noise level at 50 feet from the roadway centerline is less than the 65 dBA CNEL exterior noise standard prescribed by the County.

**Table 5-10-10 Near-Term Traffic Noise Impact Analysis**

| Road Segment | | CNEL in dB at 50 feet from Centerline | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Existing | Existing + Option 1 | Existing + Option 2 | Existing + Option 2A | Existing Impacts Option 1 | Existing Impacts Option 2 | Existing Impacts Option 2A |
| Yorba Linda Boulevard/ | Imperial Hwy-Kellogg Drive | 72.0 | 72.2 | 70.9 | 72.2 | 0.1 | -1.1 | 0.1 |
| | Village Center-San Antonio | 72.0 | 72.3 | 71.0 | 72.3 | 0.3 | -0.9 | 0.3 |
| | San Antonio-La Palma | 72.0 | 72.0 | 70.9 | 72.2 | 0.0 | -1.0 | 0.2 |
| Weir Canyon/ | E of La Palma | 74.0 | 74.1 | 74.1 | 74.1 | 0.1 | 0.1 | 0.1 |
| San Antonio Road/ | N of Yorba Linda Boulevard | 56.5 | 56.5 | 60.8 | 60.8 | 0.0 | **4.4** | **4.43** |
| Aspen Way/ | E of San Antonio | 43.4 | - | 58.0 | - | - | **14.6** | **0.0** |
| Via Del Agua/ | W of site entrance | 52.3 | 59.8 | - | **-** | **7.4** | - | - |
| | N of Yorba Linda Boulevard | 55.6 | 60.6 | - | **-** | **5.0** | - | - |
| Stonehaven Drive/ | E of site entrance | 53.1 | 56.2 | - | **-** | **3.1** | - | - |
| | N of Yorba Linda Boulevard | 55.2 | 57.4 | - | - | 2.2 | - | - |

**Table 5-10-11 Project-Related Noise Impact Analysis, Year 2020**

| Road Segment | | CNEL in dB at 50 feet from Centerline | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 2020 | 2020 + Option 1 | 2020 + Option 2 | 2020 + Option 2A | 2020 Impacts Option 1 | 2020 Impacts Option 2 | Existing Impacts Option 2A |
| Yorba Linda Boulevard/ | Imperial Hwy-Kellogg Drive | 72.7 | 72.8 | 71.6 | 72.8 | 0.1 | -1.1 | 0.1 |
| | Village Center-San Antonio | 72.4 | 72.7 | 71.4 | 72.7 | 0.3 | -1.0 | 0.3 |
| | San Antonio-La Palma | 72.5 | 72.5 | 71.5 | 72.7 | 0.0 | -1.0 | 0.2 |
| Weir Canyon/ | E of La Palma | 74.5 | 74.6 | 74.6 | 74.6 | 0.1 | 0.1 | 0.1 |
| San Antonio Road/ | N of Yorba Linda Boulevard | 57.0 | - | 61.1 | 61.1 | - | **4.1** | **4.1** |
| Aspen Way/ | E of San Antonio | 47.6 | - | 58.3 | - | - | **10.7** | **-** |
| Via Del Agua/ | W of site entrance | 52.7 | 59.8 | - | **-** | **7.1** | - | - |
| | N of Yorba Linda Boulevard | 58.4 | 61.7 | - | **-** | **3.3** | - | - |
| Stonehaven Drive/ | E of site entrance | 53.4 | 56.4 | - | - | 3.0 | - | - |
| | N of Yorba Linda Boulevard | 55.6 | 57.6 | - | - | 2.0 | - | - |

**Table 5-10-12 Project-Related Noise Impacts, 2035**

| Road Segment | | CNEL in dB at 50 feet from Centerline | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 2035 | 2035 + Option 1 | 2035 + Option 2 | 2035 + Option 2A | 2035 Impacts Option 1 | 2035 Impacts Option 2 | 2035 Impacts Option 2A |
| Yorba Linda Boulevard/ | Imperial Hwy-Kellogg Drive | 72.3 | 72.4 | 72.4 | 73.6 | 0.1 | 0.1 | 1.3 |
| | Village Center-San Antonio | 71.2 | 71.4 | 71.4 | 72.7 | 0.2 | 0.2 | 1.5 |
| | San Antonio-La Palma | 71.8 | 71.8 | 72.0 | 73.2 | 0.0 | 0.2 | 1.4 |
| Weir Canyon/ | E of La Palma | 74.9 | 75.0 | 75.0 | 75.0 | 0.1 | 0.1 | 0.1 |
| San Antonio Road/ | N of Yorba Linda Boulevard | 57.2 | - | 61.8 | 61.8 | - | **4.6** | **4.6** |
| Aspen Way/ | E of San Antonio | 50.2 | - | 58.6 | - | - | **8.4** | **-** |
| Via Del Agua/ | W of site entrance | 55.5 | 60.5 | - | **-** | **5.0** | - | - |
| | N of Yorba Linda Boulevard | 60.0 | 62.5 | - | **-** | **2.5** | - | - |
| Stonehaven Drive/ | E of site entrance | 55.8 | 57.8 | - | - | 2.0 | - | - |
| | N of Yorba Linda Boulevard | 57.9 | 59.2 | - | - | 1.3 | - | - |

## Option 2 (Aspen Way)

Under Option 2, which provides access via Aspen Way, Table 5-10-10 shows a 43.4 dB (year 2020 existing) at 50 feet from roadway centerline and a 58.0 dB (existing + Option 2). This results in an increase of 14.7 dB due to the existing low utilization of Aspen Way under current conditions. As shown on Table 5-10-11, noise levels rise from 47.6 dB (year 2020 existing) to 58.3 dB (existing + Option 2) resulting in a 10.7 dB increase. Table 5-10-12 shows a change from 50.2 dB (year 2035 existing) to 58.6 (existing + Option 2), resulting in an 8.4 dB increase. The decreases in noise levels between existing, year 2020, and year 2035 are primarily due to the dilution of noise as the Project Area is built out, and contrasts with existing conditions are not as significant. While considered substantial, the overall noise level, even in 2035, is less than the 65 dB CNEL residential exterior noise compatibility threshold (assuming a 25 mph travel speed) at 50 feet from the roadway centerline.

Residences along the eastern alignment of San Antonio Road between Aspen Way and Yorba Linda Boulevard are set back from the roadway centerline by more than 100 feet, reducing the year 2035 noise levels at the nearest residence to 59 dB CNEL, less than the 65 dB CNEL compatibility threshold and the County's noise standard.

Two residences are within 50 feet of the Aspen Way centerline such that these residences would be expected to experience the full 58 dB CNEL noise level in the future as compared to 43 dB CNEL currently. Traffic noise impacts would exceed the CEQA-designated perceptible noise increase of +3 dB as compared to "Existing Without Project" levels. Area traffic noise levels would remain below 65 dB CNEL and, therefore, would not exceed the County's 65 dB CNEL threshold.

The Noise Analysis indicates a substantial noise increase from Project-related traffic on Aspen Way and Stonehaven Drive under Option 2 for the existing and future time periods. The increase in noise levels is expected to exceed +3 dB at 50 feet from the roadway centerline, which is considered a perception threshold. This is a significant impact with regard to a perceptible increase in noise levels. However, overall traffic noise is expected to be less than 60 dB CNEL at 50 feet from the Aspen Way centerline and would also be less than significant.

While all access options would result in a noticeable noise increase over existing conditions to nearby residences, the overall traffic noise environment remains below 65 dB CNEL. The increase in Project-related traffic noise levels will exceed the +3.0 dB CEQA threshold, which is considered a significant increase. However, because noise levels are forecast to remain below the 65 dB CNEL exterior noise standard, no mitigation measures are required. There are no feasible mitigation measures, such as sound walls, to reduce the 3 dB perceptible increase in noise, because such walls are not typically used in residential neighborhoods. Because the existing noise levels are low, the addition of Project-related traffic will increase noise levels more than the +3 dB perception threshold, and no mitigation measures are available under "With Project" conditions.

## 5.10.5 Mitigation Measures

N-1 During the construction phase, Project Applicant shall ensure that all construction activities shall be limited to the hours of 7:00 a.m. to 8:00 p.m. on weekdays and Saturdays with no construction permitted on national holidays or Sundays in compliance with the Orange County Noise Ordinance. High noise-producing activities should be scheduled between the hours of 8:00 a.m. and 5:00 p.m. to minimize disruption to sensitive uses.

N-2 During the construction phase, Project Applicant shall ensure that all construction and demolition equipment shall be fitted with properly operating and maintained mufflers.

N-3 During the construction phase, Project Applicant shall ensure that all noise-generating construction equipment and construction staging areas should be located as far as possible from existing residences.

N-4 During the construction phase, Project Applicant shall ensure that construction-related equipment, including heavy duty equipment, shall be turned off when not in use for more than 10 minutes.

N-5 Prior to construction, the Project Applicant shall prepare and submit to the County for approval a haul plan for construction-related traffic that limits impacts on residential development by avoiding such residential development areas where feasible.

N-6 During the construction phase, Project Applicant shall ensure that construction hours, allowable work days, and the telephone number of the job superintendent are clearly posted at all construction entrances to allow residents to contact the job superintendent. If the job superintendent receives a complaint, the superintendent shall investigate, take appropriate corrective action, and report the action taken to the appropriate reporting party.

## 5.10.6 Level of Significance after Mitigation

### 1. Short-Term Construction Impacts

Short-term construction noise and vibration impacts will be limited by the requirement for compliance with County of Orange regulations and ordinances. Peak daily construction traffic noise would be noticeable for either Stonehaven-Drive (Option 1) or Aspen Way (Option 2), but is not expected to exceed the General Plan standard of 65 dB CNEL.

Implementation of the mitigation measures provided herein will reduce impacts due to construction equipment noise. However, the low baseline levels for ambient noise in the project vicinity show that the Proposed Project Area is sensitive to even a moderate increase in noise and that construction noise will be perceptible to adjacent development. It is estimated that equipment noise may reach 65 dB at the closest existing homes, which are 600 feet from the nearest Esperanza Hills lot. The County exempts construction-related noise during the hours of 7:00 a.m. to 8:00 p.m. on weekdays and Saturdays. Therefore, exceedance of the County's exterior noise

threshold is not considered significant with compliance to the Noise Ordinance hours of operation. However, it should be noted that distance attenuation will reduce the impact as equipment moves away from the existing residences. The projected levels are within County and City standards for exterior noise levels. These impacts are temporary and will cease upon construction completion.

## 2. Long-Term Operational Impacts

The Noise Analysis indicates that the noise increase from Project-related traffic in the existing and future time period under Option 1 and Option 2 would exceed +3 dB at 50 feet from the roadway centerline, which is considered a perceptible increase in noise levels. This increase is a significant impact based on CEQA thresholds, because a 3 dB increase is a perceptible increase in noise levels. However, the overall noise levels with the Project will be within the 65 dB CNEL standard established by the Orange County General Plan noise compatibility guidelines for residential uses. The City has established the same noise standards.

While projected noise levels along Via del Agua and Stonehaven Drive (Option 1) and Aspen Way (Option 2) will increase significantly under existing, Year 2020, or Year 2035 conditions, levels at 50 feet from the roadway centerline will remain below the 65 dB CNEL threshold. The County noise compatibility guidelines for residential uses identify 65 dB CNEL as the exterior standard in outdoor living areas. No mitigation measures are required for long-term operation of the Proposed Project because noise levels will remain under the 65 dB CNEL threshold.

The Proposed Project has the potential to expose persons to noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies due to short term construction as detailed above. However, adherence to County and City noise ordinances for construction will result in a less than significant impact.

The short-term construction activities will expose adjacent residences to groundborne vibration and noise levels, but at the nearest existing residence, levels will be below the threshold for exterior noise.

The Proposed Project will result in a temporary increase in ambient noise levels due to construction activities. Adherence to County and City noise ordinances for hours of operation will reduce the impact to less than significant. Permanent increases in the ambient noise level will result from vehicular traffic. The increases will exceed the CEQA threshold of +3 dB; however, levels will remain below the exterior noise ordinance levels of 65 dB CNEL.

The Proposed Project is not located within an airport land use plan or within the vicinity of a private airport, and no impacts in this area will occur.

## 5.10.7 Cumulative Impacts

The Noise Analysis indicates that a significant cumulative traffic noise increase of +14.7 dB CNEL will occur along Aspen Way under Option 2 conditions. San Antonio Road north of Yorba Linda Boulevard is also anticipated to experience a significant cumulative impact with a +4.1 dB CNEL increase in traffic noise at 50 feet from roadway centerline under Option 2 conditions. Therefore, since the impacts are greater than the +3 dB CNEL CEQA threshold, it is anticipated that the Proposed Project will result in significant cumulative noise impacts due to project-generated traffic, notwithstanding that County noise level standards of 65 dB CNEL will not be exceeded.

As shown in the Noise Analysis, projected noise levels will range from 58.0 to 61.9 dB depending on which access option is selected. The addition of the proposed Cielo Vista project will also increase traffic volumes. With the construction of 112 residential units, noise levels could remain under the 65 dB CNEL; however, the additional units would further exceed the 3 dB CNEL threshold. Therefore, the Noise Analysis concludes that cumulative operational noise levels for typical residential uses will be within the Orange County noise compatibility guidelines, but will result in a significant increase, exceeding the 3 dB CEQA threshold of a perceptible noise increase.

## 5.10.8 Unavoidable Adverse Impacts

Implementation of the Proposed Project will result in a 3 dB increase in noise due to traffic at two intersections:

- Aspen Way (Option 2) under near term, Year 2020, and Year 2035 conditions
- Stonehaven Drive (Option 1) under near term and Year 2035 conditions

This increase is a significant impact based on CEQA thresholds, because a 3dB increase is a perceptible increase in noise levels. This impact is considered significant and unavoidable.

# 5.11 Population and Housing

This section discusses the potential population and housing impacts associated with the Proposed Project. Information in this section is based on data from the County of Orange Housing Element, the County of Orange General Plan, "Orange County Community Indicators, 2013," "Facts and Figures: County of Orange, 2012," "Orange County Projections" by the Center for Demographic Research (CDR), the Yorba Linda General Plan Housing Element, and the Yorba Linda Draft Housing Element. The above-noted documents are incorporated herein by reference. This section outlines the existing population and housing trends in the County of Orange as well as estimated population growth and issues related to future employment demands created by the Proposed Project.

## 5.11.1 Existing Conditions

Several agencies provide population forecasts for municipalities in Orange County. These forecasting organizations are briefly described below.

- County of Orange – The County of Orange adopts growth forecasts on a regular basis. The most recent set of projections is contained within the current Orange County Projections, which is published by the CDR in partnership with California State University, Fullerton. The Orange County Projections uses a multi-stage process that combines several procedures and methodologies. In broad terms, total population, housing, and employment are projected and then allocated to smaller geographic areas based on an analysis of local policy, land use capacity, demographic changes, and assumed market forces.

  The primary goal of the CDR is to provide accurate and timely information regarding population, housing, and employment characteristics to public agencies, local jurisdictions, and regional planning authorities as well as private citizens and industry. The CDR divides Orange County into ten Regional Statistical Areas (RSA), which are combinations of Census tracts utilized for planning purposes. The Project Area and the surrounding communities of Yorba Linda and Placentia are located in RSA B-41.

**Acronyms used in this section:**

| | |
|---|---|
| CDR | Center for Demographic Research |
| CEQA | California Environmental Quality Act |
| DEIR | Draft Environmental Impact Report |
| DOF | California Department of Finance |
| HCD | California Department of Housing and Community Development |
| RHNA | Regional Housing Needs Assessment |
| RSA | Regional Statistical Areas |
| SCAG | Southern California Association of Governments |
| SOI | Sphere of Influence |

- Southern California Association of Governments (SCAG) - The Project Site is located in unincorporated Orange County, one of the six counties comprising SCAG. The other counties included in SCAG are Los Angeles, Riverside, San Bernardino, Ventura, and Imperial. The SCAG region contained approximately 16.5 million people in year 2000 based on the U.S. Census figures. Since that time, the southern California region has grown to approximately 18 million people.
- Regional Housing Needs Assessment (RHNA) – The RHNA was developed by SCAG and is one of four plans that create a management system for dealing with growth in the region. Using each county's Growth Management Plan as a basis, the RHNA is used to determine the housing needs for each city and unincorporated area within the SCAG region. The RHNA allocates each jurisdiction's "fair share" adjustment of the regional future housing needs by factoring household growth, vacancy need, and replacement need (due to demolition, natural disaster, or conversion of use) to determine the construction need for a community. In addition, the RHNA model was developed to determine housing needs with special emphasis on ensuring adequate housing for persons in the very low, low, and moderate income ranges. This assessment allows communities to anticipate growth so they can enhance quality of life, improve access to jobs, transportation, and housing, and not adversely impact the environment.

## 1. Population

With a population of 3,071,933 in July 2012, Orange County is the third largest county in California[29]. The County's population density in 2010 was 3,808 persons per square mile. The average annual increase slowed considerably to 1.7% between 1990 and 2000 and further to 0.6% between 2000 and 2010.[30] Between 2010 and 2012, the County added 20,970 residents through natural increase and 8,805 through international immigration. At the same time, the County lost 4,962 residents through domestic out-migration for a net domestic migration increase of 3,843.[31] The County's population growth is projected to continue at an increasingly slower rate, reaching a little over 3.4 million by 2035.[32] The County's average household size is 2.99 persons. Average household size in the City of Yorba Linda (City) is 3.05 persons.

Population projections are compiled by several agencies. SCAG's data is generally used by local agencies for regional forecasts. SCAG uses Department of Finance (DOF) estimates for current population, housing, and employment, and CDR's estimates for future projections through a designated year. SCAG compiles these numbers and adjusts them to be consistent with local input relative to housing,

[29] Orange County 2013 Community Indicators, page 4
[30] California Department of Finance, Demographic Research Unit, Table E-6
[31] California Department of Finance, Demographic Research Unit, Tables 2
[32] Center for Demographic Research, California State University, Fullerton; "Orange County Projections 2010 Modified"

population, employment, and land use to arrive at existing and projected forecasts for the SCAG area. Because the Proposed Project is located within the City's Sphere of Influence (SOI), the City population figures are included. Table 5-11-1 below reflects the most recent CDR figures for Orange County and the City.

**Table 5-11-1 Regional and Local Population**

| Year | Orange County | City of Yorba Linda |
|---|---|---|
| 2000 | 2,846,289 | 58,918 |
| 2010 | 3,010,232 | 64,234 |
| 2020 | 3,266,107 | 69,676 |
| 2030 | 3,410,773 | 70,233 |

Source: Center for Demographic Research, Cal State Fullerton

## 2. Housing

Table 5-11-2 presents projected housing trends for all housing types in Orange County and the City, as identified by CDR. "Orange County Community Indicators, 2013" states that as of January 2012, there were 1,052,361 housing units available to Orange County residents. The 2011 American Community Survey notes that a majority of occupied units are owner-occupied[33].

**Table 5-11-2 Regional and Local Housing**

| | Housing Units | |
|---|---|---|
| Year | Orange County | City of Yorba Linda |
| 2000 | 969,484 | 19,567 |
| 2010 | 1,048,514 | 22,247 |
| 2020 | 1,105,238 | 23,364 |
| 2030 | 1,160,556 | 23,455 |

Source: Orange County Community Indicators, 2013

## 3. Employment

The CDR has projected that there will be approximately 1,625,805 jobs in Orange County by year 2020. Table 5-11-3 presents past and projected employment figures for the County and the City, based on CDR projections.

**Table 5-11-3 Regional and Local Employment Projections**

| | Number of Jobs Projected | |
|---|---|---|
| Year | Orange County | City of Yorba Linda |
| 2010 | 1,429,700 | 16,479 |
| 2020 | 1,625,805 | 17,219 |
| 2030 | 1,738,032 | 17,255 |

Source: Center for Demographic Research, Cal State Fullerton

[33] "Orange County Community Indicators, 2013," page 6; http://www.scco.edu/img/uploads/happenings/pdfs/CIR2013.pdf (accessed July 2013)

## 5.11.2 Regulatory Setting

### 1. County of Orange General Plan Housing Element

Adopted on March 22, 2011, the Housing Element for the County's General Plan provides projections, goals, and policies related to existing and future residential development. It also identifies programs and resources required for the preservation, improvement, and development of housing to meet the projected needs of the County's population. The Housing Element is influenced by development policies contained in the Land Use Element, which establishes the location, type, intensity, and distribution of land uses throughout the County. Goals and policies within the Land Use Element are discussed in detail in Section 5.9, Land Use and Planning (beginning on page 5-395 of this DEIR).

The three major categories considered in the Housing Element include:

1. Existing housing needs resulting from the overcrowding, overpayment, or substandard housing conditions
2. Housing needs of "special needs groups" such as the elderly, large families, homeless, and disabled
3. Housing needs resulting from population growth

Based on 2012 figures, the average household size in Orange County is 2.99 persons, which is larger than average household size in California (2.91 persons) and the country (2.60 persons)[34].

A significant role of the Housing Element is to address existing and future housing needs, including affordable housing, based on the state-mandated RHNA allocations. The Housing Element notes RHNA growth needs projections that are included in the 2006-2014 planning period as shown in Table 5-11-4.

**Table 5-11-4 Regional Housing Growth Needs, 2006-2014**

| | Income Category | | | | |
|---|---|---|---|---|---|
| | Very Low | Low | Moderate | Above Moderate | Total |
| Units | 1,777 | 1,445 | 1,597 | 3,159 | 7,978 |
| Percent of total | 22.3% | 18.1% | 20.0% | 39.6% | 100% |

Source: County of Orange Housing Element (2011)

[34] "Orange County 2013 Community Indicators," page 7; http://www.scco.edu/img/uploads/happenings/pdfs/CIR2013.pdf (accessed July 2013)

The California Department of Housing and Community Development (HCD) approved the 5th Cycle Regional Housing Needs Assessment Final Allocation Plan for 1/1/2014 through 10/1/2021. The State of California has defined income categories for the purpose of determining housing affordability and need in communities. These categories are as follows:

- Very Low Income - 50% or less of area median income (AMI)
- Low Income - 51% to 80% of AMI
- Moderate Income - 81% to 120% of AMI
- Above Moderate Income - more than 120% of AMI

## 2. City of Yorba Linda General Plan - Housing Element

The City is in the process of updating the Housing Element of its General Plan. The current Housing Element covers the period from 2008 to 2014 and includes past trends in population and housing as well as population growth estimates based on DOF estimates. The following information is based on the 2008-2014 Housing Element.

- Population Growth and Trends – The City experienced a 16% increase in growth between 2000 and 2008. The DOF estimated the population in year 2008 at 68,312. Orange County Projections projected a 3.2% increase over the 2005-2015 period with the population at 70,513 by 2015. Orange County Projections projected a slowdown in the growth rate between 2015 and 2025 of 2.6% and a 1.6% growth rate between 2025 and 2035.
- Households – The Housing Element noted that the 2000 Census documented 19,252 households in the City with an average household size of 3.05 persons and an average family size of 3.35 persons. Housing growth for the City has remained higher (12%) than the comparison cities of Anaheim, Brea, Fullerton, and Placentia for the period between 2000 and 2008. According to the DOF, the City had a housing stock of 21,893 units in 2008.
- Regional Needs Housing Assessment (RHNA) – The Housing Element reported the need for 2,039 new housing units for the period 2008-2014 as defined by the RHNA. The development potential identified in the 2008-2014 Housing Element indicates an RHNA shortage of 757 units. The Housing Element notes that the City recognizes that some of its development standards constrain housing development; however, the City continues to provide regulatory and financial incentives to meet the four income categories identified in the RHNA projections.
- Measure B – Measure B requires a majority vote of the electorate for amendments to "planning policy documents" that increase residential density above the currently allowed density. The identified policy documents are: General Plan Land Use Element, Land Use Policy Map,

Zoning Code, Zoning Map, Specific Plan, or Development Agreement. The measure also establishes a maximum height of 35 feet for all structures in the City.

- Annexation of Areas in Sphere of Influence
    - 2008-2014 Housing Element – Section 13 of the Environmental and Infrastructure Constraints chapter of the Housing Element suggests that future housing growth can be accommodated via annexation of undeveloped land within the northern SOI. The section specifically mentions the "543-acre Murdock Property Area" (page V-24), of which the Proposed Project is a part. The section states that "the City's current General Plan provides for up to 536 new housing units in the Murdock Area Plan and encourages clustering in response to topographical and other physical limitation." A stated objective of the Housing Element regarding the SOI is:

        > 2008-2014 Objective: Annex areas within the Sphere of Influence and provide infrastructure and services necessary to support future development.

    - Proposed 2014-2021 Housing Element – The City's proposed 2014-2021 Housing Element identifies the Esperanza Hills (Murdock) Project Site as a "Future Annexation Area" noting that the site is likely to be annexed within the planning period for the 2014-2021 Housing Element (page IV-4). The proposed Cielo Vista (Sage) project is also identified as a future annexation area (112 single-family lots on 88 acres). The section identifies significant issues such as adequate public services, fire protection, access and circulation, resource protection, and impacts to Chino Hills State Park as constraints that may result in a reduction of densities below those proposed by the Project Applicant. The 2014-2021 Housing Element notes that "given the uncertainty regarding the timing of annexation and the level of permitted development, the Murdock and Sage properties are not included within the sites inventory for the current Housing Element."

## 5.11.3 Thresholds of Significance

The County uses the CEQA Checklist in Appendix G of the CEQA Guidelines to identify potentially significant population and housing impacts. The CEQA Checklist states that a project could have a significant impact if it would:

a) Induce substantial 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)
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere

b) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere

## 5.11.4 Project Impacts Prior to Mitigation

The County provides regulatory guidance for housing and growth estimates through the goals and policies contained in the County's Housing Element. In addition, state law requires that cities adopt plans and policies to address their share of housing need. The "fair share" allocation concept seeks to ensure that each jurisdiction accepts responsibility for the housing needs, assuring availability of a variety and choice of housing accommodations for all income categories.

Implementation of the Proposed Project will allow for a maximum of 340 residential units. The Project Site is located in an urban environment. Land uses proposed by the Project represent planned growth as envisioned by the County's General Plan. Due to the undeveloped status of the Project Site, new roads and infrastructure will be required to support the proposed development. However, since no housing currently exists on the Project Site, substantial numbers of existing housing will not be displaced, nor will substantial numbers of people be displaced necessitating the construction of replacement housing elsewhere.

Population estimates for the Proposed Project use a factor of 3.2 persons per household for a total of 1,088 future residents, adding to the SCAG-projected population increases for the County. In addition, the Proposed Project's 340 residential units will reduce the net remaining 4,211 RHNA housing allocations for unincorporated Orange County for the 2014-2021 period.

The following table depicts the net remaining RHNA units in unincorporated Orange County for the 2010-2014 period. All new units built or preserved after January 1, 2006 may be credited against the RHNA period.

**Table 5-11-5 Net Remaining RHNA - 2010-2014, Unincorporated County**

| | Income Category | | | | |
|---|---|---|---|---|---|
| | Very Low | Low | Moderate | Above Moderate | Total |
| RHNA total units | 1,777 | 1,445 | 1,597 | 3,159 | 7,978 |
| Units completed or approved 2006-2009 | 265 | 316 | 27 | 7,347 | 7,955 |
| ***RHNA net remaining units*** | ***1,512*** | ***1,129*** | ***1,570*** | ***0*** | ***4,211*** |

Source: SCAG 7/2007 Appendix A, Table A-2; County of Orange/OC Planning, 5/2010

Infrastructure to support the additional population has been analyzed based on the proposed number of residential units and is further detailed in Section 5.15, Utilities and Service Systems (beginning on page 5-625 of this DEIR).

The RHNA for the City for the 2008-2014 period was established at 2,039 new units. Depending on the time frame, potential future annexation of the Proposed Project

would allow the City to increase its housing stock to meet the existing and future RHNA allocation for new housing.

The following table depicts the 5th Cycle Regional Housing Needs Assessment Final Allocation Plan, 2014-2021 for the County and the City as approved by the HCD on November 26, 2012.

**Table 5-11-6 RHNA Allocation Plan 2014-2021**

| | Income Category | | | | Total |
|---|---|---|---|---|---|
| | Very Low | Low | Moderate | Above Moderate | |
| Units in unincorporated County | 1,240 | 879 | 979 | 2,174 | 5,272 |
| Units in City of Yorba Linda | 160 | 113 | 126 | 270 | 669 |

Source: Southern California Association of Governments, 8/29/12

As shown, development of the proposed 340 residential units will be a positive addition to housing need projections for the County and the City. While the Proposed Project will induce population growth in the area, the growth is not only within the RHNA projections, but is consistent with population projections for the County and the City based on projected new residential development considered in the Orange County General Plan and the Yorba Linda GP. However, it should be noted that the Proposed Project will consist of larger homes on large lots and will be considered as "above moderate" with regard to income category allocation.

The proposed construction of 340 new residences would provide short-term employment for all phases of construction. Future operational employment opportunities would be associated with the maintenance of the community which will be managed by an HOA.

### Yorba Linda General Plan Housing Element

The City's Housing Element acknowledges the deficit in the amount of housing allocated to meet population projections in future years. A total of 536 new residences have been considered in the General Plan for the Murdock Area Plan. Page III-25 of the Housing Element states that the General Plan identifies adequate infrastructure and public service capacity exists to accommodate the City's regional housing needs of 2,039 additional units during the 2008-2014 planning period, which has not been met. The RHNA allocation for the 2014-2021 planning period is 669 units. The City's 2008-2014 Housing Element notes a deficit of 757 units. Therefore, if future annexation of the Proposed Project to the City of Yorba Linda occurs, the Proposed Project would be consistent with the City's Housing Element, and no impacts will occur.

## 5.11.5 Mitigation Measures

The Proposed Project would not result in significant impacts to population and housing. No mitigation measures are required.

## 5.11.6 Level of Significance after Mitigation

No significant unavoidable impacts to population and housing are associated with the Proposed Project.

Although the Proposed Project would result in new growth by proposing new homes, roads, and infrastructure, development of the Project Site was anticipated in the Orange County General Plan, as well as the Yorba Linda General Plan. The County General Plan states that the Open Space (5) land use designation, as has been applied to the Project Site, is not an indication of long-term commitment to specific uses and may be developed to serve a growing County population. No existing housing will be replaced, as the site is substantially undeveloped. No people will be displaced, as no homes are on the site. The Project proposes a designation of Suburban Residential, which allows a development density of 0.5 to 18 dwelling units per acre. Furthermore, the Project Site was specifically identified in the Yorba Linda GP for future development, and the density of .73 dwelling unit per acre is less than the 1 unit per acre projected by the Yorba Linda GP. The project will provide additional housing to meet housing needs, and will provide additional employment during project construction.

## 5.11.7 Cumulative Impacts

The proposed Cielo Vista project, which is adjacent to the Proposed Project Site, proposes 112 single-family residential units. The provision of 340 single-family residential units in Esperanza Hills results in a total of 452 additional residential units. Table 5-11-7 depicts the projected population increase as a result of both projects.

**Table 5-11-7 Cumulative Projects Population Increase**

| Project | Number of Dwelling Units | Persons per Household* | Total Population Increase |
|---|---|---|---|
| Esperanza Hills | 340 | 3.2 | 1,088 |
| Cielo Vista | 112 | 3.2 | 358 |
| Total | 452 | - | 1,446 |

*County of Orange rate

In addition to the Proposed Project and the proposed Cielo Vista development, the City has identified 15 development projects (including Cielo Vista) within a two-mile radius of the Proposed Project. This additional development was used for analysis in Section 5.14, Transportation and Traffic (beginning on page 5-543 of this DEIR). The list of projects is provided in the table below.

**Table 5-11-8 Related Projects**

| Proposed Development | Land Use |
|---|---|
| 1. North Yorba Linda Estates | 364 single-family residences, 110 condos/townhomes |
| 2. Cielo Vista | 112 single-family residences |
| 3. Hover/Bastanchury Holding Co. | 48 single-family residences |
| 4. Yorba Linda Town Center | 32 single-family residences, 119 condos/townhouses |
| 5. Oakcrest Terrace | 69 apartments |
| 6. Canal Annex - Savi Ranch | 84 apartments |
| 7. Nixon Archive Site | 59 single-family residences |
| 8. SWC Bastanchury/Lakeview | 109 single-family residences, 180 apartments |
| 9. Prospect (Greenhouse) | 55 single-family residences |
| 10. Wabash & Rose | 17 single-family residences |
| 11. Yorba Linda/Prospect | 122 apartments |
| 12. Postal Annex SE Lemon/Eureka | 5 single-family residences |
| 13. 4622 Plumosa | 10 apartments |
| 14. Lakeview & Mariposa | 149 apartments |
| 15. Palisades at Vista del Verde | 143 condos/townhomes |

The projects in Table 5-11-8 are anticipated to be developed over the next six to seven years and total 1,787 dwelling units. The Proposed Project will add another 340 units for a total of 2,127. The RHNA projection for the City in the 2008-2014 period was 2,039 new units. The 2014-2021 period adds 669 to that projection. Because the 2008-2014 allocation was not met, the proposed developments are within the RHNA housing needs projections. The City's 2008-2014 Housing Element notes a deficit of 757 units allocated by the RHNA.

Project and cumulative impacts related to population and housing are not considered significant, because of the stated deficits in meeting past and current RHNA allocations. The increases were considered in the County General Plan and the Yorba Linda GP based on the potential development of the Project Site. SCAG has identified, through the RHNA, that additional housing is required in the County to meet the needs of existing and future residents. The construction of 340 residential units in the proposed Esperanza Hills project and 112 residential units in the proposed Cielo Vista project will have a positive impact in meeting housing needs. The increase in population is within the projected population growth factors for the County and the City, because development of the Murdock property was anticipated by both the County and the City.

## 5.11.8 Unavoidable Adverse Impacts

There are no anticipated unavoidable adverse impacts related to the project as proposed.

# 5.12 Public Services

This section provides a discussion and analysis of public services that may be affected by the development of the Proposed Project. Existing public agencies that will provide services to the Project Site are identified and evaluated for potential impacts that could occur as a result of project implementation.

## 5.12.1 Existing Conditions

The Project Site is located within the service areas of several public service agencies. The Orange County Fire Authority (OCFA), the Orange County Sheriff's Department (OCSD), and the Placentia-Yorba Linda Unified School District (District) are agencies scheduled to provide public services within the Project Area in the immediate future. Locations of each service provider are depicted on Exhibit 5-106 – Public Facilities Recreation Locations.

### 1. Police Services

The Project Site is located within the OCSD's North Operation service area. The Sheriff's North Patrol provides police services for residents of unincorporated areas adjacent to the City of Yorba Linda (City). Existing communities adjacent to the Project Site within the City have been provided police protection services through a contract between the City and the OCSD since January 2013. Law enforcement services include patrol, general and special crime investigation, traffic enforcement, collision investigation, parking enforcement, and a crime prevention unit. Sheriff's deputies are based at a substation located at 20994 Yorba Linda Boulevard. The standard for response time, as confirmed by OCSD, is five minutes within the areas served by the OCSD. Recently recorded response times are fewer than five minutes.[35]

### 2. Fire/Paramedic Services

The Proposed Project is within the service and response area of the OCFA for fire protection and paramedic emergency response. Currently the OCFA provides fire protection services to the City and maintains a fire/paramedic station at 20990 Yorba Linda Boulevard at San Antonio Road (Fire Station 32).

Current staffing at Fire Station 32 includes three captains, three engineers, and nine firefighters.

**Acronyms used in this section:**

| | |
|---|---|
| CEQA | California Environmental Quality Act |
| DEIR | Draft Environmental Impact Report |
| FPEP | Fire Protection and Evacuation Plan |
| GP | General Plan |
| IS/NOP | Initial Study/Notice of Preparation |
| OCFA | Orange County Fire Authority |
| OCSD | Orange County Sheriff's Department |
| SOI | Sphere of Influence |
| VHFHSZ | Very High Fire Hazard Severity Zone |

[35] Personal communication with Lt. Bob Wren, OCSD, 11/14/13

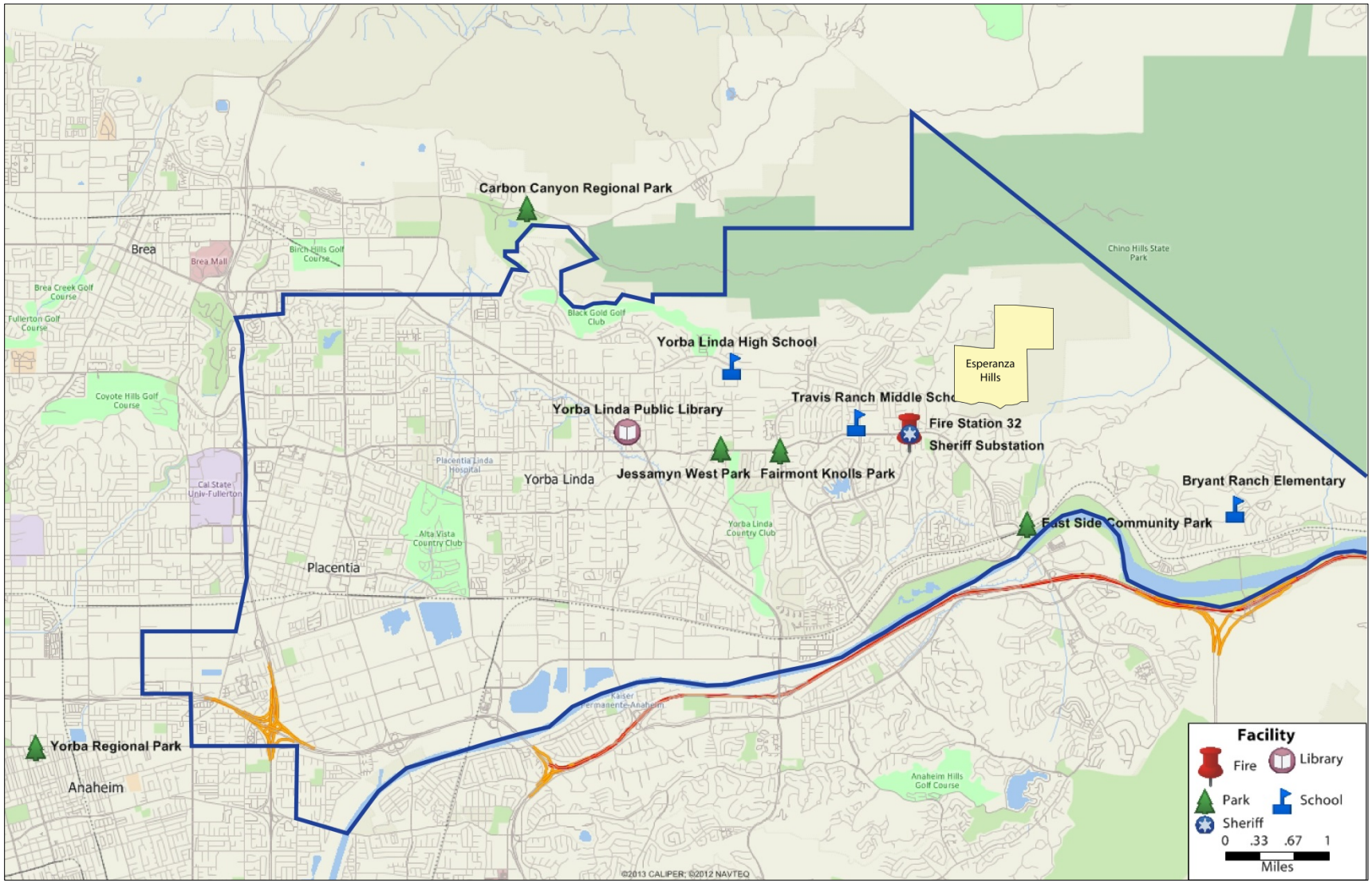



**Exhibit 5-106 – Public Facilities Recreation Locations**

In a report to the Orange County Grand Jury for 2011-2012, the OCFA reported that the response time standard used by the OCFA is to arrive in 7 minutes 20 seconds 80% of the time. Table 5-12-1 below depicts projected response times from fire stations in the Project Area.

**Table 5-12-1 OCFA Response Times Configuration**

| Fire Station Number | Location | Estimated Travel Time/ Miles to Farthest Point in Project* | | Total Response Time (1 min. dispatch and 1.3 min. turnout) | |
|---|---|---|---|---|---|
| | | Option 1 | Option 2 | Option 1 | Option 2 |
| 10 | 18422 E. Lemon Drive Yorba Linda, California | 9.2 minutes/ 5.39 miles | 7.9 minutes/ 4.6 miles | 11.5 minutes | 10.2 minutes |
| 32 | 20990 Yorba Linda Boulevard Yorba Linda, California | 4.7 minutes/ 2.74 miles | 4.1 minutes/ 2.4 miles | 7.0 minutes | 6.4 minutes |
| 34 | 1530 N. Valencia Avenue Placentia, California | 13.4 minutes/ 7.82 miles | 12.0 minutes/ 7.0 miles | 15.7 minutes | 14.3 minutes |
| 35 | 110 S. Bradford Avenue Placentia, California | 15.2 minutes/ 8.88 miles | 14.1 minutes/ 8.2 miles | 17.5 minutes | 16.4 minutes |
| 53 | 25415 E. La Palma Yorba Linda, California | 8.4 minutes/ 4.91 miles | 9.0 minutes/ 5.27 miles | 10.7 minutes | 11.3 minutes |

*based on an estimated average emergency response travel speed of 35 mph
Source: Fire Protection and Emergency Evacuation Plan by Dudek dated June 2013, Table 3, page 30

In addition to fire suppression and emergency services, the OCFA provides fire prevention services. The OCFA reviews all land use proposals prior to approval to assure that adequate fire and paramedic facilities will be available.

The proposed development lies within an adopted Very High Fire Hazard Severity Zone (VHFHSZ) for wildland urban interface fire risk, as designated by the County (refer to Exhibit 5-63 – Orange County Fire Authority Unincorporated Yorba Linda and La Habra Ember/Fire Hazard Severity Zones, page 5–276). Fire Hazard Severity Zones are geographic areas where human development meets or interacts with vegetative habitat consisting of the type and condition of topography, native vegetation, weather, and other relevant factors that would significantly increase the risk of uncontrollable fire spread from the ground via airborne embers. The Project Area has historically experienced wildfires, the most recent being the 2008 Freeway Complex Fire.

## 3. Schools

The Proposed Project Site is located within the Placentia-Yorba Linda Unified School District. The District boundaries are depicted on Exhibit 5-106 – Public Facilities Recreation Locations above.

Current attendance boundaries for the Project Site include the schools listed below. Attendance figures for 2012-2013 are included.

- Bryant Ranch Elementary (549 students)
- Travis Ranch Middle School (747 students)
- Yorba Linda High School (1,815 students)

Based on a "Residential Development School Fee Justification Study" prepared for the District and dated March 15, 2012, and using an adjusted district-wide student generation factor for single-family detached units and multi-family attached units, the student generation factors are as follows:

- Elementary school - 0.2134
- Middle school - 0.1236
- High school - 0.1826

In accordance with the District's fee schedule for new development, impact fees are $3.20 per square foot for residential development.

## 4. Parks

The parks component and requirements for the state, the county, and the City are discussed in detail in Section 5.13, Recreation (beginning on page 5-511). The Orange County General Plan notes that the Quimby Act (California Planning, Zoning and Development Laws, §66477) allows a jurisdiction to establish requirements for the dedication of local park acreage, in lieu fees, or a combination of both for residential development. The County requires development in unincorporated Orange County to dedicate 2.5 net acres of park land per 1,000 population.

In addition to Chino Hills State Park, which is located to the north/northeast of the Project Site, several parks and recreational amenities exist within proximity to the Project Site. These include:

- Jessamyn West Park, 19153 Yorba Linda Boulevard
- Fairmont Knolls Park, 4700 Fairmont Boulevard
- East Side Community Park, 5400 Eastside Circle
- Yorba Regional Park, 7600 E. La Palma, Anaheim
- Carbon Canyon Regional Park, 4442 Carbon Canyon Road, Brea

## 5. Libraries

The Yorba Linda City Library is located at 18181 Imperial Highway. An Orange County library is located at 1 Civic Center Circle in the City of Brea. These libraries provide the typical range of resources to serve the area residents. The Yorba Linda Library is currently inadequate to serve the current population. The Library Space Needs Assessment indicates a typical industry standard of 0.6 to 1.0 square feet of building space per person served.

### 6. Other Public Facilities – Hospitals/Medical Centers

The Proposed Project will be served by several hospitals and medical centers in the area, including:

- Placentia-Linda Hospital, Placentia
- Kaiser Permanente, Anaheim
- OC-Anaheim Medical Center, Anaheim
- Yorba-Linda Immediate Care, Yorba Linda
- Western Medical Center, Anaheim
- St. Jude Hospital, Orange
- Children's Hospital of Orange County, Orange

## 5.12.2 Thresholds of Significance

### 1. County of Orange

The County of Orange General Plan provides goals, objectives, and policies related to the provision of public services. However, the County has not adopted thresholds to identify significant impacts to such services. For purposes of this analysis, the applicable thresholds listed in CEQA Guidelines will be used. According to Appendix G of the CEQA Guidelines, the Proposed Project would have a potentially significant impact if it will result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, the need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, parks, libraries, or other public facilities.

### 2. City of Yorba Linda

The Yorba Linda General Plan (Yorba Linda GP) provides goals, objectives, and policies related to the provision of public services. However, the City has not adopted thresholds to identify significant impacts to such services. For purposes of this analysis, the applicable thresholds listed in CEQA Guidelines will be used. According to Appendix G of the CEQA Guidelines, the Proposed Project would have a potentially significant impact if it would result in substantial adverse physical impacts associated with the provision of or need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, parks, libraries, or other public facilities.

In addition, the City has an established rate of 4 acres per 1,000 population for parkland dedication. However, the requirement is satisfied in part by policies of the City and other governmental agencies that make 2 acres of park per 1,000 population available. The remaining two acres are provided for in the City's Zoning Code, which allows for the payment of a fee for each new dwelling unit when a building permit is

issued. The fee is then placed in a designated fund to be used for the acquisition and development of new, or improvement of existing, neighborhood parks, and recreational facilities.

## 5.12.3 Project Impacts Prior To Mitigation

### 1. Police Services

The Orange County Sheriff's Department (OCSD) provides law enforcement services to the Project Area and the City, which is adjacent to the Proposed Project. As previously noted, the standard used by OCSD for response time is 6 minutes, 24 seconds 80% of the time. The OCSD continuously monitors growth throughout the County and re-evaluates the demand placed upon its service capabilities. During the January 2013 transition by the City to OCSD for police services, the County allotted six deputies to patrol unincorporated pockets within the City's Sphere of Influence (SOI). This is in addition to the 20 deputies assigned to patrol within the City boundaries. With the additional staffing now available, it is not anticipated that the Proposed Project itself will generate the need for additional service from the OCSD beyond the personnel recently expanded and in place, and no additional personnel or equipment will be required to serve the Proposed Project.

There will be no impact to the City if the Project Site is annexed in the future, because the City uses the OCSD and will likely continue to do so in the foreseeable future.

### 2. Fire/Paramedic Services

As detailed in the "Fire Protection and Evacuation Plan" (FPEP) prepared by Dudek (June 2013) and included herein as Appendix J, the likely over-estimated call volume generated by Esperanza Hills is up to 61 per year (0.17 per day) with up to 1.0 per year from fire related calls. The majority of the calls will be emergency medical service (EMS) and service calls. Based on Dudek's experience with analyzing call volumes and types of calls, the estimates calculated in the FPEP are likely very conservative because they incorporate data from OCFA jurisdiction-wide statistics, which include areas that are not similar to Esperanza Hills (e.g., older neighborhoods with older construction and older codes, different resident population characteristics, wildland, dense urban core, rural) and components that will not occur at Esperanza Hills. The proposed Esperanza Hills development is expected to result in fewer fire calls and about average medical emergency/rescue calls over time, as newer development is less prone to fire.

As further detailed in Section 5.7, Hazards and Hazardous Materials (beginning on page 5-275), the Proposed Project would result in potentially significant impacts on fire protection services and emergency response services due to the additional population, traffic, and structures that would be added within the Project Area. The Proposed Project would place additional demand on the number of emergency response incidents by OCFA fire and paramedic personnel.

The Proposed Project is situated within a Very High Fire Hazard Severity Zone (VHFHSZ) (e.g., foothills, non-irrigated former agricultural areas, and other lands containing combustible vegetation) and will require modification of the natural vegetation at its urban interface. A fuel modification zone (FMZ) is generally the outer boundary of the proposed development consisting of a wide strip of land where combustible vegetation has been removed and/or modified and partially or totally replaced with drought-tolerant, fire-resistant plants, and irrigated areas to provide an acceptable level of risk from wildland and vegetation fires. Generally, fuel modification plans vary in complexity, are project specific, and require coordination with and approval by OCFA.

The Proposed Project includes a minimum of 170 feet of fuel modification area as required by OCFA. Fuel modification will typically consist of OCFA Zones A, B, C and D, which are installed within property boundaries and will be serviced by an automatic irrigation system designed to maintain hydrated plants without over-watering or attracting nuisance pests. Due to the amount of land necessary for fuel modification, ten lots in both development options will require portions of the B, C, and D zones to extend onto adjacent properties. Three of these lots will require alternative materials and methods, because achievement of a full 170 feet of fuel modification is not possible. The proposed fuel modification areas are at minimum four times the predicted maximum flame lengths and up to eight times wider than the predicted flame lengths. The fuel modification will work in tandem with the other components of the fire protection system, including ignition-resistant construction, interior automatic sprinkler systems with attic heads in each structure, infrastructure upgrades, and water to supply enhanced ignition resistance and protection for the site's structures. The plant palettes for the open space between lots on the interior of the Proposed Project will be fire resistant and maintained by the HOA to minimize fire hazards.

As noted, the FPEP contains detailed fuel modification requirements that are discussed further in Section 5.7, Hazards and Hazardous Materials (beginning on page 5-275), including fuel modification plans included as Exhibit 5-70 – Conceptual Fuel Modification Plan, Option 1 (page 5-301) and Exhibit 5-71 – Conceptual Fuel Modification Plan, Option 2 (page 5-303). In addition to the FMZs, the Proposed Project would include two fire breaks in Blue Mud Canyon to be maintained by the Esperanza Hills Homeowners' Association. The first fire break will be 300 feet wide, located east of the existing road, at a point where firefighting efforts can use water to fight a fire from paved roads located to the north and south of the fire break area. The second fire break will be located to the east of the Cielo Vista property and will be 150 feet wide. The fire breaks will significantly affect fire behavior (spread rates and intensity) in this portion of Blue Mud Canyon and are projected to provide substantial benefits for neighborhoods south and west of the Proposed Project. See Exhibit 5-107 – FlamMap Fire Behavior Analysis, Option 1 and Exhibit 5-108 – FlamMap Fire Behavior Analysis, Option 2.

Between the fire breaks will be a mitigation area in Blue Mud Canyon that will consist of irrigated native and non-native vegetation which will be more fire resistant than purely native vegetation. The Blue Mud Canyon area will be maintained by the HOA to preserve the mitigation area and California friendly plant pallet that will surround the trail on the north side of the Canyon, leading to Chino Hills State Park.

The Proposed Project will include gravity flow fire hydrants and adequate water sources to suppress fires through the construction of two underground reservoirs on-site. In cooperation with the OCFA, the Project Applicant has designed evacuation routes, fuel modification plans, and project design features to reduce impacts from home fires and wildland fires. More detailed information regarding project design, fuel modification, and evacuation plans is included in Section 5.7, Hazards and Hazardous Materials (beginning on page 5-275). The homes will be required to comply with the 2010 California Building Code and the 2010 Fire Code, or the latest codes in place at the time of construction, and will have attic sprinkler heads, which is in excess of current requirements.

The Esperanza Hills Homeowners' Association will provide for an annual inspection of fuel modification zones to assess the site's fuel conditions, and will contract with the OCFA to perform the inspection. The homeowners' association will have an annual fire evacuation drill/fire exercise to ensure that proper safety standards have been implemented, community awareness, and preparation of individual and community-wide "Ready Set Go" plans. The Proposed Project will include a proactive community wildfire education program utilizing a multi-pronged approach to fire safety, including landscape/fuel modification, private property maintenance, "Ready, Set, Go!" preparations, and personal evacuation plans as further detailed in Section 5.7.

Emergency vehicle staging areas have been designed in three locations allowing five fire trucks in each of two areas with access to fire hydrants that are gravity fed directly from the water reservoirs to be constructed on-site. The third area will provide for such access by one fire truck. Firefighting access ways through the residential planning areas have been designed to provide access to the open space areas and Chino Hills State Park in accordance with OCFA standards for a VHFHSZ.

The Project Applicant shall continue to provide necessary plans and/or information relative to fire prevention and fuel modification to OCFA as part of the project approval process. Complete analysis of fire hazard potential and impacts is found in Section 5.7, Hazards and Hazardous Materials (beginning on page 5-275 of this DEIR), including mitigation measures requiring OCFA approval of proposed plans to minimize impacts. As shown in Table 5-12-1 - OCFA Response Times Configuration (page 5-495 above), local fire station response times are projected to range from a minimum of 6.4 minutes (Station 32) to a maximum of 17.5 minutes (Station 35).

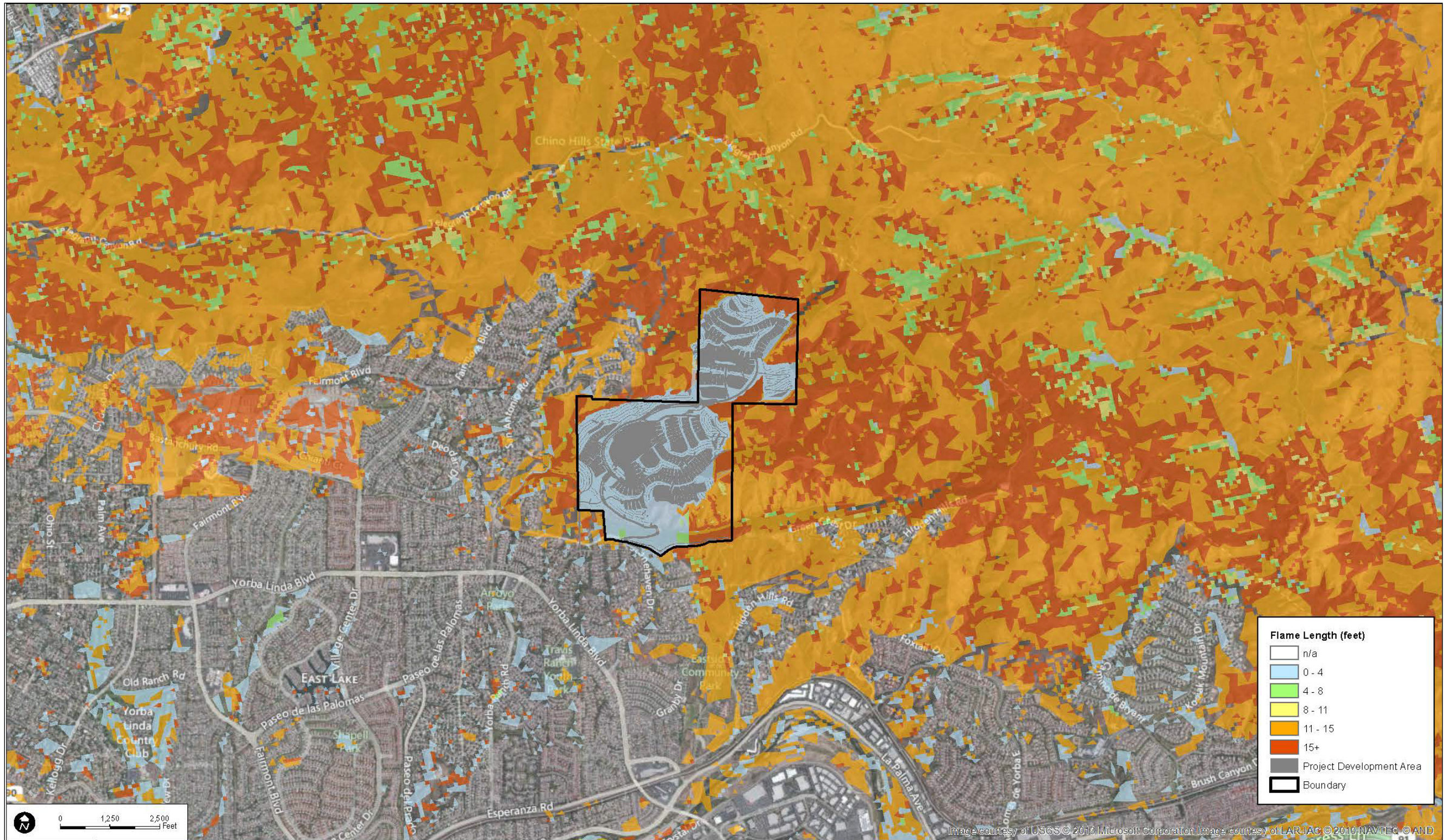



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**FIGURE 7**

**FlamMap Fire Behavior Analysis, Option 1 - Flame Length, Fall Fire**

ESPERANZA HILLS FIRE PROTECTION AND EMERGENCY EVACUATION PLAN

**Exhibit 5-107 – FlamMap Fire Behavior Analysis, Option 1**

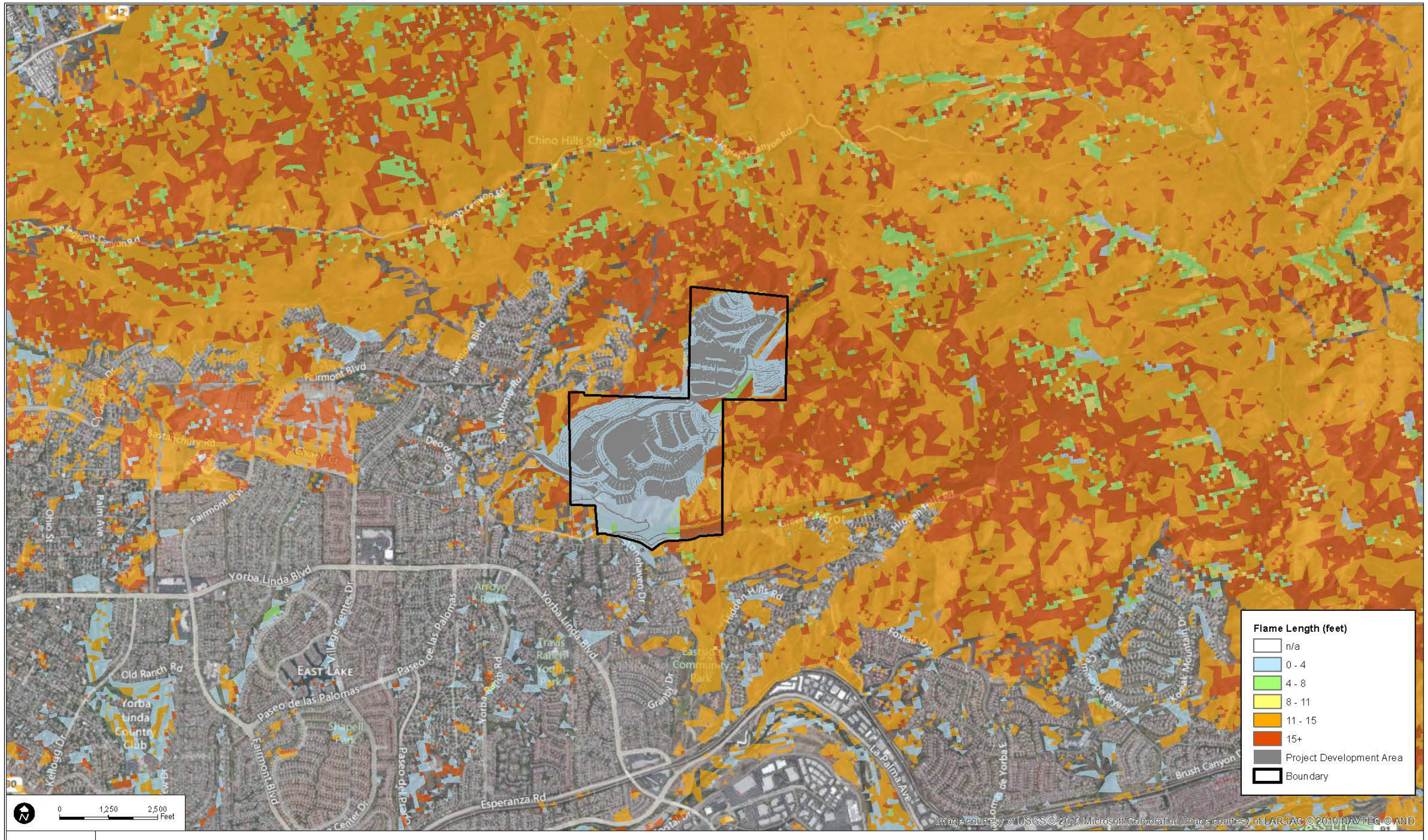


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**FIGURE 8**

**FlamMap Fire Behavior Analysis, Option 2 - Flame Length, Fall Fire**

ESPERANZA HILLS FIRE PROTECTION AND EMERGENCY EVACUATION PLAN

**Exhibit 5-108 – FlamMap Fire Behavior Analysis, Option 2**

In a letter dated January 17, 2013, received during the IS/NOP public review period, OCFA identified the potential need to increase capacity at existing Fire Station 10 through payment of fair share fees in order to meet the potential needs of the Proposed Project. In response to the NOP comment letter, the FPEP analyzed estimated calls and demand from the Proposed Project. The FPEP concludes that fire service levels are not expected to be significantly impacted, as adding .17 calls per day is not anticipated to be a significant impact on Station 10's ability to serve Esperanza Hills or existing communities within its primary response area. The FPEP found that the Proposed Project is not expected to cause a decline in the OCFA overall response times or service level. Currently, Stations 10 and 53 can respond in less than 10 minutes, which is above the standard of 7 minutes, 20 seconds 80% of the time. However, this response time is within reasonable limits 20% of the time. In the event that OCFA disagrees with the recommendations contained within the Dudek report, the Project Applicant will be required to enter into a Secured Fire Protection Agreement that will specify the Project Applicant's pro-rata fair share funding of capital improvements necessary to establish adequate fire protection facilities and equipment and/or personnel. The current fair share funding fee is $600 per dwelling unit, which would result in a total of $204,000 for the maximum proposed 340 residential units. Mitigation has been included herein to ensure that the fee requirements are met.

### 3. Schools

The Yorba Linda-Placentia Unified School District (District) has experienced a trend towards declining enrollment overall, with the trend continuing through its move-up growth projections through school year 2015-2016 as follows:

- School Year 2013-2014: -1%
- School Year 2014-2015: -4%
- School Year 2015-2016: -3%

Using the District single-family residential student generation factors, the Proposed Project is expected to contribute the following numbers of students based on the proposed construction of 340 residential units.

**Table 5-12-2 Student Generation**

| School Level | Student Generation Factor | Number of Students |
|---|---|---|
| Elementary | 0.2134 | 73 |
| Middle | 0.1236 | 42 |
| High | 0.1826 | 62 |
| | Total Students | 177 |

Table 5-12-3 below depicts the existing student attendance, the projected attendance in school year 2015-2016, and the percentage decline. Overall projections for year 2015-2016 indicate a 3% decline in enrollment. As indicated by the statistics below for the three schools most likely to serve the Project Area, there will be a net loss of

186 students. The addition of 177 students with Project development will not negatively impact the existing facilities.

**Table 5-12-3 Student Attendance**

| School | 2012-2013 Attendance | 2015-2016 Projected Attendance | Percent Change 2015-2016 |
|---|---|---|---|
| Bryant Ranch Elementary | 549 | 476 | -4% |
| Travis Middle School | 747 | 600 | -6% |
| Yorba Linda High School | 1,815 | 1,537 | 5% |

As noted, the District requires the payment of developer fees in accordance with Senate Bill (SB) 50. In January 2012, the State Allocation Board increased the maximum residential school fee authorized by §17620 of the *California Education Code* from $2.97 to $3.20 per residential building square foot for unified school districts. A "Residential Development School Fee Justification Study" dated April 5, 2012, prepared by Dolinka Group, LLC concluded that the District was justified in levying the maximum residential fee of $3.20 per square foot for all future residential development within its boundaries. To provide the required payment of fees, Mitigation Measure PS-2 has been included herein.

Payment of an appropriate school impact fee, along with the anticipated decline in enrollment, will ensure that there will be no significant impacts to schools with implementation of the Proposed Project.

## 4. Parks

As discussed in Section 5.13, Recreation (beginning on page 5-511 the Proposed Project will provide either 13.16 acres (Option 1) or 12.18 acres (Option 2) of active and passive parks depending upon the access option selected. There will be nine parks throughout the community, each with a different theme commemorating the County of Orange's agricultural heritage. The parks will be available to the public via pedestrian, bicycle, or equestrian access from existing or proposed trails. In addition, the Project proposes approximately seven miles of trails throughout the Project Area. Depending on the access option selected, approximately 140 to 150 acres of the site will be natural open space consisting primarily of existing canyons with intermittent water flow, ridgelines, and other undisturbed natural space.

### a. County of Orange

The County of Orange General Plan identifies that the County's Local Park Code strives to provide 2.5 acres of local park land for every 1,000 County residents. The Proposed Project will result in the addition of approximately 1,088 residents based on the current ratio of 3.2 persons per single-family household. Therefore, the provision of 12 to 13 acres of active and passive parks within the Project Area exceeds the County requirement, and the Proposed Project will have a positive impact on the County's total inventory of parks.

### b. City of Yorba Linda General Plan

The Yorba Linda GP identifies the possible future annexation of a 543-acre site known as the Murdock Property. Esperanza Hills is located within the Murdock Property. The General Plan used a figure of 9.0 acres of parkland within the Murdock property for planning purposes, noting the maximum density of one dwelling unit per acre. The City's general requirement for parkland dedication is 4 acres per 1,000 population. The parkland acreage for the Proposed Project will be in excess of the requirement identified in the City's General Plan as well as in excess of the amount of dedicated parkland identified for the larger Murdock Property site.

## 5. Libraries

### a. County of Orange

The Orange County General Plan identifies a goal to ensure that an adequate level of library service is provided within the service area of the Orange County Public Libraries. There are currently in excess of 30 County libraries serving the cities and unincorporated areas of Orange County, in addition to the municipal libraries provided by individual cities. However, the nearest County library is in Brea, and it is likely that residents of the Proposed Project will use the Yorba Linda City Library.

### b. City of Yorba Linda General Plan

As noted, the Project Area is served by two libraries – a County library in Brea and the Yorba Linda City Library. Both libraries are full-service libraries. The Yorba Linda City Library is currently under study for potential redevelopment. The current library contains 28,350 square feet. A new 50,820-square-foot facility is currently being considered to accommodate the average of 1,100 visitors per day. The proposed building is sized to serve a community of the General Plan build-out population of 70,000. This would meet the industry standard of 0.6 to 1.00 square feet of space per person served, even assuming that all City residents used the facility. A "Yorba Linda Public Library Strategic Plan 2010-2014" was developed to identify the needs, goals, and costs of building a new library. Site studies are being conducted to determine the most feasible location for the new facility. Funding has been in process for several years, and in August 2011, the City Council authorized $29 million from various sources to construct a new facility. While additional visitors due to Project implementation could potentially cause impacts to the existing library facility, construction of a new library in the City would reduce any potential impact from the Project, and adequate facilities would be available to service the additional population.

### 6. Hospitals

A number of hospitals and medical facilities serve the area, and the additional population provided by the Proposed Project can be accommodated due to the regional nature of such facilities. The number of people requiring such services at any one time will be minimal.

## 5.12.4 Mitigation Measures

PS-1 Prior to issuance of the grading permit, if deemed necessary by the Orange County Fire Authority, the Project Applicant shall enter into a Secured Fire Protection Agreement with the Orange County Fire Authority providing for payment of fair share fees for impacts to capital and infrastructure needs.

PS-2 Prior to issuance of building permits, the Project Applicant will be required to comply with Senate Bill 50 and pay the applicable school impact fees as adopted by the Placentia-Yorba Linda Unified School District.

## 5.12.5 Level of Significance after Mitigation

Implementation of the Proposed Project would not result in significant adverse impacts to the provision of adequate public services, as detailed below.

1. **Fire Protection** – A Fire Protection and Evacuation Plan has been adopted to assist in providing measures that will decrease the likelihood of fire spreading through fuel modification and use of drought-tolerant and fire-resistant vegetation. The Proposed Project will contribute fair share fees for capital and infrastructure needs.

2. **Police Protection** – The City of Yorba has recently transitioned police protection services to the Orange County Sheriff's Department resulting in the addition of several staff members to serve the City and the unincorporated County areas. Additional staff will not be required to serve the Proposed Project area.

3. **Schools** – The Placentia-Yorba Linda Unified School District has identified a declining enrollment, resulting in a less than significant impact with the inclusion of students generated by the Proposed Project and the adjacent Cielo Vista proposed project.

4. **Parks** – The Proposed Project has been designed with nine parks within Esperanza Hills to serve the residents and the public. A number of regional parks and trails are located in the immediate area, as well as Chino Hills State Park. Adequate recreational opportunities exist, and no new facilities will be required with implementation of the Proposed Project.

5. **Other Public Facilities/Hospitals** – Adequate public facilities exist in the area to serve the additional population resulting from the Proposed Project and other

proposed projects in the area. Hospitals and medical centers in the surrounding communities will provide adequate care, and no impacts will occur.

Mitigation Measures PS-1 and PS-2 will ensure that coordination and payment of required fees would occur with public service providers to minimize potential impacts due to the implementation of the project as proposed.

## 5.12.6 Cumulative Impacts

The Proposed Project has been designed to include features and technologies to assist the police and fire departments to protect Project residents and residents of adjacent communities. As noted, additional personnel has been added to OCSD staff to cover the City and unincorporated areas. "Reverse 911" will be implemented for incidents requiring quick notification. The OCSD has proposed an evacuation plan to allow police, fire, and residents to exit the area more effectively.

In addition, the Proposed Project is required to pay fair share fees for new or expanded facilities or services. While adequate school facilities exist, and a trend towards declining enrollment has been identified, local schools will receive additional funding from the developer as required by Senate Bill 50. Using the generation factors identified in Table 5-12-2, Student Generation, above, the proposed Cielo Vista project will add approximately 58 students. As noted, declining enrollment could result in a loss of 186 students at the three schools analyzed herein. Cumulatively, the Proposed Project and the proposed Cielo Vista project could result in a net addition of 49 total students within the three schools (grades K through 12). While several other proposed projects could cumulatively contribute to the District as a whole, each development will be required to contribute fair share fees to offset any impacts.

Provision of parks far exceeds the County requirement based on projected population for the Proposed Project. Existing and planned libraries will be capable of providing service to the additional residents resulting from the Proposed Project, particularly with the planned construction of a new library in the City of Yorba Linda. Impacts are fully mitigated with implementation of the proposed mitigation measures. Therefore, there will be no cumulative impacts related to public services with implementation of the Proposed Project.

## 5.12.7 Unavoidable Adverse Impacts

Mitigation has been included to reduce potential impacts to a level of insignificance for project operational and cumulative conditions. Therefore, no significant unavoidable impacts will result from project implementation.

# 5.13 Recreation

This section discusses the potential park and recreation impacts associated with the Proposed Project. The information in this section is based on the Recreation Elements of the Orange County General Plan and the Yorba Linda General Plan (Yorba Linda GP). The analysis examines the existing and future parks and recreation opportunities in the project vicinity and the potential impacts of the Proposed Project on these resources.

## 5.13.1 Existing Conditions

### 1. Parks and Recreation Opportunities

There are a number of County and local parks and recreation areas surrounding the Project Area. Following is a brief description of the facilities currently available within the Project Area.

#### a. State/Regional/Local Parks

Several regional parks, public parks, and recreation areas are in close proximity to the Project Area. Chino Hills State Park is located to the north and east of the Project Site. Regional parks located within close proximity to the project are Carbon Canyon Regional Park, Yorba Regional Park, Craig Regional Park, and Featherly Park.

- Chino Hills State Park is located in Orange, Riverside, and San Bernardino counties as shown on Exhibit 5-2 – Chino Hills State Park Map (page 5-7). The park encompasses approximately 11,770 acres, most of which is rolling hills. The park provides visitors a place to explore and recreate at their leisure within a large area of relatively undeveloped land. An area at the end of the entrance road (Carbon Canyon Road) offers Discovery Center, a place for visitor parking and access to the trail network. In addition to the trails, the park offers an equestrian staging area also utilized for special events, a campground area, picnic areas, and scenic overlooks. The park contains approximately 50 miles of roads and trails, including single- and double-track trails and dirt roads for hiking, jogging, mountain biking, and horseback riding.
- Carbon Canyon Regional Park (Brea) is an approximately 125-acre park situated within a floodplain at the base of the Carbon Canyon Dam and accessible from Carbon Canyon Road. Facilities include restrooms, picnic shelters, barbecues, picnic

**Acronyms used in this section:**

| | |
|---|---|
| CEQA | California Environmental Quality Act |
| VHFHSZ | Very High Fire Hazard Severity Zone |
| WQMP | Water Quality Management Plan |

tables, a four-acre fishing lake, equestrian trails, hiking trails and a bike trail. Active uses include a lighted tennis court complex, multi-purpose fields and play equipment.

- Yorba Regional Park (Anaheim) is a mile-long day use park at the mouth of Santa Ana Canyon. The park provides food concessions, 400 picnic tables, 200 barbecues, 4 lakes with connecting streams for paddle boating and fishing, bicycle trails, playgrounds, volleyball courts, horseshoe pits, 2 ball diamonds, and a physical fitness course.
- Ted Craig Regional Park (Fullerton) is a 124-acre park located at 3300 S. State College Boulevard. The park provides concessions, picnic areas/barbeques, baseball fields, basketball courts, horseshoe pits, volleyball courts, hiking and bicycle trails, a three-acre lake, a small botanical preserve, play lots, shelters and private party areas.
- Featherly Park (Yorba Linda) is a 315-acre natural riparian wilderness area in Santa Ana Canyon. The Santa Ana bikeway runs adjacent to the park. The park area includes a privately owned RV park (Canyon RV Park) with hook-ups, small cabins, and youth group camping areas. Canyon RV Park occupies 63 acres of the total 795-acre Featherly Wilderness Preserve. A visitor center and concession building are also offered.

Nearby city parks include:

- Jessamyn West Park, 19135 Yorba Linda Boulevard (baseball fields, basketball courts, sand volleyball courts)
- Fairmont Knolls Park, 4700 Fairmont Boulevard (tennis courts, open space)
- East Side Community Park, 5400 Eastside Circle (baseball and soccer fields)
- San Antonio Park, 4205 San Antonio (horse arena, playgrounds, grassy fields)
- Brush Canyon Park, 28300 Brush Canyon Drive (two large shaded picnic shelters, basketball court, tennis courts, playground, benches near playground, restrooms, dedicated parking lot)
- Box Canyon Park, 22400 Foxtail Drive (basketball court, picnic tables, playground, restrooms, street parking)

### b. Hiking/Bicycle/Equestrian Trails

The County of Orange provides riding and hiking trails throughout the County, including several in the Project Area, as noted in the County's General Plan Recreation Element[36] and as depicted on Exhibit 5-109 – Master Plan of Regional Riding and Hiking Trails. In addition, Chino Hills State Park provides access points for linkages to existing trails. The existing County network of trails provides for the trail needs of equestrians, pedestrians (e.g., walkers, hikers, joggers) and bicyclists (non-motorized). These trails are located in areas that are regulated by the County for unincorporated areas. The trail system provides linkages with many local community trails throughout the County and trails from surrounding counties. The General Plan lists 52 trails within the County.

Chino Hills State Park to the north and east of the Project Site includes a trail network that gives access to the park's special places, including wooded riparian areas, open grasslands, and scenic viewpoints. The trails support active uses (e.g., jogging, hiking, mountain biking, horseback riding) and passive uses (e.g., bird watching, photography, nature study). Existing riding and hiking trails extend into Chino Hills State Park, and proposed bike trails are located west of the Project Site as noted on the County's Regional Park Trail Maps.

The City of Yorba Linda (City), south and west of the Project Site, provides a comprehensive system of riding and hiking trails and bikeways. Several trails in the City provide linkages to Chino Hills State Park and the Orange County Santa Ana River Trail facilities.

### c. Open Space

The City is substantially built out, with a few remaining pockets of open space.

## 5.13.2 Regulatory Setting

### 1. County of Orange General Plan, Recreation Element

The California Planning, Zoning and Development Laws (*California Government Code* §66477 - Quimby Act) allow a jurisdiction to establish requirements for the dedication of local park acreage, in lieu fees or a combination of both for residential developments. The County of Orange Local Park Code requires 2.5 acres of land per 1,000 persons when residential dwelling units are proposed within the unincorporated areas of the County. The County of Orange General Plan, Recreation Element, sets forth a comprehensive strategy for the acquisition, development, operation, maintenance, management, and financing of county recreation facilities that are necessary to meet the County's existing and future recreation needs. The Recreation Element serves to guide and direct local government decision making regarding recreation issues and facilitates the coordination of local, regional, state, and federal efforts.

[36] County of Orange General Plan 2000, Recreation Element, page VII-20

The Recreation Element of the Orange County General Plan includes five main sections:

- Purpose of the Element
- Constraints and Opportunities
- Local Parks Component
- Regional Riding and Hiking Trails Component
- Regional Recreational Facilities Component

### 2. City of Yorba Linda General Plan

The Recreation Resources Element of the Yorba Linda GP includes the following sections:

- Parks and Recreation Component
- Riding, Hiking and Bikeways Component
- Open Space Component
- Conservation Component

The Yorba Linda GP notes that the City values active recreation and supporting facilities with a goal toward providing park and recreational facilities to meet the needs of all segments of the City's population. The General Plan provides that 4.0 acres per 1,000 population be maintained as the City's parkland standard. This standard exceeds the Quimby Act standard for parkland dedication of 3.0 acres per 1,000 population.

## 5.13.3 Thresholds of Significance

The County uses the CEQA Checklist in Appendix G of the CEQA Guidelines to identify potentially significant impacts to recreation. The CEQA Checklist states that a project could have a significant impact if it would:

a) 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
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

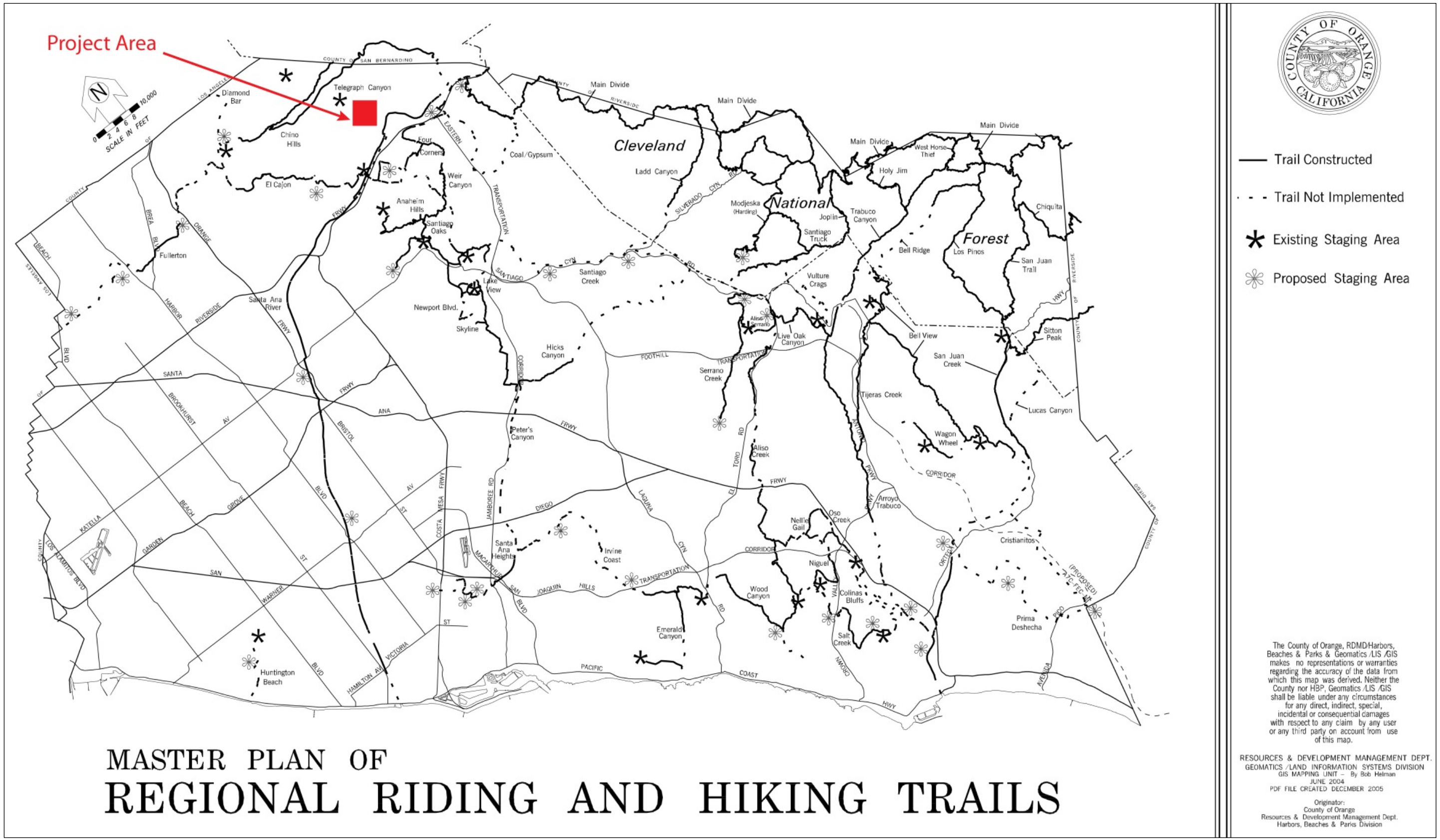



**Exhibit 5-109 – Master Plan of Regional Riding and Hiking Trails**

## 5.13.4 Project Impacts Prior to Mitigation

### 1. Park Acreage Requirements

The Quimby Act, enacted by the state in 1965, provides the implementation mechanism for local park development. The Quimby Act requirement is 3.0 acres of parkland for each 1,000 persons. The County of Orange Local Park Code provides for 2.5 acres per 1,000 persons, and the Yorba Linda GP requires 4.0 acres per 1,000 persons. Based on the County population factor of 3.2 persons per household, the project estimate is 1,088 persons in the Esperanza Hills community. Table 5-13-1 below depicts actual acres required for each threshold. Esperanza Hills will provide 13.16 acres of park area under Option 1 and 12.18 acres under Option 2. The Proposed Project will include a substantial number and variety of parks and trails in excess of City, County, and Quimby Act Requirements. While the additional population has the potential to use City and regional parks, provision of parks and trails within the Proposed Project will provide new residents with ample recreational opportunities on-site and will reduce impacts to less than significant.

**Table 5-13-1 Park Acreage Requirements**

| Regulatory Document | Acres per 1,000 Persons | Total Acreage Required |
|---|---|---|
| Quimby Act | 3.0 acres | 3.3 acres |
| Orange County Local Park Code | 2.5 acres | 2.7 acres |
| Yorba Linda General Plan | 4.0 acres | 4.4 acres |

Depending on the option selected, the Proposed Project will provide from 12.8 acres to 13.16 acres of active and passive parks that will be available to pedestrian, bicycle, or equestrian access from existing or proposed trails. The park acreage will be composed of nine parks, each with a different theme commemorating the County's agricultural heritage. In addition to the nine parks, two WQMP basins have been designed as bioretention facilities and would provide passive and active park use in addition to their functional uses. The parks and WQMP basins are similar under each access option.

**Park I – Main Entry Orange Grove Park**

1. Entry monumentation with guardhouse
2. Pedestrian portal colonnade over water body with dramatic fountain geysers and boulder-lined babbling brook
3. Orange grove with decomposed granite surface
4. Decorative Spanish pots
5. Park signage on low pilasters
6. Decorative benches
7. Decorative Spanish pots

**Park A – Plum Grove Park**

1. Park signage on low pilaster
2. Split rail fencing barrier
3. Plum grove on slope
4. Decorative stone planter wall with boulders
5. Multi-purpose path
6. Flagstone paving gathering area with picnic table
7. Decorative bench seating

**Park B – Peach Grove Park**

1. Park signage on low pilaster
2. Split rail fencing barrier
3. Peach grove with decomposed granite surface
4. 2- to 5-year-old tot lot with play structure on rubberized surface/sand
5. Multi-purpose path
6. Picnic tables on concrete pads
7. Decorative bench seating

**Park C – Grape Vine Park**

1. Park signage on low pilasters
3. Split rail fencing barrier
3. Grape vine orchard on supports over decomposed granite
4. 5- to 12-year-old and 2- to 5-year-old tot lots with play structures on rubberized surface
5. Spanish overhead colonnade over picnic tables
6. Raised railroad ties planter boxes with bench seating
7. Decorative bench seating

**Park D – Tangerine Grove Park**

1. Park signage on low pilasters with wood eyebrow trellis
2. Split rail fencing barrier
3. Tangerine orchard with decomposed granite surface
4. 5- to 12-year-old and 2- to 5-year-old tot lots with play structures on rubberized surface
5. Spanish overhead colonnade over picnic tables and pedestal barbeques
6. Stone serpentine wall with large decorative boulders
7. Decorative bench seating

**Park E – Avocado Grove Park**

1. Park signage on low pilasters
2. Multi-purpose path
3. Avocado tree orchard with decomposed granite surface
4. Decorative bench seating

**Park F – Lemon/Lime Grove Park**

1. Large decorative boulders with park signage
2. Split-rail fencing barrier
3. Lemon and lime orchards on slopes
4. Spanish theme hexagon lookout structure
5. Decorative bench seating

**Park G – Grapefruit Grove Park**

1. Large decorative boulders with park signage
2. Split rail fencing barrier
3. Grapefruit orchard with decomposed granite surface
4. 2- to 5-year-old tot lot with play structure on rubberized surface/sand
5. Rock climbing play structure
6. Spanish overhead structure over picnic tables and pedestal barbeques
7. Decorative bench seating

**Park H – Bark Park Dog Park**

1. Park signage on low pilasters
2. Multi-purpose path
3. Dog park amenities including water fountain, pet waste dispensers, and trash cans
4. Decorative bench seating
5. Signage of dog park rules

**Park J – WQMP #1**

1. Bench seating area
2. Fitness stations
3. Orchard on slope
4. Multi-purpose trail
5. Bioretention basin

**Park K – WQMP #2**

1. Bench seating area
2. Fitness stations
3. Passive seating area
4. Large decorative boulders with park signage
5. Orchard on slope
6. Bioretention basin
7. Multi-purpose trail

Table 5-13-2 provides park and WQMP basin information.

**Table 5-13-2 Proposed Park and WQMP Sizes**

| Item | Item | Square Feet | | Acres | |
|---|---|---|---|---|---|
| | Parks | | | | |
| 1 | Park A - Plum Park | 18,400 | | 0.42 | |
| 2 | Park B - Peach Park | 24,430 | | 0.56 | |
| 3 | Park C – Grape Vine Park | 25,300 | | 0.58 | |
| 4 | Park D – Tangerine Park | 43,670 | | 1.00 | |
| 5 | Park E – Avocado Park | 128,900 | | 2.96 | |
| 6 | Park F – Lemon/Lime Park | 26,720 | | 0.61 | |
| 7 | Park G – Grapefruit Grove Park | 16,300 | | 0.37 | |
| 8 | Park H – Bark Park | 18,950 | | 0.44 | |
| 9 | Park I – Main Entry – Orange Park | Option 1 – 90,910 | Option 2 – 47,945 | Option 1 – 2.08 | Option 2 – 1.10 |
| | Total active parks | Option 1 – 393,580 | Option 2 – 350,615 | Option 1 – 9.03 | Option 2 – 8.05 |
| | WQMP/Park Areas | | | | |
| 1 | Park J – WQMP #1 | 60,300 | | 1.38 | |
| 2 | Park K – Bioretention area/park/WQMP #2 | 119,650 | | 2.75 | |
| | Total WQMP/Park Area | 179,950 | | 4.13 | |
| | **Total Park and WQMP/Park Areas** | **Option 1 – 573,530** | **Option 2 – 530,565** | **Option 1 – 13.16** | **Option 2 – 12.18** |

The Proposed Project exceeds County, City, and Quimby Act standards for the provision of parkland by at least nine acres. Proposed park locations are depicted on Exhibit 5-110 – Conceptual Parks Plan, Stonehaven Drive Option 1 and Exhibit 5-111– Conceptual Parks Plan, Aspen Way Option 2.

Exhibit 5-112 through Exhibit 5-122 depict the conceptual details for each of the parks.

The Water Quality Management Plan basins in the parks have been designed as bioretention facilities for the treatment and filtration of storm water runoff. These facilities provide passive and active park use in addition to their functional uses and are further described in Section 5.8, Hydrology and Water Quality (beginning on page 5-341. The Project is proposed as a private gate-guarded community. However, non-vehicular public access to the parks will be provided via equestrian, hiking, and biking trails.

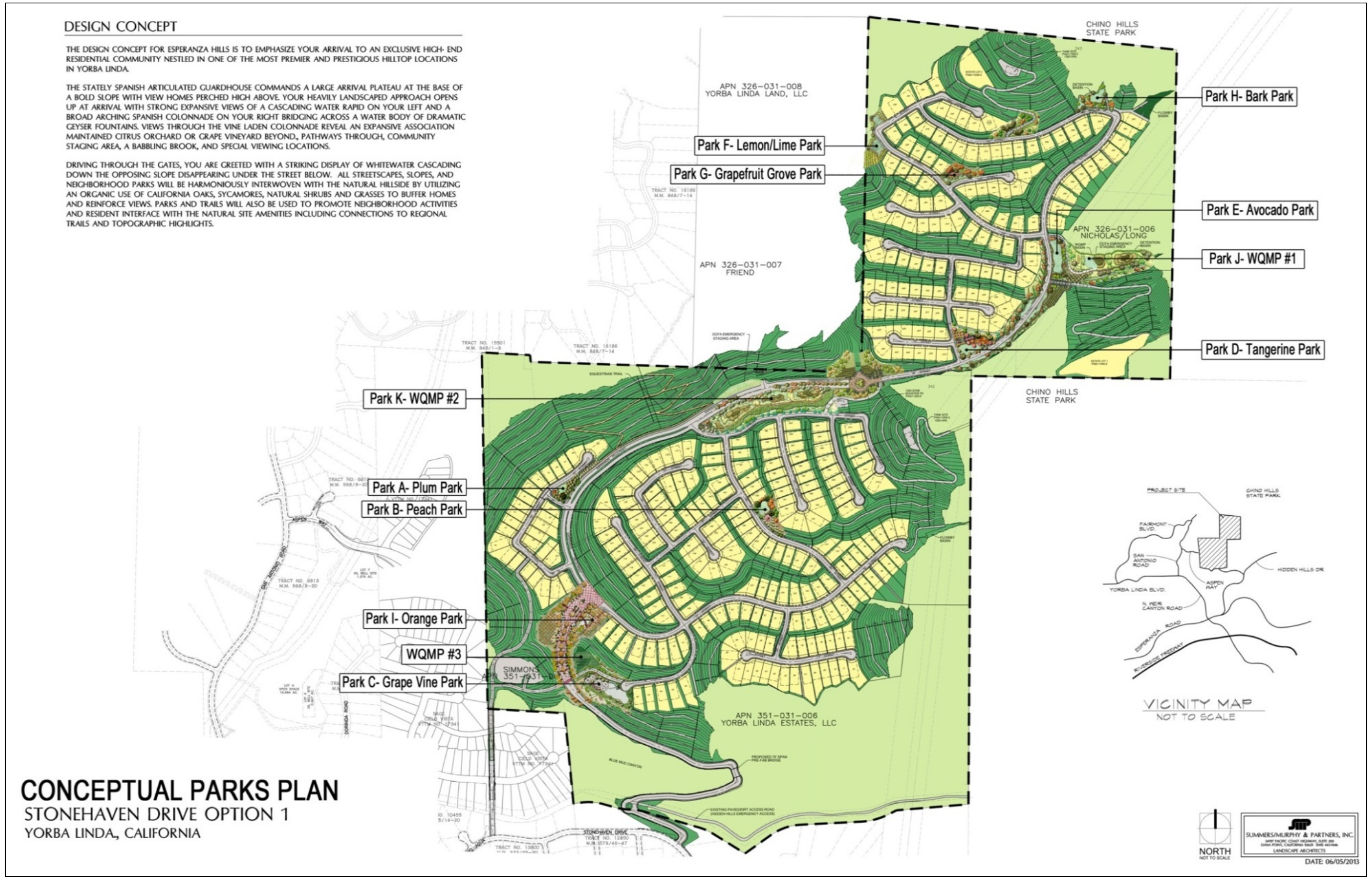



**Exhibit 5-110 – Conceptual Parks Plan, Stonehaven Drive Option 1**

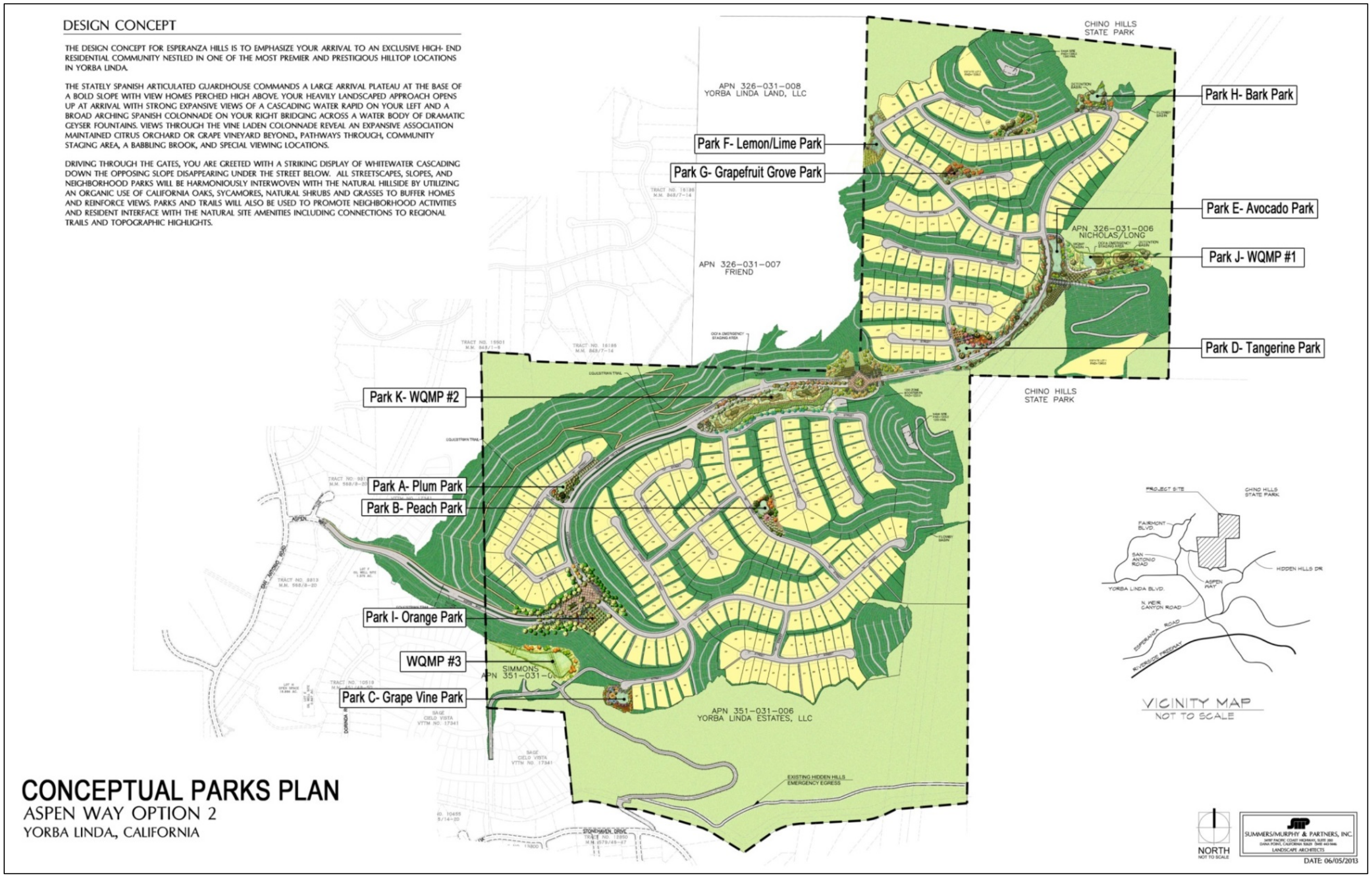



**Exhibit 5-111 – Conceptual Parks Plan, Aspen Way Option 2**

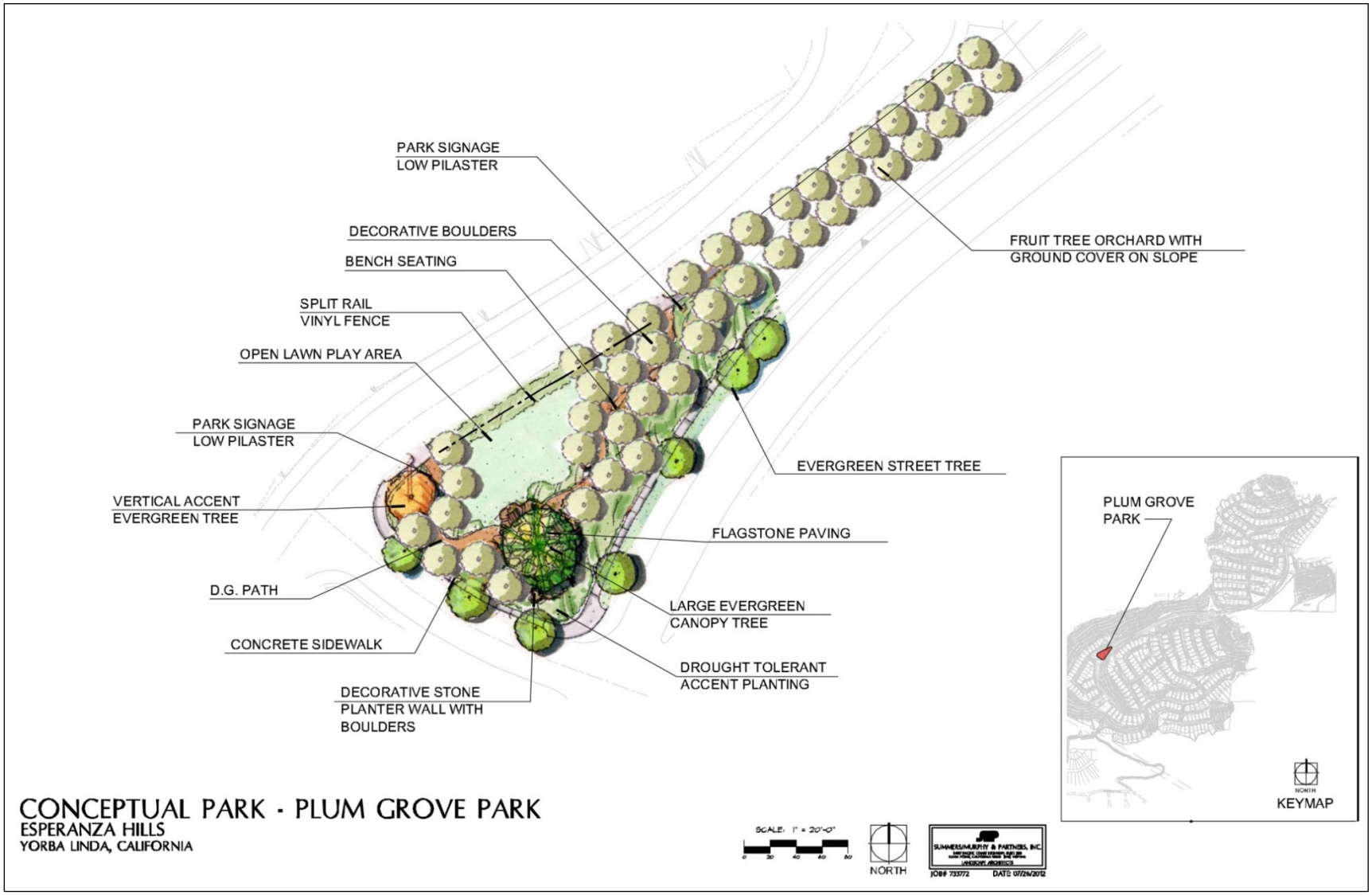



**Exhibit 5-112 – Conceptual Park A, Plum Grove Park**

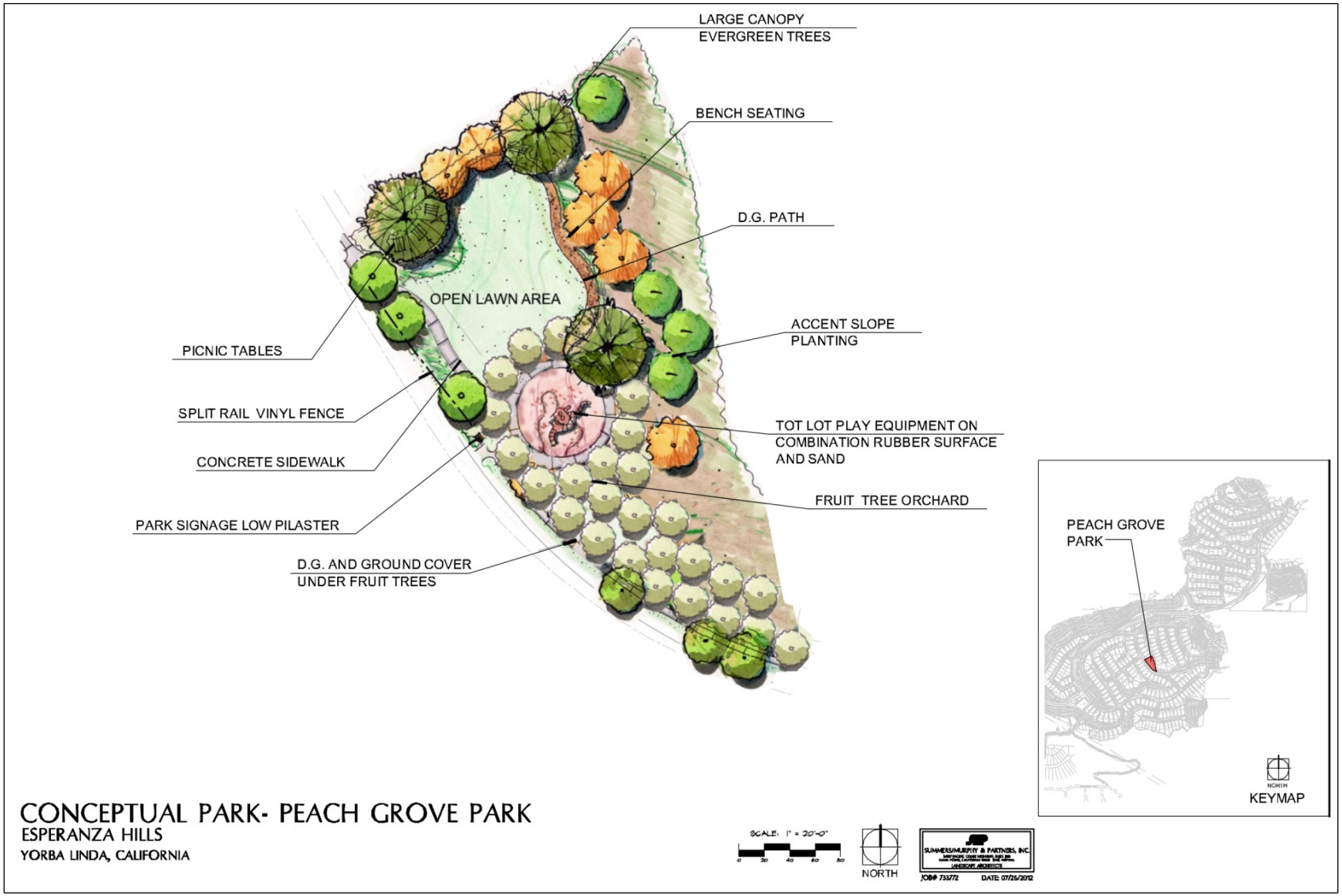



**Exhibit 5-113 – Conceptual Park B, Peach Grove Park**

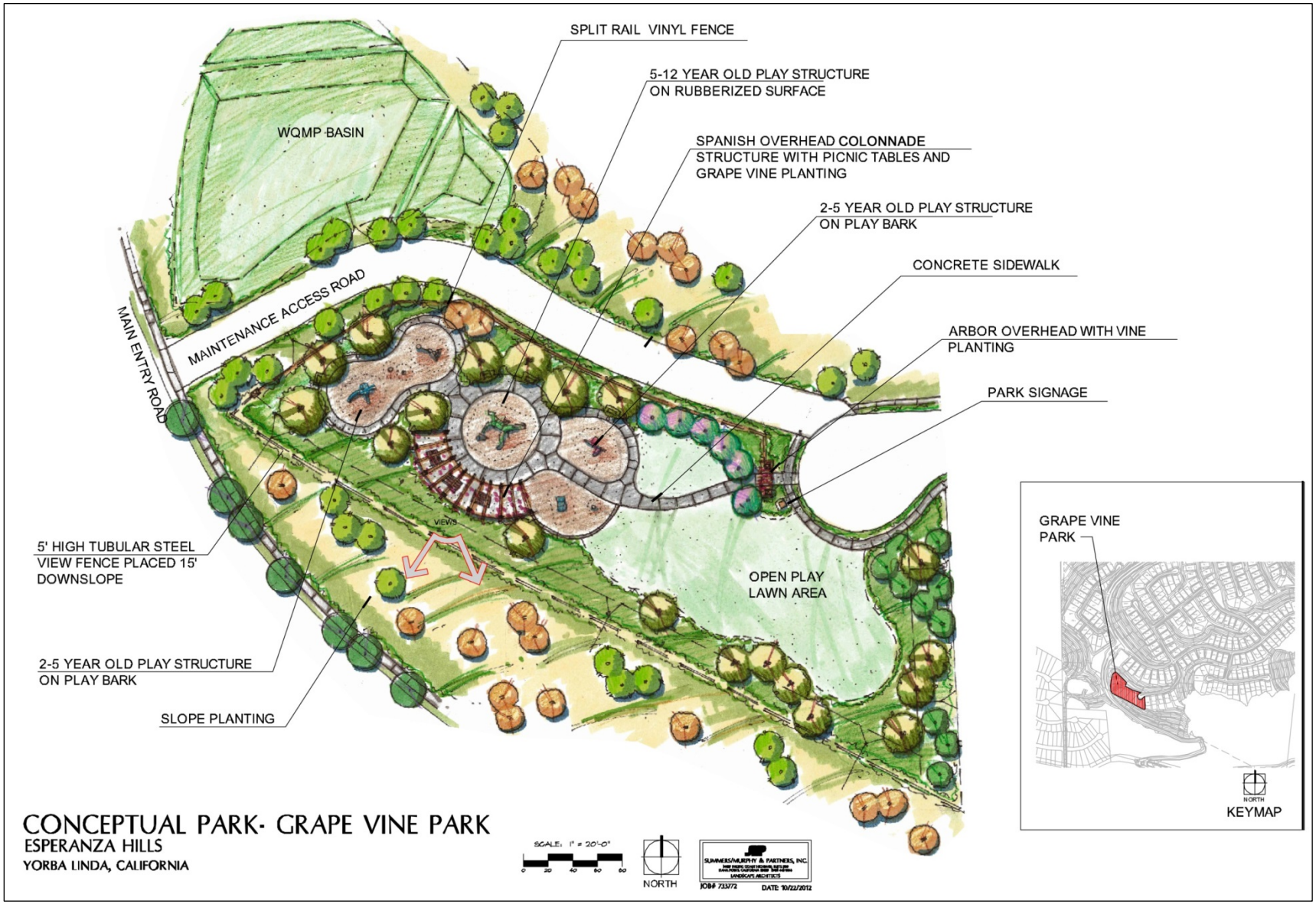



**Exhibit 5-114 – Conceptual Park C, Grape Vine Park, Option 1**

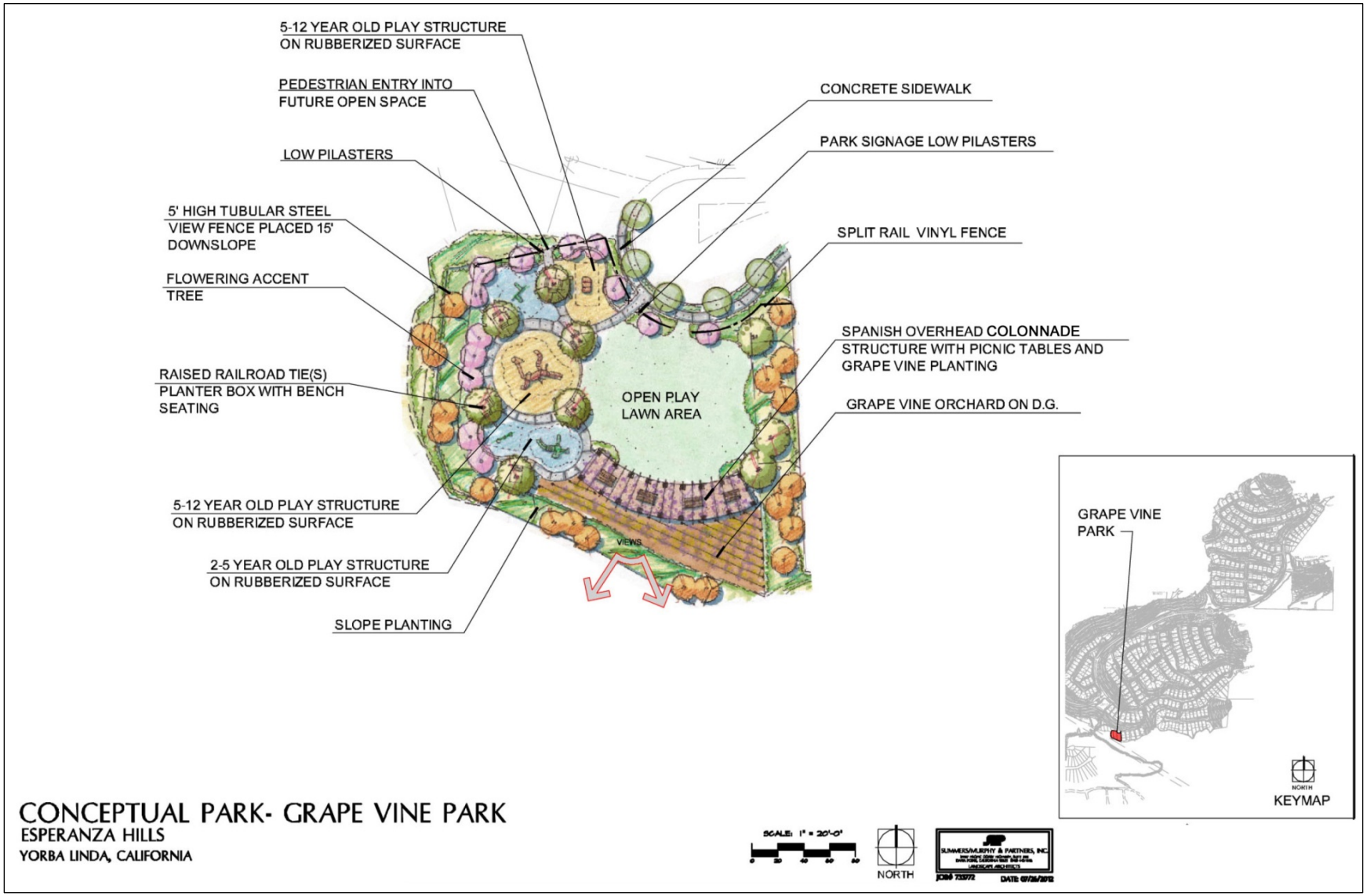



**Exhibit 5-115 – Conceptual Park C, Grape Vine Park, Option 2**

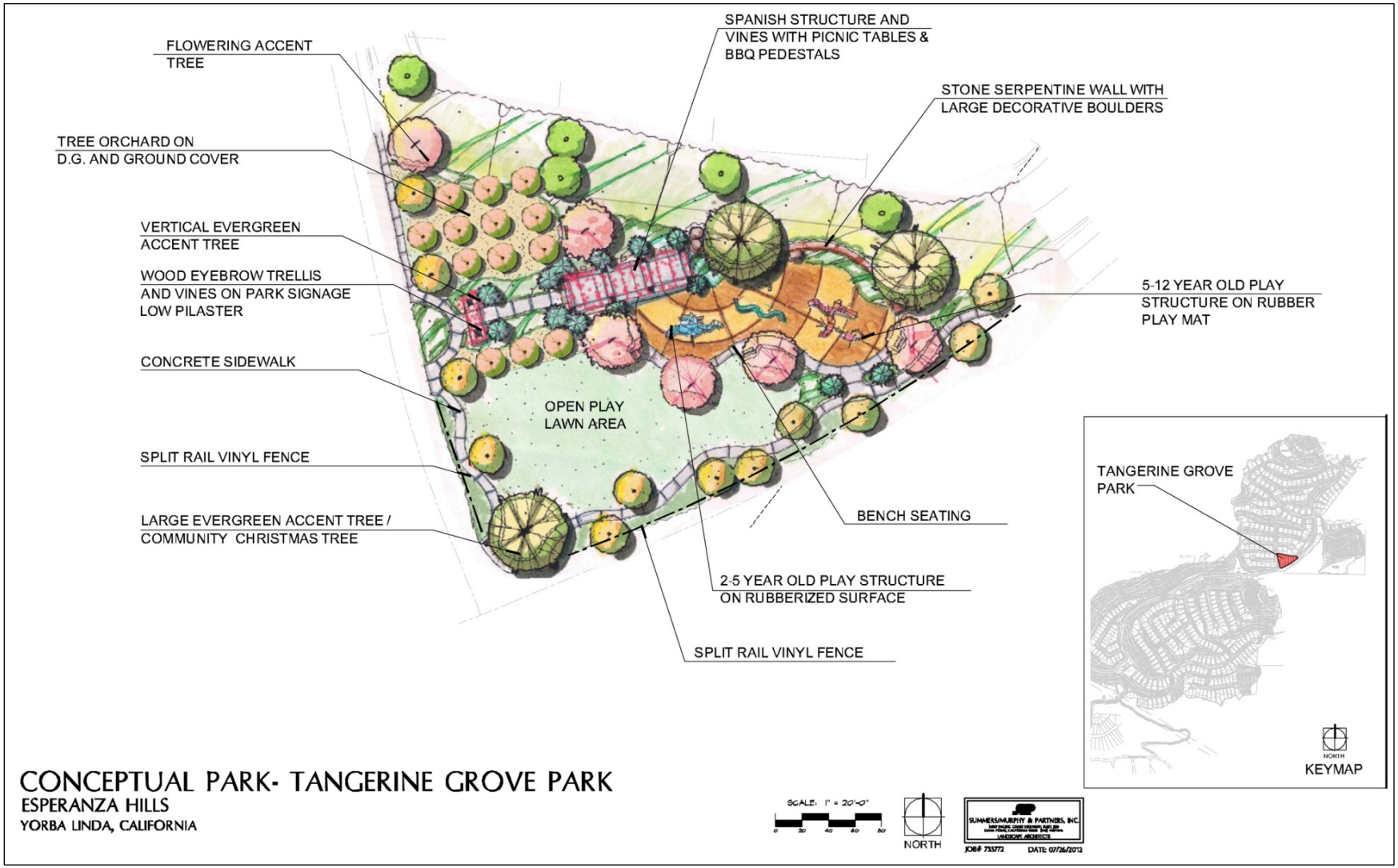



**Exhibit 5-116 – Conceptual Park D, Tangerine Grove Park**


**Exhibit 5-117 – Conceptual Park E, Avocado Park**

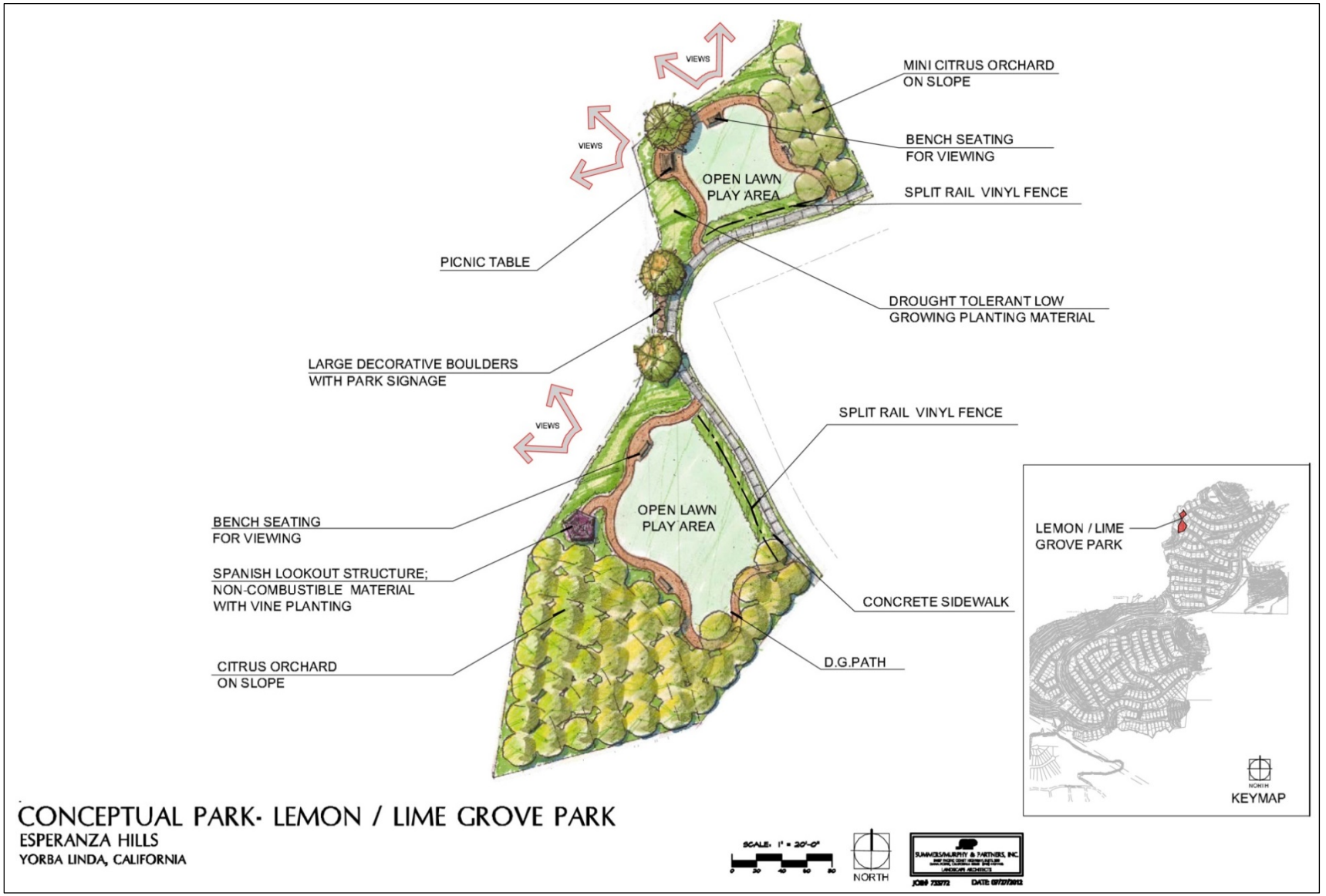



**Exhibit 5-118 – Conceptual Park F, Lemon/Lime Grove Park**

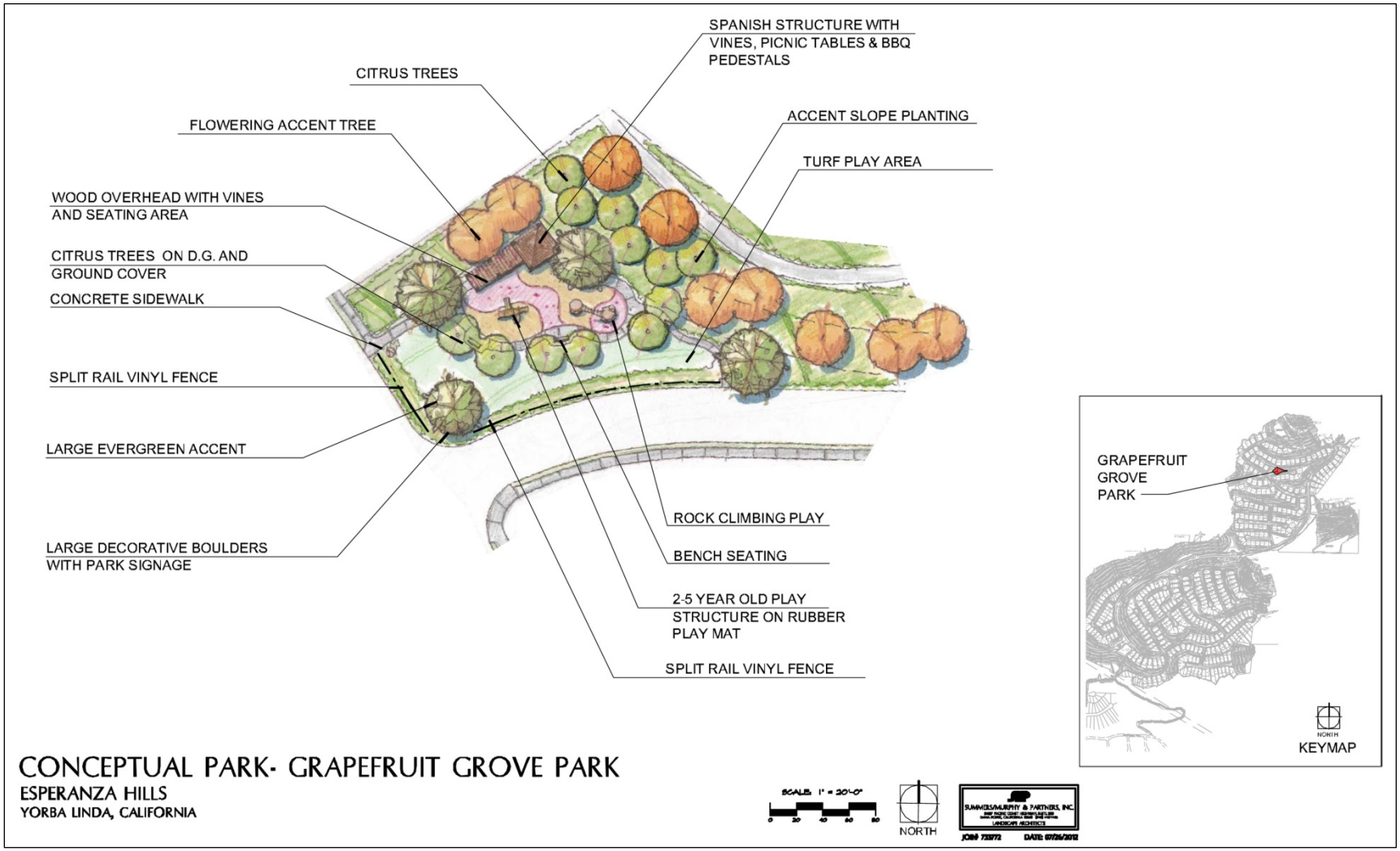



**Exhibit 5-119 – Conceptual Park G, Grapefruit Grove Park**

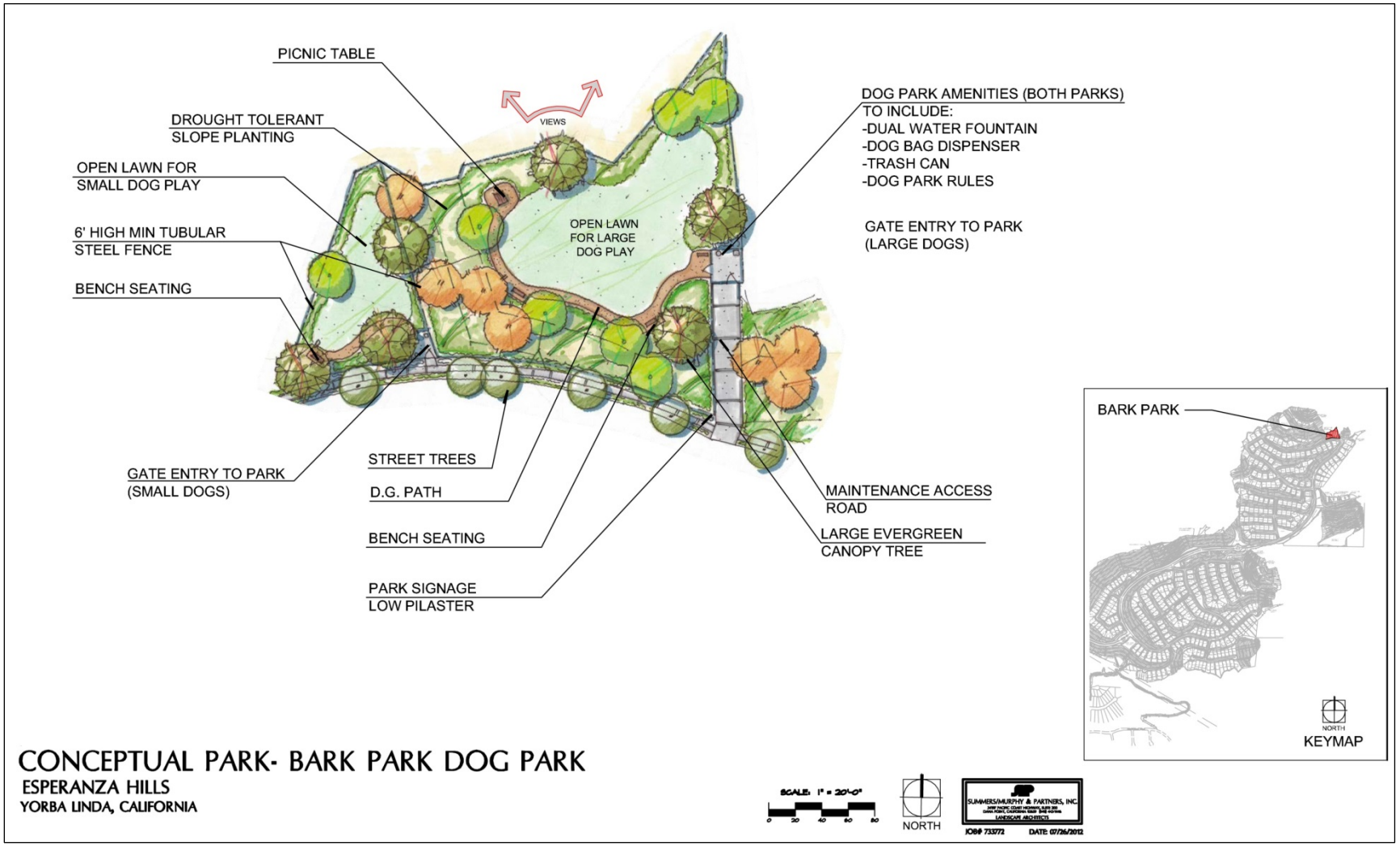



**Exhibit 5-120 – Conceptual Park H, Bark Park Dog Park**

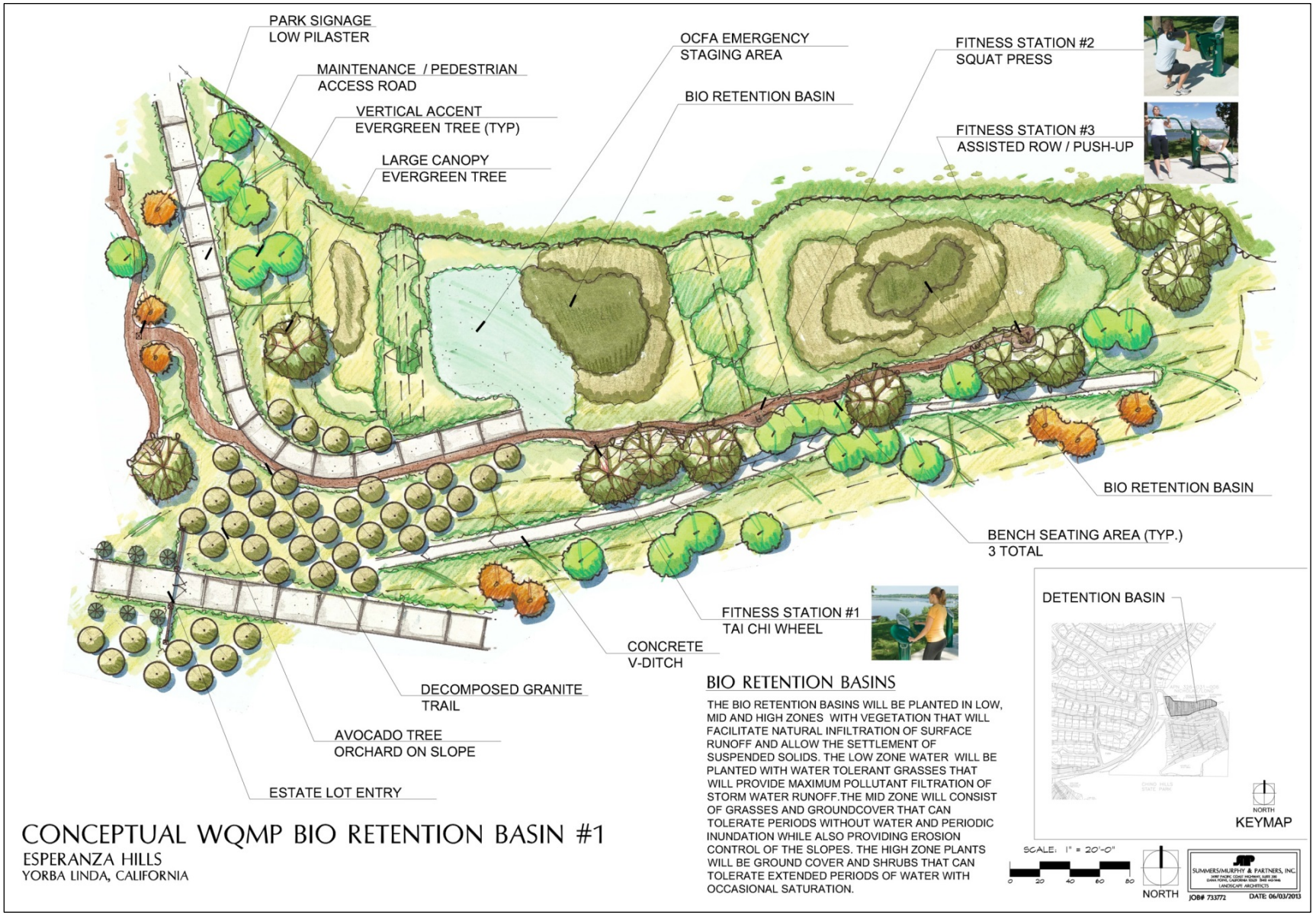



**Exhibit 5-121 – Conceptual Park J, WQMP Bio Retention Basin #1**

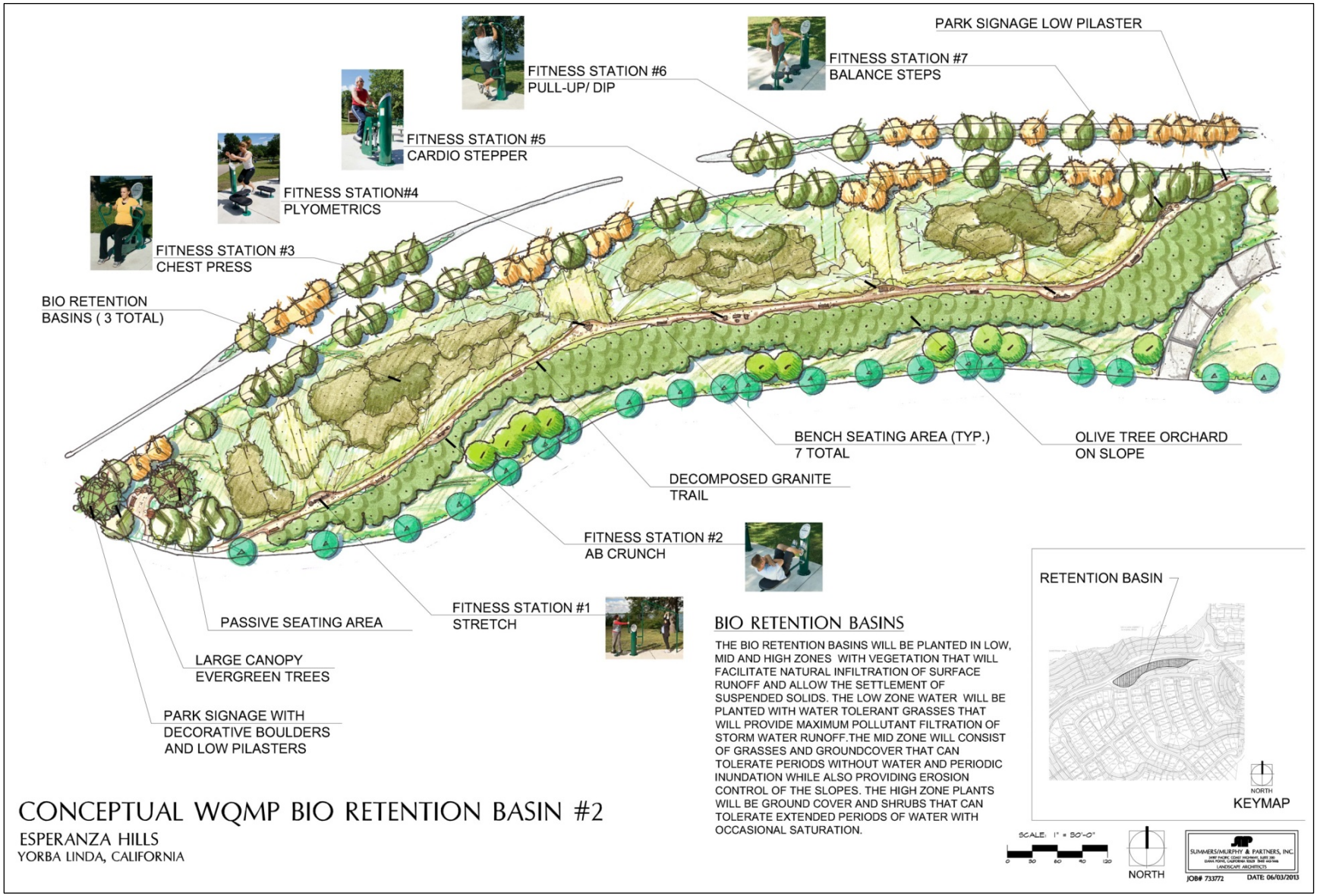



**Exhibit 5-122 – Conceptual Park K, WQMP Bio Retention Basin #2**

## 2. Trails

Currently, an equestrian trail system connects to an existing equestrian trail located just north of Aspen Way and extends north to Chino Hills State Park through Canyon B, consistent with the Yorba Linda GP for riding, hiking, and bikeway trails. Multi-use trails connect to the south and west, and transverse the property out to Chino Hills State Park. These connections would require easements through the adjoining Cielo Vista property.

Three distinct trail systems totaling approximately seven miles are designed within the Proposed Project. In addition to the trails system designed throughout the development a trail that provides for hiking, equestrian, and bicycling access on the north side of the drainage area in Blue Mud Canyon will be constructed surrounded by a California-friendly plant palette providing year-round color and increased fire resistance that will lead to the Old Edison Trail in Chino Hills State Park. The trail connection extends to the Project boundary. State Parks has the authority to formalize the connection to the Old Edison Trail in Chino Hills State Park. Under Option 1, trail connections would be provided from Stonehaven Drive. It is anticipated that a park area will also be constructed in the land owned by the City. This potential off-site park is not included in the park calculations set forth above.

Corridors through the neighborhoods provide residents with pedestrian-only access to existing formal trails along Blue Mud Canyon and Canyon B. The trail system is designed to facilitate public access to parks and open space resources within the Project Area and as required by the California Department of Parks and Recreation for trail management, to the Old Edison Trail in order to provide access to the larger wildland areas within Chino Hills State Park. The trails are depicted on Exhibit 5-123 – Conceptual Trails Plan, Option 1 – Stonehaven Drive and Exhibit 5-124 – Conceptual Trails Plan, Option 2 – Aspen Way.

The table below depicts the length of each type of trail for each option.

**Table 5-13-3 Trail Type/Linear Footage**

| | Linear Feet | | |
|---|---|---|---|
| **Trail Type** | **Option 1** | **Option 2** | **Option 2A** |
| Multi-use trails - 8-foot-wide decomposed granite | 6,136 | 5,851 | 5,851 |
| Equestrian trails - 10-foot-wide decomposed granite | 11,588 | 15,248 | 19,786 |
| In-tract pedestrian walks - 5-foot-wide concrete | 18,132 | 18,012 | 17,568 |
| **Total Trails** | 35,856 | 39,111 | 43,205 |

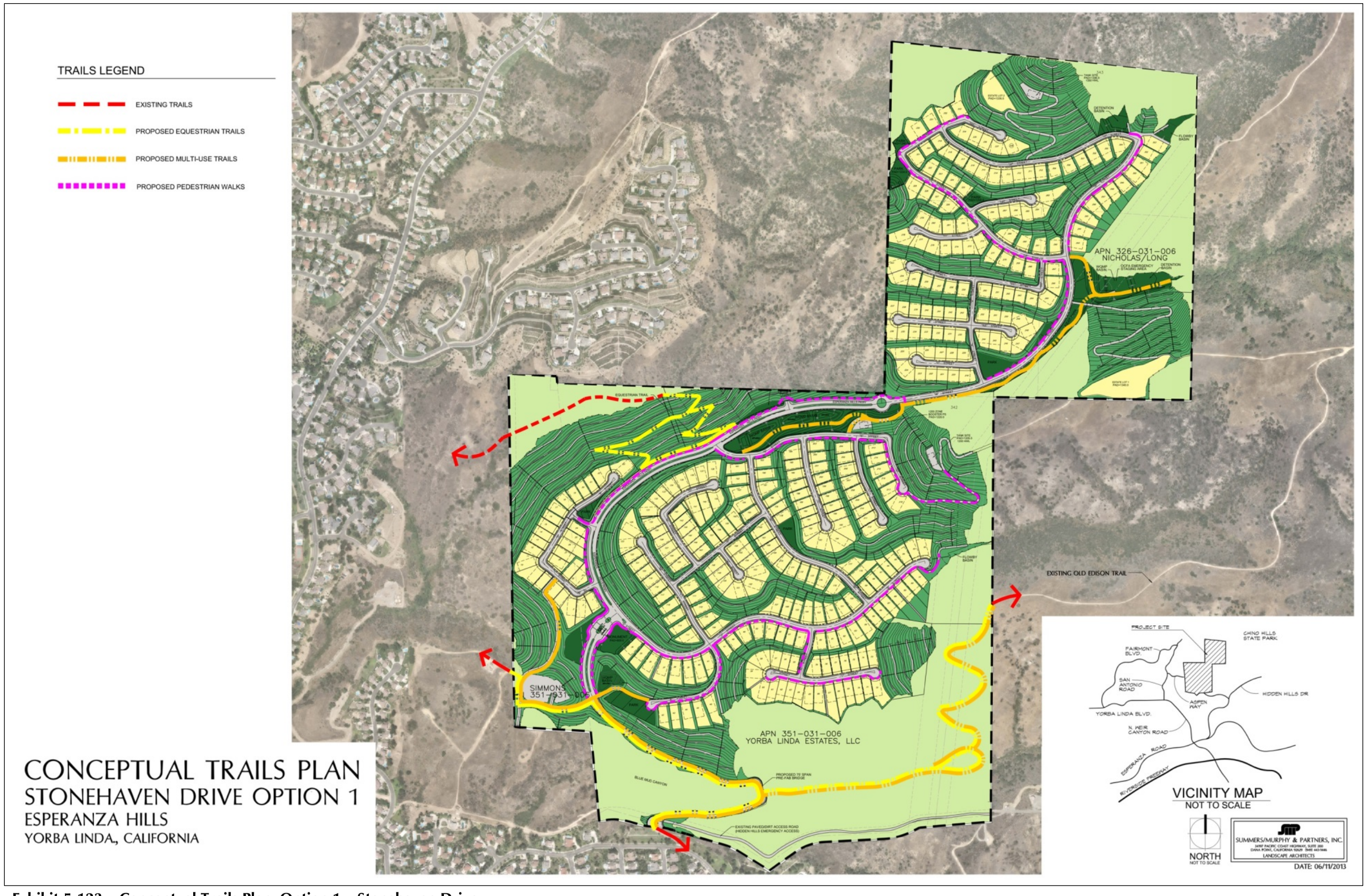



**Exhibit 5-123 – Conceptual Trails Plan, Option 1 – Stonehaven Drive**

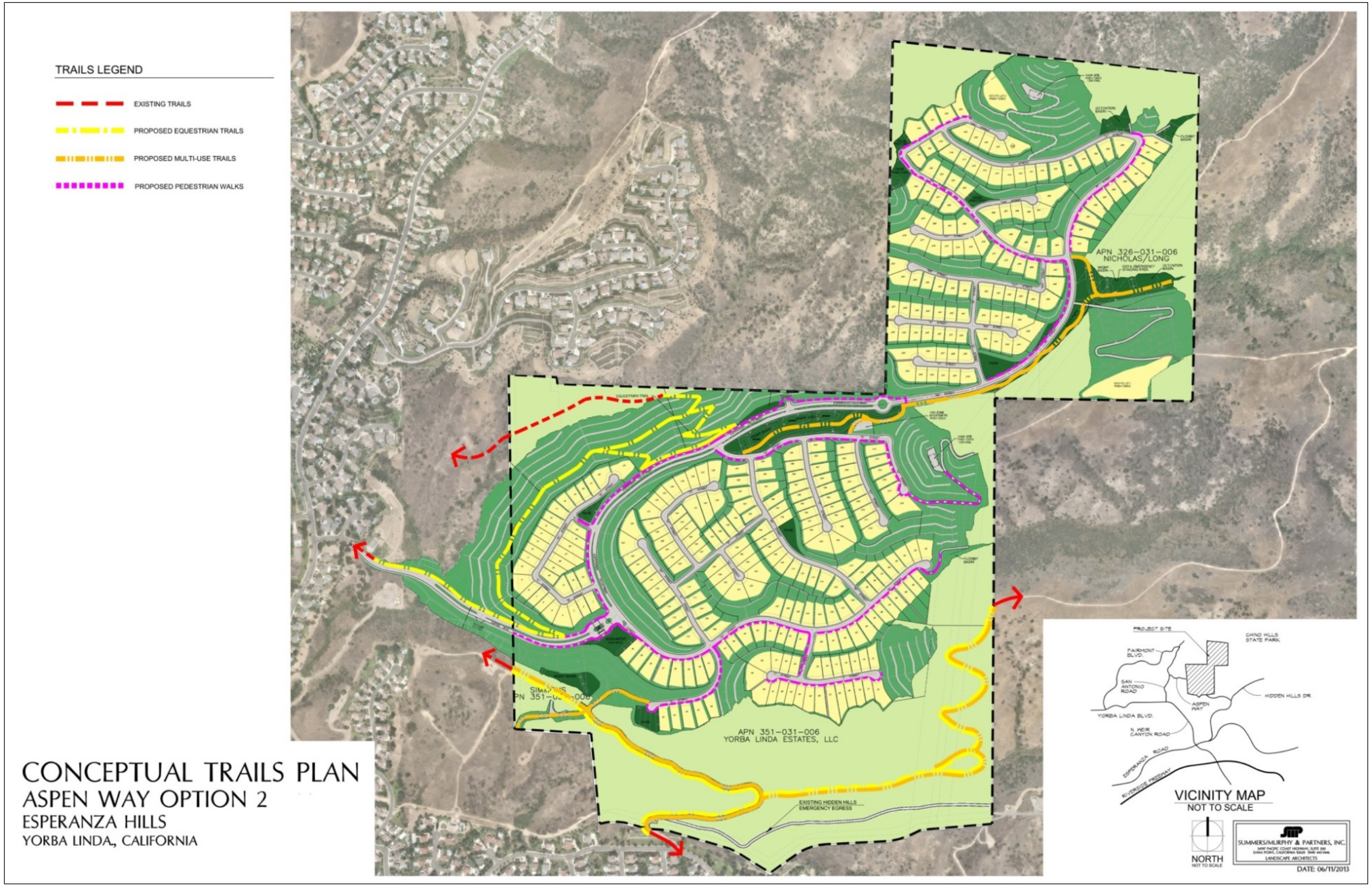



**Exhibit 5-124 – Conceptual Trails Plan, Option 2 – Aspen Way**

### 3. Open Space

The Project Site contains a total area of approximately 468.9 acres including natural open space, landscaped areas/parks, fire breaks, and fuel modification zones (FMZs).

- Natural Open Space – An area of 140.0 acres to 151.3 acres of Natural Open Space. consisting primarily of existing canyons with intermittent water flow, ridgelines, and other undisturbed natural space.
- Landscaped Areas - Additional Open Space of 126.6 acres to 135.8 acres will be created consisting of landscaped and irrigated slopes, with an additional 13.6 acres to 12.18 acres of landscaped parks and detention basins. Due to the project location within a Very High Fire Hazard Severity Zone (VHFHSZ), the existing plant palette will be modified to promote regeneration of historic native habitat such as black walnut trees, provide habitat for the Least Bell's Vireo, an endangered bird, together with other native vegetation that is more fire resistant.
- Fuel Modification - FMZs will be required adjacent to residential development and will act as additional open space. The Proposed Project will retain approximately 230.8 acres of Open Space, including 146.9 acres of natural open space and 83.9 acres of landscaping as part of the fuel modification plan. The developed areas will be surrounded by 170-foot FMZs based on a Fuel Modification/Fire Protection Plan developed in consultation with the Orange County Fire Authority (OCFA). Fuel modification is discussed further in Section 5.7, Hazards and Hazardous Materials (beginning on page 5-275). Exhibit 4-9 – Conceptual Site Plan, Option 1 - Stonehaven Drive (page 4-13) and Exhibit 4-10– Conceptual Site Plan, Option 2 - Aspen Way (page 4-15 depict the areas to be retained as natural open space.

## 5.13.5 Mitigation Measures

The Proposed Project exceeds the minimum requirements for County and City standards for parkland dedication in new residential areas, providing park acreage in excess of the amount required. The provision of equestrian and pedestrian trails, with linkages to existing trails, where feasible, provides a benefit for the residents of Esperanza Hills and the adjacent existing and planned communities. Open space will preserve natural ridgelines, habitats, and views to the extent possible, providing continuing recreational opportunities and enjoyment for residents.

While there are no playing fields for organized sports, the parks provide active play lots with play structures for children, and large open areas for small group activities such as volleyball and badminton.

With the availability of recreational opportunities on-site, use of similar existing off-site facilities will be minimized. The Proposed Project provides play lots (for children 2-12 years of age), fitness stations, BBQ and picnic areas, and open play lawn areas in

addition to multi-use paths and pedestrian/equestrian trails through open space. No environmental impacts will occur due to the low-profile development of the parks and trails, which are designed to protect water quality and enhance the vegetation palette using native trees, grasses, and fruit trees. As no significant impacts to recreation will occur, no mitigation measures are required.

## 5.13.6 Level of Significance after Mitigation

The Proposed Project could minimally increase the use of existing neighborhood or regional parks, but would not result in substantial physical deterioration of those facilities. No construction or expansion of existing facilities will be required. The Proposed Project provides in excess of parkland required by the County and the City. Therefore, no significant unavoidable impacts to recreation are associated with the project.

## 5.13.7 Cumulative Impacts

The project has been designed to provide recreation opportunities within the Esperanza Hills community, resulting in a positive impact to other local recreation areas and facilities, thereby minimizing use by its residents, which could result in physical deterioration of such facilities. Chino Hills State Park, Carbon Canyon Regional Park, Yorba Regional Park, Craig Regional Park, and Featherly Park all provide trails and natural wilderness areas similar to those proposed for the Proposed Project. The addition of the Proposed Project (1,088 projected population) and the proposed Cielo Vista project (358 projected population) will result in an increase of approximately 1,446 residents. However, as noted in Section 5.13.1, Existing Conditions (beginning on page 5-511), the area supports a significant number of County, regional, and City parks for residents and visitors. While there will be an increased demand on existing facilities, it is not anticipated that impacts due to proposed new development will have a significant cumulative impact due to the availability of regional parks, local parks, and recreation facilities, because parks are provided on-site at approximately three times the amount required by the City and people are largely anticipated to recreate on-site.

## 5.13.8 Unavoidable Adverse Impacts

There are no unavoidable adverse impacts related to recreation associated with the Proposed Project.

# 5.14 Transportation and Traffic

This section analyzes information contained in the "Traffic Impact Analysis" (TIA) dated March 2013 prepared by Linscott, Law & Greenspan Engineers. The TIA is included in its entirety as Appendix O, including calculation worksheets for the key study intersections.

The TIA contains documentation of existing traffic conditions; traffic generated by the Proposed Project, including a construction traffic impact assessment, projected impacts with implementation of the Proposed Project; and future traffic projections, including cumulative traffic conditions. The TIA recommends intersection and/or roadway improvements that may be required to accommodate future traffic volumes and restore or maintain an acceptable level of service or mitigate the impact of the Project. The analysis included the potential development of 38 residential units on the adjacent property known as Bridal Hills, LLC. The Bridal Hills property may or may not be developed in the future, and no application to develop the property is pending at the current time. It is not included with the application for 340 residential units in the Proposed Project and is not analyzed in any great detail. However, it is reasonable to assume that up to 38 units could be developed on the Bridal Hills property at some point, and because access to Bridal Hills would be through the Esperance Hills site, adding the units to the Proposed Project would present a worst case analysis. In addition, access to the Bridal Hills, LLC site would be through the Proposed Project, unlike other adjacent anticipated development such as the proposed Cielo Vista project.

The Proposed Project, in conjunction with the potential Bridal Hills, LLC project, consists of up to 378 single-family residential units with the main access via one of three options: Option 1 via Stonehaven Drive, Option 2 via San Antonio Road at Aspen Way, and Option 2A via San Antonio Road approximately 1,850 feet south of Aspen Way. Option 2A is analyzed in the DEIR as an Alternative in Chapter 6, Alternatives Analysis.

**Acronyms used in this section:**

| | |
|---|---|
| ADT | average daily traffic |
| CEQA | California Environmental Quality Act |
| CMP | Congestion Management Program |
| DEIR | Draft Environmental Impact Report |
| HCM | Highway Capacity Manual |
| ICU | Intersection Capacity Utilization |
| ITE | Institute of Traffic Engineers |
| LOS | Level of Service |
| mph | miles per hour |
| OCFA | Orange County Fire Authority |
| OCTA | Orange County Transportation Authority |
| V/C | volume-to-capacity ratio |
| vph | vehicles per hour |

## 5.14.1 Existing Conditions

The Esperanza Hills site is located on vacant land in the unincorporated area of Orange County east of San Antonio Road and north of Stonehaven Drive near the City of Yorba Linda (City). Via del Agua to the southwest of the site changes to Stonehaven Drive as it angles to the

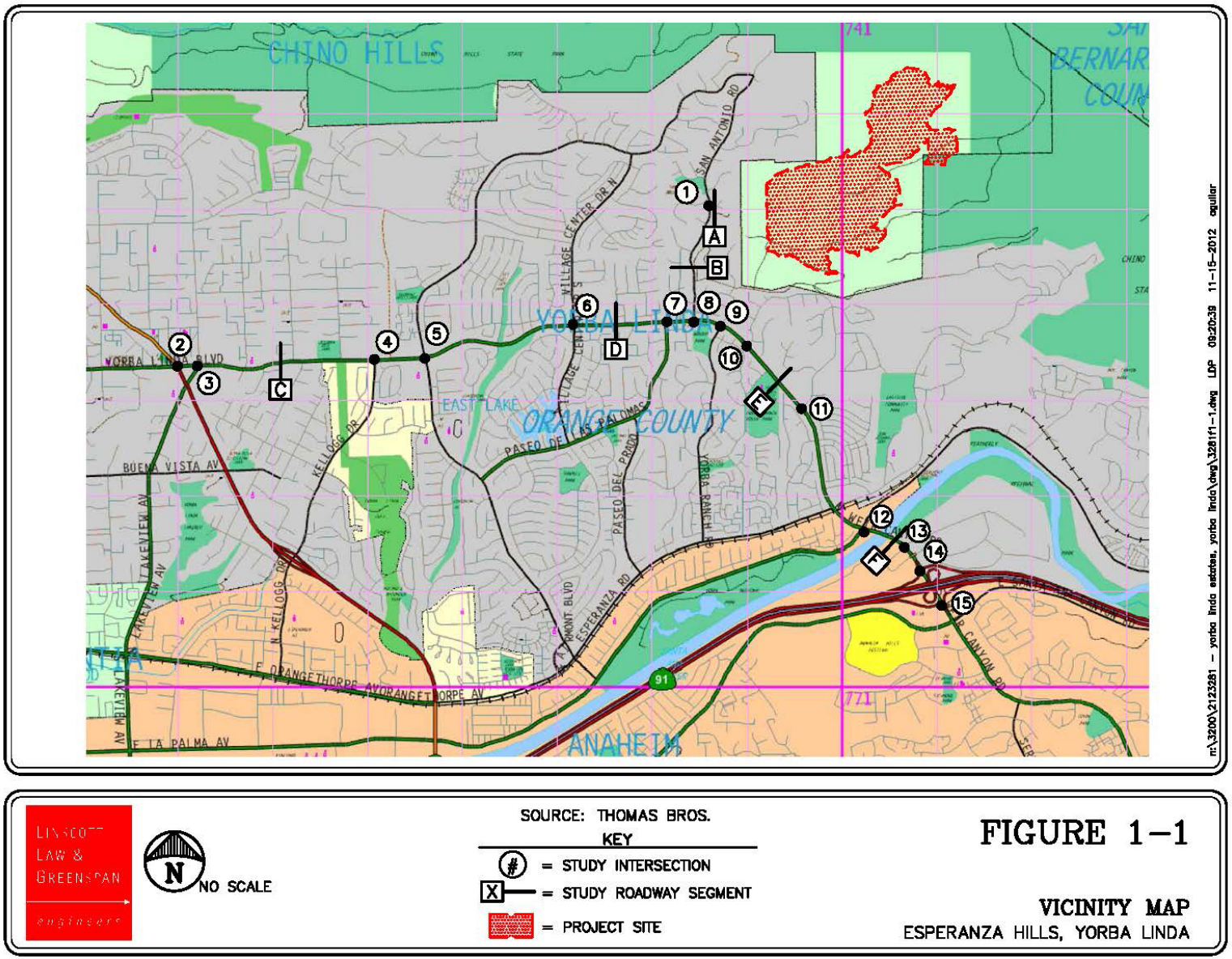
east/southeast. Surrounding the Project Site are existing residential communities in the City of Yorba Linda to the south, a proposed residential development site (Cielo Vista) to the west, Chino Hills State Park to the north and east, and additional undeveloped parcels to the west and northwest. The site contains an existing dirt road that has historically been used for access by the oil well operators, the Orange County Fire Authority (OCFA), the City of Yorba Linda, Southern California Edison (SCE), and Chino Hills State Park. Along the western edge of the Project extending south to Stonehaven/Via del Agua lies an existing 50-foot-wide easement for roadway and utility purposes. Stonehaven Drive and Aspen Way provide options as the main access roadways into the Proposed Project's residential areas. The traffic impacts for each option are detailed and analyzed in this section.

## 1. Traffic Analysis Study Area

In consultation with the County of Orange and the City, 15 key study intersections were identified for evaluation. All are located within the City and provide regional and local access to the Study Area. The key study intersections include:

1. Project access at Stonehaven Drive (Option 1), San Antonio Road at Aspen Way (Option 2) and San Antonio Road at Project Access approximately 1,850 feet south of Aspen Way (Option 2A)
2. Imperial Highway at Yorba Linda Boulevard
3. Lakeview Avenue at Yorba Linda Boulevard
4. Kellogg Drive at Yorba Linda Boulevard
5. Fairmont Boulevard at Yorba Linda Boulevard
6. Village Center Drive at Yorba Linda Boulevard
7. Paseo de Las Palomas at Yorba Linda Boulevard
8. San Antonio Road at Yorba Linda Boulevard
9. Yorba Ranch Road/Dorinda Road at Yorba Linda Boulevard
10. Yorba Linda Boulevard at Via del Agua
11. Yorba Linda Boulevard at Stonehaven Drive
12. Yorba Linda Boulevard at La Palma Avenue
13. Yorba Linda Boulevard at Savi Ranch Parkway
14. Weir Canyon Road at SR-91 WB Ramps
15. Weir Canyon Road at SR-91 EB Ramps

The Key Study Intersections are depicted on Exhibit 5-125 – Key Intersection Map. The Volume/Capacity (V/C) and Level of Service (LOS) analyses at these key locations were used to evaluate the potential traffic-related impacts associated with area growth, cumulative projects, and the Proposed Project.




LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: THOMAS BROS.

KEY

(#) = STUDY INTERSECTION

[X] = STUDY ROADWAY SEGMENT

= PROJECT SITE

**FIGURE 1–1**

**VICINITY MAP**

ESPERANZA HILLS, YORBA LINDA

**Exhibit 5-125– Key Intersection Map**

## 2. Existing Street System

Regional access to the site is provided by the SR-91 Freeway. Streets serving the site are Yorba Linda Boulevard, Weir Canyon Road, Imperial Highway, Lakeview Avenue, Kellogg Drive, Fairmont Boulevard, Village Center Drive, Paseo de las Palomas, San Antonio Road, Yorba Ranch Road, Via del Agua/Stonehaven Drive, La Palma Avenue, and Savi Ranch Parkway. The Yorba Linda General Plan (Yorba Linda GP) designates Stonehaven Drive and Via del Agua as the roadways that will provide access to the Project Site, with the recognition that easements would need to be provided across the property to the west and south (General Plan, LU-55; Appendix, Murdock Property).

The following brief descriptions of each street are based on an inventory of existing roadway conditions.

- **Yorba Linda Boulevard** is primarily an east-west, six-lane divided roadway located south of the Project Site with no permitted parking on either side of the roadway. South of Savi Ranch Parkway, Yorba Linda Boulevard becomes Weir Canyon Road. The posted speed limit is 40 miles per hour (mph). The intersections of Yorba Linda Boulevard at Imperial Highway, Lakeview Avenue, Kellogg Drive, Fairmont Boulevard, Village Center Drive, Paseo de las Palomas, San Antonio Road, Yorba Ranch Road/Dorinda Road, Stonehaven Drive, La Palma Avenue, and Savi Ranch Parkway are controlled by traffic signals. The intersections of Weir Canyon Road at SR-91 westbound ramps and SR-91 eastbound ramps are controlled by traffic signals as well.
- **Imperial Highway** is primarily a north-south, six-lane divided roadway located west of the Project Site with no permitted parking on either side of the roadway. South of Yorba Linda Boulevard, Imperial Highway becomes the Richard M. Nixon Freeway, a six-lane divided highway. North of Yorba Linda Boulevard, the posted speed limit is 45 mph. South of Yorba Linda Boulevard, the posted speed limit is 65 mph.
- **Lakeview Avenue** is primarily a north-south, two-lane divided roadway located west of the Project Site with no parking permitted on either side of the roadway. South of Yorba Linda Boulevard, Lakeview Avenue is a two-lane, undivided roadway. The posted speed limit on Lakeview Avenue is 35 mph.
- **Kellogg Drive** is a north-south, two-lane divided roadway located southwest of the Project Site with no parking permitted on either side of the roadway. The posted speed limit is 40 mph.
- **Fairmont Boulevard** is primarily a north-south, four-lane divided roadway located west of the Project Site. North of Yorba Linda Boulevard, Fairmont is a two-lane, divided roadway. No parking is permitted on either side of the roadway. The posted speed limit is 40 mph.

- **Village Center Drive** is a north-south, four-lane divided roadway located west of the Project Site with no parking permitted on either side of the roadway. The posted speed limit is 40 mph.
- **Paseo de las Palomas** is an east-west four-lane divided roadway located southwest of the Project Site with no parking permitted on either side of the roadway. The posted speed limit is 40 mph.
- **San Antonio Road** is a north-south two-lane commuter roadway located directly west of the Project Site. North of Aspen Way, parking is permitted on both sides of the roadway. South of Aspen Way, parking is permitted on the east side of the roadway and restricted on the west side of the roadway. The posted speed limit is 25 mph.
- **Yorba Ranch Road** is primarily a north-south, four-lane divided roadway located south of the Project Site. North of Yorba Linda Boulevard, the roadway is two-lane undivided. Parking is not permitted on either side of the roadway. South of Yorba Linda Boulevard, the posted speed limit is 35 mph.
- **Stonehaven Drive** is a two-lane undivided local roadway located south of the Project Site. Parking is permitted on both sides of the roadway within the vicinity of the Project. The posted speed limit is 35 mph. Stonehaven Drive changes to Via del Agua as the road curves to the southwest.
- **Via del Agua** is a two-lane undivided local roadway located south of the Project Site with parking permitted on both sides of the roadway. Via del Agua changes to Stonehaven Drive as the road curves west. The posted speed limit is 35 mph.
- **La Palma Avenue** is an east-west, four-lane divided roadway located south of the Project Site with no parking permitted on either side of the roadway. The posted speed limit is 45 mph.
- **Savi Ranch Parkway** is an east-west, four-lane divided roadway located south of the Project Site with no parking permitted on either side of the roadway. The posted speed limit is 35 mph.

## 3. Existing Traffic Volumes

The 15 key study intersections identified for evaluation of existing and future traffic operating conditions were selected based on discussions with City staff and in consideration of the Orange County Congestion Management Program (CMP) requirements. It was determined that some portion of potential project-related traffic will pass through each of these intersections. Existing AM peak hour and PM peak hour traffic volumes for the 15 key study intersections were obtained from turning movement counts observed and recorded in the field. Appendix B of the TIA (Appendix O to this DEIR) contains detailed peak hour and daily traffic count sheets for the key intersections and roadway segments analyzed.

Exhibit 5-126 and Exhibit 5-127 depict the existing AM and PM peak hour traffic volumes at each key study intersection, respectively. Exhibit 5-127 also presents the existing average daily traffic volumes for the eight key roadway segments in the vicinity and closest to the Proposed Project.

## 4. Existing Intersection Conditions/Methodology

The Intersection Capacity Utilization (ICU) methodology for signalized intersections and the *Highway Capacity Manual* 2000 (HCM) (Chapter 17) methodology for unsignalized intersections were used to evaluate the existing AM and PM peak hour operating conditions for signalized intersections.

### a. Intersection Capacity Utilization (ICU) Method of Analysis

The ICU method was used to evaluate existing AM and PM peak hour operating conditions in conformance with City and County CMP requirements. The ICU method is intended for signalized intersection analysis and estimates the volume-to-capacity (V/C) relationship based on the individual V/C ratios for key conflicting traffic movements. The ICU numerical value represents the percent signal (green) time, and thus capacity, required by existing and/or future traffic. The ICU methodology assumes uniform traffic distribution per intersection approach lane and optimal signal timing.

Per City requirements, the ICU calculations used a lane capacity of 1,700 vehicles per hour (vph), and a clearance adjustment factor of 0.05 was added to each LOS calculation. The clearance adjustment factor takes into account time that is lost during an all-red phase, as well as lost time at the startup of a green phase. The ICU calculations were performed using the more stringent lane capacity criteria of 1,600 vph for the one signalized intersection that is jointly shared by the City and unincorporated County of Orange (Kellogg Drive at Yorba Linda Boulevard).

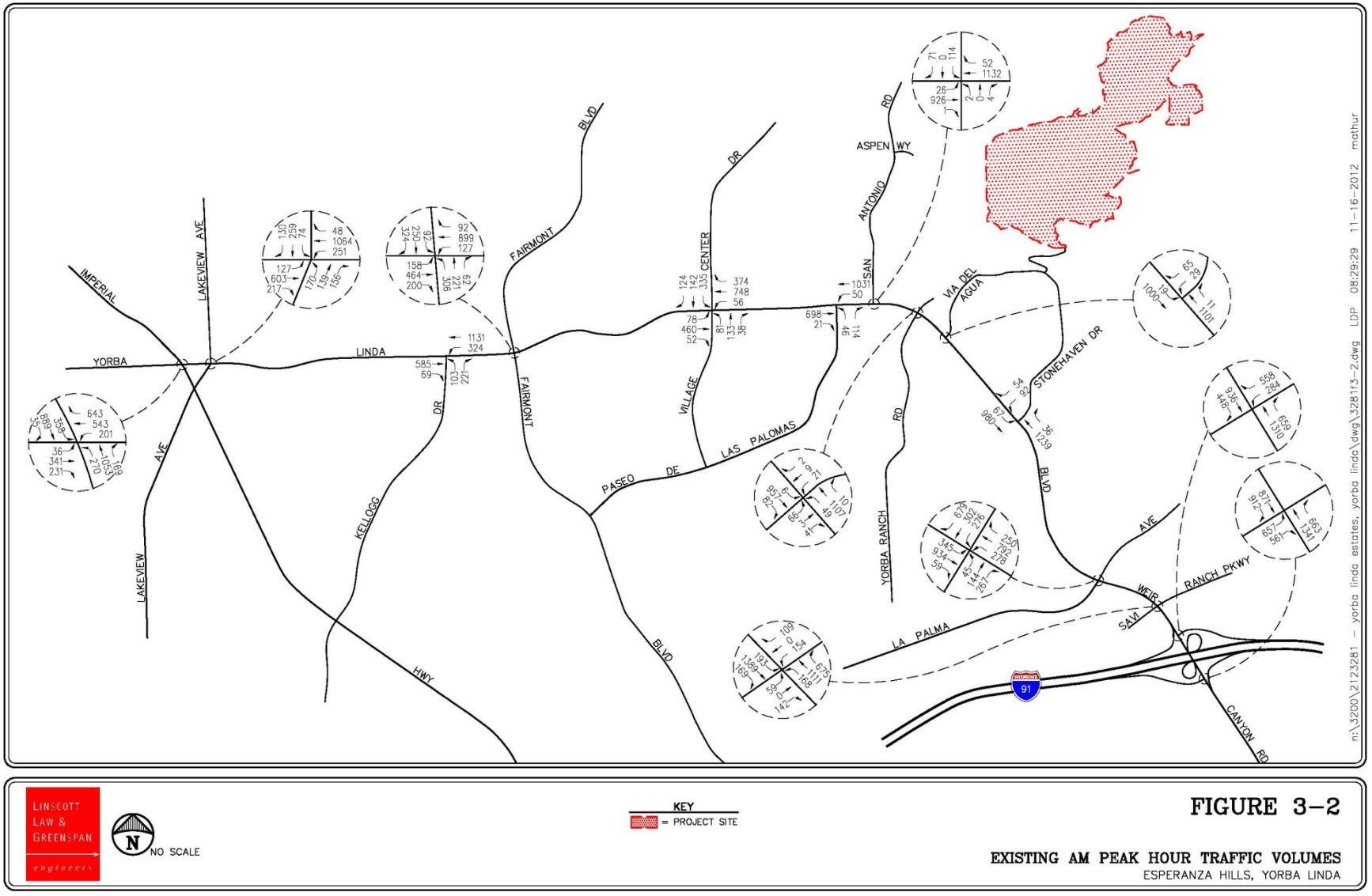



**Exhibit 5-126– Existing AM Peak Hour Traffic Volumes**

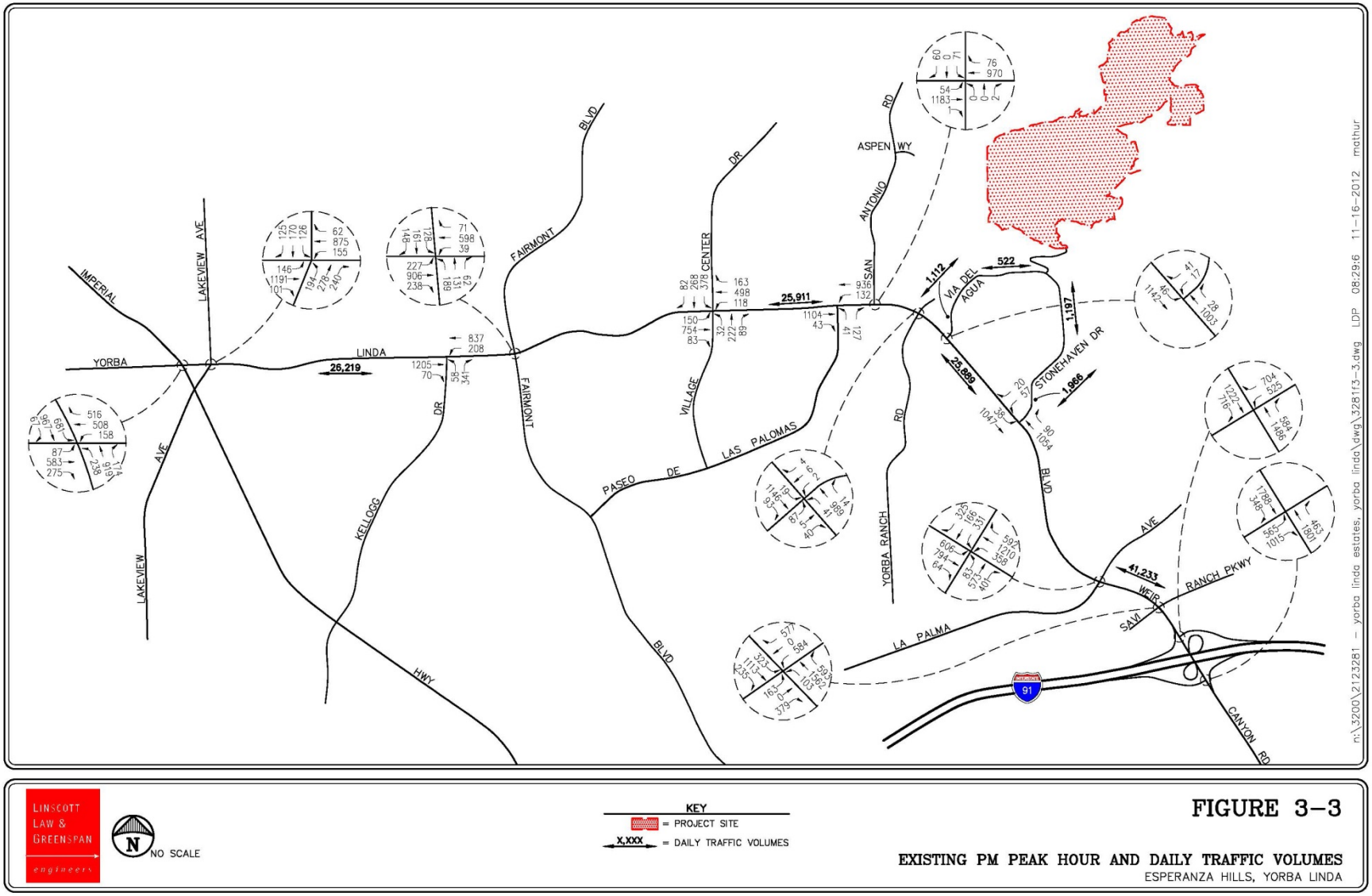



**Exhibit 5-127– Existing PM Peak Hour and Daily Traffic Volumes**

The ICU value translates to a Level of Service (LOS) estimate, which is a relative measure of the intersection performance and is the sum of the critical V/C ratios at an intersection. It is not intended to indicate the LOS of each individual turning movement but rather the total volume. Table 5-14-1 shows the LOS criteria for signalized intersections.

**Table 5-14-1 Level of Service Criteria for Signalized Intersections**

| Level of Service (LOS) | Intersection Capacity Utilization Value (Volume/Capacity) | Level of Service Description |
|---|---|---|
| A | ≤ 0.600 | EXCELLENT. No vehicle waits longer than one red light, and no approach phase is fully used. |
| B | 0.601 – 0.700 | VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles. |
| C | 0.701 – 0.800 | GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles. |
| D | 0.801 – 0.900 | FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups. |
| E | 0.901 – 1.000 | POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles. |
| F | > 1.000 | FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Potentially very long delays with continuously increasing queue lengths. |

### b. Highway Capacity Manual (HCM) Method of Analysis (Unsignalized Intersections)

The 2000 HCM methodology for stop-controlled intersections was utilized for the analysis of unsignalized intersections. The average control delay for each of the subject movements is estimated to determine the level of service for each movement. For all-way stop-controlled intersections, the overall average control delay measured in seconds per vehicle, and level of service, is then calculated for the entire intersection. For one-way and two-way stop-controlled intersections (minor street stop-controlled), the worst side street delay, measured in seconds per vehicle, is estimated and the level of service for that approach is determined. The HCM control delay value translates to an LOS estimate, which is a relative measure of the intersection performance. Table 5-14-2 shows the LOS categories and the corresponding HCM control delay value range.

**Table 5-14-2 Level of Service Criteria for Unsignalized Intersections**

| Level of Service (LOS) | Highway Capacity Manual Delay Value (seconds per vehicle) | Level of Service Description |
|---|---|---|
| A | ≤ 10.0 | Little or no delay |
| B | > 10.0 and ≤ 15.0 | Short traffic delays |
| C | > 15.0 and ≤ 25.0 | Average traffic delays |
| D | > 25.0 and ≤ 35.0 | Long traffic delays |
| E | > 35.0 and ≤ 50.0 | Very long traffic delays |
| F | > 50.0 | Severe congestion |

Source: *Highway Capacity Manual 2000*, Chapter 17 (Unsignalized Intersections)

### c. Highway Capacity Manual (HCM) Method of Analysis (Signalized Intersections)

The LOS for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during ideal conditions – in the absence of traffic control, in the absence of geometric delay, in the absence of any incidents, and when there are no other vehicles on the road.

The HCM quantifies only the portion of total delay attributed to the control facility. This is called control delay and includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. LOS criteria for traffic signals are stated in terms of the average control delay per vehicle. Table 5-14-3 defines the six qualitative categories of LOS along with the corresponding HCM control delay value range for signalized intersections.

**Table 5-14-3 Level of Service Criteria for Signalized Intersections (HCM Methodology)**

| Level of Service (LOS) | Control Delay per Vehicle (seconds per vehicle) | Level of Service Description |
|---|---|---|
| A | ≤10.0 | This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay. |
| B | > 10.0 and ≤20.0 | This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay. |
| C | > 20.0 and ≤35.0 | Average traffic delays. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping. |
| D | > 35.0 and ≤55.0 | Long traffic delays At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable. |
| E | > 55.0 and ≤80.0 | Very long traffic delays This level is considered by many agencies (i.e. SANBAG) to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high *v/c* ratios. Individual cycle failures are frequent occurrences. |
| F | ≥80.0 | Severe congestion This level, considered to be unacceptable to most drivers, often occurs with over saturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high *v/c* ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels. |

Source: *Highway Capacity Manual 2000,* Chapter 16 (Signalized Intersections)

### d. State of California (Caltrans) Methodology

Existing and projected AM and PM peak hour operating conditions at the three state-controlled study intersections in the study have been evaluated using the HCM 2000 operations method of analysis in conformance with the current Caltrans "Guide for the Preparation of Traffic Impact Studies." The state-controlled locations include the following intersections:

2. Imperial Highway at Yorba Linda Boulevard
14. Weir Canyon Road at SR-91 WB Ramps
15. Weir Canyon Road at SR-91 EB Ramps

Caltrans "endeavors to maintain a target LOS at the transition between LOS C and LOS D on State highway facilities," but does not require that LOS D be maintained. Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. LOS D is the threshold, or target level of service standard applied to the TIA and was utilized to assess the project impacts at the intersections identified above. This analysis applies equally to both access options presented herein.

### e. Level of Service (LOS) Criteria

The County's General Plan Transportation Element identifies LOS D as the threshold for intersections under the sole control of the County. LOS D is the threshold and minimum acceptable condition that should be maintained during the peak commute hours according to the City and pursuant to its General Plan, page C-8.

### f. Traffic Impact Analysis Methodology

Following are scenarios for which V/C calculations have been performed at the 15 key study intersections for existing plus project, near-term (2020), and long-term (2035) traffic conditions:

- Scenario A - Existing traffic conditions
- Scenario B - Existing plus project traffic conditions
- Scenario C - Scenario B above with improvements, if necessary
- Scenario D - Near-term (2020) cumulative traffic conditions
- Scenario E - Near-term (2020) cumulative plus project traffic conditions
- Scenario F - Scenario E above with improvements, if necessary
- Scenario G - Long-term (2035) future traffic conditions
- Scenario H - Long-term (2035) future traffic conditions plus project traffic
- Scenario I - Scenario H above with improvements, if necessary

## 5. Existing Level of Service Results

The existing peak hour service level calculations for the key study intersections are summarized in Table 5-14-4 below. The summary is based on existing traffic volumes and current street geometrics. As shown, only 1 of the 15 key study intersections currently operates at an unacceptable LOS during the AM and PM peak hours. The location operating at an adverse LOS is Yorba Linda Boulevard at Via del Agua (intersection #10 in the following table) showing an LOS F for the AM peak and LOS D for the PM peak hours.

**Table 5-14-4 Existing Intersection Peak Hour Levels of Service Summary**

| Key Intersection | | Time Period | Control Type | ICU/Delay (seconds/vehicle) | LOS |
|---|---|---|---|---|---|
| 1. | Stonehaven Drive at | AM | One-Way | -- | -- |
| | Project Access (proposed intersection) | PM | Stop | -- | -- |
| 2. | Imperial Highway at | AM | 8∅ Traffic | 0.649 | B |
| | Yorba Linda Boulevard | PM | Signal | 0.726 | C |
| 3. | Lakeview Avenue at | AM | 6∅ Traffic | 0.551 | A |
| | Yorba Linda Boulevard | PM | Signal | 0.577 | A |
| 4. | Kellogg Drive at | AM | 3∅ Traffic | 0.426 | A |
| | Yorba Linda Boulevard | PM | Signal | 0.594 | A |
| 5. | Fairmont Boulevard at | AM | 8∅ Traffic | 0.574 | A |
| | Yorba Linda Boulevard | PM | Signal | 0.465 | A |
| 6. | Village Center Drive at | AM | 8∅ Traffic | 0.454 | A |
| | Yorba Linda Boulevard | PM | Signal | 0.518 | A |
| 7. | Paseo De Las Palomas at | AM | 3∅ Traffic | 0.420 | A |
| | Yorba Linda Boulevard | PM | Signal | 0.527 | A |
| 8. | San Antonio Road at | AM | 4∅ Traffic | 0.469 | A |
| | Yorba Linda Boulevard | PM | Signal | 0.441 | A |
| 9. | Yorba Ranch Rd/Dorinda Rd at | AM | 5∅ Traffic | 0.424 | A |
| | Yorba Linda Boulevard | PM | Signal | 0.468 | A |
| 10. | Yorba Linda Boulevard at | AM | One-Way | **58.0** | **F** |
| | Via del Agua | PM | Stop | 31.8 | D |
| 11. | Yorba Linda Boulevard at | AM | 3∅ Traffic | 0.519 | A |
| | Stonehaven Drive | PM | Signal | 0.442 | A |
| 12. | Yorba Linda Boulevard at | AM | 8∅ Traffic | 0.739 | C |
| | La Palma Avenue | PM | Signal | 0.745 | C |
| 13. | Yorba Linda Boulevard at | AM | 8∅ Traffic | 0.466 | A |
| | Savi Ranch Parkway | PM | Signal | 0.769 | C |
| 14. | Weir Canyon Road at | AM | 2∅ Traffic | 0.472 | A |
| | SR-91 WB Ramps | PM | Signal | 0.582 | A |
| 15. | Weir Canyon Road at | AM | 2∅ Traffic | 0.552 | A |
| | SR-91 EB Ramps | PM | Signal | 0.710 | C |

Notes: Ø = Phase; LOS = Level of Service, refer to Table 5-14-1 and Table 5-14-2 above for the LOS definitions.
**Bold Delay/LOS** values indicate unacceptable service levels based on LOS Criteria identified in the Traffic Impact Analysis.
Appendix C in the Traffic Impact Analysis (Appendix O in this DEIR) contains the ICU/LOS and Delay/LOS calculation worksheets for all study intersections.

### 6. Existing Public Transit Service

The Orange County Transportation Authority (OCTA) has regularly scheduled bus service available on Yorba Linda Boulevard (Route 26) and Imperial Highway (Route 20).

## 5.14.2 Thresholds of Significance

The state encourages local agencies to adopt their own thresholds, but it is not required. The County of Orange does not have adopted thresholds of significance for transportation and traffic. Therefore, for purposes of this analysis, the applicable thresholds listed in the CEQA Guidelines will be used. Appendix G of the CEQA Guidelines states that the project would have a potential significant impact with respect to transportation and traffic if it would:

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
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
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks
d) Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)
e) Result in inadequate emergency access
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities or otherwise decrease the performance or safety or such facilities

The County has established a threshold of LOS D for intersections in sole control of the County. Caltrans endeavors to maintain a threshold between LOS C and LOS D on state highways.

Pursuant to its General Plan, page C-8, the City has established LOS D (ICU = 0.801 - 0.900) as the minimum acceptable condition that should be maintained during the peak commute hours for all key study intersections. Impacts to local and regional transportation systems are considered significant if:

> The intersection operates at LOS E or F and the project increases traffic demand at the study intersection by 1% of capacity (ICU increase $\geq$ 0.010). At unsignalized intersections, a "significant" adverse traffic impact is defined as a

project that adds 1% or more traffic delay (seconds per vehicle) at an intersection operating at LOS E or F.

### Congestion Management Program (CMP) Compliance Assessment

The TIA is consistent with the requirements and procedures outlined in the current Orange County Congestion Management Program (CMP). The CMP requires that a traffic impact analysis be conducted for any project generating 2,400 or more daily trips, or 1,600 or more daily trips for projects that directly access the CMP Highway System. Per the CMP guidelines, this number is based on analysis of any impacts that will be 3.0% or more of the existing CMP highway system facilities' capacity.

The City does not have any CMP highway systems within the vicinity of the Proposed Project. Because the CMP is not applicable, the analysis concludes that the Proposed Project will not have any significant traffic impacts on the Congestion Management Program Highway System.

## 5.14.3 Project Impacts Prior to Mitigation

The TIA analyzed existing and future weekday daily AM peak hour and PM peak hour traffic conditions for a near-term (Year 2020) and long-term (Year 2035) traffic setting using two main access options. Near-term cumulative daily and peak hour traffic forecasts were projected by incorporating a 1% annual growth rate and the trip generation potential of 18 related projects (Table 5-9-21, Cumulative Projects List (page 5-456) that are expected to be built and occupied by Year 2020. Long-term daily and peak hour traffic forecasts were projected based on modeled traffic projections prepared by the OCTA using the OCTAM3.4 Year 2035 Traffic Analysis Model.

### 1. Traffic Forecasting Methodology

A multi-step process was utilized to estimate the traffic impact characteristics of the project as proposed.

- Step 1 - Traffic Generation estimates the total arriving and departing traffic on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations or rates to the project development tabulation.
- Step 2 - Traffic Distribution identifies the origins and destinations of inbound and outbound project traffic. Origins and destinations are typically based on demographics and existing/expected future travel patterns.
- Step 3 - Traffic Assignment involves the allocation of project traffic to Study Area streets and intersections, is typically based on minimizing travel time. Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway links and intersection turning movements throughout the Study Area.

Once the forecasting process is complete and traffic assignments are developed, the project impact is isolated by comparing operational (LOS) conditions at key intersections using expected future traffic volumes with and without forecast project traffic. The need for site-specific and/or cumulative local area traffic improvements can then be evaluated and the significance of the impacts identified.

## 2. Project Traffic Characteristics

### a. Project Traffic Generation

Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the Project Site. The 8th Edition of *Trip Generation* published by the Institute of Transportation Engineers (ITE) was used to determine generation equations and/or rates used in the forecasting procedure. As shown in Table 5-14-5, the Proposed Project and eventual potential development of the Bridal Hills, LLC property are expected to generate approximately 3,617 daily trips, with 284 trips (72 inbound, 212 outbound) in the AM peak hour and 382 trips (242 inbound, 140 outbound) in the PM peak hour on a typical weekday.

**Table 5-14-5 Project Traffic Generation Forecast**

| Project Description | Daily 2-Way | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|
| | | Enter | Exit | Total | Enter | Exit | Total |
| Generation Factors | | | | | | | |
| Single-family housing (trip ends per dwelling unit) | 9.57 | 0.19 | 0.56 | 0.75 | 0.64 | 0.37 | 1.01 |
| Proposed Project Trip Generation | | | | | | | |
| Residential (378 dwelling units) | 3,617 | 72 | 212 | 284 | 242 | 140 | 382 |

Source: *Trip Generation*, 8th Edition, Institute of Transportation Engineers (ITE)

### b. Future Traffic Conditions

Background traffic growth estimates have been calculated using an ambient traffic growth factor that is intended to include unknown and future related projects in the Study Area, as well as to account for regular growth in traffic volumes due to development outside the Study Area. Future growth in traffic volumes was calculated at 1.0% per year. When applied to Year 2012 existing traffic volumes, this factor results in an 8.0% growth in existing volumes to the near-term horizon Year 2020. This growth factor was included as a conservative measure even though no other developable parcels would be accessed through the Proposed Project that are expected to increase traffic in the future.

The status of other known development projects within a two-mile radius of the Proposed Project was included in order to realistically estimate future on-street conditions prior to development of the Proposed Project. These off-site areas included potential development in cities of Yorba Linda, Anaheim, Brea, Placentia, and Orange, and unincorporated Orange County. Eighteen potential related projects were identified, 17 of which are expected to be built and occupied by Year 2020. Of those, 16 projects are in the City of Yorba Linda and 1 project is in the City of Brea.

Exhibit 5-128 illustrates the location of each project. The AM and PM peak hour traffic volumes for the related projects in Year 2020 are shown in Exhibit 5-129 and Exhibit 5-130, respectively.

Table 5-14-6 below provides a brief description of each of the 18 related projects and identifies the occupancy percentage for each.

**Table 5-14-6 Description of Related Projects**

| No. | Related Project | Land Use | Occupancy Percentage | |
|---|---|---|---|---|
| | | | Year 2020 | Year 2035 |
| **City of Yorba Linda Development** | | | | |
| 1 | North Yorba Linda Estates | 364 single-family residential dwelling units | 100% | 100% |
| | | 110 condos/townhomes | 100% | 100% |
| 2 | Cielo Vista (Yorba Linda Sphere of Influence) | 112 single-family residential dwelling units | 100% | 100% |
| 3 | Hover/Bastanchury Holding Co. | 48 single-family residential dwelling units | 100% | 100% |
| 4 | Yorba Linda Town Center | 32 single-family residential dwelling units | 100% | 100% |
| | | 119 condos/townhomes | 100% | 100% |
| | | 1,200-seat performing arts center | 100% | 100% |
| | | 24,000-square-foot library | 100% | 100% |
| | | 5,200 square feet of general office uses | 100% | 100% |
| | | 61,600 square feet of commercial retail uses | 100% | 100% |
| | | 16,400 square feet of restaurant uses | 100% | 100% |
| 5 | Oakcrest Terrace | 69 apartments | 100% | 100% |
| 6 | Canal Annex – Savi Ranch | 84 apartments | 100% | 100% |
| 7 | Nixon Archive Site | 59 single-family residential dwelling units | 100% | 100% |
| 8 | SWC Bastanchury/Lakeview | 180 apartment units | 100% | 100% |
| | | 109 single-family residential dwelling units | 100% | 100% |
| 9 | Friends Christian High School | 1,200 students | 100% | 100% |
| 10 | Prospect (Greenhouse) | 55 single-family residential dwelling units | 100% | 100% |
| 11 | Wabash & Rose | 17 single-family residential dwelling units | 100% | 100% |
| 12 | Yorba Linda/Prospect | 122 apartment units | 100% | 100% |
| 13 | Postal Annex SE Lemon & Eureka | 5 single-family residential dwelling units | 100% | 100% |
| 14 | 4622 Plumosa | 10 apartment units | 100% | 100% |
| 15 | Lakeview & Mariposa | 149 apartment units | 100% | 100% |
| 16 | Palisades at Vista del Verde | 143 condos/townhomes | 100% | 100% |
| **City of Anaheim** | | | | |
| 17 | Mountain Park | 1,675 single-family residential dwelling units | 0% | 100% |
| | | 825 condos/townhomes | 0% | 100% |
| | | 3,000-square-foot convenience market | 0% | 100% |
| | | 800-student elementary school | 0% | 100% |
| | | 15 acres of park | 0% | 100% |
| **City of Brea Development** | | | | |
| 18 | La Floresta Development | 398 medium-density residential dwelling units | 100% | 100% |
| | | 787 high-density residential dwelling units | 100% | 100% |
| | | 150 mixed-use residential dwelling units | 100% | 100% |
| | | 156,800 square feet of mixed-use commercial | 100% | 100% |
| | | 18-hole golf course | 100% | 100% |
| | | 20,000-square-foot community center | 100% | 100% |
| | | 5.30-acre public facility (active adult) | 100% | 100% |
| | | 75.60 acres of natural open space | 100% | 100% |

Source: City of Yorba Linda, City of Anaheim, City of Brea, City of Placentia, City of Orange, and unincorporated County of Orange planning staff

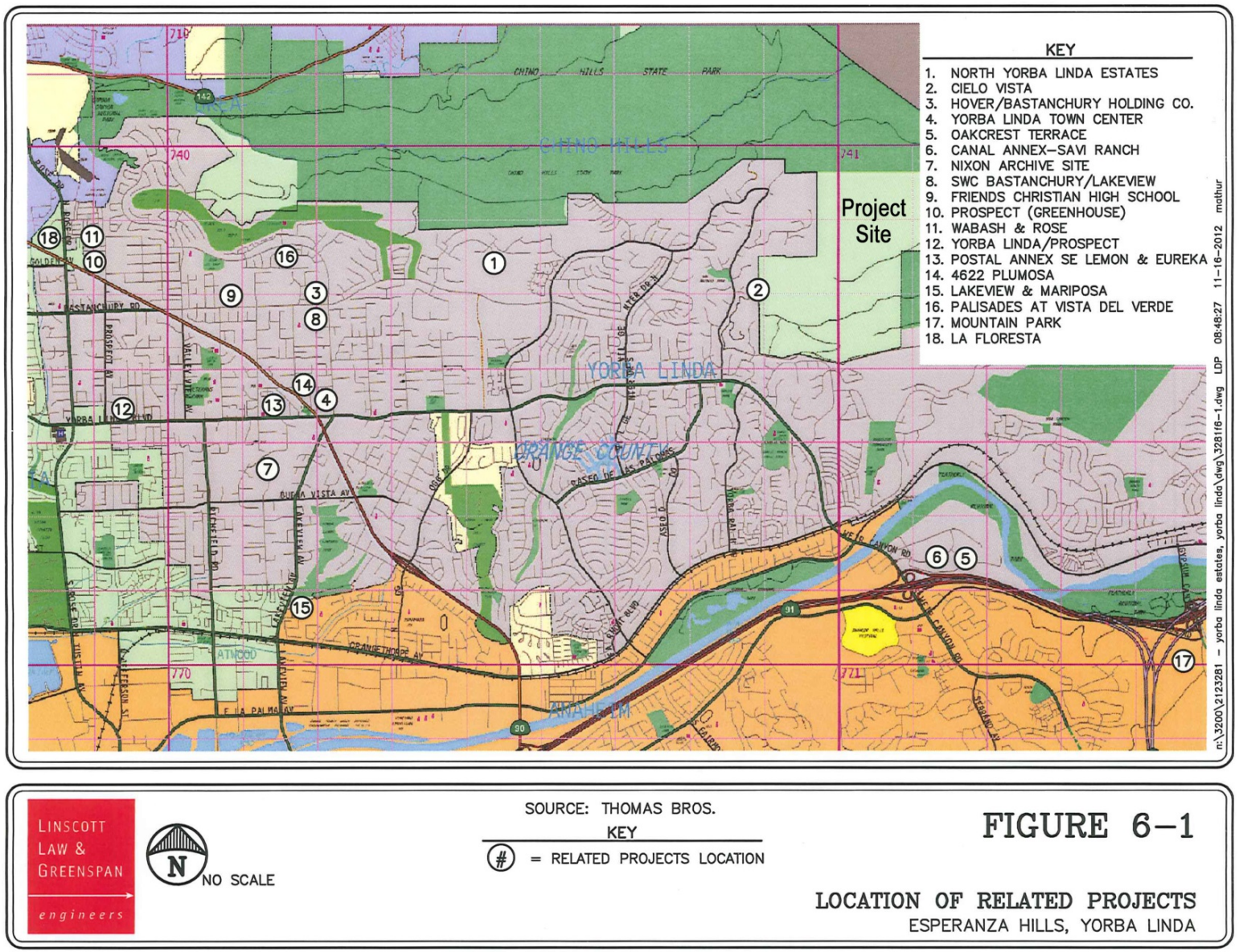



**Exhibit 5-128 – Location of Related Projects**

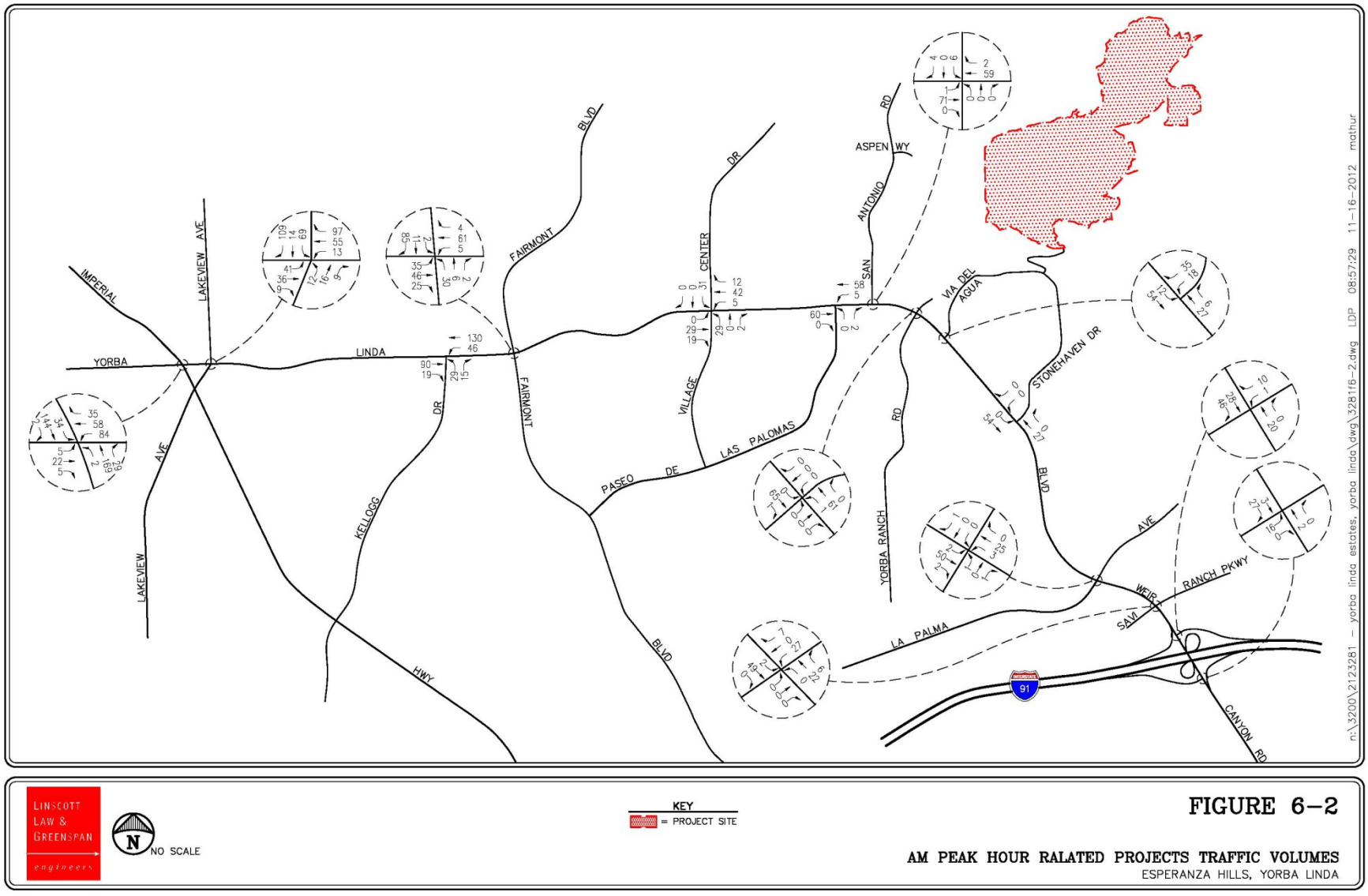



**Exhibit 5-129 – AM Peak Hour Related Projects Traffic Volumes**

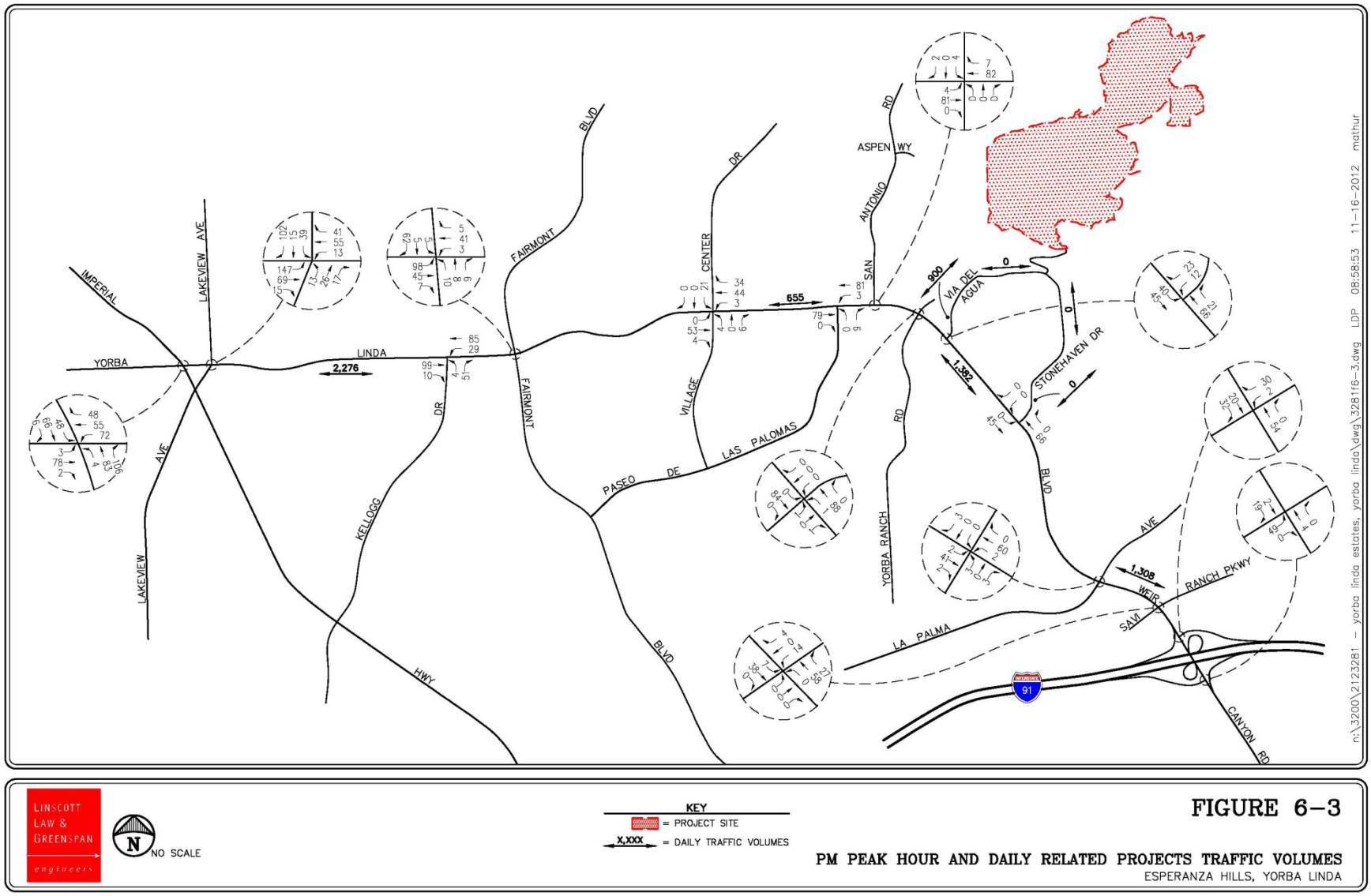



**Exhibit 5-130 – PM Peak Hour and Daily Related Projects Traffic Volumes**

### c. Year 2035 Traffic Conditions

Background traffic volume forecasts were obtained using the OCTAM3.4 Year 2035 traffic model provided by the OCTA. The AM and PM peak period traffic volumes were provided by the OCTA for the existing base year (2010) and for the buildout year (2035). The AM peak period covers a three-hour morning commute period and the PM peak period covers a four-hour afternoon commute period. Copies of the model post-processing worksheets are contained in Appendix D of the TIA (Appendix O to this DEIR).

## 3. Existing and Projected Traffic - Caltrans Methodology

### a. Existing Plus Project Traffic Conditions

Existing plus project peak hour HCM LOS results at the three state-controlled study intersections with the Study Area are summarized in Table 5-14-7. As shown, Column 1 represents existing traffic conditions, Column 2 shows Existing plus Proposed Project traffic, and Column 3 shows whether the traffic associated with the Proposed Project will have a significant impact based on the LOS standards defined herein.

**Table 5-14-7 Existing Plus Project Peak Hour Intersection Capacity Analysis - Caltrans**

| Key Intersection | | Time Period | Existing Traffic Conditions (1) | | Existing Plus Project Traffic Conditions (2) | | Significant Impact (3) |
|---|---|---|---|---|---|---|---|
| | | | Delay (s/v) | LOS | Delay (s/v) | LOS | Yes/No |
| 2. | Imperial Highway at Yorba Linda Boulevard | AM | 39.1 | D | 39.2 | D | No |
| | | PM | 42.4 | D | 42.9 | D | No |
| 14. | Weir Canyon Road at SR-91 WB Ramps | AM | 15.1 | B | 15.2 | B | No |
| | | PM | 17.4 | B | 17.7 | B | No |
| 15. | Weir Canyon Road at SR-91 EB Ramps | AM | 17.1 | B | 17.1 | B | No |
| | | PM | 21.5 | C | 21.6 | C | No |

Note: s/v = seconds per vehicle

The table indicates that all of the state-controlled study intersections currently operate at acceptable Levels of Service during the AM and PM peak hours. The intersections will not be significantly impacted by development of the Proposed Project and are forecast to continue to operate at the currently adequate service levels (i.e., LOS D or better) with the addition of Proposed Project-generated traffic to existing traffic.

### b. Year 2020 Traffic Conditions

Table 5-14-8 depicts the Peak Hour Intersection Capacity Analysis and summarizes the Year 2020 peak hour HCM level of service results at the state-controlled intersections within the Study Area. Column 1 presents a summary of existing traffic conditions; Column 2 shows Year 2020 cumulative traffic

conditions without project generated traffic; Column 3 presents future forecast traffic conditions with the addition of Proposed Project-related traffic and Column 4 indicates whether the traffic associated with the Proposed Project will have a significant impact based on the LOS standards herein.

The table indicates that cumulative traffic conditions with the addition of ambient traffic growth and related projects (Column 2) will not adversely impact the three intersections which are forecast to operate at LOS D or better during AM and PM peak hours.

Columns 3 and 4 show that traffic associated with the Proposed Project will not significantly impact the three intersections which are forecast to continue to operate at LOS D or better in Year 2020.

**Table 5-14-8 Year 2020 Peak Hour Intersection Capacity Analysis**

| Key Intersection | | Time Period | Existing Traffic Conditions (1) | | Year 2020 Cumulative Traffic Conditions (2) | | Year 2020 Cumulative Plus Project Traffic Conditions (3) | | Significant Impact (4) |
|---|---|---|---|---|---|---|---|---|---|
| | | | Delay (s/v) | LOS | Delay (s/v) | LOS | Delay (s/v) | LOS | Yes/No |
| 2. | Imperial Highway at Yorba Linda Boulevard | AM | 39.1 | D | 46.0 | D | 46.2 | D | No |
| | | PM | 42.4 | D | 51.2 | D | 52.5 | D | No |
| 14. | Weir Canyon Road at SR-91 WB Ramps | AM | 15.1 | B | 15.5 | B | 15.7 | B | No |
| | | PM | 17.4 | B | 18.3 | B | 18.6 | B | No |
| 15. | Weir Canyon Road at SR-91 EB Ramps | AM | 17.1 | B | 17.7 | B | 17.8 | B | No |
| | | PM | 21.5 | C | 23.6 | C | 23.8 | C | No |

Note: s/v = seconds per vehicle

### c. Year 2035 Traffic Conditions

The peak hour level of service at the state-controlled study intersections in Year 2035 is summarized in Table 5-14-9 below, which is formatted with the same column structure as Table 5-14-8 above for Year 2020. As shown in Column 2, the projected long-term scenario without Proposed Project traffic will not adversely impact the three study intersections which are forecast to operate at LOS D or better during the AM and PM peak hours.

Columns 3 and 4 indicate that traffic associated with the Proposed Project will not significantly impact the three state-controlled intersections which are forecast to continue to operate at LOS D or better in Year 2035.

The Caltrans level of service calculation worksheets are included in Appendix F of the TIA (Appendix O to this DEIR).

**Table 5-14-9 Year 2035 Peak Hour Intersection Capacity Analysis - Caltrans**

| Key Intersection | | Time Period | Existing Traffic Conditions (1) | | Year 2035 Cumulative Traffic Conditions (2) | | Year 2035 Cumulative Plus Project Traffic Conditions (3) | | Significant Impact (4) |
|---|---|---|---|---|---|---|---|---|---|
| | | | Delay (s/v) | LOS | Delay (s/v) | LOS | Delay (s/v) | LOS | Yes/No |
| 2. | Imperial Highway at Yorba Linda Boulevard | AM | 39.1 | D | 52.1 | D | 52.3 | D | No |
| | | PM | 42.4 | D | 54.1 | D | 54.7 | D | No |
| 14. | Weir Canyon Road at SR-91 WB Ramps | AM | 15.1 | B | 15.9 | B | 16.0 | B | No |
| | | PM | 17.4 | B | 19.4 | B | 19.8 | B | No |
| 15. | Weir Canyon Road at SR-91 EB Ramps | AM | 17.1 | B | 18.8 | B | 18.8 | B | No |
| | | PM | 21.5 | C | 45.0 | B | 46.2 | D | No |

Note: s/v = seconds per vehicle

## 4. Option 1 Project Analysis

Option 1 provides primary access to the site via a main access roadway connected to Stonehaven Drive approximately 325 feet east of Devonport Circle. Emergency fire access under Option 1 will be provided via Via del Agua approximately 130 feet northeast of Via de la Roca, which currently services the surrounding hillside area. The key study intersections are identical for Option 1 and Option 2, except for intersection No. 1, which is the driveway intersection for each option.

### a. Project Traffic Distribution and Assignment - Option 1

Traffic distribution patterns for Option 1 of the project are depicted in Exhibit 5-131. The following considerations were used to distribute and assign traffic both entering and exiting the site:

- The site's proximity to local and major traffic carriers (e.g., Via del Agua, Stonehaven Drive, Yorba Linda Boulevard);
- Expected localized traffic flow patterns based on adjacent street channelization and presence of traffic signals;
- Ingress/egress availability at the Project Site;
- Select zone analysis based on the OCTAM3.4 Traffic Analysis Model; and
- Input from City of Yorba Linda staff.

The AM and PM peak hour project traffic volumes associated with Option 1 are presented in Exhibit 5-132 and Exhibit 5-133, respectively.

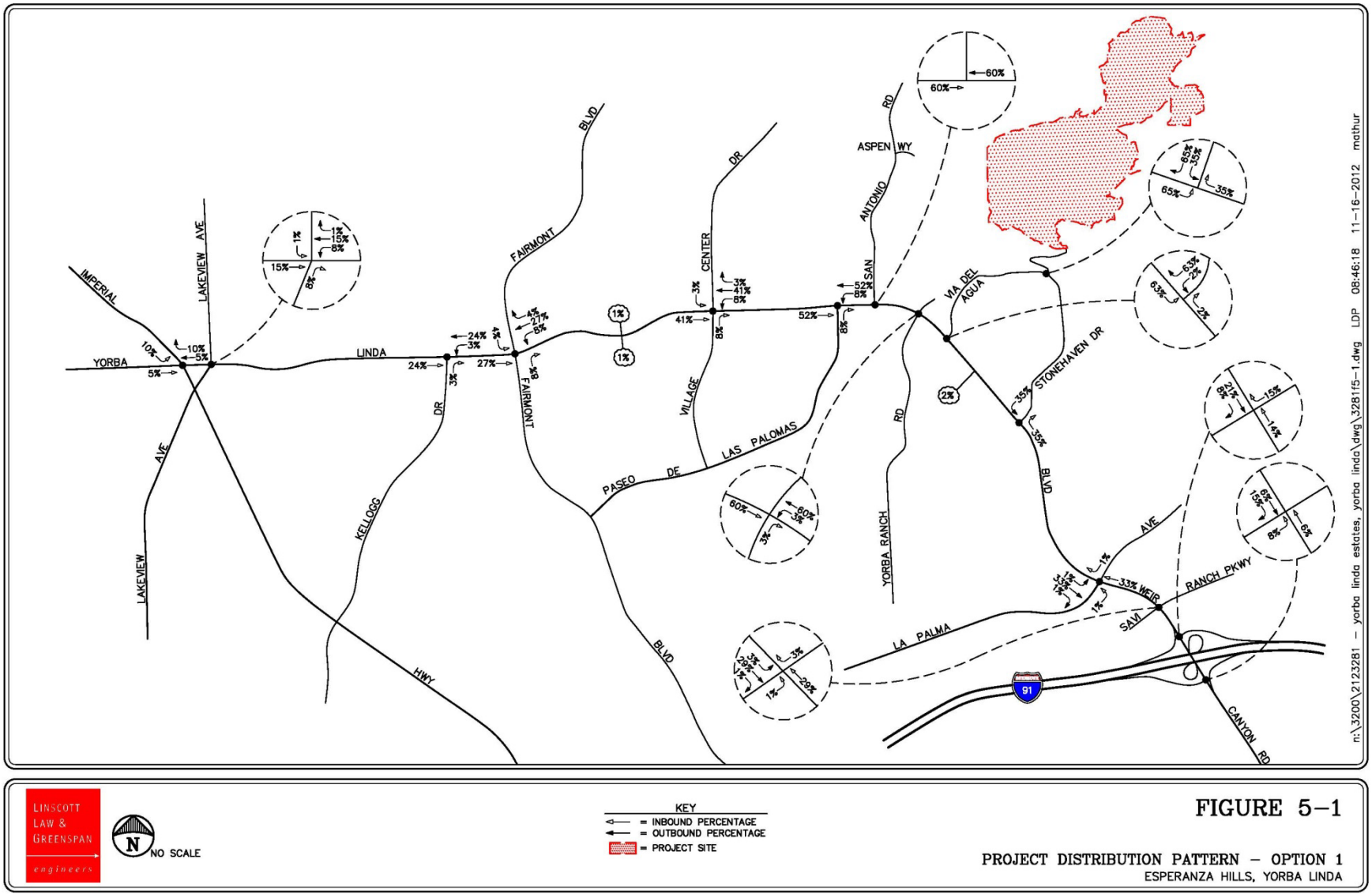



**Exhibit 5-131 – Project Distribution Pattern, Option 1**

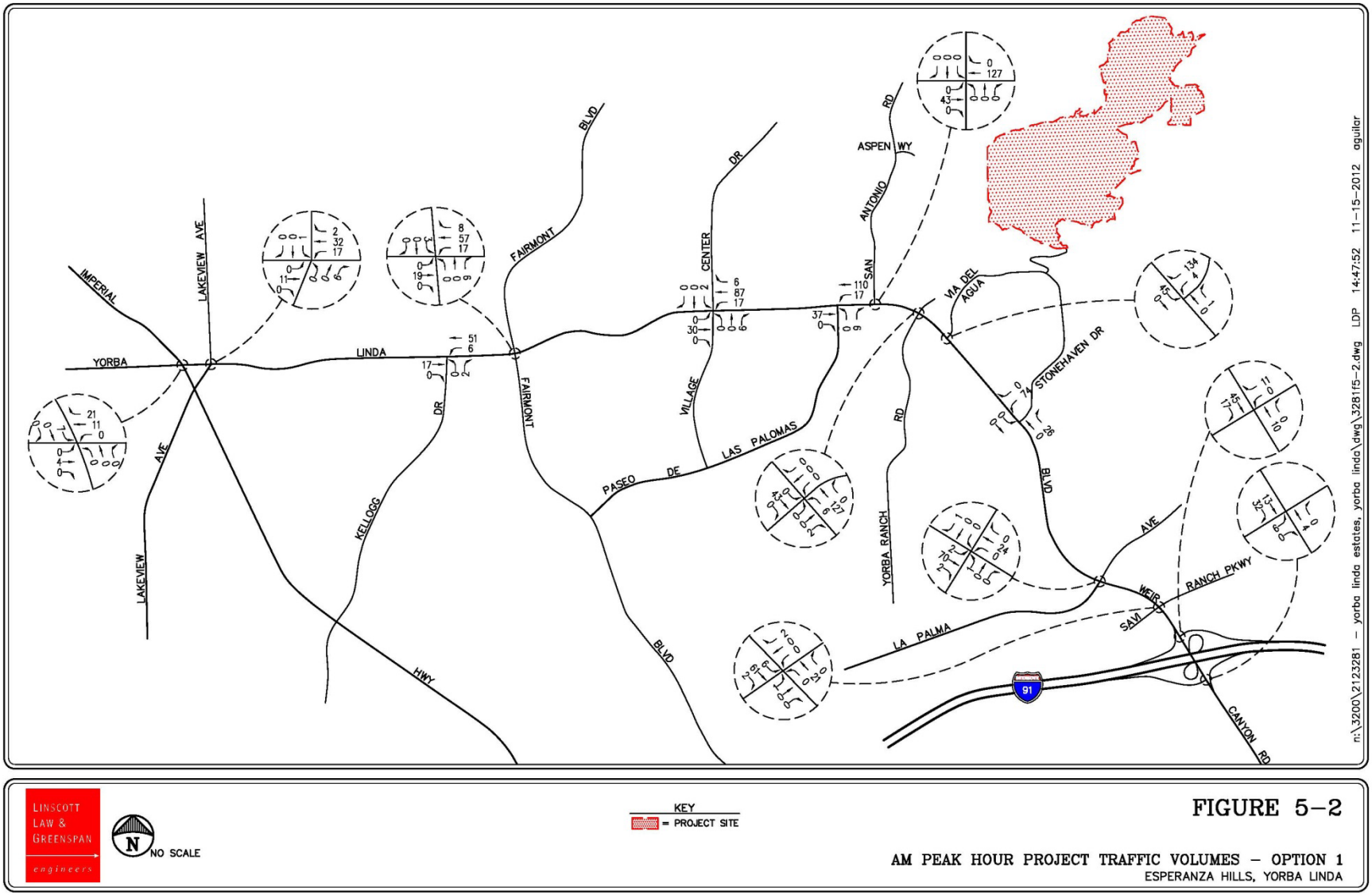



**Exhibit 5-132 – AM Peak Hour Project Traffic Volumes, Option 1**

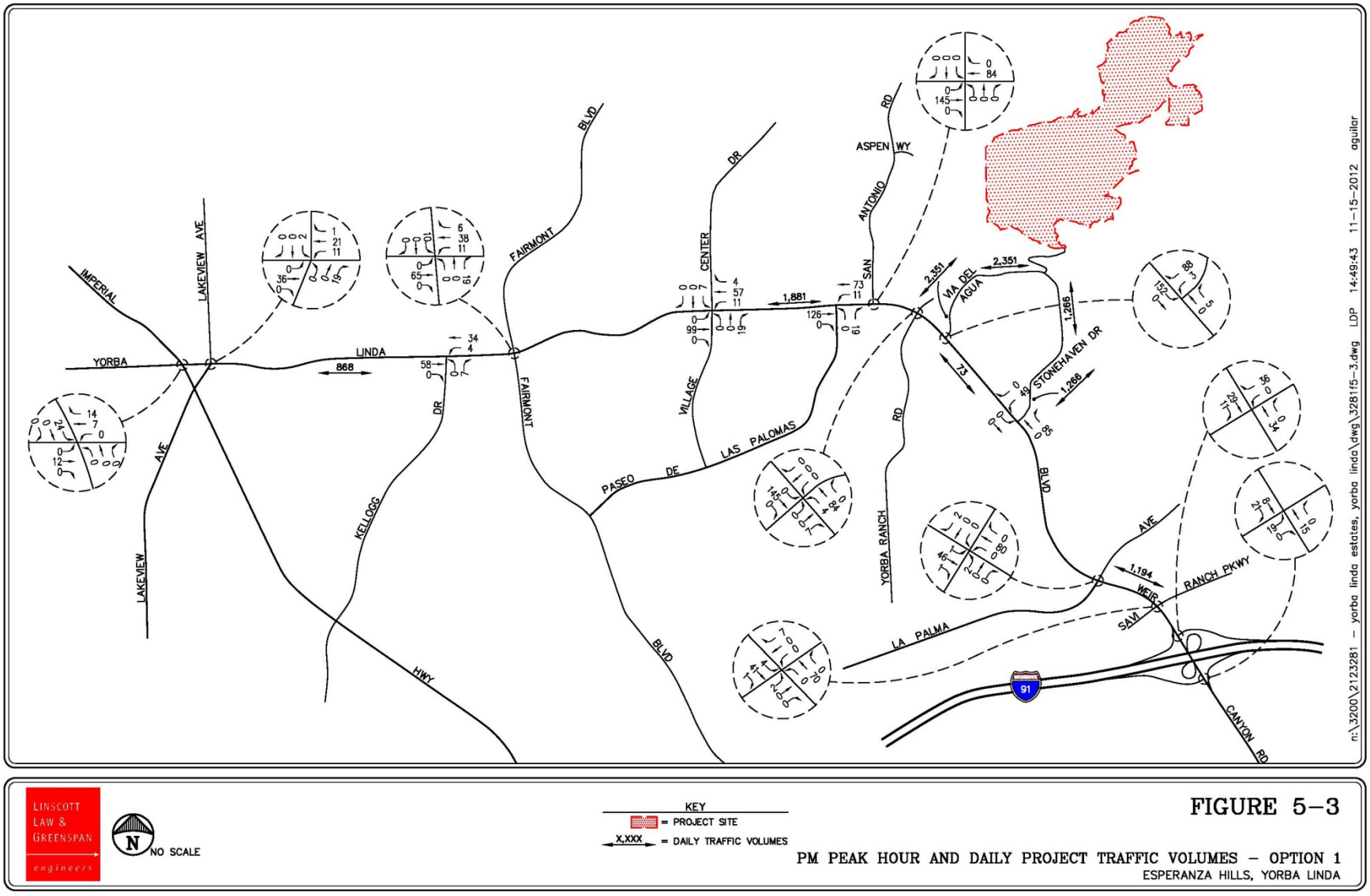



**Exhibit 5-133 – PM Peak Hour and Daily Project Traffic Volumes, Option 1**

### b. Existing Plus Project Traffic Conditions

The existing plus project traffic conditions were generated based on existing conditions and the estimated project traffic and were prepared pursuant to the California Environmental Quality Act (CEQA) Guidelines. CEQA requires that the potential project impacts be evaluated as the circulation system currently exists. Exhibit 5-134 and Exhibit 5-135 present projected AM and PM peak hour traffic volumes at the 15 key study intersections with the addition of project trips to existing traffic under Option 1.

### c. Year 2020 and Year 2035 Traffic Volumes

Cumulative traffic volumes (existing traffic + ambient growth + related projects) for AM and PM peak hours at the 15 key study intersections for Year 2020 are presented in Exhibit 5-136 and Exhibit 5-137. Year 2020 forecast AM and PM peak hour traffic volumes including trips generated under Option 1 of the Proposed Project are illustrated in Exhibit 5-138 and Exhibit 5-139.

Cumulative traffic volumes at the 15 key study intersections for AM and PM peak hours in Year 2035 are presented in Exhibit 5-140 and Exhibit 5-141, respectively. Exhibit 5-142 and Exhibit 5-143 illustrate Year 2035 forecast AM and PM peak hour traffic volumes including trips generated under Option 1 of the Proposed Project.

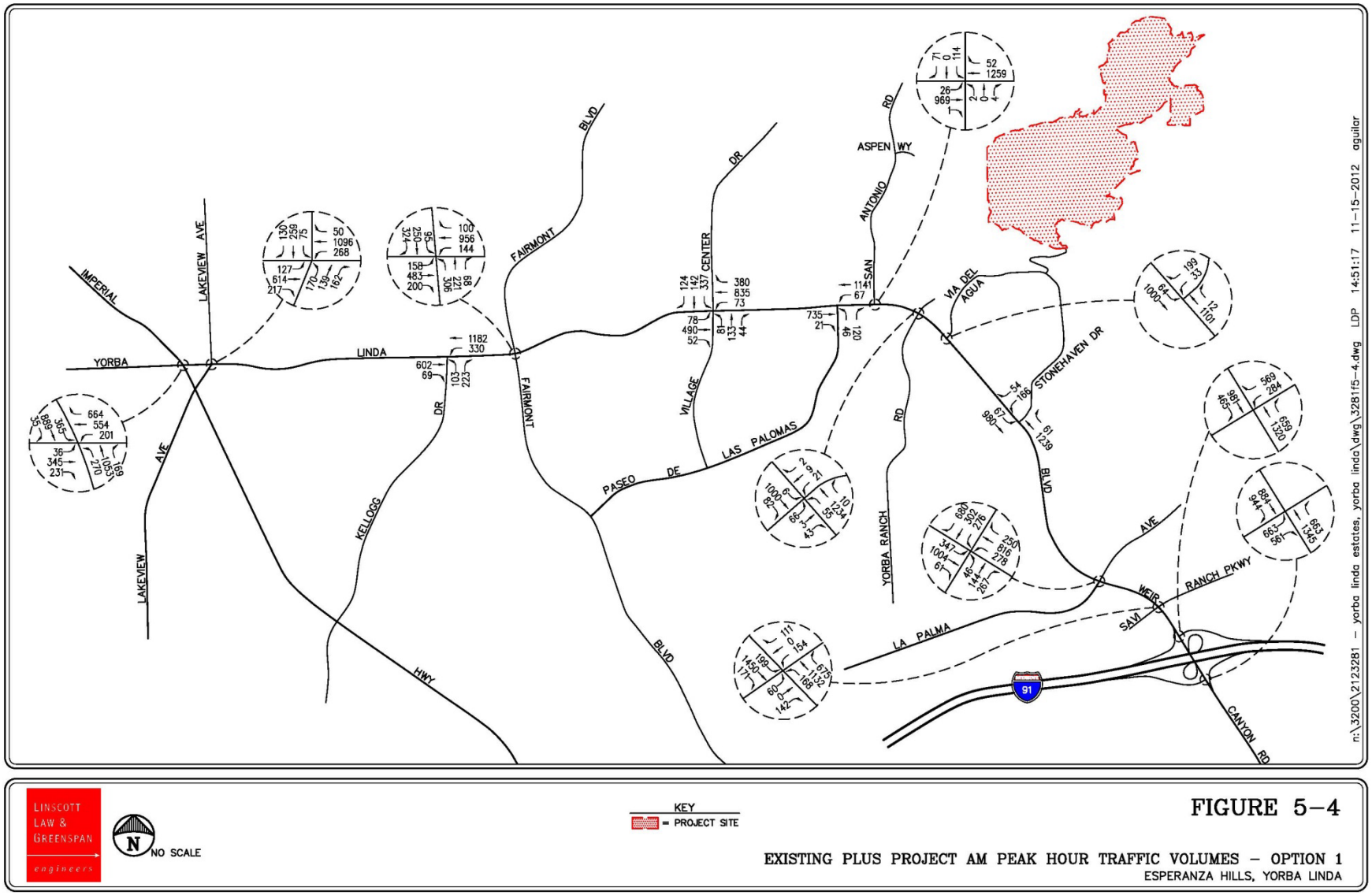



**Exhibit 5-134 – Existing Plus Project AM Peak Hour Traffic Volumes, Option 1**

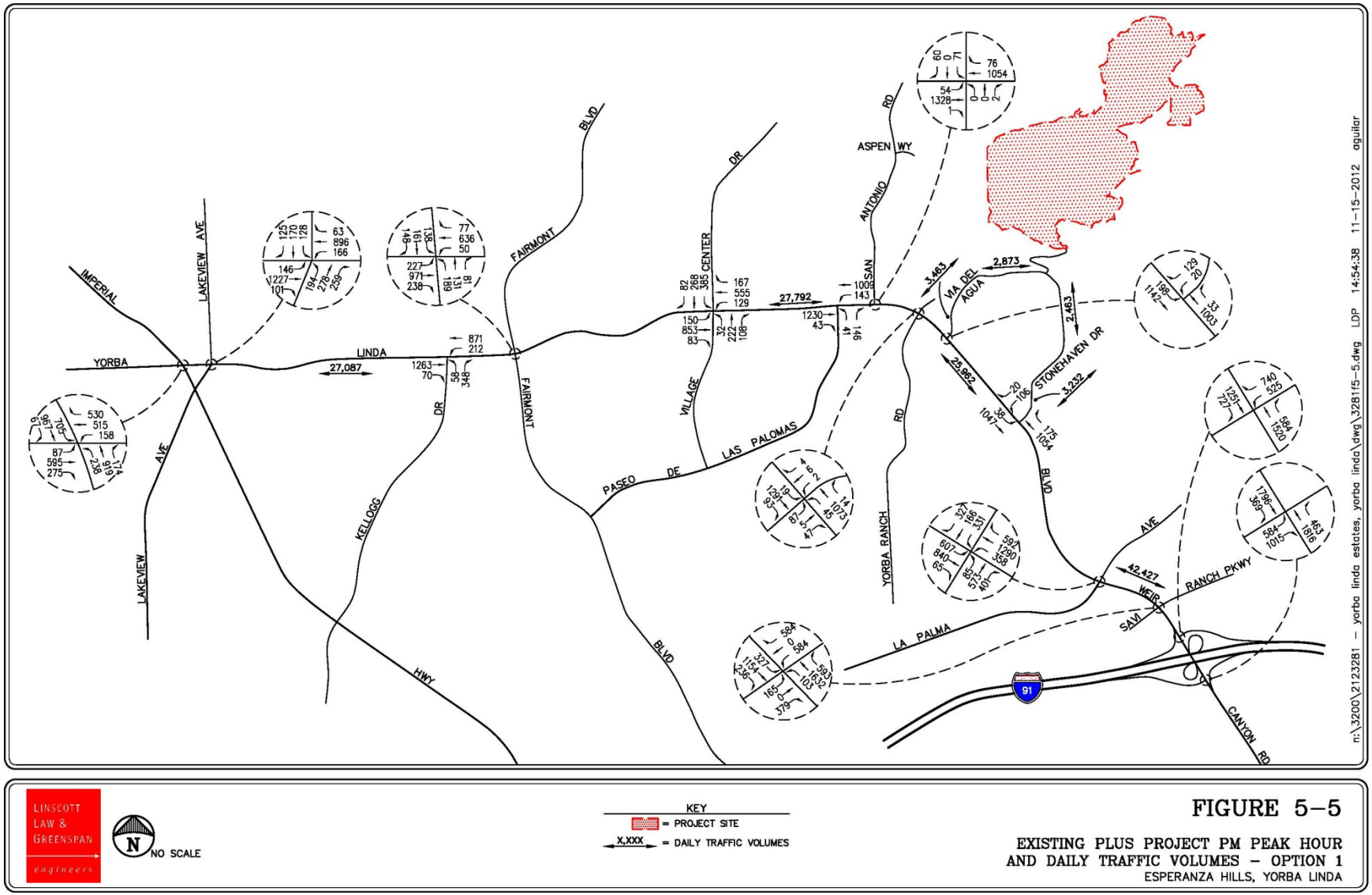



**Exhibit 5-135 – Existing Plus Project PM Peak Hour and Daily Traffic Volumes, Option 1**

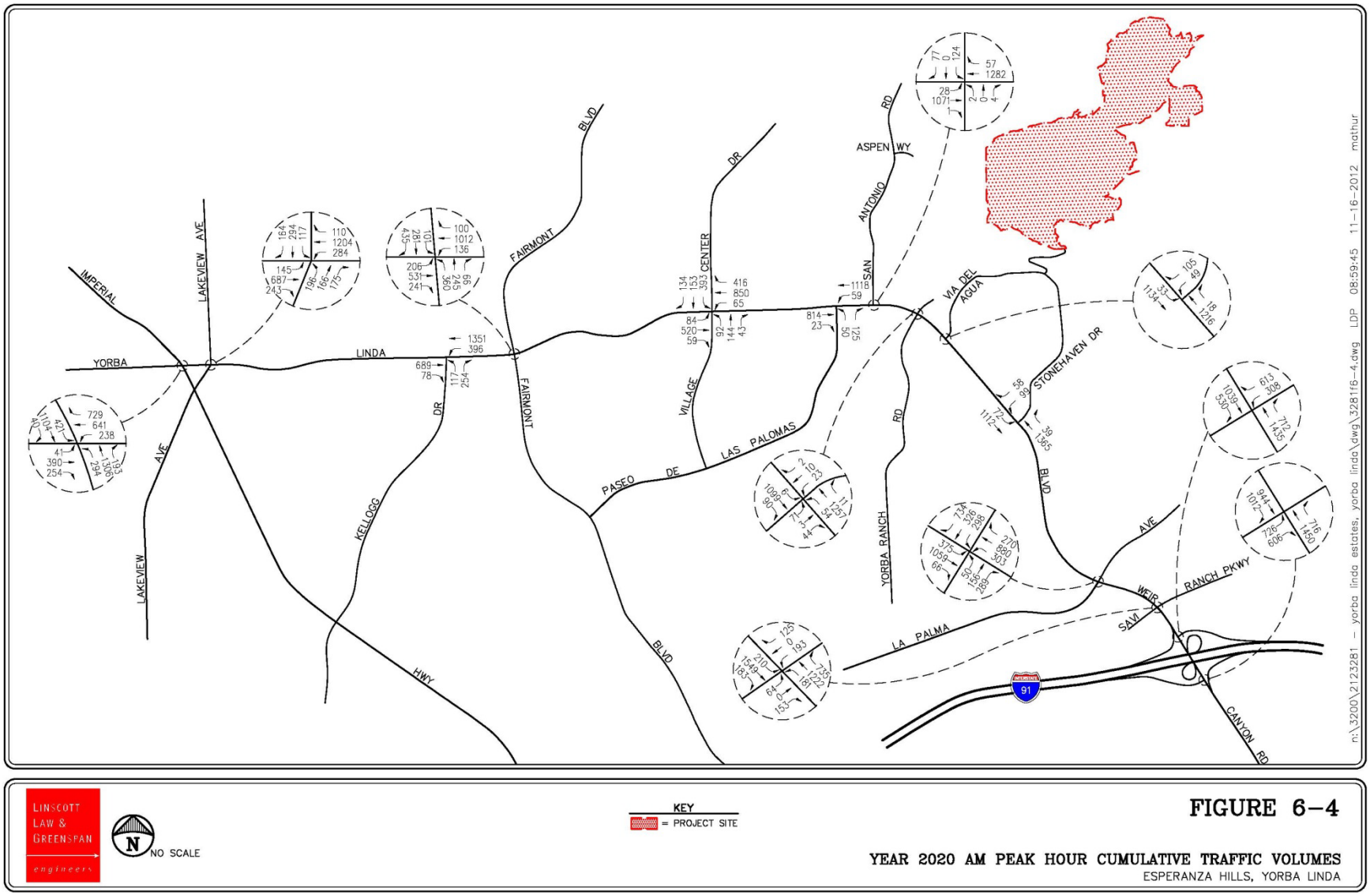
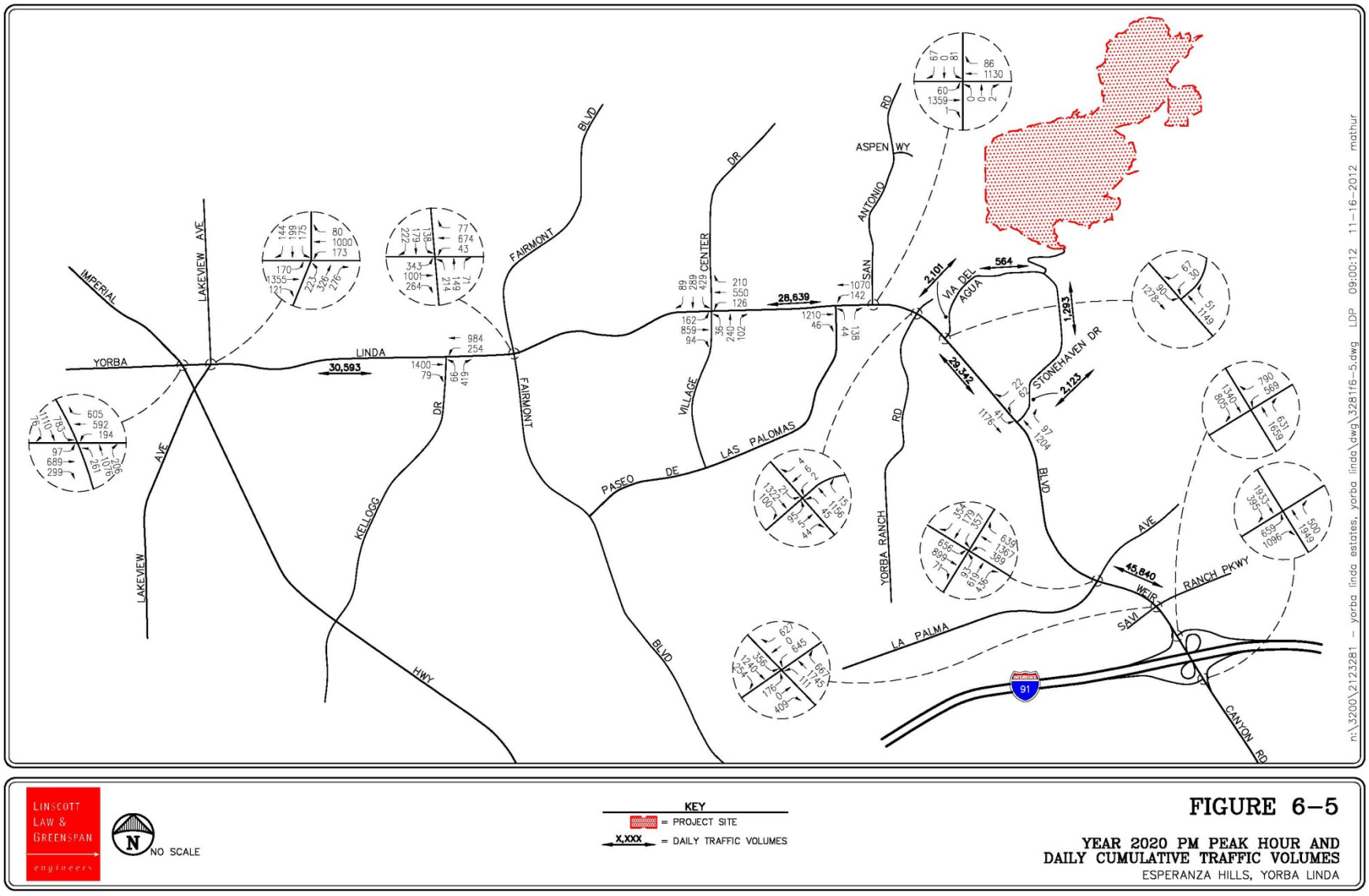



**Exhibit 5-136 – Year 2020 AM Peak Hour Cumulative Traffic Volumes**




LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY
= PROJECT SITE
X,XXX = DAILY TRAFFIC VOLUMES

**FIGURE 6–5**

**YEAR 2020 PM PEAK HOUR AND DAILY CUMULATIVE TRAFFIC VOLUMES**
ESPERANZA HILLS, YORBA LINDA

**Exhibit 5-137 – Year 2020 PM Peak Hour and Daily Cumulative Traffic Volumes**

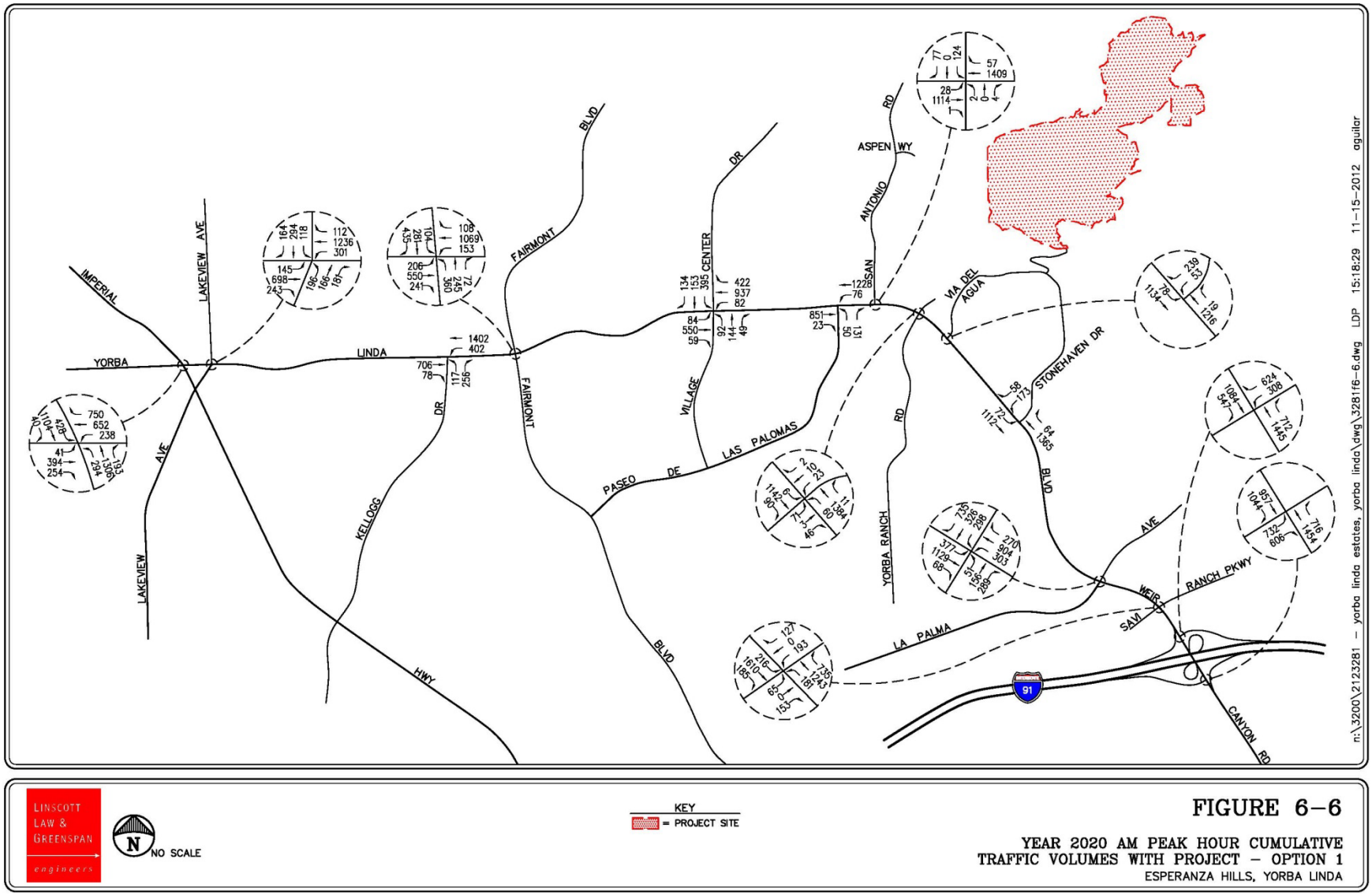



**Exhibit 5-138 – Year 2020 AM Peak Hour Cumulative Traffic Volumes with Project, Option 1**

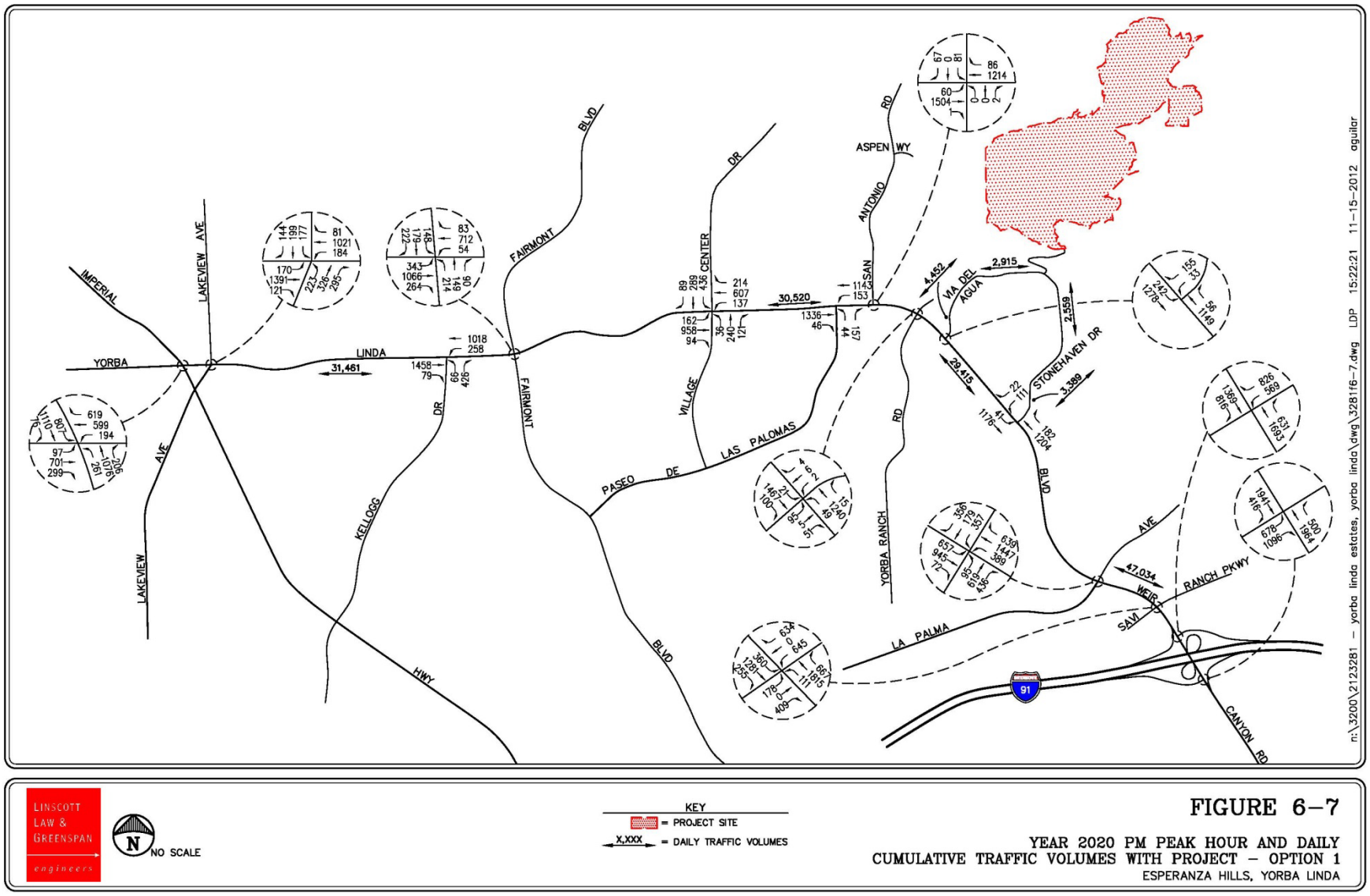



**Exhibit 5-139 – Year 2020 PM Peak Hour and Daily Cumulative Traffic Volumes with Project, Option 1**

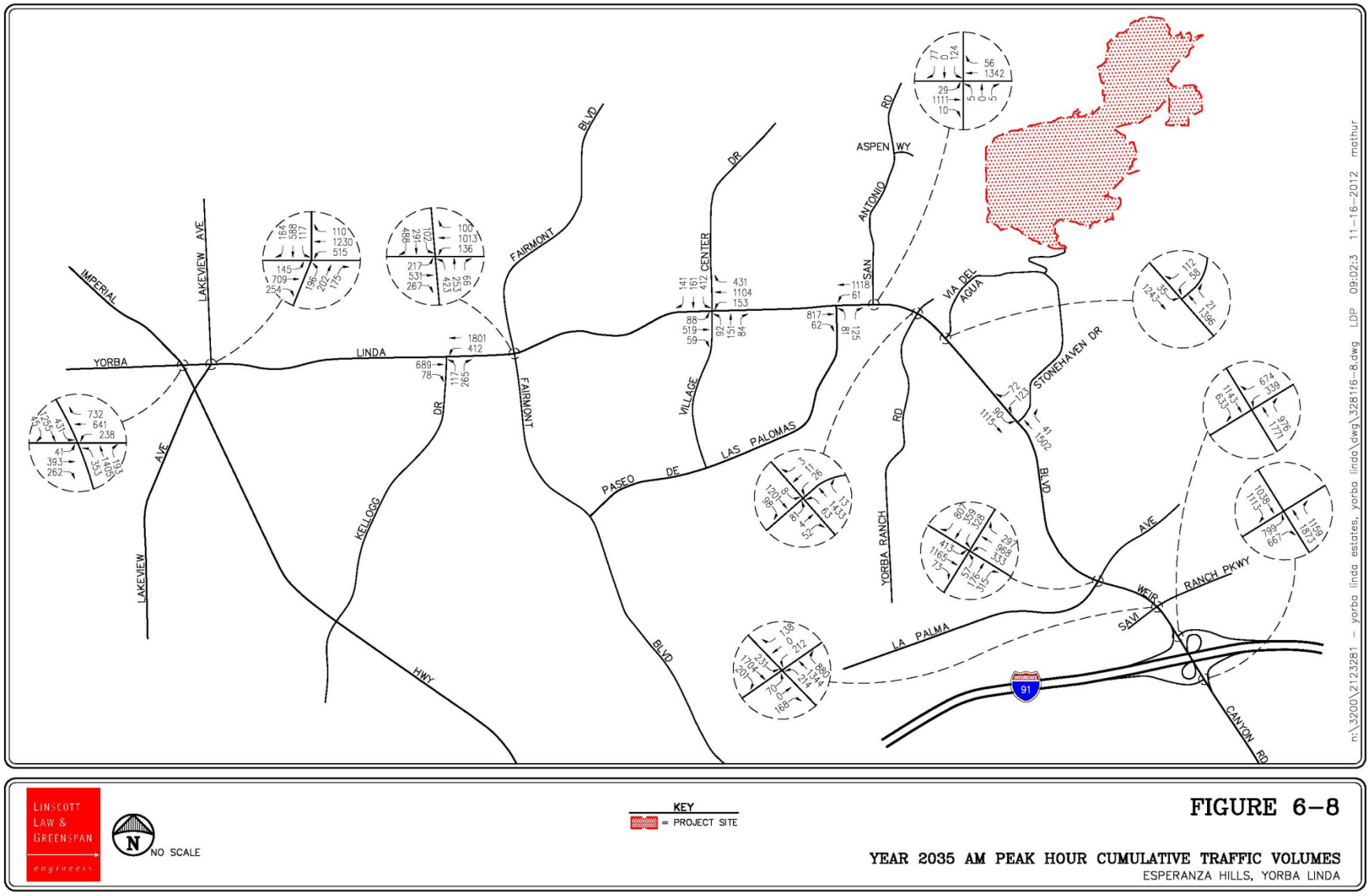



**Exhibit 5-140 – Year 2035 AM Peak Hour Cumulative Traffic Volumes**

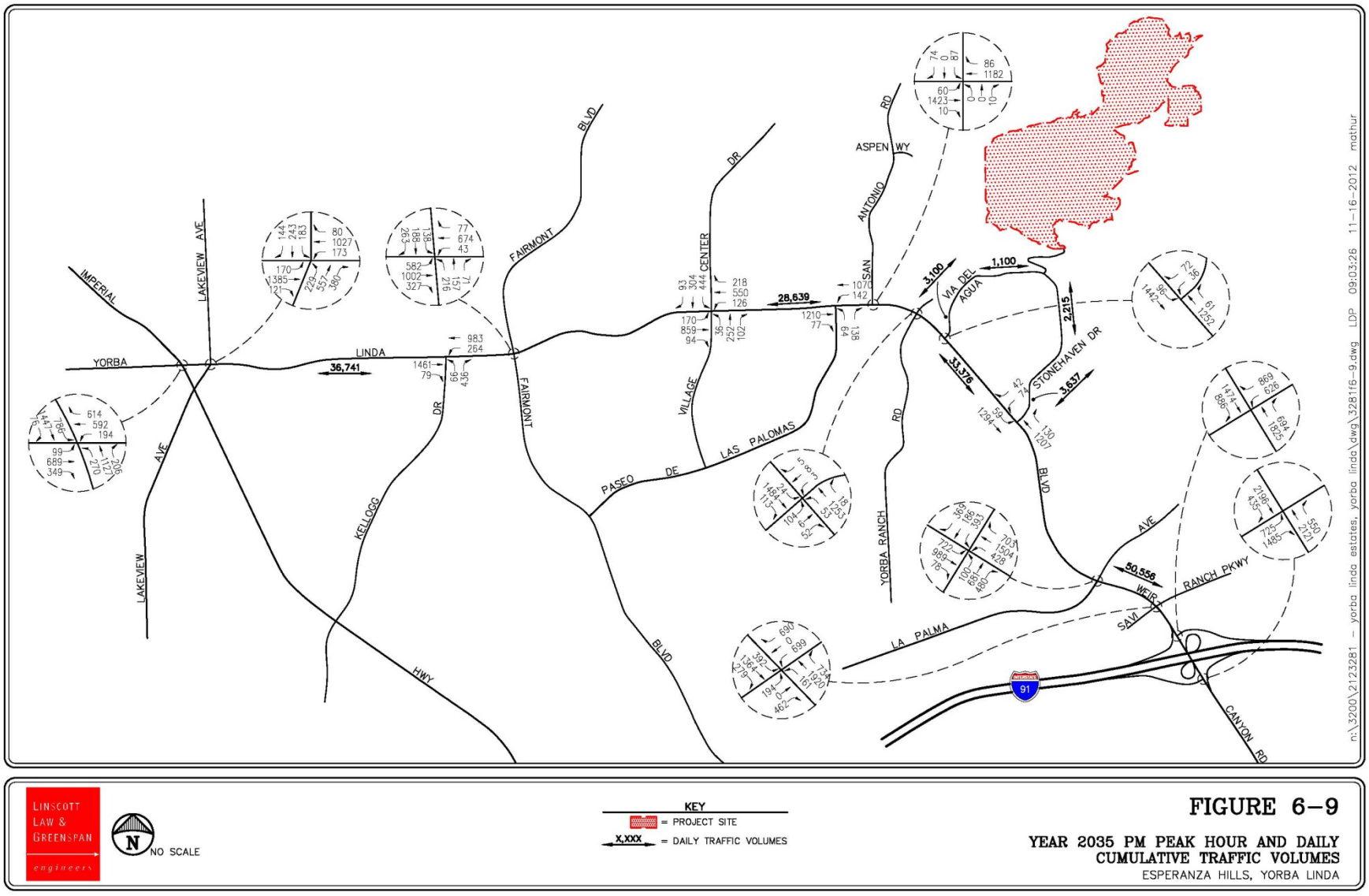



**FIGURE 6–9**
**YEAR 2035 PM PEAK HOUR AND DAILY CUMULATIVE TRAFFIC VOLUMES**
ESPERANZA HILLS, YORBA LINDA

**Exhibit 5-141 – Year 2035 PM Peak Hour and Daily Cumulative Traffic Volumes**

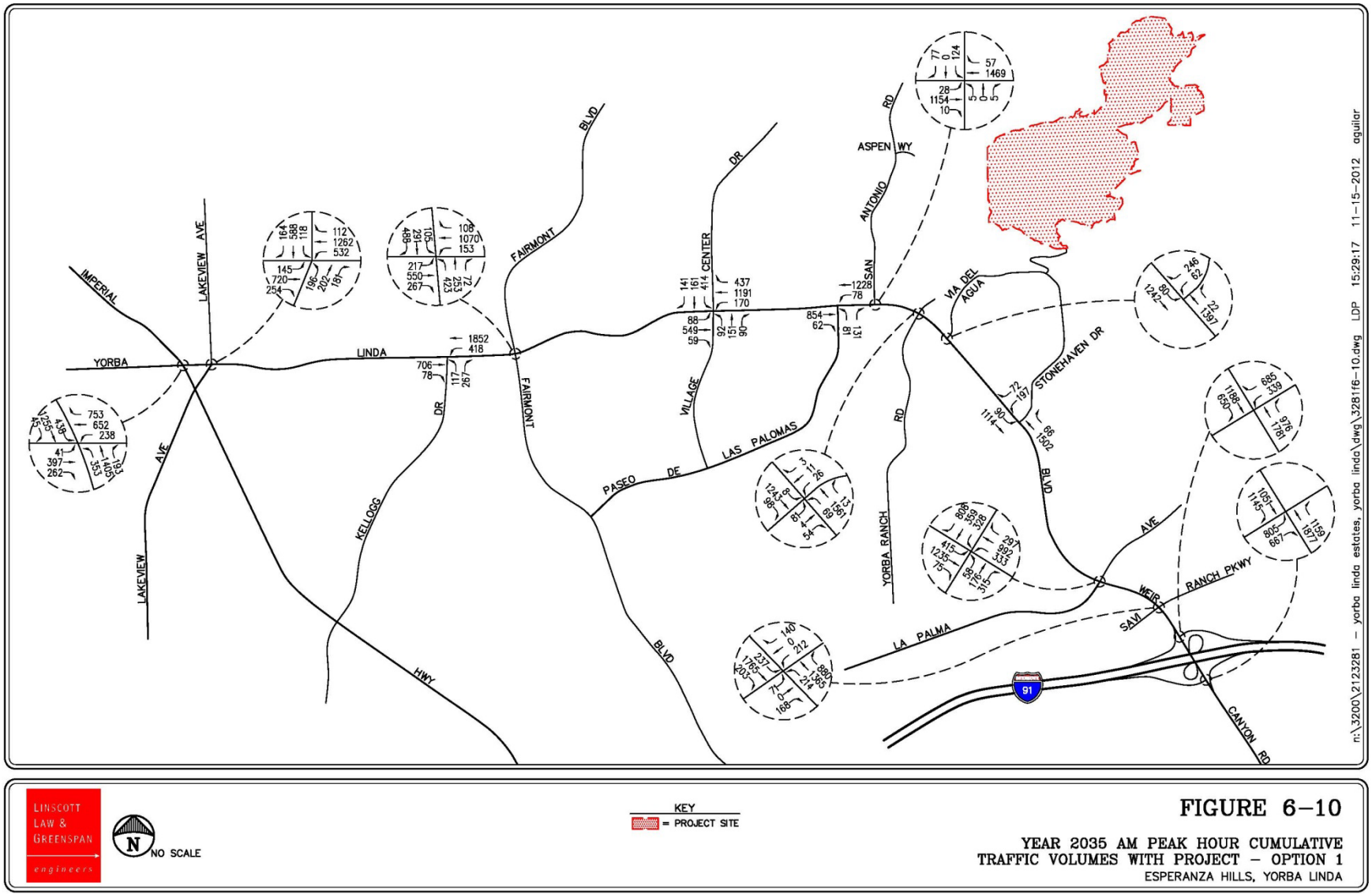



**Exhibit 5-142 – Year 2035 AM Peak Hour Cumulative Traffic Volumes with Project, Option 1**

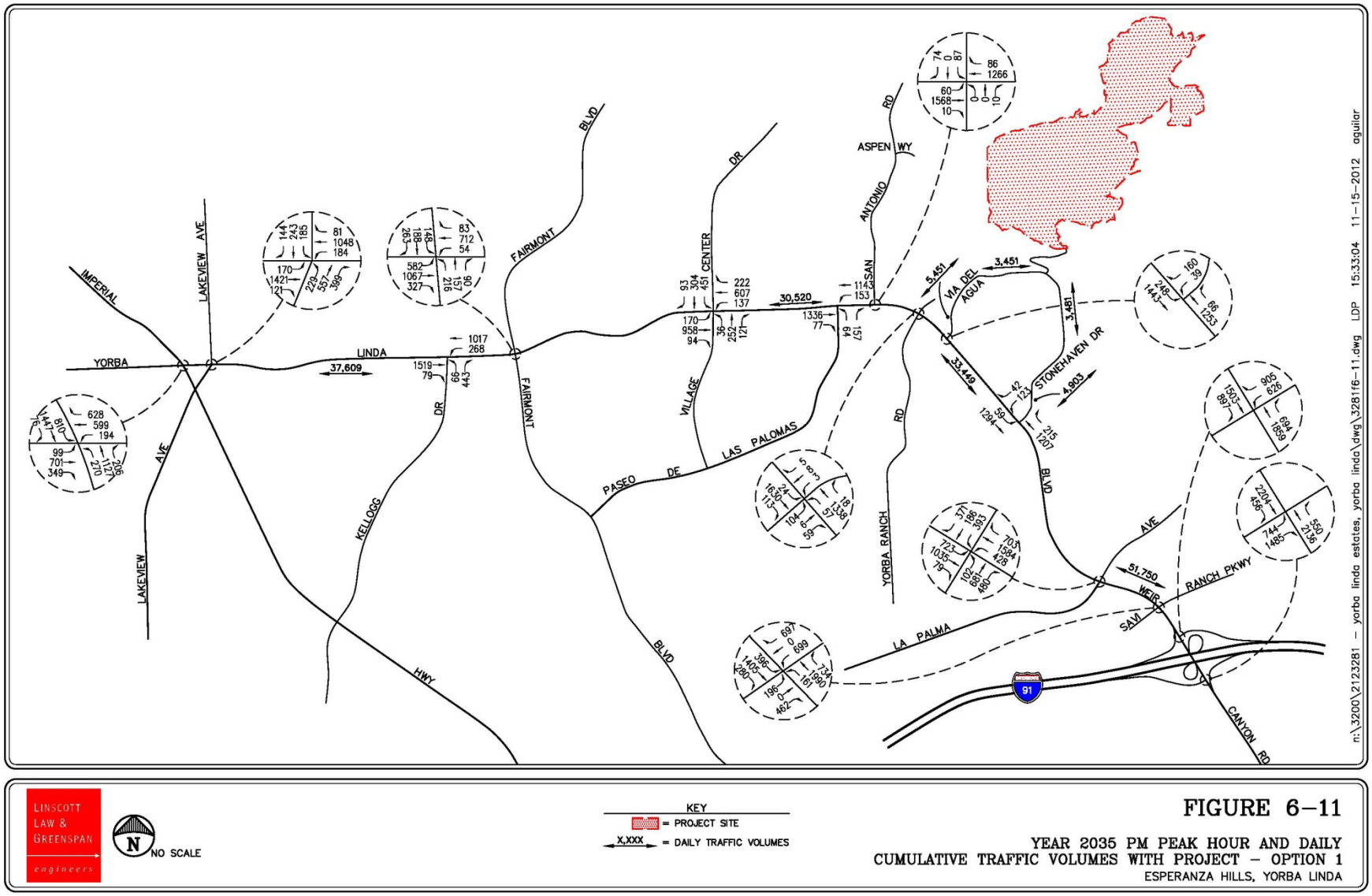



**Exhibit 5-143 – Year 2035 PM Peak Hour and Daily Cumulative Traffic Volumes with Project, Option 1**

### d. Peak Hour Intersection Capacity Analysis

#### 1) Existing Plus Option 1 Project Traffic Conditions

The peak hour LOS at the 15 key study intersections for existing plus Option 1 traffic conditions are shown on Table 5-14-10. Column 1 presents a summary of existing AM and PM peak hour traffic conditions. Column 2 lists existing plus Option 1 traffic conditions. Column 3 shows the increase in ICU value and/or HCM value due to the added peak hour Option 1 project trips. This column also indicates whether the traffic associated with Option 1 will have a significant impact based on the LOS standards and significant impact criteria identified in the report. Column 4 presents the resulting LOS with the inclusion of recommended traffic improvements, if any, to achieve an acceptable level of service.

As shown in Columns 2 and 3 of the table, the traffic associated with the proposed Option 1 will adversely impact 1 of the 15 key study intersections. The remaining 14 intersections are forecast to operate at an acceptable LOS during AM and PM peak hours. The impacted intersection is Yorba Linda Boulevard at Via del Agua, which is forecast to operate at LOS F for the AM and PM peak hours. Project implementation will exacerbate the LOS F AM peak hour operations and will degrade the LOS D PM operations to LOS F. With the recommended installation of a three-phase traffic signal at this intersection, operations will be returned to acceptable levels of service (i.e., LOS B during the AM peak hour and LOS A during the PM peak hour). Calculations for Option 1 ICU/LOS and HCM/LOS are included in Appendix C to the TIA (Appendix O in this DEIR).

#### 2) Year 2020 Traffic Conditions Without Option 1

The peak hour LOS at the 15 key study intersections for Year 2020 are depicted in Table 5-14-11. Column 1 presents a summary of existing AM and PM peak hour conditions. Column 2 lists projected cumulative traffic conditions (existing plus ambient plus related projects traffic) without Option 1 project traffic. Column 3 presents forecast Year 2020 near-term traffic conditions with the addition of Option 1 traffic. Column 4 shows the increase in ICU value and/or HCM value due to the added peak hour project traffic and indicates whether traffic associated with Option 1 will have a significant impact based on LOS standards and significant impact criteria identified in the report. Column 5 presents the resulting LOS with the inclusion of recommended traffic improvements, if any, to achieve an acceptable level of service.

## Table 5-14-10 Existing Plus Project Intersection Peak Hour Levels of Service Summary, Option 1

| Key Intersection | | Time Period | Existing Traffic Conditions (1) | | Existing Plus Option 1 Project Traffic Conditions (2) | | Significant Impact (3) | | Existing Plus Option 1 Project With Mitigation (4) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ICU/ Delay(s/v) | LOS | ICU/ Delay(s/v) | LOS | ICU/ Delay(s/v) | Yes/No | ICU/ Delay(s/v) | LOS |
| 1 | Project Access at Stonehaven Drive | AM | -- | -- | 10.3 | B | -- | No | -- | -- |
| | | PM | -- | -- | 10.7 | B | -- | No | -- | -- |
| 2 | Imperial Highway at Yorba Linda Boulevard | AM | 0.649 | B | 0.651 | B | 0.002 | No | -- | -- |
| | | PM | 0.726 | C | 0.735 | B | 0.009 | No | -- | -- |
| 3 | Lakeview Avenue at Yorba Linda Boulevard | AM | 0.551 | A | 0.562 | C | 0.011 | No | -- | -- |
| | | PM | 0.577 | A | 0.591 | A | 0.014 | No | -- | -- |
| 4 | Kellogg Drive at Yorba Linda Boulevard | AM | 0.426 | A | 0.436 | A | 0.010 | No | -- | -- |
| | | PM | 0.594 | A | 0.611 | A | 0.017 | No | -- | -- |
| 5 | Fairmont Boulevard at Yorba Linda Boulevard | AM | 0.574 | A | 0.587 | B | 0.013 | No | -- | -- |
| | | PM | 0.465 | A | 0.474 | A | 0.009 | No | -- | -- |
| 6 | Village Center Drive at Yorba Linda Boulevard | AM | 0.454 | A | 0.480 | A | 0.026 | No | -- | -- |
| | | PM | 0.518 | A | 0.555 | A | 0.037 | No | -- | -- |
| 7 | Paseo De Las Palomas at Yorba Linda Boulevard | AM | 0.420 | A | 0.456 | A | 0.036 | No | -- | -- |
| | | PM | 0.527 | A | 0.582 | A | 0.055 | No | -- | -- |
| 8 | San Antonio Road at Yorba Linda Boulevard | AM | 0.469 | A | 0.506 | A | 0.037 | No | -- | -- |
| | | PM | 0.441 | A | 0.484 | A | 0.043 | No | -- | -- |
| 9 | Yorba Ranch Rd/Dorinda Rd at Yorba Linda Boulevard | AM | 0.424 | A | 0.462 | A | 0.038 | No | -- | -- |
| | | PM | 0.468 | A | 0.513 | A | 0.045 | No | -- | -- |
| 10 | Yorba Linda Boulevard at Via del Agua | AM | **58.0** | **F** | **158.0** | F | **100.0** | **Yes** | 0.602* | B |
| | | PM | 31.8 | D | **72.4** | F | **40.6** | **Yes** | 0.566 | A |
| 11 | Yorba Linda Boulevard at Stonehaven Drive | AM | 0.519 | A | 0.569 | A | 0.050 | No | -- | -- |
| | | PM | 0.442 | A | 0.496 | A | 0.054 | No | -- | -- |
| 12 | Yorba Linda Boulevard at La Palma Avenue | AM | 0.739 | C | 0.754 | C | 0.015 | No | -- | -- |
| | | PM | 0.745 | C | 0.747 | C | 0.002 | No | -- | -- |
| 13 | Yorba Linda Boulevard at Savi Ranch Parkway | AM | 0.466 | A | 0.478 | A | 0.012 | No | -- | -- |
| | | PM | 0.769 | C | 0.785 | C | 0.016 | No | -- | -- |
| 14 | Weir Canyon Road at SR-91 WB Ramps | AM | 0.472 | A | 0.476 | A | 0.004 | No | -- | -- |
| | | PM | 0.582 | A | 0.596 | A | 0.014 | No | -- | -- |
| 15 | Weir Canyon Road at SR-91 EB Ramps | AM | 0.552 | A | 0.554 | A | 0.002 | No | -- | -- |
| | | PM | 0.710 | C | 0.720 | C | 0.010 | No | -- | -- |

*Mitigation consists of installation of a three phase traffic signal

Notes: s/v = seconds per vehicle (delay); LOS = Level of Service, refer to Table 5-14-1 and Table 5-14-2 above for the LOS definitions.

**Bold LOS values** indicate unacceptable service levels based on LOS Criteria identified in this report.

Appendix C in the Traffic Impact Analysis (Appendix O in this DEIR) contains the ICU/LOS and Delay/LOS calculation worksheets for all study intersections

**Table 5-14-11 Year 2020 Cumulative Plus Project Intersection Peak Hour Levels of Service Summary, Option 1**

| Key Intersection | | Time Period | Existing Traffic Conditions (1) | | Year 2020 Cumulative Traffic Conditions (2) | | Year 2020 Cumulative Plus Option 1 Project Traffic Conditions (3) | | Significant Impact (4) | | Year 2020 Cumulative Plus Option 1 Project With Mitigation (5) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ICU/ Delay(s/v) | LOS | ICU/ Delay(s/v) | LOS | ICU/ Delay(s/v) | Yes/No | ICU/ Delay(s/v) | LOS | ICU/ Delay(s/v) | LOS |
| 1 | Project Access at | AM | -- | -- | -- | -- | 10.4 | B | -- | No | | |
| | Stonehaven Drive | PM | -- | -- | -- | -- | 10.8 | B | -- | No | | |
| 2 | Imperial Highway at | AM | 0.649 | B | 0.757 | C | 0.759 | C | 0.002 | No | | |
| | Yorba Linda Boulevard | PM | 0.726 | C | 0.840 | D | 0.849 | D | 0.009 | No | -- | -- |
| 3 | Lakeview Avenue at | AM | 0.551 | A | 0.622 | B | 0.633 | B | 0.011 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.577 | A | 0.651 | B | 0.665 | B | 0.014 | No | -- | -- |
| 4 | Kellogg Drive at | AM | 0.426 | A | 0.492 | A | 0.499 | A | 0.007 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.594 | A | 0.699 | B | 0.717 | C | 0.018 | No | -- | -- |
| 5 | Fairmont Boulevard at | AM | 0.574 | A | 0.660 | B | 0.673 | B | 0.013 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.465 | A | 0.567 | A | 0.576 | A | 0.009 | No | -- | -- |
| 6 | Village Center Drive at | AM | 0.454 | A | 0.507 | A | 0.534 | A | 0.027 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.518 | A | 0.574 | A | 0.611 | B | 0.037 | No | -- | -- |
| 7 | Paseo De Las Palomas at | AM | 0.420 | A | 0.452 | A | 0.488 | A | 0.036 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.527 | A | 0.571 | A | 0.625 | B | 0.054 | No | -- | -- |
| 8 | San Antonio Road at | AM | 0.469 | A | 0.520 | A | 0.557 | A | 0.037 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.441 | A | 0.499 | A | 0.541 | A | 0.042 | No | -- | -- |
| 9 | Yorba Ranch Rd/Dorinda Rd at | AM | 0.424 | A | 0.472 | A | 0.509 | A | 0.037 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.468 | A | 0.527 | A | 0.572 | A | 0.045 | No | -- | -- |
| 10 | Yorba Linda Boulevard at | AM | **58.0** | **F** | 0.518* | A | 0.625 | B | 0.107 | No | -- | -- |
| | Via del Agua | PM | 31.8 | D | 0.498 | A | 0.641 | B | 0.143 | No | -- | -- |
| 11 | Yorba Linda Boulevard at | AM | 0.519 | A | 0.564 | A | 0.614 | B | 0.050 | No | -- | -- |
| | Stonehaven Drive | PM | 0.442 | A | 0.493 | A | 0.547 | A | 0.054 | No | -- | -- |
| 12 | Yorba Linda Boulevard at | AM | 0.739 | C | 0.806 | D | 0.821 | D | 0.015 | No | -- | -- |
| | La Palma Avenue | PM | 0.745 | C | 0.798 | C | 0.814 | D | 0.016 | No | -- | -- |
| 13 | Yorba Linda Boulevard at | AM | 0.466 | A | 0.517 | A | 0.529 | A | 0.012 | No | -- | -- |
| | Savi Ranch Parkway | PM | 0.769 | C | 0.846 | D | 0.862 | D | 0.016 | No | -- | -- |
| 14 | Weir Canyon Road at | AM | 0.472 | A | 0.512 | A | 0.517 | A | 0.005 | No | -- | -- |
| | SR-91 WB Ramps | PM | 0.582 | A | 0.642 | B | 0.655 | B | 0.013 | No | -- | -- |
| 15 | Weir Canyon Road at | AM | 0.552 | A | 0.595 | A | 0.597 | A | 0.002 | No | -- | -- |
| | SR-91 EB Ramps | PM | 0.710 | C | 0.773 | C | 0.783 | C | 0.010 | No | -- | -- |

*Assumes installation of a traffic signal prior to Year 2020

Notes: s/v = seconds per vehicle (delay); LOS = Level of Service, refer to Table 5-14-1 and Table 5-14-2 above for the LOS definitions.

**Bold LOS values** indicate unacceptable service levels based on LOS Criteria identified in this report.

Appendix C in the Traffic Impact Analysis (Appendix O in this DEIR) contains the ICU/LOS and Delay/LOS calculation worksheets for all study intersections

As shown in Column 2, Year 2020 projected traffic without Option 1 will not adversely impact any of the key study intersections. It should be noted that the intersection of Yorba Linda Boulevard at Via del Agua is anticipated to be converted from a one-way stop to a three-phase traffic signal prior to Year 2020 in conjunction with the proposed Cielo Vista project. The TIA assumes installation of this improvement under Year 2020 cumulative traffic conditions. This analysis assumes that the signal will be installed in association with the Cielo Vista project and that, depending on the access option selected, the Proposed Project will contribute a fair share contribution to the installation of the traffic signal. This improvement is in the City of Yorba Linda. The County cannot compel the City to install the signal, but the Proposed Project will require a contribution as indicated in the mitigation measures included herein.

**3) Year 2020 Cumulative Plus Option 1 Project Conditions**

Columns 3 and 4 indicate that traffic associated with Option 1 will not adversely impact any of the key study intersections, which will continue to operate at an acceptable LOS with the addition of project-generated traffic.

**4) Year 2035 Cumulative Traffic Conditions**

Table 5-14-12 summarizes the peak hour LOS at the 15 key intersections for Year 2035 using the same columnar formatting as the Year 2020 (Table 5-14-11 above). As shown in Column 2, two key study intersections are forecast to operate at an unacceptable LOS during PM peak hours under projected long-term without project conditions. The locations projected to operate at an adverse LOS are:

- Yorba Linda Boulevard at Savi Ranch Parkway (LOS E)
- Weir Canyon Road at SR-91 EB Ramps (LOS E)

It should be noted that the intersections of Imperial Highway at Yorba Linda Boulevard and Lakeview Avenue at Yorba Linda Boulevard are anticipated to have committed improvements in place prior to Year 2035. The installation of these improvements was assumed in this analysis.

**5) Year 2035 Plus Option 1 Project Traffic Conditions**

Columns 3 and 4 of Table 5-14-12 indicate that two key study intersections are forecast to operate at an unacceptable LOS during the PM peak hours under Year 2035 traffic conditions with the addition of Option 1 project traffic. The locations projected to operate at an adverse LOS are:

- Yorba Linda Boulevard at Savi Ranch Parkway (LOS E)
- Weir Canyon Road at SR-91 EB Ramps (LOS E)

**Table 5-14-12 Year 2035 Cumulative Plus Project Intersection Peak Hour Levels of Service Summary, Option 1**

| Key Intersection | | Time Period | Existing Traffic Conditions (1) | | Year 2035 Cumulative Traffic Conditions (2) | | Year 2035 Cumulative Plus Option 1 Project Traffic Conditions (3) | | Significant Impact (4) | | Year 2035 Cumulative Plus Option 1 Project With Mitigation (5) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ICU/ Delay(s/v) | LOS | ICU/ Delay(s/v) | LOS | ICU/ Delay(s/v) | Yes/No | ICU/ Delay(s/v) | LOS | ICU/ Delay(s/v) | LOS |
| 1. | Project Access at | AM | -- | -- | -- | -- | 10.4 | B | -- | No | | |
| | Stonehaven Drive | PM | -- | -- | -- | -- | 10.8 | B | -- | No | | |
| 2. | Imperial Highway at | AM | 0.649 | B | 0.737[a] | C | 0.737 | C | 0.000 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.726 | C | 0.805 | D | 0.813 | D | 0.008 | No | -- | -- |
| 3. | Lakeview Avenue at | AM | 0.551 | A | 0.709[b] | C | 0.716 | C | 0.007 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.577 | A | 0.684 | B | 0.702 | C | 0.018 | No | -- | -- |
| 4. | Kellogg Drive at | AM | 0.426 | A | 0.591 | A | 0.603 | B | 0.012 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.594 | A | 0.726 | C | 0.744 | C | 0.018 | No | -- | -- |
| 5. | Fairmont Boulevard at | AM | 0.574 | A | 0.691 | B | 0.704 | C | 0.013 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.465 | A | 0.714 | C | 0.722 | C | 0.008 | No | -- | -- |
| 6. | Village Center Drive at | AM | 0.454 | A | 0.597 | A | 0.627 | B | 0.030 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.518 | A | 0.581 | A | 0.619 | B | 0.038 | No | -- | -- |
| 7. | Paseo De Las Palomas at | AM | 0.420 | A | 0.452 | A | 0.488 | A | 0.036 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.527 | A | 0.571 | A | 0.625 | B | 0.054 | No | -- | -- |
| 8. | San Antonio Road at | AM | 0.469 | A | 0.541 | A | 0.577 | A | 0.036 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.441 | A | 0.526 | A | 0.568 | A | 0.042 | No | -- | -- |
| 9. | Yorba Ranch Rd/Dorinda Rd at | AM | 0.424 | A | 0.532 | A | 0.570 | A | 0.038 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.468 | A | 0.586 | A | 0.632 | B | 0.046 | No | -- | -- |
| 10. | Yorba Linda Boulevard at | AM | **58.0** | **F** | 0.581[c] | A | 0.689 | B | 0.108 | No | -- | -- |
| | Via del Agua | PM | 31.8 | D | 0.538 | A | 0.681 | B | 0.143 | No | -- | -- |
| 11. | Yorba Linda Boulevard at | AM | 0.519 | A | 0.629 | B | 0.680 | B | 0.051 | No | -- | -- |
| | Stonehaven Drive | PM | 0.442 | A | 0.521 | A | 0.575 | A | 0.054 | No | -- | -- |
| 12. | Yorba Linda Boulevard at | AM | 0.739 | C | 0.882 | D | 0.897 | D | 0.015 | No | -- | -- |
| | La Palma Avenue | PM | 0.745 | C | 0.876 | D | 0.889 | D | 0.013 | No | -- | -- |
| 13. | Yorba Linda Boulevard at | AM | 0.466 | A | 0.572 | A | 0.584 | A | 0.012 | No | 0.564[d] | A |
| | Savi Ranch Parkway | PM | 0.769 | C | **0.904** | **E** | **0.920** | **E** | **0.016** | **Yes** | 0.851 | D |
| 14. | Weir Canyon Road at | AM | 0.472 | A | 0.596 | A | 0.601 | B | 0.005 | No | -- | -- |
| | SR-91 WB Ramps | PM | 0.582 | A | 0.701 | C | 0.715 | C | 0.014 | No | -- | -- |
| 15. | Weir Canyon Road at | AM | 0.552 | A | 0.705 | C | 0.707 | C | 0.002 | No | -- | -- |
| | SR-91 EB Ramps | PM | 0.710 | C | **0.917** | **E** | **0.919** | **E** | 0.002 | No | -- | -- |

a Committed improvements consist of 1 additional westbound left-turn lane and 1 additional westbound through lane.; b Committed improvements consist of 1 additional westbound left-turn lane and 1 additional eastbound left-turn lane; c Assumes installation of a three phase traffic signal prior to Year 2020; d Mitigation consists of widening and restriping to provide three westbound left-turn lanes along Savi Ranch Parkway.

Notes: s/v = seconds per vehicle (delay); LOS = Level of Service, refer to Table 5-14-1 and Table 5-14-2 above for the LOS definitions.

**Bold LOS values** indicate unacceptable service levels based on LOS Criteria identified in this report.

Appendix C in the Traffic Impact Analysis (Appendix O in this DEIR) contains the ICU/LOS and Delay/LOS calculation worksheets for all study intersections

Although the intersection of Weir Canyon Road at SR-91 EB Ramps is forecast to operate at LOS E during the PM peak hours with the addition of Option 1 project traffic, the project is expected to add less than 0.010 to the ICU value, and thus is not impacted significantly based on the significance criterion of 0.01 or greater. The intersection of Yorba Linda Boulevard at Savi Ranch Parkway will continue to operate at LOS E during the peak hour, and will be exacerbated by the addition of project-related traffic, which is considered a significant adverse impact.

### e. Area-Wide Improvements - Option 1

The TIA recommends/identifies improvement measures changing the intersection geometry to increase capacity at intersections where unacceptable operating conditions are projected. These improvements involve roadway widening and/or re-striping to reconfigure (add lanes) to specific approaches of key intersections, as outlined below. The improvements are expected to:

- Mitigate the impact of existing traffic, project traffic and future non-project (ambient traffic growth and cumulative project) traffic and
- Improve Levels of Service to an acceptable range and/or to pre-project conditions.

#### 1) Existing Plus Option 1 Traffic Conditions

The following improvement has been identified to mitigate the Existing Plus Option 1 Traffic impact identified in Table 5-14-10, Existing Plus Project Intersection Peak Hour Levels of Service Summary, Option 1 (page 5-580 above). It should be noted that although this improvement has been identified as mitigation, it is considered a planned improvement to be constructed prior to year 2020 in conjunction with the proposed Cielo Vista project.

- Yorba Linda Boulevard at Via del Agua: Install a three-phase signal

#### 2) Year 2020 Plus Option 1 Traffic Conditions

As shown in Table 5-14-11, Year 2020 Cumulative Plus Project Intersection Peak Hour Levels of Service Summary, Option 1 (page 5-581), proposed Option 1 traffic will not significantly impact any of the 15 key study intersections for Year 2020. Therefore, no improvements are required. As noted, the installation of a three-phase signal at Yorba Linda Boulevard at Via del Agua was assumed for construction prior to Year 2020, and the Proposed Project will contribute a fair share portion of the cost of improvement.

#### 3) Year 2035 Plus Option 1 Project Traffic Conditions

Intersection capacity analyses results shown in Table 5-14-12, Year 2035 Cumulative Plus Project Intersection Peak Hour Levels of Service

Summary, Option 1 (page 5-583) indicate that the Option 1 project traffic will cumulatively impact one of the 15 key study intersections in Year 2035. The improvement listed below has been identified to mitigate the Year 2035 cumulative traffic impacts. The Proposed Project will be required to pay a fair-share contribution toward the construction costs to implement the following mitigation measure:

- Yorba Linda Boulevard at Savi Ranch Parkway: Widen and re-stripe the westbound approach to provide an additional (third) westbound left-turn lane.

### f. Project-Related Fair-Share Contribution - Option 1

One of the 15 key study intersections will be cumulatively impacted under Year 2035 conditions - the intersection of Yorba Linda Boulevard at Savi Ranch Parkway. The project will be required to pay a proportional/fair-share of the improvement costs. Table 5-14-13 presents the Option 1 fair-share contribution, which totals 9% of the cost of improvement identified above based on greatest peak hour impact at the intersection.

**Table 5-14-13 Year 2035 Project Fair Share Contribution - Intersection Improvement, Option 1**

| Key Intersections | | Impacted Time Period | Existing Traffic (1) | Option 1 Project Only Traffic (2) | Year 2035 Cumulative Plus Option 1 Project Traffic (3) | Net Option 1 Project Percent Increase (4) |
|---|---|---|---|---|---|---|
| 13. | Yorba Linda Boulevard at Savi Ranch Parkway | PM | 5,632 | 125 | 7,020 | 9.0% |

Notes: Net Project Percent Increase (4) = [Column (2)] / [Column (3) – Column (1)]

In addition, under Option 2 the Proposed Project shall provide a fair share fee towards installation of a traffic signal at Yorba Linda Boulevard and Via del Agua. Table 5-14-14 below shows the required contribution portion.

**Table 5-14-14 Year 2020 Project Fair Share Contribution – Traffic Signal, Option 1**

| Key Intersections | | Impacted Time Period | Existing Traffic (1) | Option 1 Project Only Traffic (2) | Year 2020 Cumulative Plus Option 1 Project Traffic (3) | Net Option 1 Project Percent Increase (4) |
|---|---|---|---|---|---|---|
| With Cielo Vista as Part of Cumulative Base | | | | | | |
| 10. | Yorba Linda Boulevard at Via del Agua | AM | 2,225 | 184 | 2,739 | 35.8% |
| | | PM | 2,277 | 248 | 2,913 | 39.0% |
| Without Cielo Vista as Part of Cumulative Base | | | | | | |
| 10. | Yorba Linda Boulevard at Via del Agua | AM | 2,225 | 184 | 2,661 | 42.2% |
| | | PM | 2,227 | 248 | 2,808 | 46.7% |

Notes: Net Project Percent Increase (4) = [Column (2)] / [Column (3) – Column (1)]

## g. Site Access and Circulation

As noted, Option 1 access is via a main access roadway connected to Stonehaven Drive approximately 325 feet east of Devonport Circle. Exhibit 5-144 – Internal Daily Traffic Volumes and Recommended Traffic Control Plan, Option 1, illustrates the internal street system, including the estimated daily traffic volumes. As shown, Esperanza Hills Parkway is the sole daily entry/exit to the Project Site. The two-lane section of Esperanza Hills Parkway north of Stonehaven Drive and the gated entrance is expected to carry a maximum of 3,617 ADT if the Bridal Hills, LLC property is eventually developed with 38 additional units. The criteria for a two-lane undivided roadway such as Esperanza Hills Parkway is LOS A (6,250 vehicles per day). Therefore, the proposed roadway has adequate capacity to accommodate the anticipated traffic volume and will operate at LOS A.

Beyond the entry gate, Esperanza Hills Parkway splits into Esperanza Hills Parkway which serves the development to the northeast and "G", Street which serves the development to the southeast. This segment of Esperanza Hills Parkway, a four-lane roadway, is expected to carry a maximum of 2,167 daily trips. Past the roundabout, the roadway narrows to two lanes and is expected to carry approximately 1,450 daily trips. The remaining roadways within the project are expected to carry much less than the recommended local street criterion of 1,500 ADT. Therefore, motorists are expected to enter/exit their driveways comfortably and safely without undue congestion.

The recommended traffic control plan for the project is also presented in Exhibit 5-144. Stop signs, bars, and pavement messages are recommended at the appropriate intersection approaches as well as No Parking zones along the four lane sections of Esperanza Hills Parkway and "G" Street as shown on the exhibit.

### 1) Via del Agua and Stonehaven Drive Assessment - Option 1

Via del Agua and Stonehaven Drive are classified as two-lane undivided Local roadways with an LOS E capacity of 6,250 vehicles per day. Via del Agua is expected to carry a maximum of 5,451 daily trips for Year 2035 with Project traffic conditions, thereby operating with the Residential Collector ADT LOS D criterion of 5,625 vehicles per day.

Stonehaven Drive is expected to carry a maximum of 4,903 vehicles per day under Year 2035 conditions. As a Residential Collector two-lane undivided roadway, the Stonehaven Drive ADT LOS C criterion is 5,000 vehicles per day. Near the project access, Stonehaven Drive is expected to carry a maximum of 3,451 vehicles per day, which is within the Residential Collector two-lane undivided roadway ADT LOS A criterion of 3,750 vehicles per day.

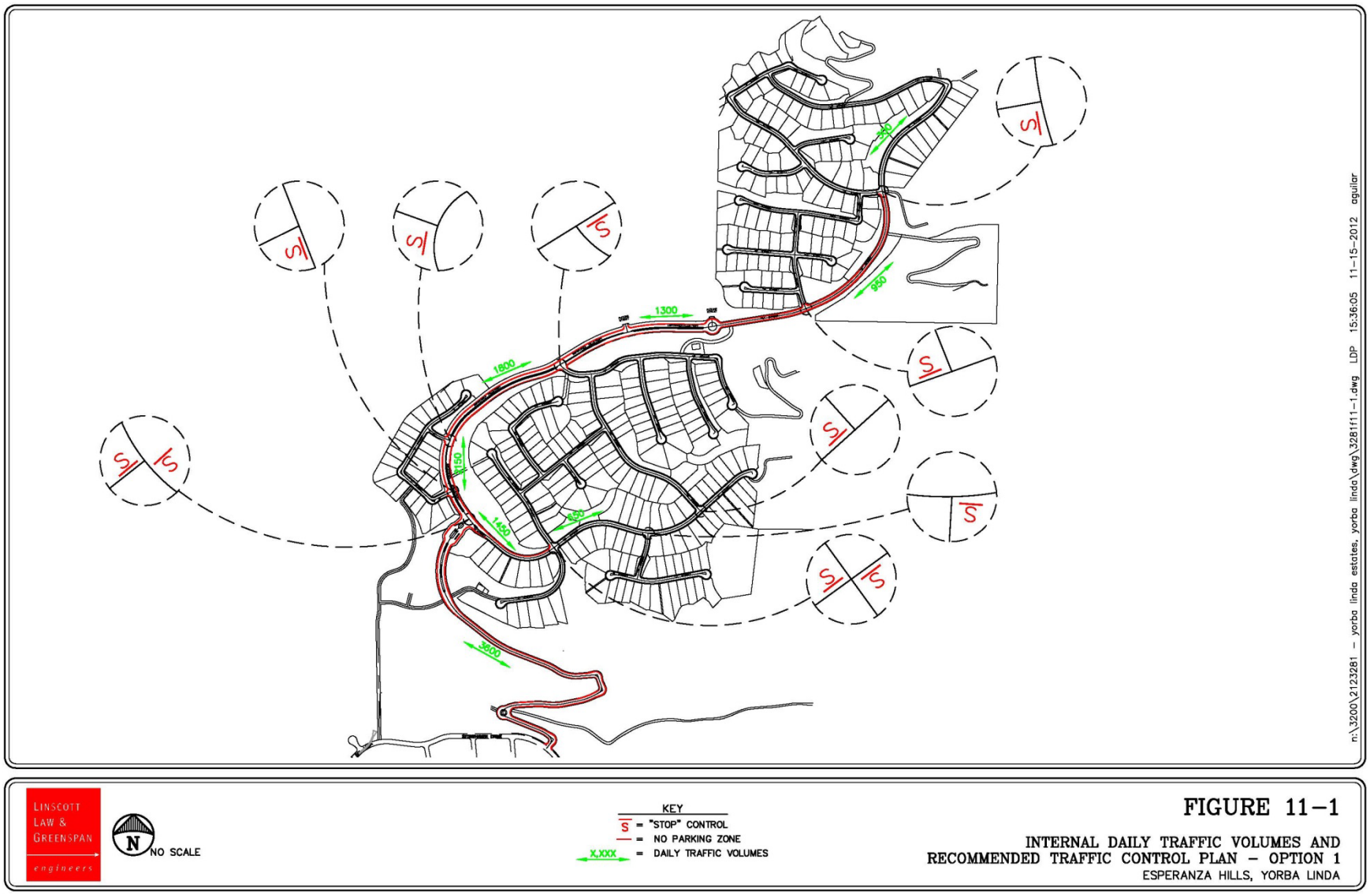



**Exhibit 5-144 – Internal Daily Traffic Volumes and Recommended Traffic Control Plan, Option 1**

### 2) Emergency Access - Option 1

The Emergency Access Plan for Option 1 is depicted on Exhibit 5-145 and illustrates emergency ingress/egress routes and lane geometry/cross-sections for project roadways. As shown, emergency access is proposed via Esperanza Hills Parkway as well as an emergency only access roadway provided off Via del Agua approximately 130 feet northeast of Via de la Roca.

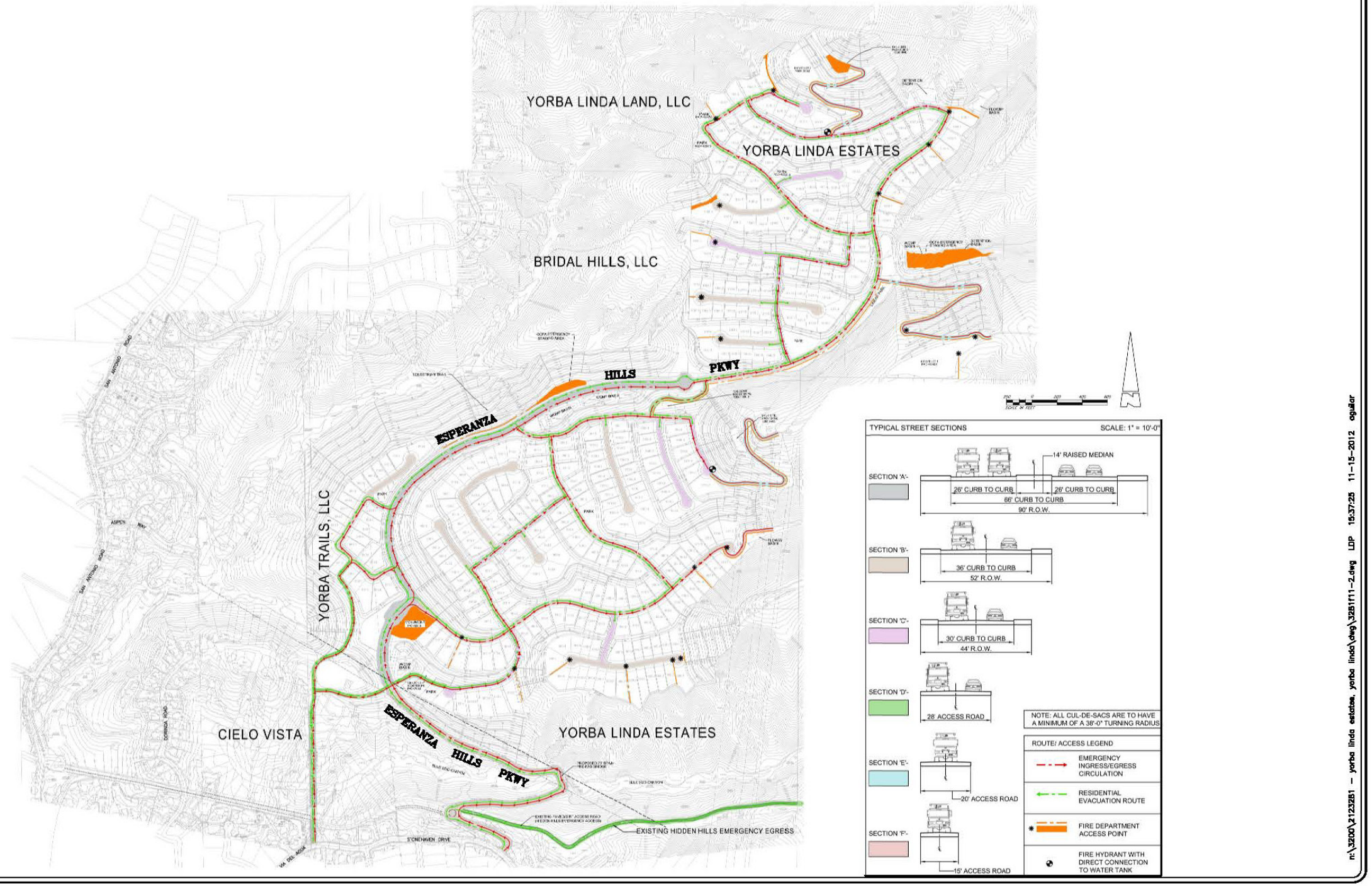
The four-lane portion of Esperanza Hills Parkway between the gated entry and the proposed roundabout has been designed with a curb-to-curb width of 66 feet to accommodate two lanes of travel within two 26-foot travel ways and a 14-foot median. This recommended Emergency Access Plan, which has been approved by the OCFA, calls for emergency vehicles to travel on one side and residents on the other. Two-way travel would remain along the remaining project roadways during an emergency evacuation.

OCFA Station 32 is located on the south side of Yorba Linda Boulevard south of San Antonio Road, within three miles of the farthest residential lot. Internal roadways have been designed with adequate width to accommodate emergency vehicles.

### 3) Queuing Assessment - Option 1

A queuing analysis was conducted for the existing southbound left-turn lane along Yorba Linda Boulevard at Via del Agua using the HCM Operations Methodology. This methodology calculates the 85$^{th}$ percentile queue length, referred to as the design value queue length. Table 5-14-15 summarizes the conditions using existing traffic, existing plus Option 1 traffic, 2020 cumulative traffic, 2020 cumulative plus Option 1 traffic, 2035 cumulative traffic and 2035 cumulative plus Option 1 project traffic.

As shown in the table, the Proposed Project is expected to increase the 85$^{th}$ percentile queue length beyond the existing storage length of 100 feet. The southbound left-turn pocket will require up to 286 feet of storage to fully accommodate this queue. This increase in needed storage can be accommodated as the left-turn pocket has the capability to be extended northerly. The Concept Channelization Plan for the extension of the existing southbound left-turn pocket is presented in Exhibit 5-146. As shown, the existing landscape median requires widening/ modification to provide the increased storage length. Appendix E in the TIA (Appendix O to this DEIR) includes the queuing calculation worksheets for the southbound left-turn lane along Yorba Linda Boulevard at Via del Agua.




LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: KWC ENGINEERS

**FIGURE 11–2**

**EMERGENCY ACCESS PLAN – OPTION 1**
ESPERANZA HILLS, YORBA LINDA

**Exhibit 5-145 – Emergency Access Plan, Option 1**

**Table 5-14-15 Eastbound Left-Turn Queue Analysis along Yorba Linda Boulevard at Via del Agua – Option 1**

| Key Intersection | Time Period | Provided Storage | Existing Traffic Conditions (1) | | Existing Plus Project Option 1 Traffic Conditions (2) | | Year 2020 Cumulative Project Traffic Conditions (3) | | Year 2020 Cumulative Plus Project Option 1 Traffic Conditions (4) | | Year 2035 Cumulative Project Traffic Conditions (5) | | Year 2035 Cumulative Plus Project Option 1 Traffic Conditions (6) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Queue Length (feet) | Adequate Storage Yes/No | Queue Length (feet) | Adequate Storage Yes/No | Queue Length (feet) | Adequate Storage Yes/No | Queue Length (feet) | Adequate Storage Yes/No | Queue Length (feet) | Adequate Storage (Yes/No) | Queue Length (feet) | Adequate Storage (Yes/No) |
| 10. Yorba Linda Blvd at Via del Agua | AM | 100' | 44' | Yes | **110'** | **No** | 66' | Yes | **110'** | No | 66' | Yes | 132' | No |
| | PM | 100' | 88' | Yes | **264'** | **No** | **132'** | **No** | **286'** | No | 154' | No | 286' | No |

Queue analysis reports 85th Percentile results utilizing HCM 2000 methodology


**Exhibit 5-146 – Concept Channelization Plan – Yorba Linda at Via del Agua, Option 1**

## 5. Option 2 Project Analysis

Option 2 access to the site will be provided via an extension of the existing terminus of Aspen Way, which will traverse through the southerly edge of a future potential residential development (Cielo Vista) located immediately west of the Project Site. Emergency fire access will be provided via Stonehaven Drive approximately 325 feet east of Devonport Circle, which currently services the surrounding hillside area, and will connect to the southernmost internal street system within the Project Site. Exhibit 5-147 depicts the Option 2 Project Site plan.

### a. Project Traffic Distribution and Assignment

The trip generation of the Proposed Project totals 3,617 daily trips with 284 trips (72 inbound, 212 outbound) produced in the AM peak hour and 382 trips (242 inbound, 140 outbound) produced in the PM peak hour on a typical weekday. Trip distribution is depicted on Exhibit 5-148. This exhibit also presents daily Option 2 project traffic volumes. The associated AM and PM peak hour traffic volumes are shown in in Exhibit 5-149 and Exhibit 5-150, respectively. These volumes reflect the traffic distribution characteristics shown in Exhibit 5-148.

### b. Existing Plus Project Traffic Conditions

The AM and PM peak hour traffic volumes with trips generated by Option 2 are shown in Exhibit 5-151 and Exhibit 5-152. Table 5-14-16 summarizes the peak hour LOS at the 15 key study intersections. Columns 2 and 3 indicate that traffic associated with the proposed Option 2 will adversely impact one of the key study intersections as follows:

| Intersection | AM Peak Hour ICU/HCM | PM Peak Hour ICU/HCM |
|---|---|---|
| Yorba Linda Boulevard at Via del Agua | 69.8 seconds per vehicle<br>LOS F | 38.7 seconds per vehicle<br>LOS E |

The remaining 14 intersections are forecast to operate at adequate service levels or better during the AM and PM peak hours with the development of the Proposed Project and the addition of Project generated traffic to existing traffic. Appendix G in the TIA includes the existing plus Option 2 ICU/LOS and HCM/LOS calculations for all 15 key study intersections.

### c. Year 2020 Plus Option 2 Traffic Volumes

Year 2020 forecast AM and PM peak hour traffic volumes are illustrated on Exhibit 5-153 and Exhibit 5-154. Exhibit 5-154 also presents Year 2020 daily cumulative plus Option 2 traffic volumes. Table 5-14-17 summarizes the peak hour LOS at the 15 key study intersections for Year 2020. Columns 3 and 4 of the table show that traffic associated with the Option 2 will not adversely impact any of the 15 intersections, all of which are forecast to continue to operate at an acceptable LOS.

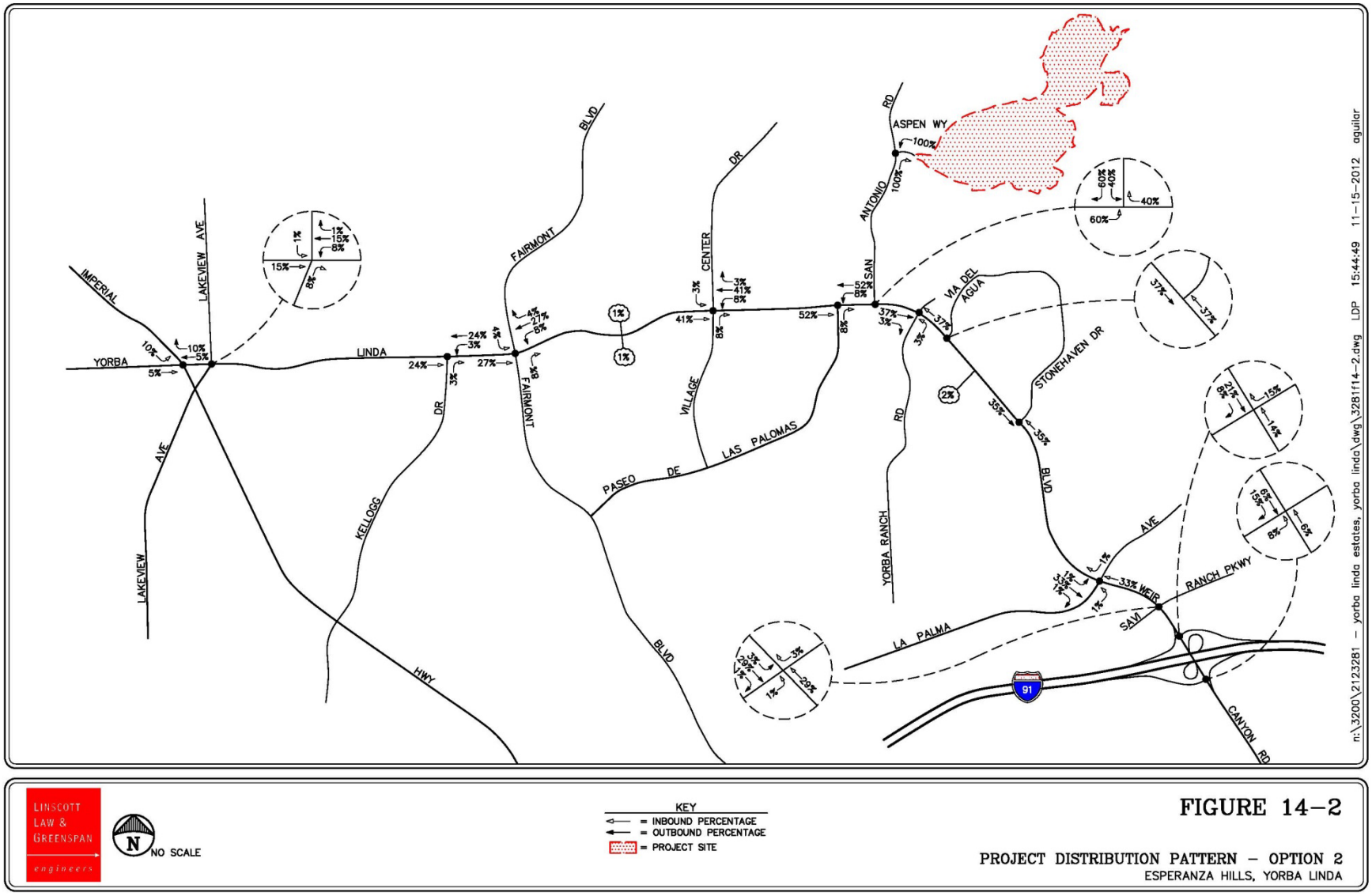
### d. Year 2035 Plus Option 2 Traffic Volumes

Year 2035 forecast AM and PM peak hour traffic volumes are illustrated on Exhibit 5-155 and Exhibit 5-156, respectively. Exhibit 5-156 also presents Year 2035 daily cumulative plus Project Option 2 traffic volumes. Columns 3 and 4 of Table 5-14-18 indicate that two key study intersections are forecast to operate at an unacceptable LOS during the PM peak hours under Year 2035 conditions with Option 2 traffic. The locations are as follows:

- Yorba Linda Boulevard at Savi Ranch Parkway (LOS E)
- Weir Canyon Road at SR-91 EB Ramps (LOS E)

Note that although the intersection of Weir Canyon Road at SR-91 EB Ramps is forecast to operate at LOS E during the PM peak hours, the proposed Option 2 Project is expected to add less than 0.010 to the ICU value and thus is not considered to be significantly impacted. However, the intersection of Yorba Linda Boulevard at Savi Ranch Parkway will continue to operate at LOS E, which is considered a significant impact. The remaining 13 intersections are forecast to operate at an acceptable LOS during the AM and PM peak hours in Year 2035.


**Exhibit 5-147– Proposed Site Plan, Option 2**

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NO SCALE

KEY
= INBOUND PERCENTAGE
= OUTBOUND PERCENTAGE
= PROJECT SITE

FIGURE 14–2

PROJECT DISTRIBUTION PATTERN – OPTION 2
ESPERANZA HILLS, YORBA LINDA

**Exhibit 5-148 – Project Distribution Pattern, Option 2**

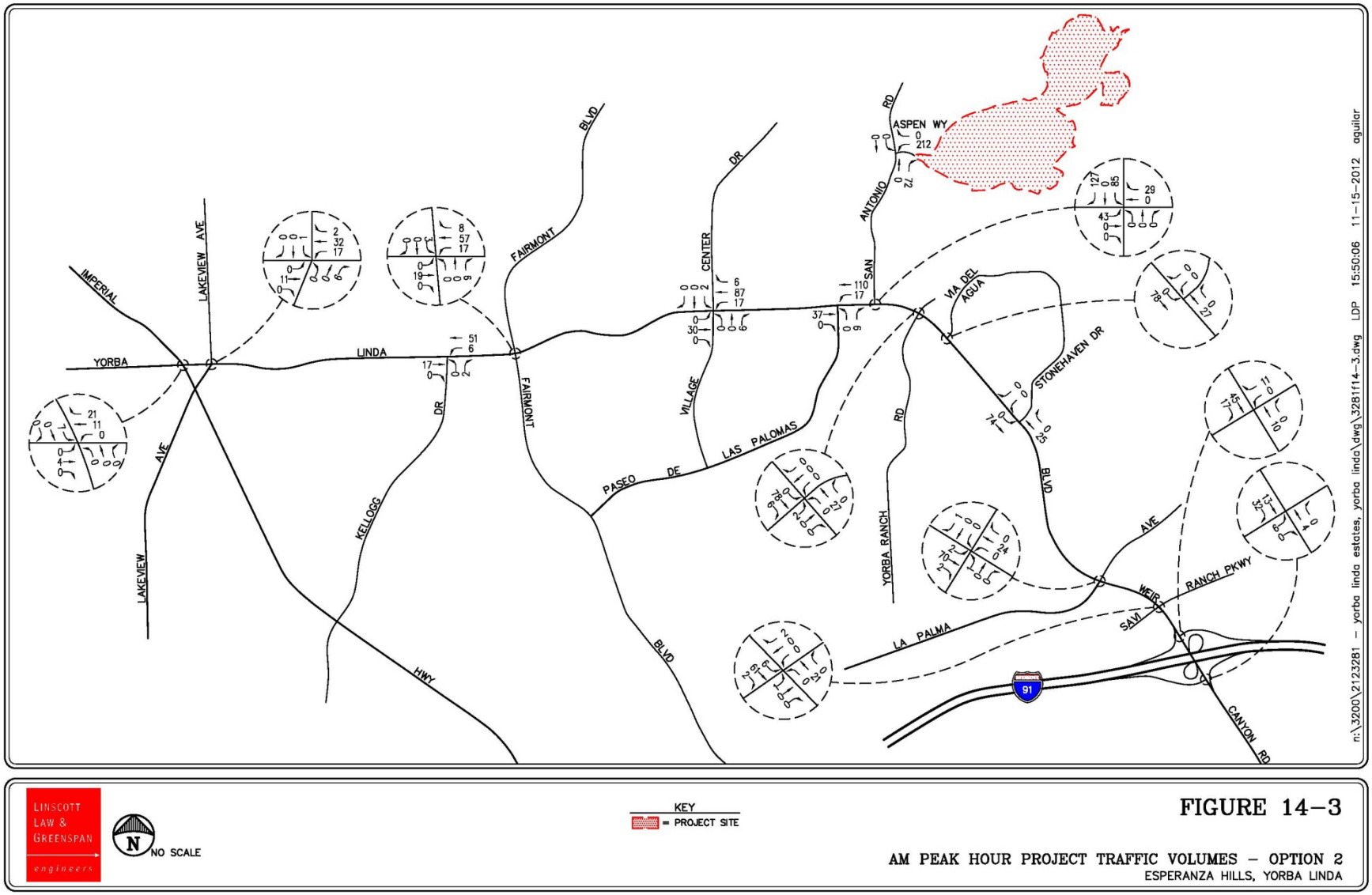



**Exhibit 5-149 – AM Peak Hour Project Traffic Volumes, Option 2**

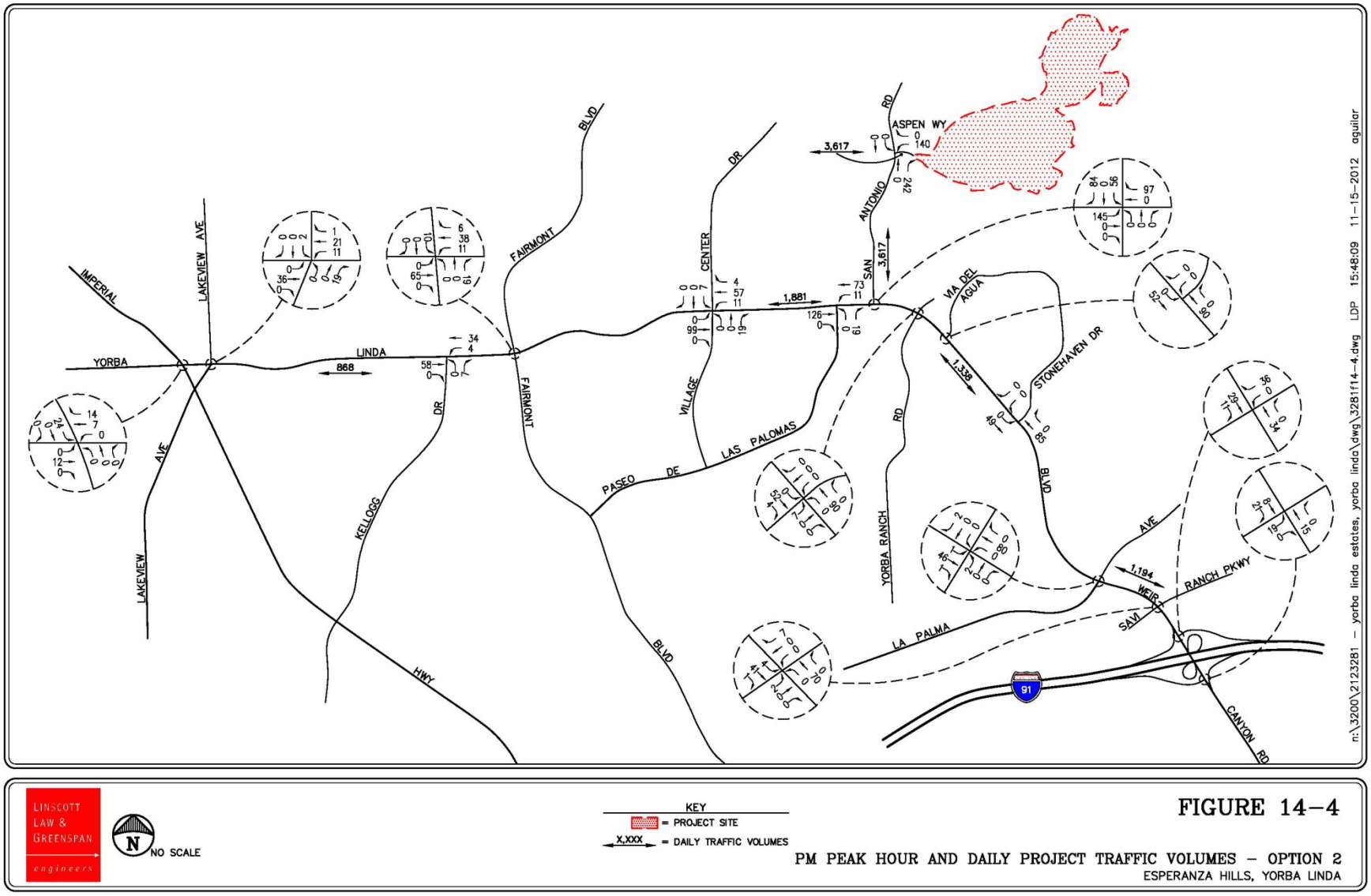



**Exhibit 5-150 – PM Peak Hour and Daily Project Traffic Volumes, Option 2**

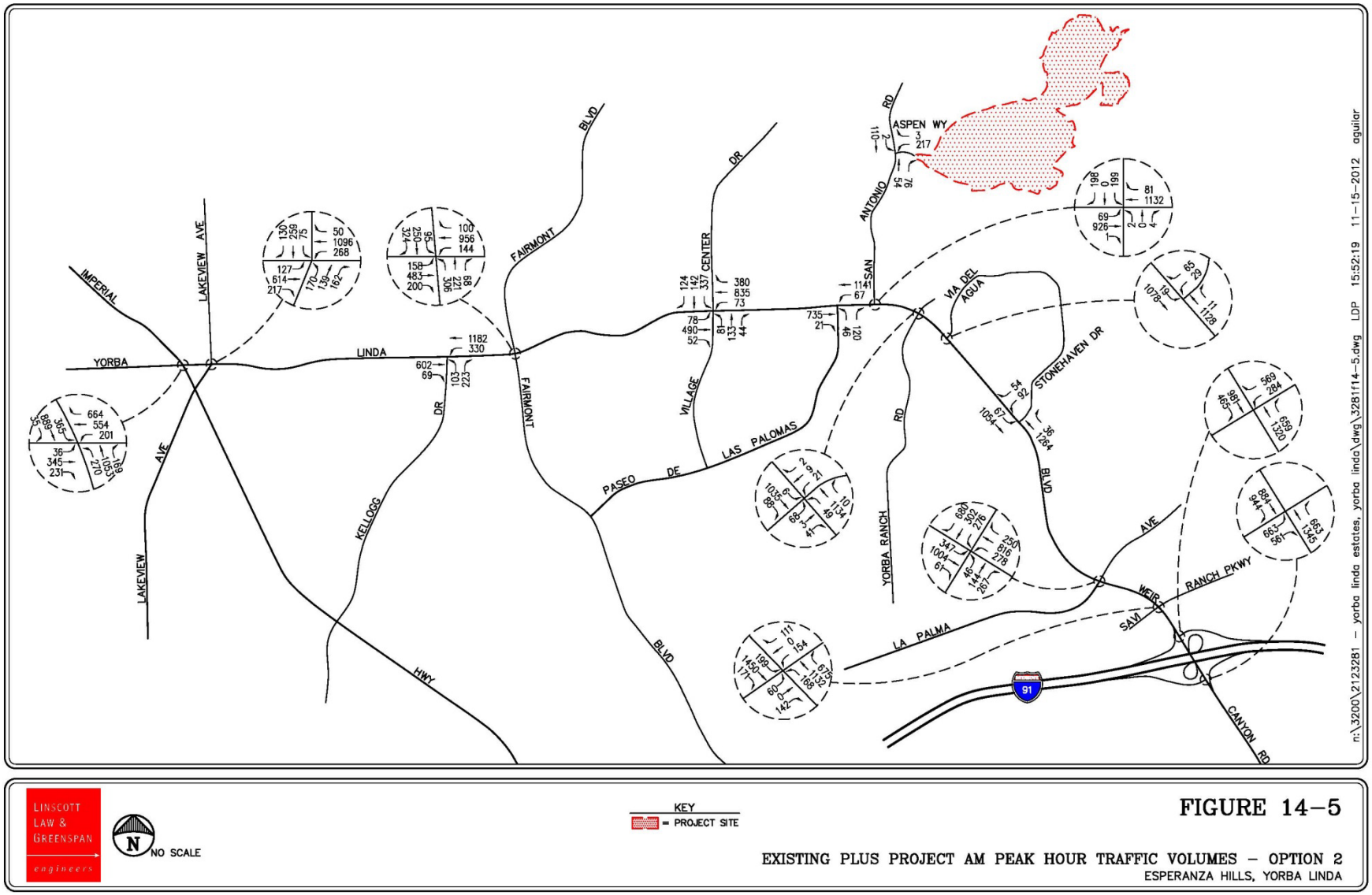



**Exhibit 5-151 – Existing Plus Project AM Peak Hour Traffic Volumes, Option 2**

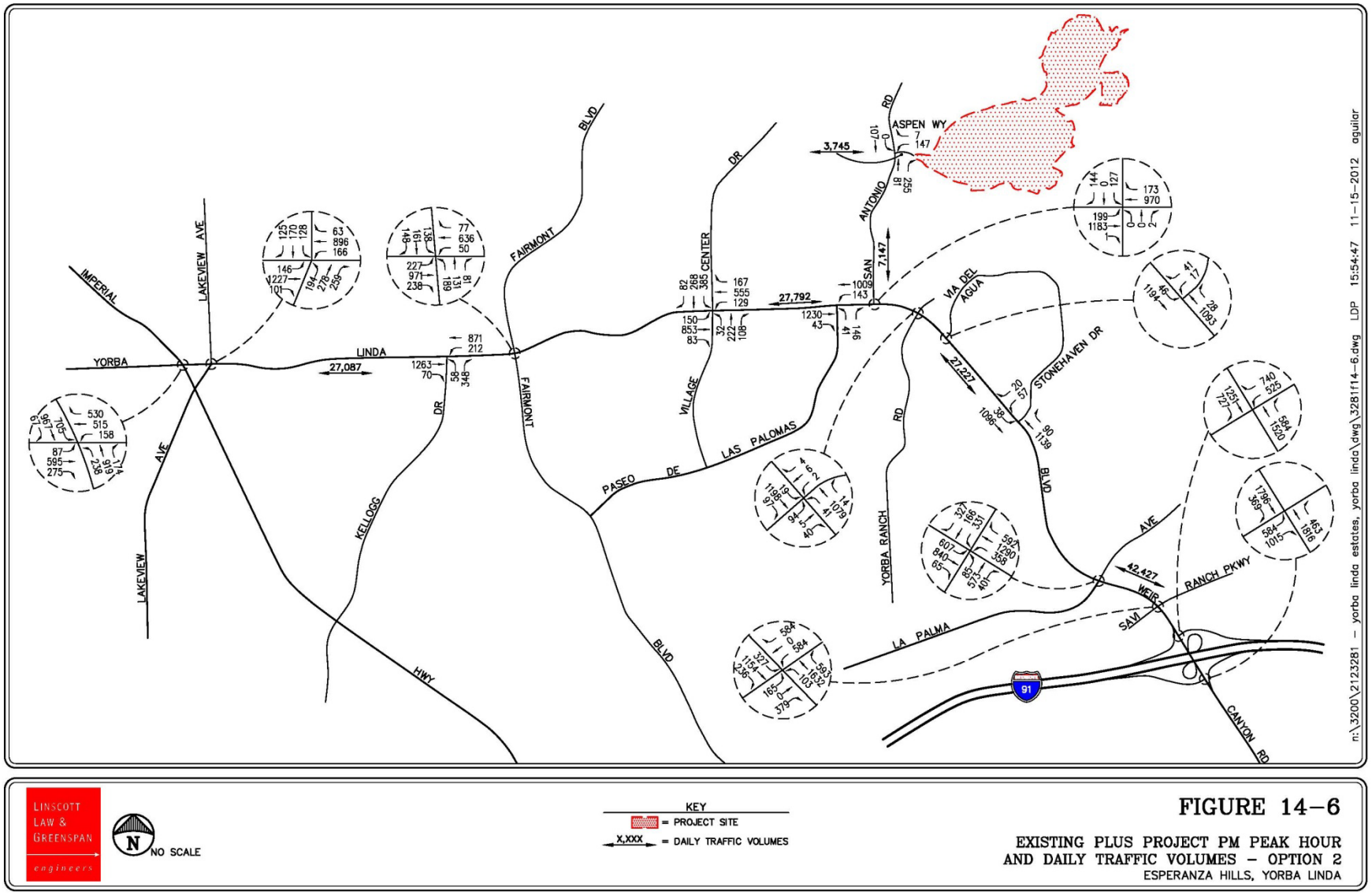



**Exhibit 5-152 – Existing Plus Project PM Peak Hour and Daily Project Traffic Volumes, Option 2**

## Table 5-14-16 Existing Plus Project Intersection Peak Hour Levels of Service Summary, Option 2

| Key Intersection | | Time Period | Existing Traffic Conditions (1) | | Existing Plus Option 1 Project Traffic Conditions (2) | | Significant Impact (3) | | Existing Plus Option 1 Project With Mitigation (4) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ICU/ Delay(s/v) | LOS | ICU/ Delay(s/v) | LOS | ICU/ Delay(s/v) | Yes/No | ICU/ Delay(s/v) | LOS |
| 1. | San Antonio Road at Aspen Way | AM | 8.2 | A | 11.2 s/v | B | 3.0 | No | -- | -- |
| | | PM | 8.2 | A | 10.8 s/v | B | 2.6 | No | -- | -- |
| 2. | Imperial Highway at Yorba Linda Boulevard | AM | 0.649 | B | 0.651 | B | 0.002 | No | -- | -- |
| | | PM | 0.726 | C | 0.735 | C | 0.009 | No | -- | -- |
| 3. | Lakeview Avenue at Yorba Linda Boulevard | AM | 0.551 | A | 0.562 | A | 0.011 | No | -- | -- |
| | | PM | 0.577 | A | 0.591 | A | 0.014 | No | -- | -- |
| 4. | Kellogg Drive at Yorba Linda Boulevard | AM | 0.426 | A | 0.436 | A | 0.010 | No | -- | -- |
| | | PM | 0.594 | A | 0.611 | B | 0.017 | No | -- | -- |
| 5. | Fairmont Boulevard at Yorba Linda Boulevard | AM | 0.574 | A | 0.587 | A | 0.013 | No | -- | -- |
| | | PM | 0.465 | A | 0.474 | A | 0.009 | No | -- | -- |
| 6. | Village Center Drive at Yorba Linda Boulevard | AM | 0.454 | A | 0.480 | A | 0.026 | No | -- | -- |
| | | PM | 0.518 | A | 0.555 | A | 0.037 | No | -- | -- |
| 7. | Paseo De Las Palomas at Yorba Linda Boulevard | AM | 0.420 | A | 0.456 | A | 0.036 | No | -- | -- |
| | | PM | 0.527 | A | 0.582 | A | 0.055 | No | -- | -- |
| 8. | San Antonio Road at Yorba Linda Boulevard | AM | 0.469 | A | 0.544 | A | 0.075 | No | -- | -- |
| | | PM | 0.441 | A | 0.538 | A | 0.097 | No | -- | -- |
| 9. | Yorba Ranch Rd/Dorinda Rd at Yorba Linda Boulevard | AM | 0.424 | A | 0.434 | A | 0.010 | No | -- | -- |
| | | PM | 0.468 | A | 0.488 | A | 0.020 | No | -- | -- |
| 10. | Yorba Linda Boulevard at Via del Agua | AM | **58.0** | **F** | **69.8** | F | **11.8** | **Yes** | 0.448* | A |
| | | PM | 31.8 | D | **38.7** | E | **6.9** | **Yes** | 0.433 | A |
| 11. | Yorba Linda Boulevard at Stonehaven Drive | AM | 0.519 | A | 0.526 | A | 0.007 | No | -- | -- |
| | | PM | 0.442 | A | 0.467 | A | 0.025 | No | -- | -- |
| 12. | Yorba Linda Boulevard at La Palma Avenue | AM | 0.739 | C | 0.754 | C | 0.015 | No | -- | -- |
| | | PM | 0.745 | C | 0.747 | C | 0.002 | No | -- | -- |
| 13. | Yorba Linda Boulevard at Savi Ranch Parkway | AM | 0.466 | A | 0.478 | A | 0.012 | No | -- | -- |
| | | PM | 0.769 | C | 0.785 | C | 0.016 | No | -- | -- |
| 14. | Weir Canyon Road at SR-91 WB Ramps | AM | 0.472 | A | 0.476 | A | 0.004 | No | -- | -- |
| | | PM | 0.582 | A | 0.596 | A | 0.014 | No | -- | -- |
| 15. | Weir Canyon Road at SR-91 EB Ramps | AM | 0.552 | A | 0.554 | A | 0.002 | No | -- | -- |
| | | PM | 0.710 | C | 0.720 | C | 0.010 | No | -- | -- |

*Mitigation consists of installation of a three-phase traffic signal
Notes: s/v = seconds per vehicle (delay); LOS = Level of Service, refer to Table 5-14-1 and Table 5-14-2 above for the LOS definitions.
**Bold LOS values** indicate unacceptable service levels based on LOS Criteria identified in this report.
Appendix C in the Traffic Impact Analysis (Appendix O in this DEIR) contains the ICU/LOS and Delay/LOS calculation worksheets for all study intersections

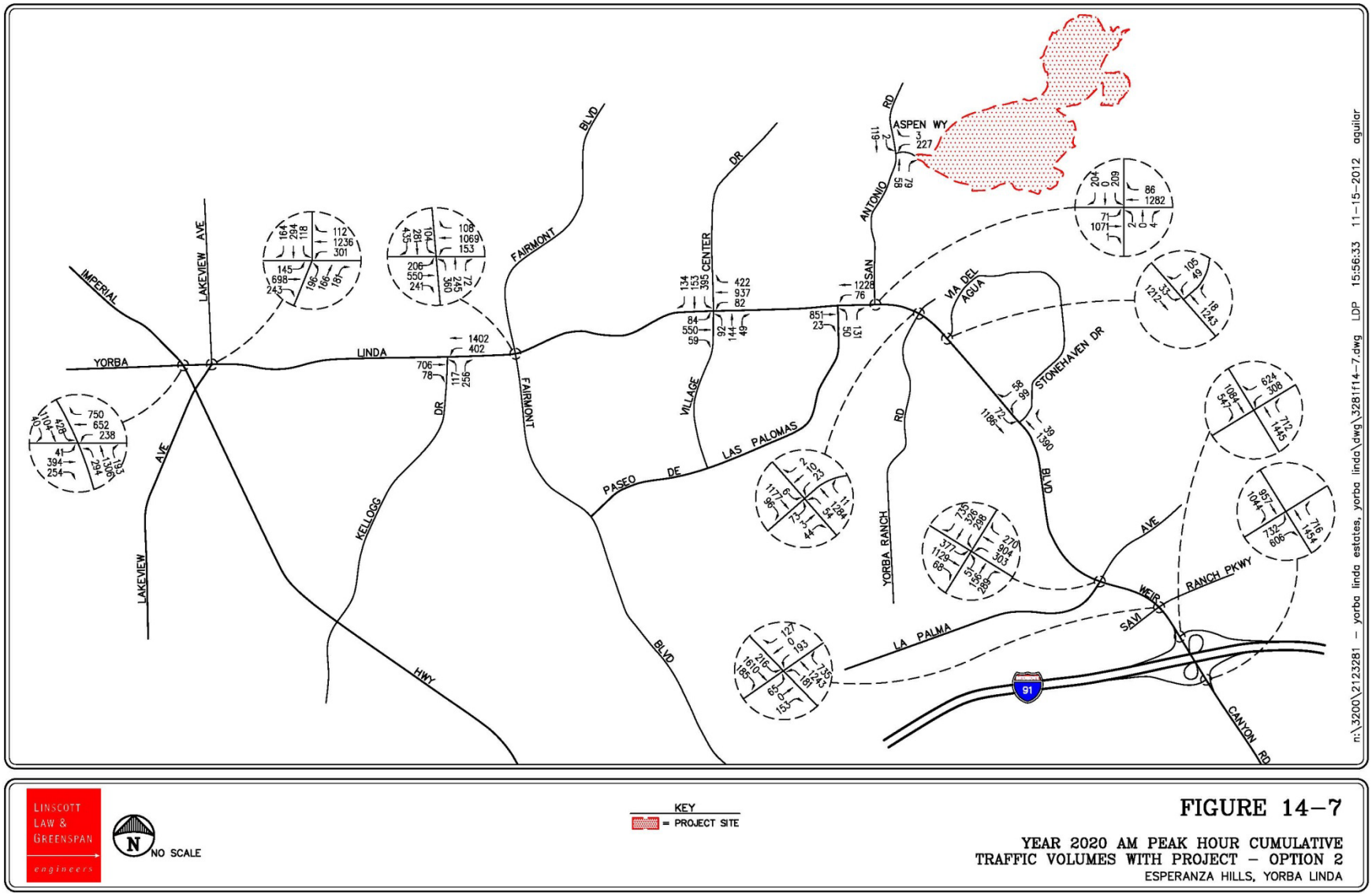



**Exhibit 5-153 – Year 2020 AM Peak Hour Cumulative Traffic Volumes with Project, Option 2**

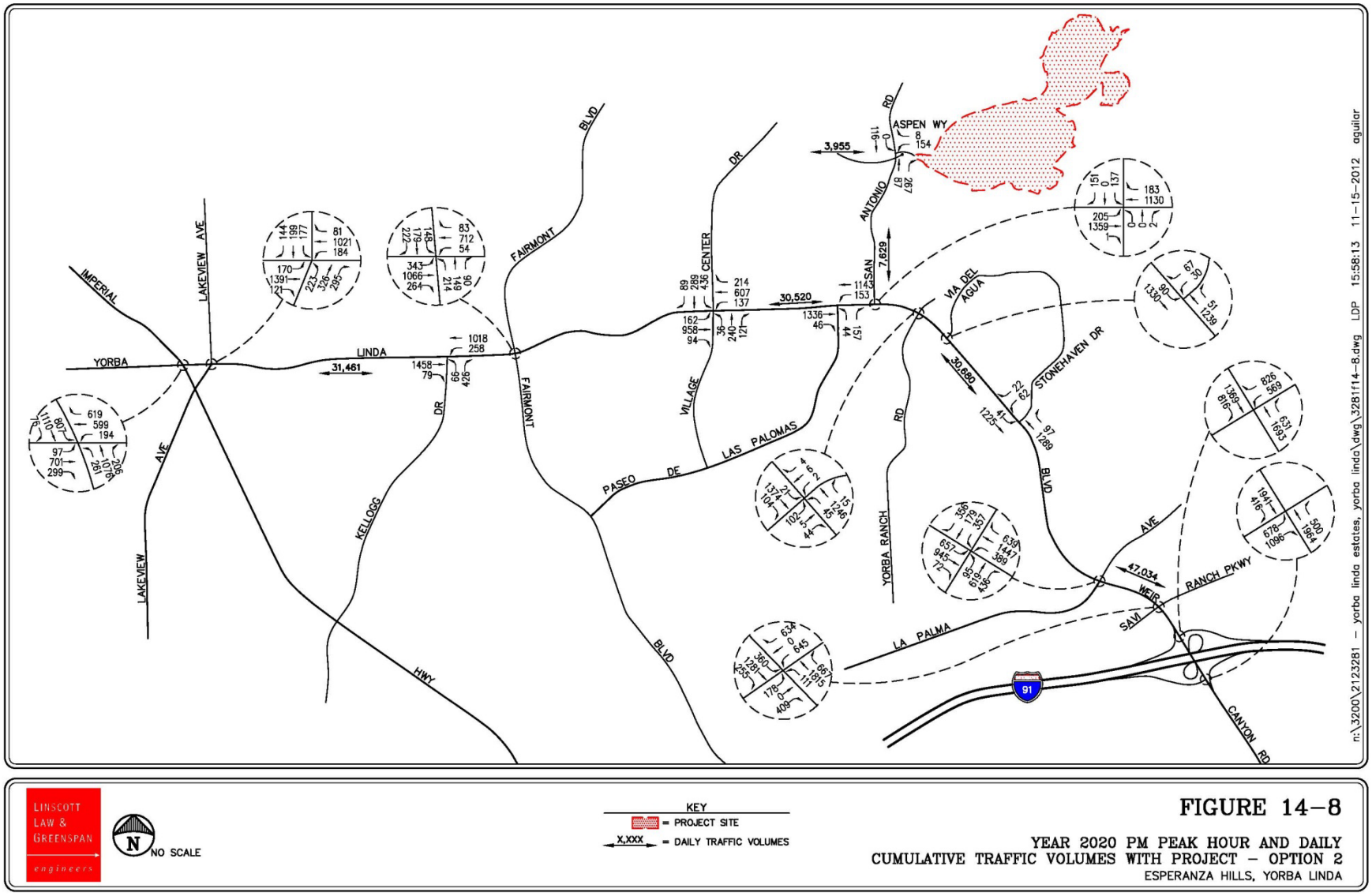



**Exhibit 5-154 – Year 2020 PM Peak Hour and Daily Cumulative Traffic Volumes with Project, Option 2**

**Table 5-14-17 Year 2020 Cumulative Plus Project Intersection Peak Hour Levels of Service Summary – Option 2**

| Key Intersection | | Time Period | Existing Traffic Conditions (1) | | Year 2020 Cumulative Traffic Conditions (2) | | Year 2020 Cumulative Plus Option 2 Project Traffic Conditions (3) | | Significant Impact (4) | | Year 2020 Cumulative Plus Option 2 Project With Mitigation (5) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ICU/ Delay(s/v) | LOS | ICU/ Delay(s/v) | LOS | ICU/ Delay(s/v) | LOS | ICU/ Delay(s/v) | Yes/No | ICU/ Delay(s/v) | LOS |
| 1. | San Antonio Road at | AM | 8.2 | A | 8.3 | A | 11.6 | B | 3.3 | No | -- | -- |
| | Aspen Way | PM | 8.2 | A | 8.3 | A | 11.2 | B | 2.9 | No | -- | -- |
| 2. | Imperial Highway at | AM | 0.649 | B | 0.757 | C | 0.759 | C | 0.002 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.726 | C | 0.840 | D | 0.849 | D | 0.009 | No | -- | -- |
| 3. | Lakeview Avenue at | AM | 0.551 | A | 0.622 | B | 0.633 | B | 0.011 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.577 | A | 0.651 | B | 0.665 | B | 0.014 | No | -- | -- |
| 4. | Kellogg Drive at | AM | 0.426 | A | 0.492 | A | 0.499 | A | 0.007 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.594 | A | 0.699 | B | 0.717 | C | 0.018 | No | -- | -- |
| 5. | Fairmont Boulevard at | AM | 0.574 | A | 0.660 | B | 0.673 | B | 0.013 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.465 | A | 0.567 | A | 0.576 | A | 0.009 | No | -- | -- |
| 6. | Village Center Drive at | AM | 0.454 | A | 0.507 | A | 0.534 | A | 0.027 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.518 | A | 0.574 | A | 0.611 | B | 0.037 | No | -- | -- |
| 7. | Paseo De Las Palomas at | AM | 0.420 | A | 0.452 | A | 0.488 | A | 0.036 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.527 | A | 0.571 | A | 0.625 | B | 0.054 | No | -- | -- |
| 8. | San Antonio Road at | AM | 0.469 | A | 0.520 | A | 0.595 | A | 0.075 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.441 | A | 0.499 | A | 0.593 | A | 0.094 | No | -- | -- |
| 9. | Yorba Ranch Rd at | AM | 0.424 | A | 0.472 | A | 0.478 | A | 0.006 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.468 | A | 0527 | A | 0.546 | A | 0.019 | No | -- | -- |
| 10. | Yorba Linda Boulevard at | AM | **58.0** | **F** | 0.518* | A | 0.526 | A | 0.008 | No | -- | -- |
| | Via del Agua | PM | 31.8 | D | 0.498 | A | 0.524 | A | 0.026 | No | -- | -- |
| 11. | Yorba Linda Boulevard at | AM | 0.519 | A | 0.564 | A | 0.571 | A | 0.007 | No | -- | -- |
| | Stonehaven Drive | PM | 0.442 | A | 0.493 | A | 0.518 | A | 0.025 | No | -- | -- |
| 12. | Yorba Linda Boulevard at | AM | 0.739 | C | 0.806 | D | 0.821 | D | 0.015 | No | -- | -- |
| | La Palma Avenue | PM | 0.745 | C | 0.798 | C | 0.814 | D | 0.016 | No | -- | -- |
| 13. | Yorba Linda Boulevard at | AM | 0.466 | A | 0.517 | A | 0.529 | A | 0.012 | No | -- | -- |
| | Savi Ranch Parkway | PM | 0.769 | C | 0.846 | D | 0.862 | D | 0.016 | No | -- | -- |
| 14. | Weir Canyon Road at | AM | 0.472 | A | 0.512 | A | 0.517 | A | 0.005 | No | -- | -- |
| | SR-91 WB Ramps | PM | 0.582 | A | 0.642 | B | 0.655 | B | 0.013 | No | -- | -- |
| 15. | Weir Canyon Road at | AM | 0.552 | A | 0.595 | A | 0.597 | A | 0.002 | No | -- | -- |
| | SR-91 EB Ramps | PM | 0.710 | C | 0.773 | C | 0.783 | C | 0.010 | No | -- | -- |

*Assumes installation of a traffic signal prior to Year 2020
Notes: s/v = seconds per vehicle (delay); LOS = Level of Service, refer to Table 5-14-1 and Table 5-14-2 above for the LOS definitions.
**Bold LOS values** indicate unacceptable service levels based on LOS Criteria identified in this report.
Appendix C in the Traffic Impact Analysis (Appendix O in this DEIR) contains the ICU/LOS and Delay/LOS calculation worksheets for all study intersections

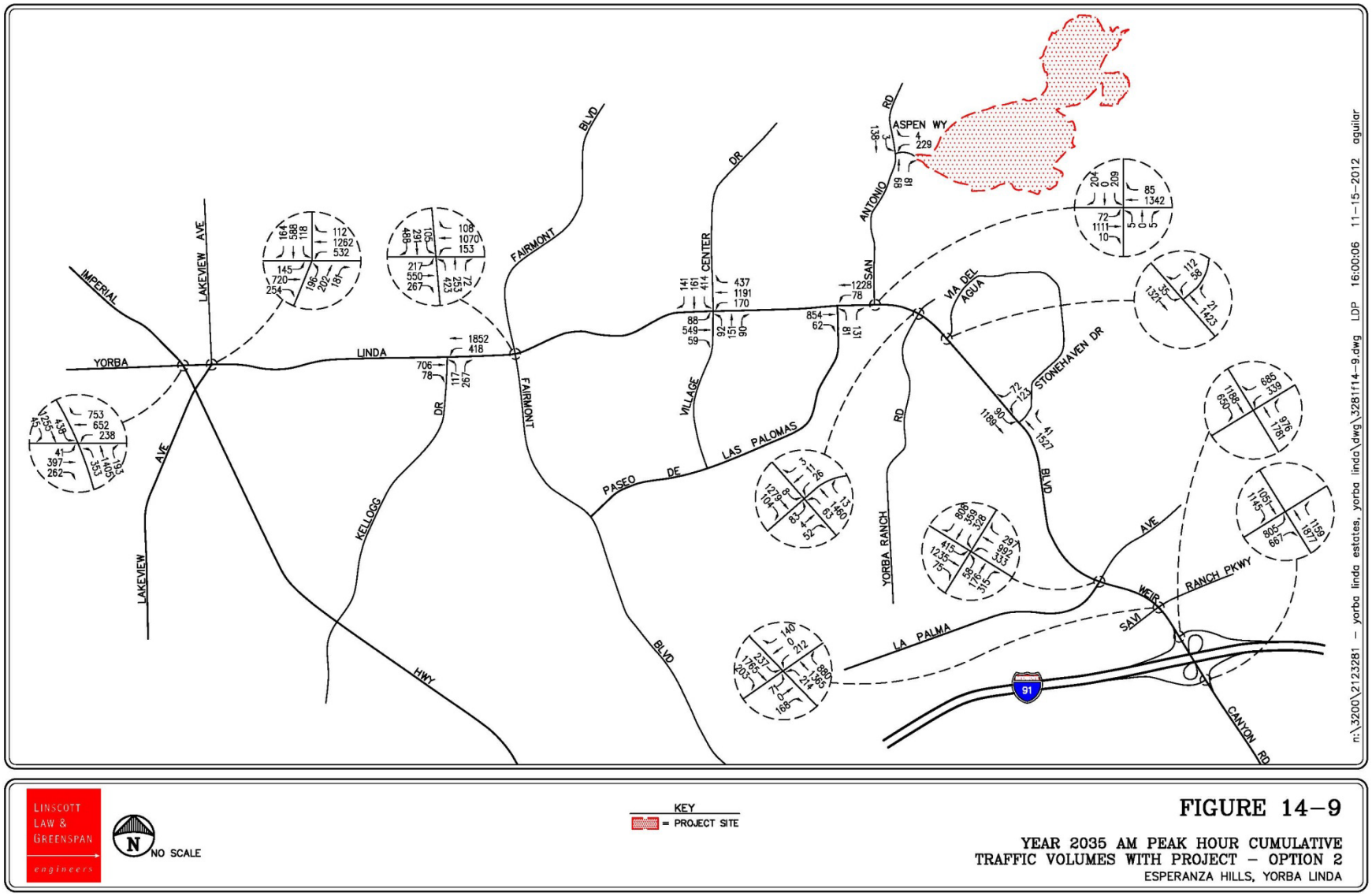



**FIGURE 14-9**

YEAR 2035 AM PEAK HOUR CUMULATIVE TRAFFIC VOLUMES WITH PROJECT – OPTION 2
ESPERANZA HILLS, YORBA LINDA

**Exhibit 5-155 – Year 2035 AM Peak Hour Cumulative Traffic Volumes with Project, Option 2**

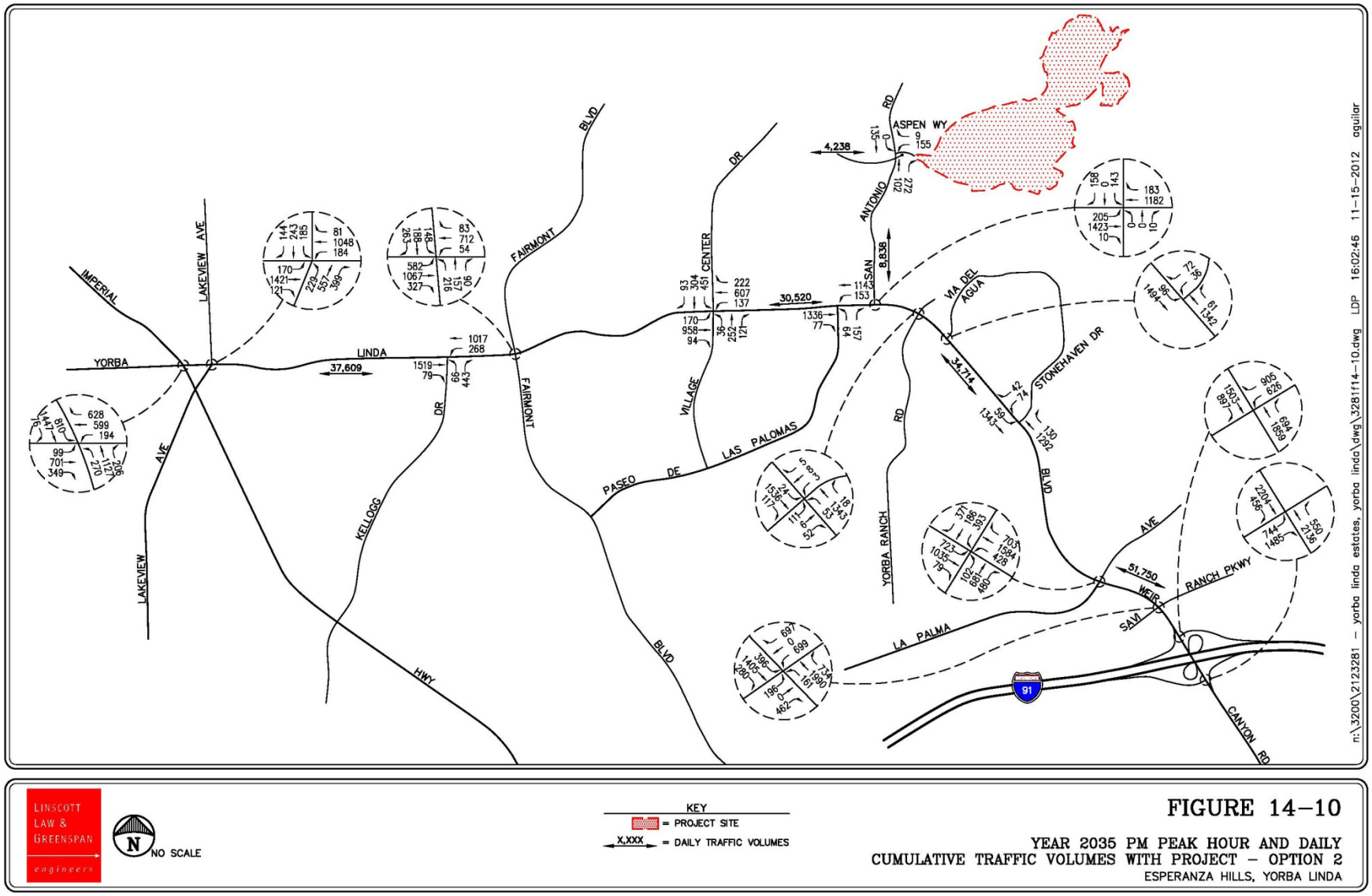



**Exhibit 5-156 – Year 2035 PM Peak Hour and Daily Cumulative Traffic Volumes with Project, Option 2**

**Table 5-14-18 Year 2035 Cumulative Plus Project Intersection Peak Hour Levels of Service Summary – Option 2**

| Key Intersection | | Time Period | Existing Traffic Conditions (1) | | Year 2035 Cumulative Traffic Conditions (2) | | Year 2035 Cumulative Plus Option 2 Project Traffic Conditions (3) | | Significant Impact (4) | | Year 2035 Cumulative Plus Option 2 Project With Mitigation (5) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ICU/ Delay(s/v) | LOS | ICU/ Delay(s/v) | LOS | ICU/ Delay(s/v) | LOS | ICU/ Delay(s/v) | Yes/No | ICU/ Delay(s/v) | LOS |
| 1. | San Antonio Road at | AM | 8.2 | A | 8.5 | A | 12.0 | B | 3.5 | No | -- | -- |
| | Aspen Way | PM | 8.2 | A | 8.5 | A | 11.5 | B | 3.0 | No | -- | -- |
| 2. | Imperial Highway at | AM | 0.649 | B | 0.737[a] | C | 0.737 | C | 0.000 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.726 | C | 0.805 | D | 0.813 | D | 0.008 | No | -- | -- |
| 3. | Lakeview Avenue at | AM | 0.551 | A | 0.709[b] | C | 0.716 | C | 0.007 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.577 | A | 0.684 | B | 0.702 | C | 0.018 | No | -- | -- |
| 4. | Kellogg Drive at | AM | 0.426 | A | 0.591 | A | 0.603 | B | 0.012 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.594 | A | 0.726 | C | 0.744 | C | 0.018 | No | -- | -- |
| 5. | Fairmont Boulevard at | AM | 0.574 | A | 0.691 | B | 0.704 | C | 0.013 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.465 | A | 0.714 | C | 0.722 | C | 0.008 | No | -- | -- |
| 6. | Village Center Drive at | AM | 0.454 | A | 0.597 | A | 0.627 | B | 0.030 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.518 | A | 0.581 | A | 0.619 | B | 0.038 | No | -- | -- |
| 7. | Paseo De Las Palomas at | AM | 0.420 | A | 0.452 | A | 0.488 | A | 0.036 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.527 | A | 0.571 | A | 0.625 | B | 0.054 | No | -- | -- |
| 8. | San Antonio Road at | AM | 0.469 | A | 0.541 | A | 0.616 | B | 0.075 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.441 | A | 0.526 | A | 0.617 | B | 0.091 | No | -- | -- |
| 9. | Yorba Ranch Rd at | AM | 0.424 | A | 0.532 | A | 0.541 | A | 0.009 | No | -- | -- |
| | Yorba Linda Boulevard | PM | 0.468 | A | 0.586 | A | 0.606 | B | 0.020 | No | -- | -- |
| 10. | Yorba Linda Boulevard at | AM | **58.0** | **F** | 0.581[c] | A | 0.589 | A | 0.008 | No | -- | -- |
| | Via del Agua | PM | 31.8 | D | 0.538 | A | 0.565 | A | 0.027 | No | -- | -- |
| 11. | Yorba Linda Boulevard at | AM | 0.519 | A | 0.629 | B | 0.636 | B | 0.007 | No | -- | -- |
| | Stonehaven Drive | PM | 0.442 | A | 0.521 | A | 0.546 | A | 0.025 | No | -- | -- |
| 12. | Yorba Linda Boulevard at | AM | 0.739 | C | 0.882 | D | 0.897 | D | 0.015 | No | -- | -- |
| | La Palma Avenue | PM | 0.745 | C | 0.876 | D | 0.889 | D | 0.013 | No | -- | -- |
| 13. | Yorba Linda Boulevard at | AM | 0.466 | A | 0.572 | A | 0.584 | A | 0.012 | No | 0.564[d] | A |
| | Savi Ranch Parkway | PM | 0.769 | C | **0.904** | **E** | **0.920** | **E** | **0.016** | **Yes** | 0.851 | D |
| 14. | Weir Canyon Road at | AM | 0.472 | A | 0.596 | A | 0.601 | B | 0.005 | No | -- | -- |
| | SR-91 WB Ramps | PM | 0.582 | A | 0.701 | C | 0.715 | C | 0.014 | No | -- | -- |
| 15. | Weir Canyon Road at | AM | 0.552 | A | 0.705 | C | 0.707 | C | 0.002 | No | -- | -- |
| | SR-91 EB Ramps | PM | 0.710 | C | **0.917** | **E** | **0.919** | **E** | 0.002 | No | -- | -- |

a Committed improvements consist of 1 additional westbound left-turn lane and 1 additional westbound through lane.; b Committed improvements consist of 1 additional westbound left-turn lane and 1 additional eastbound left-turn lane; c Assumes installation of a three phase traffic signal prior to Year 2020; d Mitigation consists of widening and restriping to provide three westbound left-turn lanes along Savi Ranch Parkway.

Notes: s/v = seconds per vehicle (delay); LOS = Level of Service, refer to Table 5-14-1 and Table 5-14-2 above for the LOS definitions

**Bold LOS values** indicate unacceptable service levels based on LOS Criteria identified in this report.

Appendix G in the Traffic Impact Analysis (Appendix O in this DEIR) contains the ICU/LOS and Delay/LOS calculation worksheets for all study intersections

### e. Area-Wide Improvements - Option 2

The TIA recommends/identifies improvement measures changing the intersection geometry to increase capacity at intersections where unacceptable operating conditions are projected. These improvements involve roadway widening and/or re-striping to reconfigure (add lanes) to specific approaches of key intersections. The improvements are expected to:

- Mitigate the impact of existing traffic, project traffic and future non-Project (ambient traffic growth and cumulative project) traffic and
- Improve Levels of Service to an acceptable range (i.e., LOS D or better) and/or to pre-Project conditions.

#### 1) Existing Plus Option 2

Table 5-14-16 (page 5-602) intersection capacity analyses have shown that the proposed Option 2 Project will worsen the already adverse service level at one of the 15 key study intersections under the "Existing Plus Project" traffic scenario. In order to mitigate the traffic impact, the following improvement has been identified as mitigation and is considered a planned improvement that will be constructed prior to year 2020 in conjunction with the proposed Cielo Vista project.

- Yorba Linda Boulevard at Via del Agua: install a three-phase traffic signal

#### 2) Year 2020 Plus Option 2

The intersection capacity analyses (Table 5-14-17, page 5-603) have shown that the proposed Option 2 Project will not significantly impact any of the 15 key study intersections under the "Year 2020 Plus Project" traffic scenario. Therefore, no improvements are required. Installation of a three phase signal at Yorba Linda Boulevard at Via del Agua was assumed to be constructed prior to Year 2020 in conjunction with the proposed Cielo Vista project.

#### 3) Year 2035 Plus Option 2 Project Traffic Conditions

The intersection capacity analyses (Table 5-14-18, page 5-606) have shown that the Option 2 Project will cumulatively impact one of the 15 key study intersections under the "Year 2035 Plus Project" traffic scenario. Exhibit 5-157 details the recommended and planned improvements. Recommended mitigation for the Year 2035 cumulative impacts is as follows:

- Yorba Linda Boulevard at Savi Ranch Parkway: Widen and re-stripe the westbound approach to provide an additional (third) westbound left-turn lane.

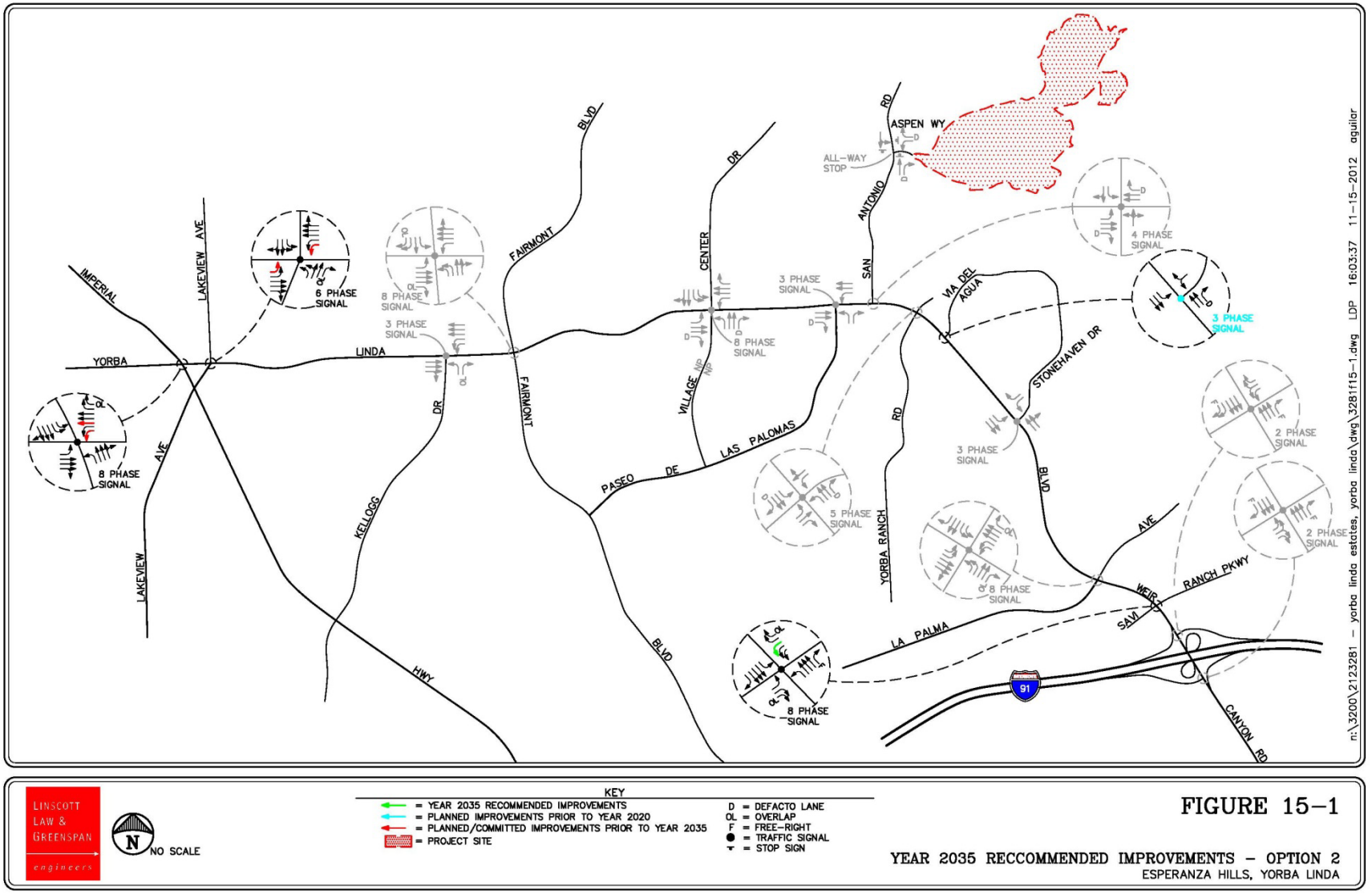



**Exhibit 5-157 – Year 2035 Recommended Improvements, Option 2**

### 4) Project-Related Fair Share Contribution

Table 5-14-18 (page 5-606) shows that the Option 2 Project will cumulatively impact one of the 15 key study intersections under Year 2035 conditions. The Proposed Project can be expected to pay a "fair-share" of the cumulative improvement costs at intersections which will operate at adverse service levels. Table 5-14-19 below presents the Project's fair-share contribution, which totals 9% based on greatest peak hour impact at the intersection.

**Table 5-14-19 Year 2035 Project Fair Share Contribution – Option 2**

| Key Intersections | | Impacted Time Period | Existing Traffic (1) | Option 2 Project Only Traffic (2) | Year 2035 Cumulative Plus Option 2 Project Traffic (3) | Net Option 2 Project Percent Increase (4) |
|---|---|---|---|---|---|---|
| 13 | Yorba Linda Boulevard at Savi Ranch Parkway | PM | 5,632 | 125 | 7,020 | **9.0%** |

Notes: Net Project Percent Increase (4) = [Column (2)] / [Column (3) – Column (1)]

### 5) Site Access and Circulation

Access to the Project Site for Option 2 will be provided via an extension of the existing Aspen Way which will traverse through the southerly edge of the potential Cielo Vista residential project immediately west of the Proposed Project. The proposed Cielo Vista project will utilize the Aspen Way extension roadway that will connect to the Option 2 Project for approximately 18 dwelling units.

#### a) Internal Circulation - Option 2

The proposed internal street system is depicted on Exhibit 5-158, which shows the estimated daily volumes and recommended traffic controls. Aspen Way is depicted as the sole daily entry/exit for the Project Site. Aspen Way will consist of a two lane roadway with parking on both sides from San Antonio Road to approximately 1,100 feet east. Continuing easterly from 1,100 feet, the roadway geometry expands from two lanes to four lanes to the Project's gated entry. The two lane section of Aspen Way is expected to carry a maximum of 4,238 ADT. This volume is within the Residential Collector two-lane undivided roadway ADT LOS B criterion of 4,375 vehicles per day.

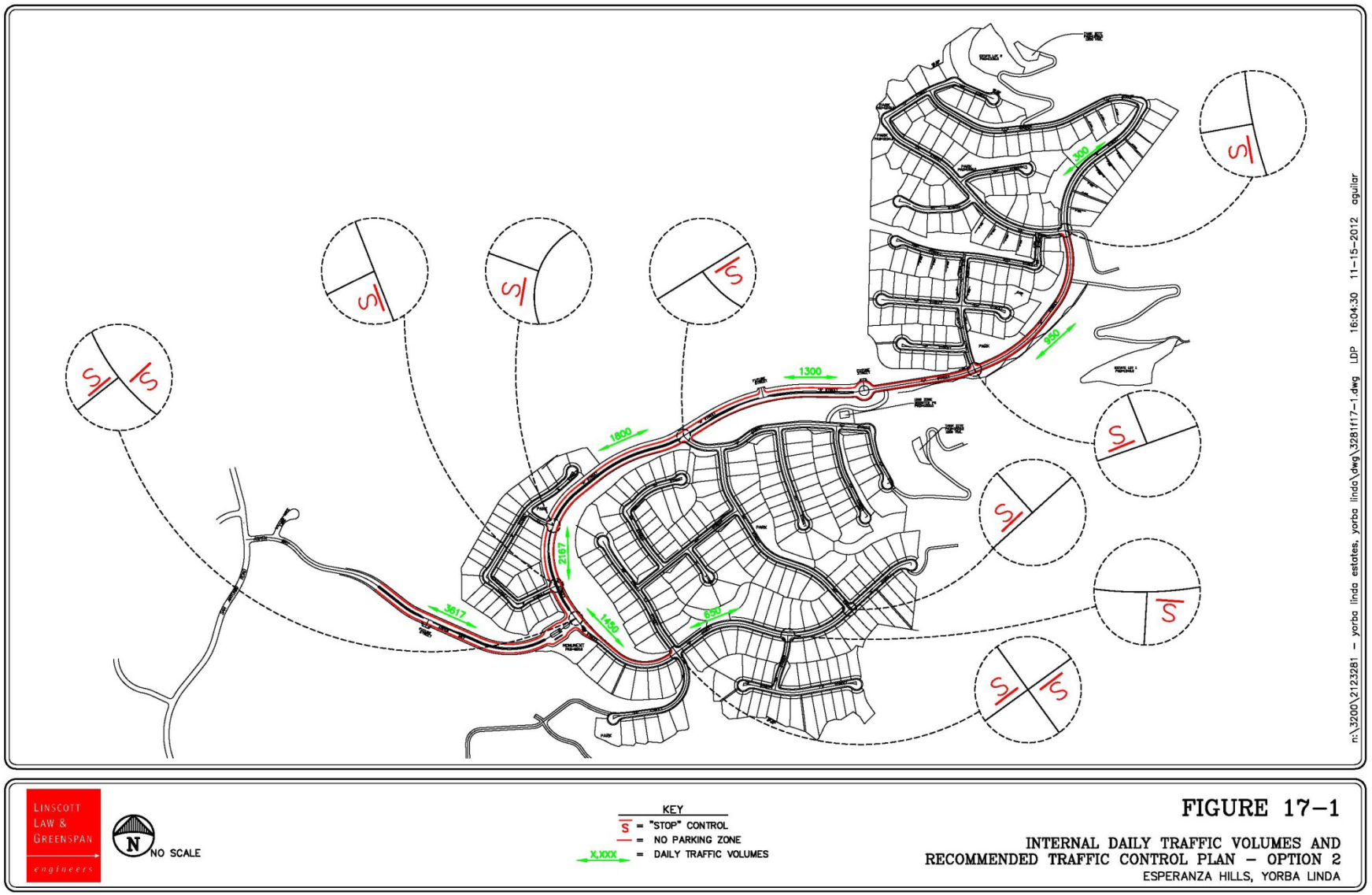



**Exhibit 5-158 – Internal Daily Traffic Volumes and Recommended Traffic Control Plan, Option 2**

After the gated entry, the internal circulation network splits into "A Street", which services the development to the northeast and "G Street", which services the development to the southeast. "A Street", a four-lane roadway from the gated entry to the roundabout, is expected to carry no more than 2,167 daily trips. Continuing northeasterly from the roundabout, the roadway narrows to two lanes, which segment is expected to carry no more than 950 daily trips. "G Street" is proposed as a two lane roadway and is expected to carry no more than 1,450 daily trips. The remaining roadways within the development, which are local residential streets with driveway access, are expected to carry much less than the recommended local street criterion of 1,500 ADT. Motorists are expected to enter/exit their driveways comfortably and safely without undue congestion.

The street system exhibit also presents the recommended traffic control plan for the Project based on an evaluation of the internal circulation design. Stop signs, bars and pavement messages are recommended at the appropriate intersection approaches. The exhibit also shows recommended "No Parking" zones along the four-lane section of the Aspen Way extension, "A Street" and "G Street."

### b) San Antonio Road Assessment - Option 2

San Antonio Road is classified as a Local roadway which functions as a Commuter roadway with an LOS E capacity of 12,500 vehicles per day. This roadway segment is forecast to carry a maximum of 8,838 daily trips under the Year 2035 with Option 2 conditions, which is well within the Collector two-lane undivided roadway ADT LOS C criterion of 10,000 vehicles per day.

### c) Emergency Access - Option 2

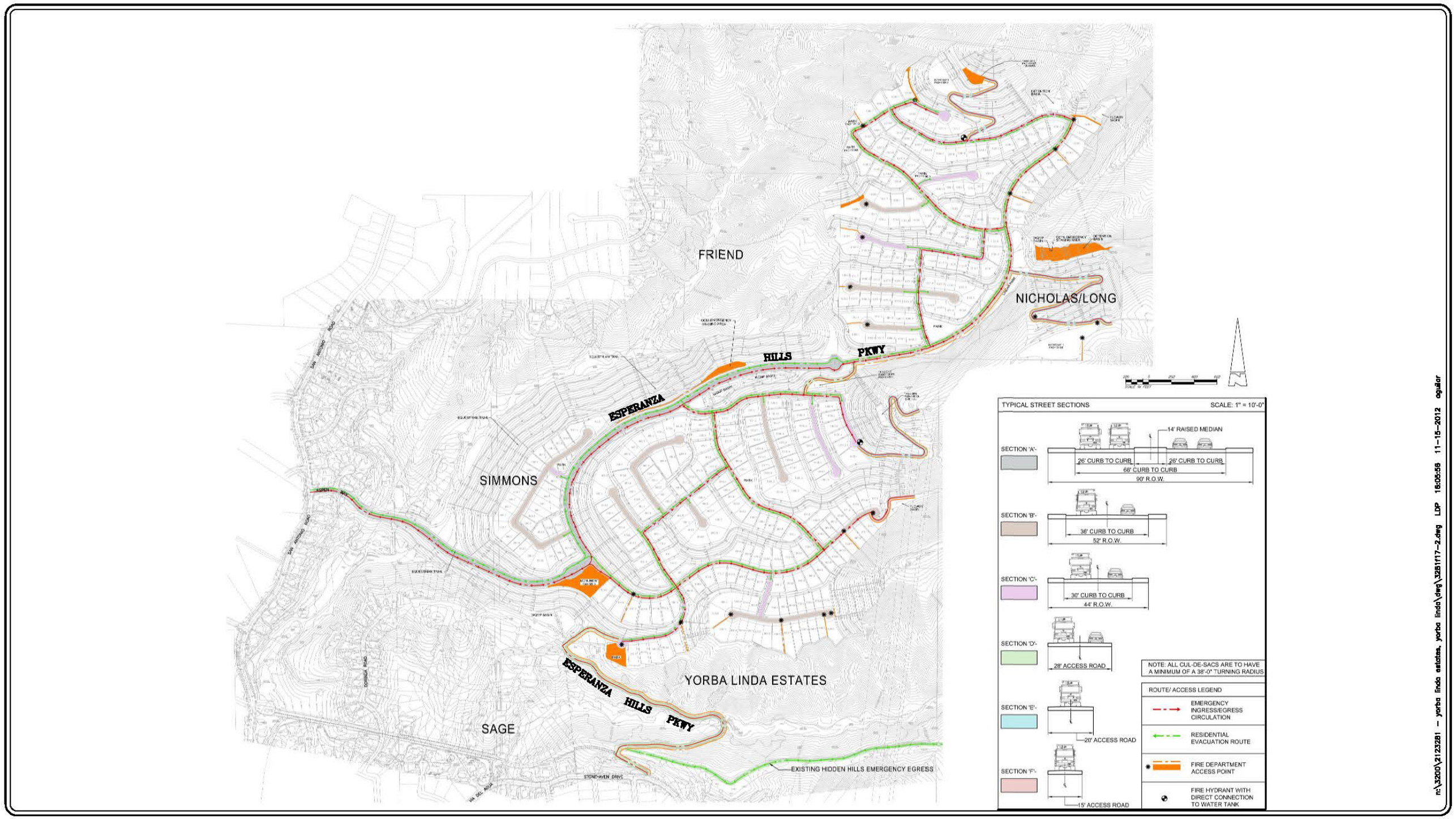
The emergency access plan for Option 2 is depicted on Exhibit 5-159 showing the emergency ingress/egress routes and lane geometry/ cross-sections of the Proposed Project roadways. As shown, emergency access is proposed via the extension of Aspen Way and the existing emergency access roadway located off Stonehaven Drive, which will connect to the southernmost internal roadway. The four-lane section of the Aspen Way extension has been designed with a curb-to-curb width of 66 feet to accommodate two lanes of travel within two 26-foot travel ways and a 14-foot median. The proposed Emergency Access Plan, which has been approved by the OCFA, calls for emergency vehicles traveling would travel on one side and residents on the other side of the roadway. The remaining Project roadways would remain with two way travel during an emergency evacuation. All internal roadways have been designed with adequate width to accommodate emergency vehicles.

As noted in the Option 1 analysis, OCFA Station 32 is located on the south side of Yorba Linda Boulevard south of San Antonio Road. The Station is within three miles of the farthest residential lot.

### d) Queuing Assessment - Option 2

A queuing analysis was conducted for the existing eastbound left-turn lane along Yorba Linda Boulevard at San Antonio Road using the HCM Operations Methodology. This methodology calculates the 85$^{th}$ percentile queue length, also referred to as the design value queue length.

Table 5-14-20 summarizes AM and PM hour queue length (feet) generated by the eastbound left-turn movement along Yorba Linda Boulevard at San Antonio Road. The table shows that the Option 2 Project is expected to increase the 85$^{th}$ percentile queue length beyond the existing storage length of 95 feet. The left-turn pocket has the capability to be extended westerly towards the intersection of Via Piedra by approximately 180 feet. If fully extended, the length of the left-turn pocket would be approximately 275 feet including the transition. As shown on Exhibit 5-160 – Concept Channelization Plan – Yorba Linda Boulevard at San Antonio Road, Option 2, based on the proximity of Via Piedra to San Antonio, the maximum pocket length that can be achieved is 275 feet. The remaining 11 feet needed to achieve the 286-foot length shown in Table 5-14-20 can be accommodated within the transition area of the turn pocket. The table shows that this pocket extension could effectively accommodate the expected queue for Year 2035 Cumulative plus Option 2 Project traffic conditions.




LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: KWC ENGINEERS

**FIGURE 17-2**

**EMERGENCY ACCESS PLAN – OPTION 2**
ESPERANZA HILLS, YORBA LINDA

**Exhibit 5-159 – Emergency Access Plan, Option 2**

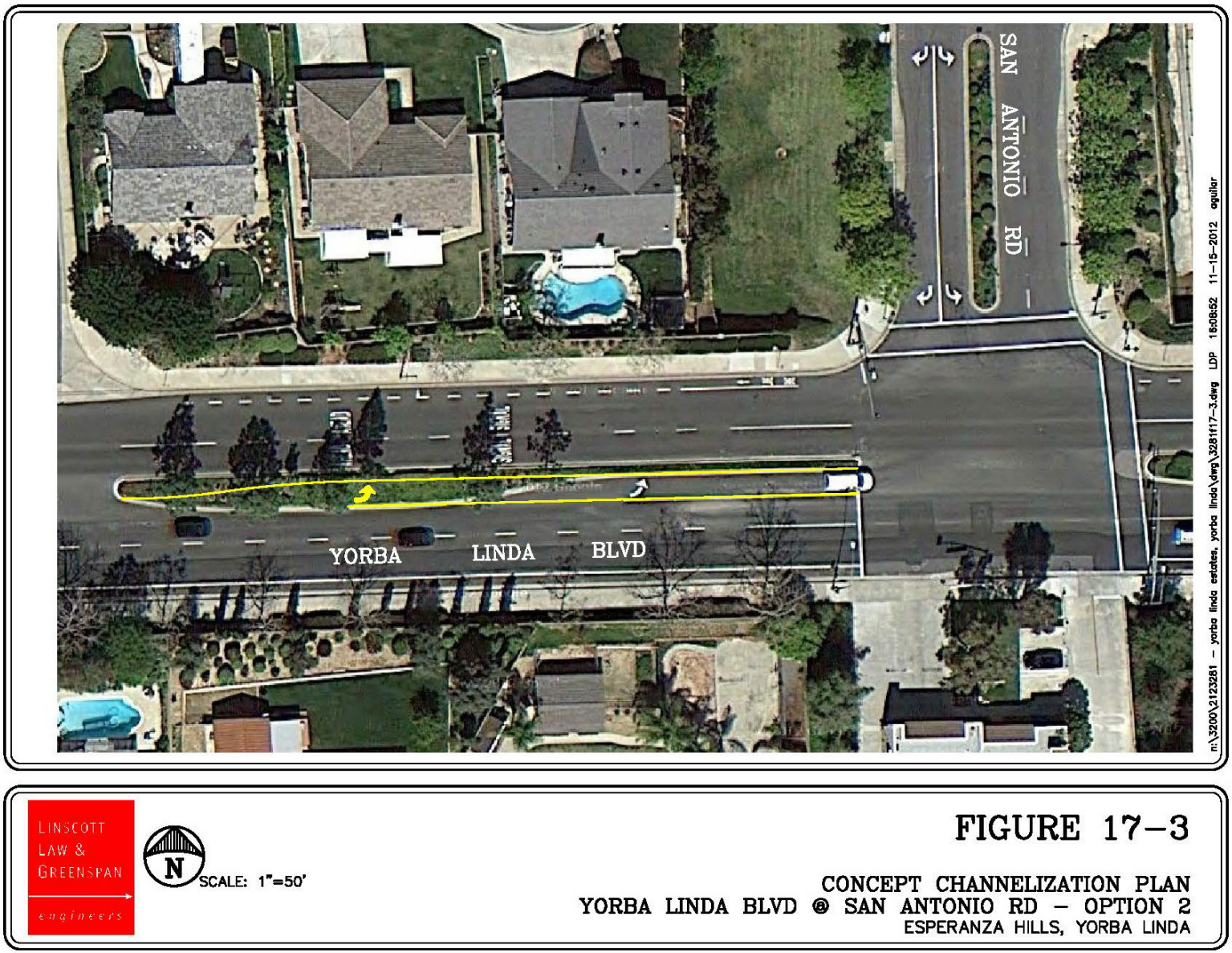



**Exhibit 5-160 – Concept Channelization Plan – Yorba Linda Boulevard at San Antonio Road, Option 2**

**Table 5-14-20 Eastbound Left-Turn Queue Analysis along Yorba Linda Boulevard at San Antonio Road – Option 2**

| Key Intersection | Time Period | Provided Storage | Existing Traffic Conditions (1) | | Existing Plus Project Option 2 Traffic Conditions (2) | | Year 2020 Cumulative Project Traffic Conditions (3) | | Year 2035 Cumulative Plus Project Option 2 Traffic Conditions (4) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Queue Length (feet) | Adequate Storage Yes/No | Queue Length (feet) | Adequate Storage Yes/No | Queue Length (feet) | Adequate Storage Yes/No | Queue Length (feet) | Adequate Storage Yes/No |
| 8. Eastbound left turn along | AM | 95' | 44' | Yes | 88' | Yes | 88' | Yes | 88' | Yes |
| Yorba Linda Boulevard at San Antonio Rd. | PM | 95' | 88' | Yes | **264'** | **No** | **286'** | **No** | **286'** | No |

Queue analysis reports 85th Percentile results utilizing HCM 2000 methodology

## 5.14.4 Mitigation Measures

The results of the traffic analysis indicate that currently only one of the 15 key study intersections operates at an unacceptable level of service during the AM and PM peak hours (Yorba Linda Boulevard at Via del Agua).

### 1. Option 1 Project

Traffic associated with the proposed Option 1 Project in Year 2020 will adversely impact the level of service at the same intersection as existing conditions (Yorba Linda Boulevard at Via del Agua). However, cumulative impacts for with and without project conditions in Year 2020 indicated that all 15 key study intersections will continue to operate at an acceptable LOS. The analysis assumes the installation of a three-phase signal at Yorba Linda Boulevard and Via del Agua in conjunction with the proposed Cielo Vista project. The TIA identifies the installation of the three-phase signal as mitigation even though the improvement is considered a planned improvement. However, the timing and/or certainty of the proposed Cielo Vista project cannot be confirmed at this time. Therefore, a fair share contribution is proposed under "With" and "Without" Cielo Vista conditions. No additional mitigation measures are proposed under Option 1 Project conditions for Year 2020.

T-1 For Option 1, prior to issuance of building permits, the Project Applicant shall contribute to the installation of a three-phase traffic signal at the Yorba Linda Boulevard/Via del Agua intersection in the event the Cielo Vista project is not constructed. The Project Applicant's fair share contribution shall be 39% with the proposed Cielo Vista project as part of the cumulative base traffic condition, and 46% without the Cielo Vista project. If the City does not implement the improvement, the impact will be significant and unavoidable.

Implementation of Mitigation Measure T-1 would reduce potential project-related impacts at this intersection to a less than significant level. However, the County cannot compel the City to implement such improvement. If the City does not implement the improvement, the impact will be significant and unavoidable. This mitigation does not apply to Option 2

Year 2035 without Project conditions for the 15 key study intersections show that two intersections are forecast to operate at an unacceptable level of service during the PM peak hours (Yorba Linda Boulevard at Savi Ranch Parkway and Weir Canyon Road at SR-91 EB Ramps). The analysis assumes that committed improvements will be in place at the intersections of Imperial Highway at Yorba Linda Boulevard and Lakeview Avenue at Yorba Linda Boulevard.

Year 2035 plus Option 1 Project traffic shows that two intersections are forecast to operate at an unacceptable level of service during PM peak hours (Yorba Linda Boulevard at Savi Ranch Parkway and Weir Canyon Road at SR-91 EB Ramps). The remaining 13 intersections are forecast to operate at acceptable levels of service during AM and PM peak hours. However, because the Option 1 Project is expected to

add less than 0.010 ICU value to Weir Canyon Road at SR-91 Ramps, the impact is not considered significant.

Cumulative impacts for Year 2035 Option 1 Project conditions show the Project will impact one of the 15 key study intersections (Yorba Linda Boulevard at Savi Ranch Parkway). The proposed Option 1 Project will be required to contribute a fair-share (9%) of the construction costs to implement intersection improvements per Mitigation Measure T-2 below.

T-2 Prior to issuance of building permits, the Project Applicant shall pay a 9% fair-share contribution for the following improvement at Yorba Linda Boulevard at Savi Ranch Parkway: Widen and re-stripe the westbound approach to provide an additional (third) westbound left-turn lane.

Implementation of Mitigation Measure T-2 above will reduce impacts to the intersection resulting in an improvement from LOS E to LOS D. However, the County cannot compel the City to implement such improvement. If the City does not implement the improvement, the impact will be significant and unavoidable.

### a. Internal Circulation

Analysis of the internal street system shows that all of the daily volumes are within the Residential Collector roadway criteria. No mitigation is required related to impacts on the internal streets.

### b. Queuing Assessment

The queuing assessment has shown that the Project is expected to increase the 85$^{th}$ percentile queue length beyond the existing storage length of 100 feet along Yorba Linda Boulevard at Via del Agua. Therefore, the following mitigation measure is included.

T-3 Prior to issuance of certificates of occupancy, Project Applicant shall pay a 9% fair-share contribution for the following improvement: extend the left-turn pocket along Yorba Linda Boulevard at Via del Agua from the existing 100 feet to 275 feet, with 11 feet in the transition area of the turn pocket to achieve 286 feet. However, the County cannot compel the City to implement such improvement. If the City does not implement the improvement, the impact will be significant and unavoidable.

## 2. Option 2 Project

Traffic associated with the proposed Option 2 Project will adversely impact one of the 15 key study intersections as follows:

- Yorba Linda Boulevard at Via del Agua - LOS F (AM Peak), LOS E (PM Peak)

Cumulative Year 2020 plus project impacts forecast that the Option 2 Project will not adversely impact any of the 15 key study intersections and all

intersections will continue to operate at an acceptable LOS with the addition of project generated traffic.

Cumulative Year 2035 plus project impacts indicated that two key study intersections are forecast to operate at an unacceptable level of service during the PM peak hours under Year 2035 traffic conditions. The remaining 13 intersections are forecast to operate at an acceptable LOS during AM and PM peak hours. The impacted intersections are as follows:

- Yorba Linda Boulevard at Savi Ranch Parkway (LOS E)
- Weir Canyon Road at SR-91 EB Ramps (LOS E)

While the Weir Canyon Road at SR-91 EB Ramps is forecast to operate at LOS E, the proposed Option 2 Project is expected to add less than 0.010 to the ICU value and, therefore, is not considered to be significantly impacted. Mitigation Measure T-2 above provides for the payment of a fair share contribution to widen and re-stripe the westbound approach at Yorba Linda Boulevard at Savi Ranch Road. Implementation of Mitigation Measure T-2 will reduce Year 2035 cumulative impacts; however impacts will remain significant with a forecast level of service (LOS) E.

### a. Internal Circulation

Option 2 access will be via the Aspen Way extension roadway. Analysis shows that all Residential Collector streets and local residential streets with driveway access within the Option 2 site plan are expected to carry less than the recommended local street criteria for average daily traffic. The San Antonio Road segment proposed for Option 2 internal circulation is forecast to operate well within the Collector two-lane undivided roadway LOS criterion. No mitigation is required related to impacts on the internal street system.

### b. Queuing Assessment

The queuing assessment for Option 2 shows that the project is expected to increase the 85$^{th}$ percentile queue length beyond the existing storage length of 95 feet of the eastbound left-turn lane along Yorba Linda Boulevard at San Antonio Road. Fully extending the left-turn pocket westerly towards the intersection of Via Piedra to 286 feet could effectively accommodate the expected queue for Year 2035 cumulative plus Option 2 traffic. This will be accomplished by extending the turn pocket 275 feet, with an additional 11 feet available in the transition area of the turn pocket, as described in Mitigation Measure T-3.

## 5.14.5 Level of Significance after Mitigation

### 1. Option 1 Project

#### a. Existing Plus Option 1 Traffic Conditions

The proposed Option 1 Project will significantly impact the intersection of Yorba Linda Boulevard at Via del Agua. This intersection currently operates at an adverse service level. Installation of a three phase traffic signal is a committed improvement in conjunction with the proposed Cielo Vista project, reducing impacts from the Proposed Project to a level of insignificance. However, the County cannot compel the City to implement the signal. Therefore, this would be considered a significant and unavoidable impact.

#### b. Year 2020 Cumulative Traffic Conditions Plus Option 1 Project

The Option 1 Project will not significantly impact any of the 15 key study intersections and no mitigation is required. The analysis assumes the installation of the three phase traffic signal at Yorba Linda Boulevard at Via del Agua.

#### c. Year 2035 Cumulative Traffic Conditions Plus Option 1 Project

Two key intersections are forecast to operate at an unacceptable level of service during the AM and/or PM peak hours.

- Yorba Linda Boulevard at Savi Ranch Parkway
- Weir Canyon Road at SR-91 EB Ramps

The proposed Option 1 Project is expected to add less than 0.010 to the ICU value at Weir Canyon Road/SR-91 EB Ramps and thus is not considered significant. Mitigation Measure T-2 will reduce impacts at the intersection of Yorba Linda Boulevard at Savi Ranch Parkway, thereby reducing the level of significance. With mitigation the existing LOS E will be reduced to an acceptable LOS D. If the City does not implement the improvement, the impact will be significant and unavoidable.

#### d. Queuing Assessment

The Option 1 Project is expected to increase the queue length beyond the existing storage length of 100 feet at the intersection of Yorba Linda Boulevard and Via del Agua. Implementation of Mitigation Measure T-3 will reduce impacts to a level of insignificance.

### 2. Option 2 Project

#### a. Existing Plus Option 2 Project

The Option 2 Project will significantly impact the level of service at the intersection of Yorba Linda Boulevard at Via del Agua. This intersection currently operates at an adverse service level. Installation of a three phase traffic

signal is a committed improvement in conjunction with the proposed Cielo Vista project, reducing impacts from the Proposed Project to a level of insignificance.

### b. Year 2020 Cumulative Traffic Conditions Plus Option 2 Project

The proposed Option 2 Project will not significantly impact any of the 15 key study intersections. The analysis assumes the installation of a three phase traffic signal at Yorba Linda Boulevard at Via del Agua with the development of the proposed Cielo Vista project.

### c. Year 2035 Cumulative Traffic Conditions Plus Option 2 Project

Two key study intersections are forecast to operate at an unacceptable level of service during the AM and/or PM peak hours:

- Yorba Linda Boulevard at Savi Ranch Parkway
- Weir Canyon Road at SR-91 EB Ramps

However, traffic at the intersection of Weir Canyon Road at SR-91 EB Ramps is expected to add less than 0.010 to the ICU value, and thus is not significant. Mitigation Measure T-2 (page 5-620 above) provides for the payment of a fair share contribution to widen and re-stripe the westbound approach at Yorba Linda Boulevard at Savi Ranch Road. Implementation of this Mitigation Measure will reduce Year 2035 cumulative impacts resulting in a change from LOS E to LOS D.

### d. Fair Share Fees

The fair-share percentage at the impacted intersections for Option 1 and Option 2 totals 9%, as detailed in Mitigation Measures T-2 and T-3.

Existing Plus Option 1 Project and Existing Plus Option 2 traffic will significantly impact the intersection of Yorba Linda Boulevard at Via del Agua. Installation of a traffic signal, which is a planned improvement, will reduce the level of impact to less than significant.

Year 2020 Cumulative Plus Option 1 and Year 2020 Cumulative Plus Option 2 require no mitigation measures.

Year 2035 Cumulative Plus Option 1 and Year 2035 Cumulative Plus Option 2 have a mitigation (Mitigation Measure T-2, page 5-620 above) at the intersection of Yorba Linda Boulevard at Savi Ranch Parkway. Payment of a 9% fair-share fee to widen and re-stripe the westbound approach to provide an additional westbound left turn lane will reduce the impact to this intersection. The intersection is forecast to operate LOS D with proposed mitigation.

## 5.14.6 Cumulative Impacts

The Proposed Project, at Horizon Year 2035, is expected to contribute to roadway operation deficiencies at the intersection of Yorba Linda Boulevard at Savi Ranch Parkway under Option 1 and Option 2 traffic conditions when combined with projected development in the Project Area. Mitigation to achieve acceptable levels of service has been provided to lessen the adverse impact. The TIA considered the 18 identified related projects, and no cumulative impacts resulted from those developments.

The proposed Cielo Vista project will add 112 residential units to the surrounding area. A three-phase signal at Yorba Linda Boulevard and Via del Agua is considered a planned improvement with implementation of the proposed Cielo Vista project. Project-related fair share fees have been identified for installation of the signal both "With" and "Without" the proposed Cielo Vista project. Installation of the traffic signal will reduce cumulative impacts to a less than significant level. However, as discussed previously, the County cannot compel the City to install a signal. If the signal is not installed, the impact will be significant and unavoidable.

## 5.14.7 Unavoidable Adverse Impacts

Significant project-related operational and cumulative impacts will occur at the intersection of Yorba Linda Boulevard/Via del Agua and Yorba Linda Boulevard at Savi Ranch Parkway for Option 1 and Option 2 conditions. However, left-turn pocket lengthening improvements proposed for both intersections will mitigate the potentially significant cumulative adverse impacts. As noted, the County cannot compel the City to implement the proposed mitigation measures. While the measures are feasible and a standard practice, impacts at Yorba Linda Boulevard/Via del Agua and Yorba Linda Boulevard/Savi Ranch Parkway will be considered significant and unavoidable because of the uncertainty related to mitigation implementation.

# 5.15 Utilities and Service Systems

This section provides a discussion of utilities and service systems that may be affected by the implementation of the Proposed Project. Existing utility systems that would provide services to the Proposed Project are identified and evaluated for potential impacts. The analysis is based on information provided by service providers and utility companies.

"Preliminary Water Reports" prepared by KWC Engineers dated June 2013 analyzed the project under Option 1 and Option 2 access conditions (Appendix P to this DEIR). "Preliminary Sewer Reports," also by KWC Engineers, dated June 2013 analyzed the project under Option 1 and Option 2 (Appendix Q to this DEIR).

A Northeast Area Planning Study (NEAPS) was prepared by Carollo Engineers dated March 2013 (Appendix R to this DEIR). The NEAPS report evaluated the capacity of the existing water service to supply areas of new development, including the Proposed Project. Information from the NEAPS, as well as the "Yorba Linda Water District 2005 Domestic Water System Master Plan" (YLWD Water Master Plan) (Appendix S to this DEIR) and the "Yorba Linda Water District 2010 Urban Water Management Plan" (YLWD UWMP) (Appendix T to this DEIR), has been included in this analysis.

Service request letters were sent to Southern California Edison (SCE), Southern California Gas Company (SCG), AT&T, Time Warner Cable, the Yorba Linda Water District (YLWD), and Yorba Linda Disposal in order to accurately assess potential impacts of the project. Responses to these letters are included in Appendix U of this DEIR.

**Acronyms used in this section:**

| | |
|---|---|
| AMSL | above mean sea level |
| BPS | Booster Pump Station |
| CEQA | California Environmental Quality Act |
| cfs | cubic feet per second |
| d/D | depth over pipe diameter |
| DEIR | Draft Environmental Impact Report |
| DU/ac | dwelling unit per acre |
| fps | feet per second |
| gpd/DU | gallons per day per dwelling unit |
| gpm | gallons per minute |
| mg | million gallons |
| mgd | million gallons per day |
| MWD | Metropolitan Water District |
| NEAPS | Northeast Area Planning Study |
| OCFA | Orange County Fire Authority |
| OCSD | Orange County Sanitation District |
| psi | pounds per square inch |
| RWQCB | Regional Water Quality Control Board |
| SCG | Southern California Gas Company |
| SCE | Southern California Edison |
| TDH | total dynamic head |
| UWMP | Urban Water Management Plan |
| VHFHSZ | Very High Fire Hazard Severity Zone |
| VCP | vitrified clay pipe |
| YLWD | Yorba Linda Water District |

## 5.15.1 Existing Conditions

The Esperanza Hills property is substantially undeveloped and is characterized by rolling hills that support a variety of habitats. Portions of the property are currently used for oil production (three working wells), water line transmission for Metropolitan Water District of (MWD) and YLWD, and electrical energy transmission for (SCE). Easement locations for SCE, YLWD, MWD, and SCG are depicted on Exhibit 5-161 – Physical Characteristics. The YLWD and SCG easements are south and west of the property boundaries, respectively.

### 1. Water Service

The YLWD is an independent special district that provides water and sewer services to residents and businesses within a 27-square-mile service area. The site is located within the YLWD Improvement District 1 water service area. The YLWD will be the potable water purveyor for the Proposed Project. The YLWD Water Master Plan, prepared by Carollo Engineers and dated May 2005 (Appendix S to this DEIR), identified existing and future proposed water supply, storage, and transmission facilities within the YLWD's ultimate service area. The service area is divided into zones as identified below. The report also included information regarding the YLWD's planning and evaluation criteria, which can be applied to determine projected water demands, including the Proposed Project Site.

The NEAPS evaluated the capacity of existing distribution system facilities and recommended sizing of infrastructure to provide water for future demands. Yorba Linda Estates, the Project Applicant, participated in funding the cost of the water system review and preparation of the NEAPS. The NEAPS determined that the Proposed Project and the Sage (Cielo Vista) developments are projected to add 542 acre-feet per year to the annual YLWD demand. This equates to a 2% demand increase of the YLWD's annual overall system demand (25,388 acre-feet per year). The current maximum day demand is anticipated to increase by 0.7 million gallons per day (mgd) to 33.6 mgd. The study results are discussed further in Section 5.15.3, Project Impacts Prior to Mitigation below.

The project water demands are based on the proposed land use and sizing criteria identified in the YLWD Water Master Plan and the NEAPS report. The NEAPS recommends that the source of water supply for Esperanza Hills will come from the Zone 1000-1 of the existing YLWD system, served by the Little Canyon Reservoir and fed by the Fairmount pumping station to two reservoirs to be built on-site at 1,200-foot and 1,390-foot elevations.

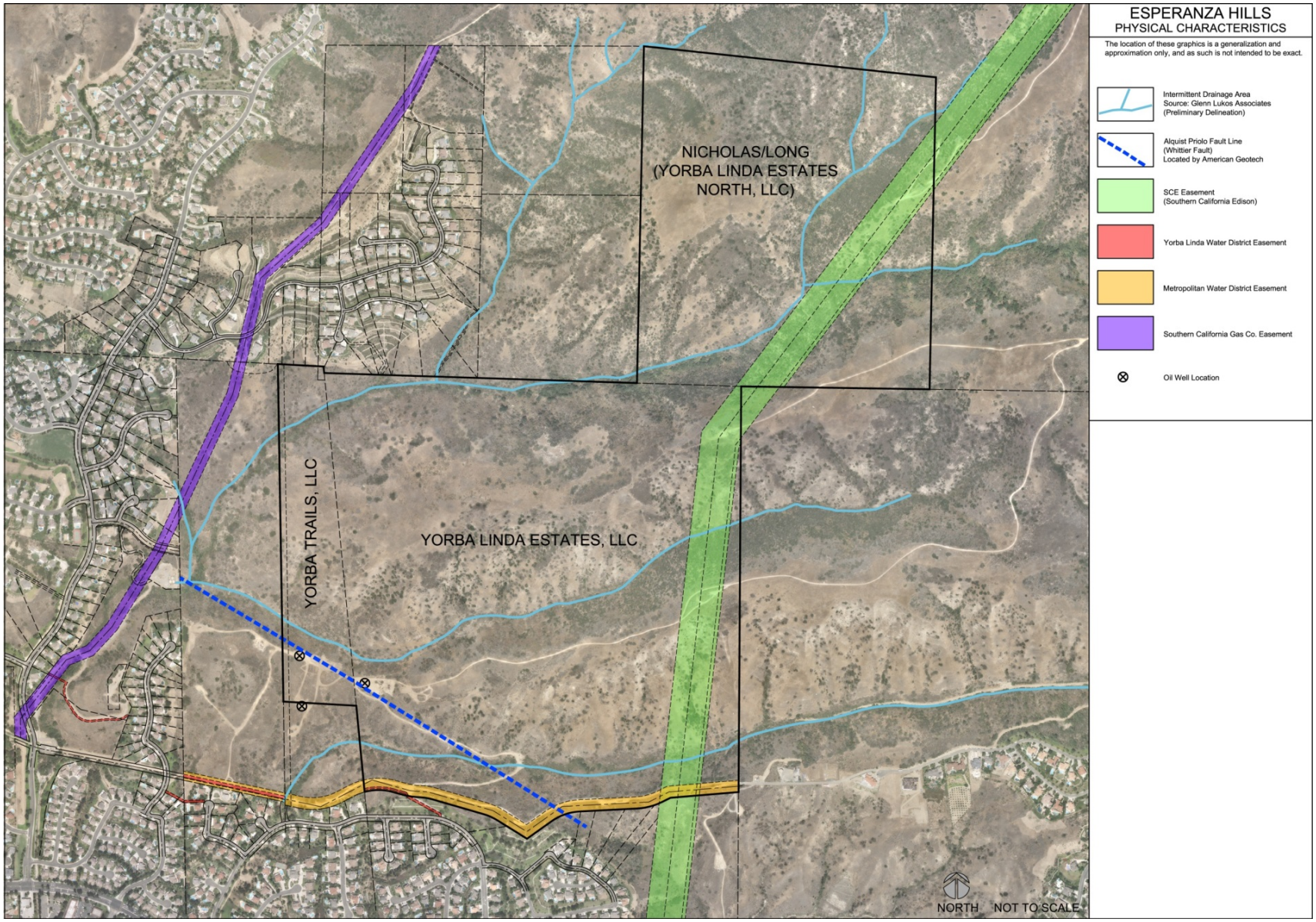



**Exhibit 5-161 – Physical Characteristics**

Table 5-15-1 depicts the existing water facilities in the vicinity of the Proposed Project.

**Table 5-15-1 Existing Water Facilities**

| Zone | Street | Pipe Size |
|---|---|---|
| 1000 (5B) | San Antonio Way | 10" |
| 780-3 (4C) | MWD Easement | 33" |
| 1000 (5B) | Stonehaven Drive | 12" |
| Santiago Reservoir - 1000 (5B) | Green Crest Drive | 12" |
| Hidden Hills Reservoir - 1390 (6C) | Wire Spring Trail | 12" |

The NEAPS also recommends several off-site water system improvements be made to support the supply needs of the Proposed Project in addition to the Proposed Project water infrastructure facilities. Following are the minimum off-site system improvements recommended to support the supply needs of the Proposed Project and other proposed future projects:

1. Increase firm pumping capacity of the existing Fairmont Pump Station;
2. Construction of a parallel 16-inch diameter pipeline (3,500 linear feet) and future abandonment of the existing 12-inch diameter Zone 1000-1 pipeline along Fairmont Boulevard between Fairmont Pump Station and Forest Avenue;
3. Construction of a new 24-inch diameter pipeline in Fairmont Boulevard from Bastanchury Road to the Fairmont Pump Station; and
4. Additional off-site well capacity and pipeline upgrades (including zone reconfiguration improvements) to be determined by the YLWD staff.

## Existing Facilities

- 1000 Zone - An existing 10-inch 1000 zone (5B) line is located in San Antonio Road, and an 8-inch line is located in Aspen Way connecting to the 36-inch transmission line along the MWD pipeline. The zone is supplied by the Little Canyon Reservoir, which has a capacity of 0.88 million gallons (mg), and by the Santiago Reservoir, which has a capacity of 1.10 mg, both with a high water elevation of 1,000 feet. Water pressure is supplied by three booster stations. The booster stations are identified as the Fairmont Booster Pump Station (BPS), the Springview BPS, and the Hidden Hills BPS.

  An existing 12-inch 1000 Zone (5B) water line is located in the MWD easement and in Stonehaven Drive at Davenport Circle south of the Project Site. This line is supplied by the Hidden Hills BPS and the 1000 Zone Santiago Reservoir.

- 780 Zone - An existing 36-inch/33-inch 780 Zone (4C) water line is located along the existing MWD easement southwest of the Project Site. The YLWD Water Master Plan noted a storage deficit of approximately 9.0 mg in Zones 780 (4A), 780 (4B), and 780 (4C). The deficit has been addressed by interconnecting

these zones with new pipelines, thereby reducing the storage requirement for the 780 Zone to 10.0 mg. This line is supplied by the 8.00-mg Springview Reservoir and the 1.98-mg Gardenia Reservoir.

- 1390 Zone - An existing 12-inch 1390 Zone (6C) water line is located in Hidden Hills Road and in Wire Spring Trail east of the Project Site. This line is supplied by the Hidden Hills Reservoir, which has a capacity of 2.0 mg. The Santiago BPS supplies the pressure to the 1390 pressure zone.

  YLWD is obligated by an existing development agreement to provide the necessary backbone facilities to supply and service the Proposed Project Area, which is located in Improvement District No. 1, as identified in the YLWD Water Master Plan. There are currently no existing master planned water facilities available to service the upper pressure zones of the Project Site and adjacent developments.

## 2. Sanitary Sewer Service

The site is located within the Orange County Sanitation District (OCSD) sewer area for sewer treatment and YLWD for local sewer service area. OCSD serves 80% of Orange County's population within a 471-square-mile area. The OCSD Facilities Master Plan, prepared in December 2009, provides a regional study identifying existing and proposed major sewer facilities within the OCSD ultimate service area. The study also identifies capital improvements required for the OCSD to maintain the required level of service.

The YLWD will provide the sanitary sewer disposal collection system for the Proposed Project. Sewer improvements provided by the project will be designed and constructed in accordance with the YLWD's Standards and Specifications. The YLWD 2010 Sewer Master Plan Update, dated February 2011, provides a study of the area west of the site identifying existing and proposed major sewer facilities within YLWD's service area. An update to the Master Plan incorporating the recently acquired sewer service area from the City, including the Proposed Project, has not been completed.

An existing 10-inch sewer line in Stonehaven Drive drains to the south into an existing 10-inch main in Yorba Linda Boulevard, then to a 12-inch main in Via de la Escuela. Flows are conveyed southwesterly toward the 51-inch OCSD Santa Ana River Interceptor (trunk line), which drains southwesterly to Wastewater Treatment Plant #1 in Fountain Valley. This Plant #1 facility, along with Plant #2 in Huntington Beach, treat 207 mg of wastewater each day.

## 3. Solid Waste

Yorba Linda Disposal, a division of Republic Services, provides refuse collection and recycling services for the Project Area. The Olinda Alpha Landfill, owned and operated by the County of Orange and located in Brea, is the solid waste facility serving the Project Area. The landfill accepts a maximum of 8,000 tons per day. The Class II landfill (municipal solid waste) has a network of proactive environmental

programs and control systems to prevent any potential impacts to the surrounding areas. The landfill is currently scheduled to close in December 2021. No decision has been made to extend the 2021 date. Orange County Waste Management indicates that after 2021, the area will be serviced by the Frank R. Bowerman landfill (Irvine) and the Prima Deschecha (San Juan Capistrano) landfill[37].

### 4. Electricity

Electricity to the area is provided by Southern California Edison (SCE), which provides electric power to 13 million people located within 11 counties and 180 cities in Central, Coastal, and Southern California covering an area of 50,000 square miles. Existing electrical lines are located on Aspen Way and Stonehaven Drive. SCE currently has a transmission line easement through the Project Site as depicted on Exhibit 5-161 – Physical Characteristics (page 5-627). Existing transmissions lines will remain in place.

### 5. Natural Gas

Natural gas for the Project Site will be provided by Southern California Gas (SCG), which provides gas to over 20 million people in more than 500 communities in central and southern California. A gas transmission line easement is located west of the Proposed Project Site. Gas lines are located in Aspen Way and Stonehaven Drive.

### 6. Telephone

Telephone service to the Project Site will be provided by AT&T. Existing points of connection are located in Aspen Way and Stonehaven Drive.

### 7. Cable

Cable television services will be provided by Time Warner. Existing points of connection are located in Aspen Way and Stonehaven Drive.

## 5.15.2 Thresholds of Significance

The state encourages local agencies to adopt their own thresholds, but it is not required. The County of Orange does not have adopted thresholds of significance for utilities and service systems. For purposes of this analysis, the applicable thresholds listed in the CEQA Guidelines will be used. Appendix G of the CEQA Guidelines states that the project could have a significant adverse impact on utilities and service systems if the project would:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;

[37] Personal communication with John Arnaux, CEQA Compliance Manager, Orange County Waste Management, July 22, 2013

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;
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
d) Require new or expanded entitlements to have sufficient water supplies available to serve the project;
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that the project does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
f) Be served by a landfill without insufficient permitted capacity to accommodate the project's solid waste disposal needs;
g) Not comply with federal, state and local statutes and regulations related to solid waste.

## 5.15.3 Project Impacts Prior to Mitigation

### 1. Water Service

The Yorba Linda Water District (YLWD) provided a conditional will-serve letter dated January 8, 2013, regarding its ability to provide water and sewer service to the Proposed Project. A subsequent letter dated January 11, 2013, notes that any future binding commitment by the YLWD will be subject to the availability of water and the planning, design, and construction of adequate facilities to meet the demands of the Proposed Project. Provision of water to the Proposed Project is further conditioned by requiring the YLWD and the Project Applicant to enter into a Development Agreement for water and sewer service. The Proposed Project does not require the preparation of a water supply assessment per *California Water Code* §10910, because the Proposed Project has fewer than 500 dwelling units. However, adequacy of water supply has been confirmed in the Yorba Linda Urban Water Management Plan, which stated that water is available to serve YLWD up to year 2035. As noted, water will be provided in coordination with the YLWD Water Master Plan.

In a pending annexation request, YLWD is seeking to annex approximately 6,100 acres into the Orange County Water District, which is responsible for maintaining the quality and availability of groundwater for YLWD in this area. There is an EIR currently out for review on that annexation request. The YLWD has already determined, in its UWMP, that it has sufficient water supply to meet its needs, including the projected needs of Esperanza Hills and the proposed Cielo Vista project, through 2035, whether or not the annexation to OCWD is approved. The YLWD UWMP is included herein as Appendix T)

### a. Northeast Area Planning Study

The NEAPS report was based on hydraulic modeling to determine the alternative means to service the potential new residential developments in the Project Area. Fire flow requirements established by the Orange County Fire Authority (OCFA) were factored into the study. Future water demands from the Proposed Project, as well as the other adjacent developments, were included in the regional analysis to verify that there will be sufficient water supply to the developments within the upper pressure zones where no existing master planned water facilities are currently in place. However, because the potential development of the Project Site was considered in the YLWD Water Master Plan, as well as the County of Orange General Plan, it is not anticipated that any significant impacts will occur. The County General Plan Land Use Element includes policies that seek to phase new development consistent with the adequacy of public services and facilities.

The NEAPS report suggested that the Proposed Project and the proposed Cielo Vista project be divided into two pressure zones with hydraulic grade lines at 1,200 feet above mean sea level (AMSL) and 1,390 feet AMSL with a reservoir storage capacity of 1.3 mg. Storage was recommended to be accommodated in reservoirs within the development areas rather than utilizing existing reservoirs for additional storage. Pump station upgrades were recommended, including additional pump units at Fairmont BPS, Hidden Hills BPS, and Santiago BPS to accommodate potential use of Hidden Hills Reservoir for storage.

The NEAPS report estimated average daily demand based on the water demand factors in the 2005 Water Master Plan. The projected average daily demand for both developments is 0.48 mgd, with a maximum daily demand of 0.72 mgd. Criteria used to compare existing storage volumes with the required volumes for the proposed developments are operational storage, fire flow storage, and emergency storage. The NEAPS report analyzed impacts related to water quality due to high water age and provided treatment recommendations to ensure key water quality parameters are maintained. In addition, connecting the proposed development to existing reservoirs would improve water cycling due to increased demand, further improving water quality conditions.

With specific regard to the Proposed Project, the NEAPS report concluded that dedicated storage for the new development would be preferred due to reliability, water quality concerns and reduced energy usage. The infrastructure required for this preferred option is:

- Two pump stations within the development, one for each pressure zone
- Two tanks with a combined capacity of 1.3 mg
- Pressure-reducing station (if upper tank is sized to meet some demands in the lower zone)
- In-tract development pipelines

- Increase to firm capacity of Fairmont Pump Station
- Additional off-site improvements including additional well capacity and pipeline upgrades determined by YLWD staff

In addition, the NEAPS report recommended that the YLWD include the following elements in the design phase for future new reservoirs:

- Separate inlet and outlets
- Mixing device within the reservoir
- Samplers to provide real-time automated monitoring of chlorine residual

## b. Preliminary Water Report

The Preliminary Water Reports prepared by KWC Engineers dated June 2013 analyzed water system requirements and improvements for Option 1 and Option 2 utilizing water duty factors used in similar YLWD developments and in consultation with YLWD staff engineers. The project water demands were based on the proposed land use and sizing criteria identified in the YLWD Water System Plan and the 2013 NEAPS.

The water distribution system designed for the Proposed Project maintains static pressures between 60 pounds per square inch (psi) and 125 psi. Computer modeling will be performed during final design and submitted to YLWD to ensure that adequate residual pressures are achieved under all demand conditions. The system shall be designed to yield minimum static pressures of 60 psi at reservoirs' high water level, residual pressures of 40 psi during non-fire demands, and 20 psi during maximum day demand plus fire flow conditions. Where the maximum pressure at the service connection exceeds 80 psi, individual pressure regulators shall be equipped at the service connection in accordance with the *Uniform Plumbing Code*. Headloss in water lines is calculated using the Hazen-Williams equation with a "C" value of 120. "Headloss" is a measure of the reduction in the elevation head, the velocity head, and the pressure head caused by friction between the fluid and the pipe. Only locations where customers are served will need to meet such pressure requirements.

Transmission and distribution pipelines were designed to have a maximum velocity of 5 feet per second (fps). The maximum velocity can increase to 7 fps for maximum day and peak hour non-fire scenarios. For fire flow scenarios, the pipe can have a maximum velocity of 15 fps. The volume of storage in a water system consists of water for operational storage, emergency storage and fire flow storage. YLWD has directed that the Proposed Project's operational storage and emergency storage is required to be equivalent to 30% of the maximum day demand and 100% of the average day demand, respectively. Two underground reservoirs are proposed to meet the project's storage capacity.

The project is proposing to provide the minimum fire flow storage of 1,500 gallons per minute (gpm) for a 2-hour duration with a minimum residual pressure of 20 psi to meet OCFA and YLWD fire flow requirements for single-family residential developments. OCFA normally allows a reduction to the fire flow requirements for developments that have incorporated fire sprinkler systems, specific building construction types, fuel modification, fire breaks, and other special fire protection measures. However, OCFA has indicated that it will not allow credits or reduction on the fire flow requirements for the Project because it is located in a Very High Fire Hazard Severity Zone (VHFHSZ). The proposed water distribution system complies with the California Fire Code fire flow requirement of 1,500 gpm for a 2-hour duration.

As noted, no existing master planned water facilities are currently available to service the upper pressure zones of the Proposed Project and adjacent developments. A Development Agreement will be entered into with YLWD to construct the water facilities on-site to serve the project only, or alternatively to construct water facilities on-site and provide financial contribution to YLWD to construct off-site facilities to balance the water supply for the area while at the same time serving the project. The proposed water improvements will be designed to meet the demands of the project while also improving the water service reliability and fire protection for the surrounding area.

Details for providing water under Option 1 and Option 2 are described below.

**1) Option 1 - Stonehaven Drive Access**

Option 1 consists of three proposed water pressure zones that will service the Proposed Project. These pressure zones are identified as the 1000 Zone, the 1200 Zone, and the 1390 Zone water system. A network of 12-inch transmission water lines and two booster stations are proposed to supply water to the two on-site underground reservoirs that will service the upper 1200 and 1390 pressure zones within the project. The proposed 1,000-foot pressure zone will be served via a proposed 16-inch transmission line and tie-in point to the existing 780-foot zone water system (33-inch diameter transmission pipeline) located east of Dorinda Road within the existing MWD easement, or at such other points as designated by the YLWD if it chooses to supply the Proposed Project or any of the adjoining developments from its 1000-1 zone.

The 1200 Zone Reservoir will have a capacity of approximately 0.70 mg, and the 1390 Zone Reservoir will have a capacity of 0.40 mg. The 1200 Zone Reservoir and the 1390 Zone Reservoir are sized to include storage for the Proposed Project only, unless agreements are reached with adjoining property owners and development agreements between adjoining property owners and YLWD are entered into as set forth above. Per the NEAPS, the total storage requirement for the Proposed Project and the proposed Cielo Vista project for all pressure zones is 1.30 mg. Note

that storage requirements discussed herein are estimates only. The OCFA is responsible for establishing final fire flow requirements, and additional storage requirements shall be determined and finalized after completion of the design and approval by all jurisdictional agencies.

The 1200 Zone BPS is sized to include one fire flow and emergency natural gas or diesel pump, two supply pumps, and one duty pump. This pump station is located at the southwest corner of the Proposed Project on a pad elevation of 720 feet and will be sized as required by the final design. The proposed 1390 Zone BPS is sized to include one fire flow and emergency natural gas or diesel pump, two supply pumps, and one duty pump. This pump station is located at the central portion of the Proposed Project Site on a pad elevation of 1,021 feet and will be sized for a pumping capacity as required by the final design. A pressure-reducing station interconnection is proposed to reduce the operating pressures from the 1390 Zone water system to the 1200 Zone and from the 1200 Zone water system to the 1000 Zone. This will provide redundancy to the water system in the event that the 1200 Zone Reservoir is non-operational. The proposed water system infrastructure improvements are shown in Exhibit 5-162 – Proposed Water Facilities Plan, Option 1.

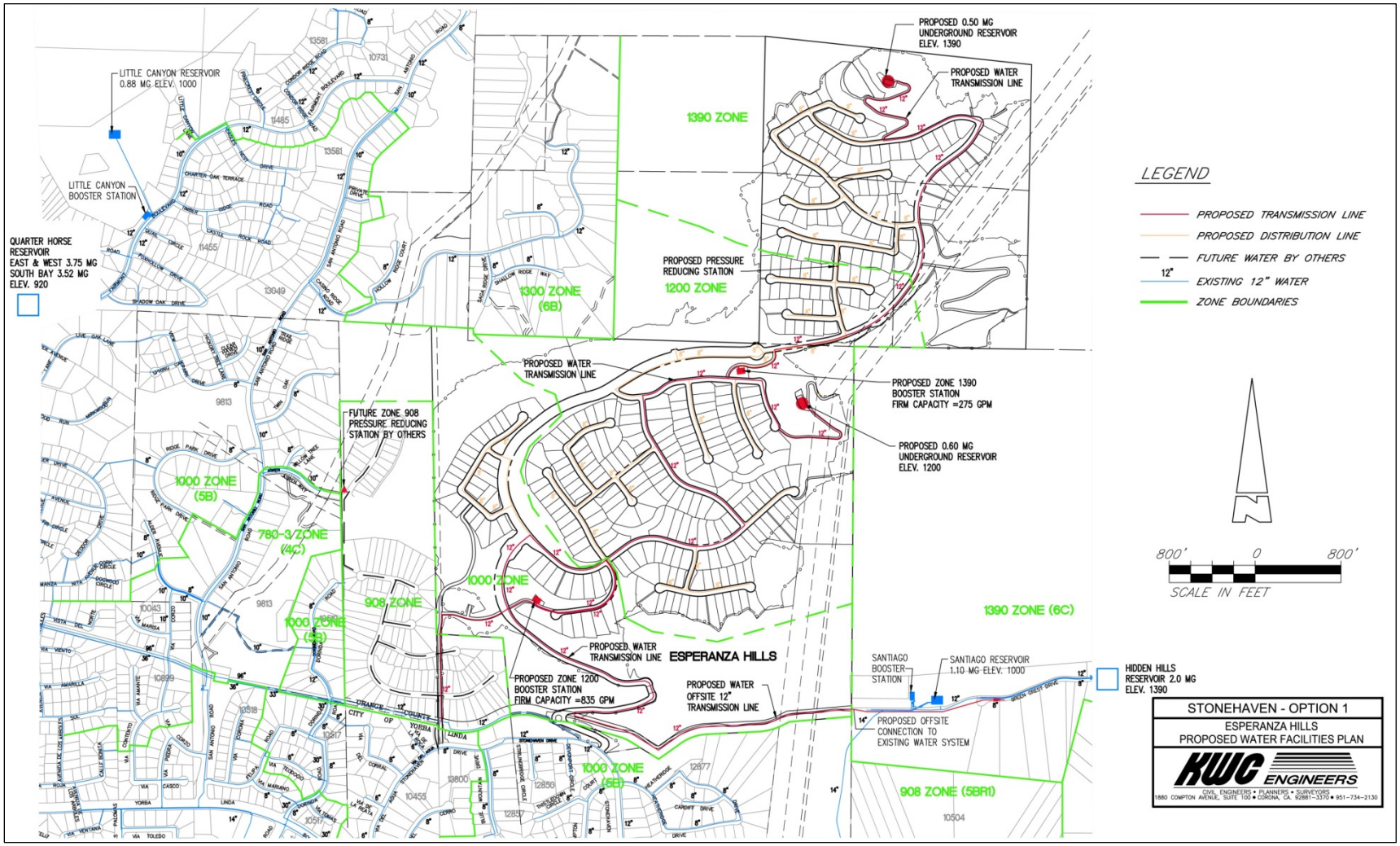



**Exhibit 5-162 – Proposed Water Facilities Plan, Option 1**

### 2) Option 2 - Aspen Way Access

Option 2 consists of three proposed water pressure zones that will service the project. These pressure zones are identified as the 1000 Zone, the 1200 Zone, and the 1390 Zone water system. A network of transmission water lines and two booster stations are proposed to supply water to the two proposed on-site underground reservoirs. The two reservoirs will service the upper 1,200-foot and 1,390-foot pressure zones within the Proposed Project as well as the proposed 1,000-foot pressure zones via a proposed 16-inch transmission line and tie in point to the existing 780-foot zone water system (33-inch diameter transmission pipeline) located east of Dorinda Road within the existing MWD easement or at such other points as designated by the YLWD if it chooses to supply the Proposed Project or any of the adjoining developments from its 1000-1 zone.

The 1200 Zone Reservoir will have a capacity of approximately 0.70 mg, and the 1390 Zone Reservoir will have a capacity of 0.40 mg. The 1200 Zone Reservoir and the 1390 Reservoir are sized to include storage for the Esperanza Hills project only, unless agreements are reached with adjoining property owners and development agreements between adjoining property owners and YLWD are entered into as set forth above. If necessary, storage capacity can be increased to accommodate adjacent property. Per the NEAPS, the total storage requirement for the Proposed Project and the proposed Cielo Vista project for all pressure zones is 1.30 mg. Note that storage requirements discussed herein are estimates only. As discussed in this section, the OCFA is responsible for establishing final fire flow requirements, and additional storage requirements shall be determined and finalized after completion of the design and approval by all jurisdictional agencies.

The 1200 Zone BPS is sized to include one fire flow and emergency natural gas or diesel pump, two supply pumps, and one duty pump. This pump station is located at the southwest corner of the Proposed Project Site on a pad elevation of 765 feet and will be sized as required by the final design. The proposed 1390 Zone BPS is sized to include one fire flow and emergency natural gas or diesel pump, two supply pumps, and one duty pump. This pump station is located at the central portion of the Project Site on a pad elevation of 1,021 feet and will be sized as required by the final design. A pressure-reducing station interconnection is proposed to reduce the operating pressures from the 1390 Zone water system to the 1200 Zone and from the 1200 Zone water system to the 1000 Zone. This will provide redundancy to the water system in the event that the 1200 Zone Reservoir is non-operational. The proposed water system infrastructure improvements are shown in Exhibit 5-163 – Proposed Water Facilities, Option 2.

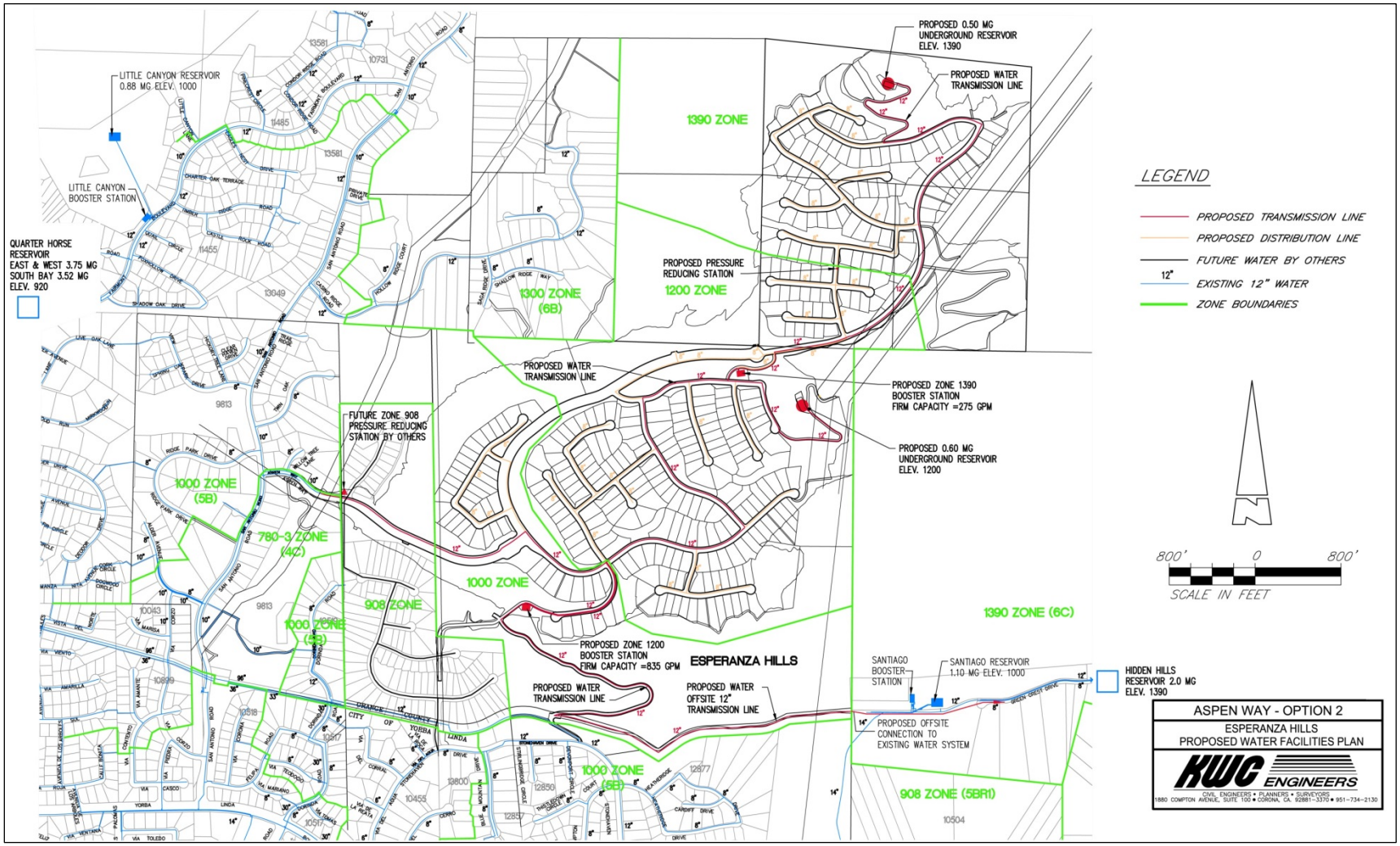



**Exhibit 5-163 – Proposed Water Facilities, Option 2**

### c. Proposed Improvements

- 780 Zone - A new 16-inch transmission pipeline will be constructed along existing MWD 100-foot-wide easement located southwest of the project from Dorinda Road easterly and northerly along an existing roadway and public utility easement into the Project Site. This line will be connected to the existing 33-inch transmission line at Dorinda Road and continue to a proposed 1200 Zone BPS located at the southwest corner of the Proposed Project. This line will serve as the primary point of connection for the Project Site. The source of supply is fed from the Fairmont BPS.
- 1000 Zone - A new 8-inch distribution pipeline will be constructed from the proposed 1200 Zone BPS to service the proposed 1000 Zone areas within the Proposed Project. Located at the discharge line of the 1200 Zone BPS will be a pressure-reducing station that will decrease the pressures to be able to adequately serve the lots within the proposed 1000 Zone.
- 1200 Zone - The new 12-inch transmission line will continue northeasterly from the proposed 1200 Zone BPS to the proposed 1200 Zone underground reservoir to serve the homes in the proposed 1200 Zone with the Proposed Project. The 1200 Zone BPS is sized to include one fire flow and emergency natural gas pump at 1,500 gpm (approximately 460 feet total dynamic head (TDH)), two supply pumps at 835 gpm each, and one pump at 200 gpm (approximately 460-feet TDH). The 1200 Zone Reservoir is sized for a total storage capacity of 0.7 mg. A pressure-reducing station is also required to reduce the operating pressures from the 1390 Zone water system. This will provide redundancy to the water system in the event the 1200 Zone Reservoir is non-operational. A network of 8-inch distribution lines will also be proposed to serve the project. The sizing of these facilities is preliminary and shall be verified during final design.
- 1390 Zone - A 1390 BPS located at the proposed 1200 Zone Reservoir site is proposed to boost the water via a proposed on-site 12-inch transmission line to the proposed 1390 Zone underground reservoir located at the northeast corner of the Project Site. The proposed 1390 Zone BPS is sized to include one fire flow and emergency natural gas pump at 1,500 gpm (approximately 230 feet TDH), two supply pumps at 290 gpm each and one pump at 100 gpm (approximately 230 feet TDH). The reservoir is sized for a total storage capacity of 0.4 mg. A network of 8-inch distribution lines will also be proposed to serve the project development. The sizing of these facilities is preliminary and shall be verified during final design.

### d. Projected Water Demand

Under Option 1 and Option 2, a projected water demand factor of 1,070 gallons per day per dwelling unit (gpd/DU) was used to determine the Average Day, Maximum Day, and Peak Hour Demands. This assumes an approximate density of 1 dwelling unit per acre (DU/ac). The maximum day and peak hour demands are estimated as 1.48 and 2.55 times the average daily demand, respectively, as identified in the YLWD Water Master Plan. The 1000 Zone has 46 proposed lots, the 1200 Zone has 200 proposed lots, and the 1390 Zone has 88 proposed residential lots, including two estate lots. The following tables summarize the projected water demands for Option 1 and Option 2.

**Table 5-15-2 Project Development Water Demand Summary, Esperanza Hills Option 1**

| Watershed ID | Tributary Lots (dwelling units) | Average Day Demand (mgd) | Maximum Day Demand (mgd) | Peak Hour Demand (mgd) |
|---|---|---|---|---|
| Esperanza Hills | 334 | 0.36 | 0.53 | 0.91 |
| Total | 334 | 0.36 | 0.53 | 0.91 |

Note: Demands based on unit count within each zone assuming an approximate density of 1 dwelling unit per acre

**Table 5-15-3 Esperanza Hills Water Demand Summary - Option 1**

| Watershed ID | Tributary Lots (dwelling units) | Average Day Demand (mgd) | Maximum Day Demand (mgd) | Peak Hour Demand (mgd) |
|---|---|---|---|---|
| 1000 Zone | 46 | 0.04 | 0.06 | 0.11 |
| 1200 Zone | 200 | 0.22 | 0.33 | 0.56 |
| 1390 Zone | 88 | 0.09 | 0.14 | 0.24 |
| Total | 334 | 0.36 | 0.53 | 0.91 |

**Table 5-15-4 Project Development Water Demand Summary, Esperanza Hills Option 2**

| Watershed ID | Tributary Lots (dwelling units) | Average Day Demand (mgd) | Maximum Day Demand (mgd) | Peak Hour Demand (mgd) |
|---|---|---|---|---|
| Esperanza Hills | 340 | 0.36 | 0.54 | 0.93 |
| Total | 340 | 0.36 | 0.54 | 0.93 |

Note: Demands based on unit count within each zone assuming an approximate density of 1 dwelling unit per acre

**Table 5-15-5 Esperanza Hills Water Demand Summary - Option 2**

| Watershed ID | Tributary Lots (dwelling units) | Average Day Demand (mgd) | Maximum Day Demand (mgd) | Peak Hour Demand (mgd) |
|---|---|---|---|---|
| 1000 Zone | 46 | 0.05 | 0.07 | 0.13 |
| 1200 Zone | 206 | 0.22 | 0.33 | 0.56 |
| 1390 Zone | 88 | 0.09 | 0.14 | 0.24 |
| Total | 340 | 0.36 | 0.54 | 0.93 |

The results show that there is a slight differential in water demands between Option 1 and Option 2. This will have no significant impact on the sizing of the proposed water infrastructure facilities within the Proposed Project. The

Proposed Project's water infrastructure system shall be designed to meet YLWD's design minimum and maximum requirements for system pressures, pipe velocity, reservoir storage, and fire flow capacities. A minimum static pressure of 60 psi shall be provided for the project based on the reservoirs' designed high water level for each pressure zone. OCFA is the agency responsible for establishing the fire flow requirements for the YLWD's service area. These flows are based on the current California Fire Code. A minimum fire flow storage of 1,500 gpm for a 2-hour duration with a minimum residual pressure of 20 psi is proposed for the project to meet OCFA's and YLWD's fire flow requirements for single-family residential developments. OCFA normally allows a reduction to the fire flow requirements for developments that have incorporated fire sprinkler systems, specific building construction types, fuel modification, fire breaks, and other special fire protection measures. However, OCFA has indicated that it will not allow credits or reduction on the fire flow requirements for this project, because it is located in a VHFHSZ.

A model of the Proposed Project's water system will be prepared and analyzed during final design to ensure that the proposed infrastructure system meets YLWD's design minimum and maximum requirements for pressures, pipe velocity, reservoir storage, and fire flow capacities. The water storage required for the homes within the proposed 1000 Zone will be supplied by the proposed 1200 Zone Reservoir.

Table 5-15-6 summarizes the water system's static pressures based upon the proposed pad elevations of each lot. The Proposed Project's water infrastructure system will meet YLWD's design minimum and maximum requirements for system pressures, pipe velocity, reservoir storage, and fire flow capacities. The OCFA is the agency responsible for establishing the fire flow requirements for the YLWD's service area. These flows are based on the current California Fire Code. A minimum fire flow storage of 1,500 gpm for a 2-hour duration with a minimum residual pressure of 20 psi is proposed for the project to meet OCFA's and YLWD's fire flow requirements for single-family residential developments. OCFA normally allows a reduction to the fire flow requirements for developments that have incorporated fire sprinkler systems, specific building construction types, fuel modification, fire breaks, and other special fire protection measures. However, the OCFA has indicated that it will not allow credits or reduction on the fire flow requirements for this project, because it is located in a VHFHSZ.

**Table 5-15-6 – Esperanza Hills Water Service Zone Static Pressure Summary**

| Watershed ID | Maximum Lot Elevation (feet) | Maximum Static Pressure (pounds per square inch) |
|---|---|---|
| 1000 Zone | 881 | 82 |
| 1200 Zone | 1,086 | 132 |
| 1390 Zone | 1,275 | 119 |

### e. Reservoir Storage

The Zone 1200 and 1390 reservoirs are sized to include storage capacity for the Proposed Project only, unless agreements are reached with adjoining property owners and development agreements are entered into between adjoining property owners and YLWD. Per the NEAPS, the total storage requirement for the Proposed Project and the proposed Cielo Vista project for all pressure zones is approximately 1.30 mg. The following storage requirements are estimates only.

**Table 5-15-7 Reservoir Storage Requirements**

| Watershed ID | Average Day Demand (million gallons/day) | Required Operational Storage (million gallons) | Required Emergency Storage (million gallons) | Required Fire Flow Storage (million gallons) | Total Required Storage (million gallons) |
|---|---|---|---|---|---|
| 1000 Zone | 0.05 | 0.07 | 0.15 | 0.18 | 0.40 |
| 1200 Zone | 0.22 | 0.33 | 0.66 | 0.18 | 1.17 |
| 1390 Zone | 0.09 | 0.13 | 0.18 | 0.18 | 0.49 |

Note: Operational Storage is based on 1.48 × average daily demand; Emergency Storage is based on 3 × average daily demand; and Fire Flow Demand is based on 1,500 gallons per minute for 2 hours.

The Proposed Project is proposing to construct two underground reservoirs to supply the necessary storage and pressures needed to service the proposed 1200 Zone and the 1390 Zone. The proposed 1200 Zone Reservoir capacity is 0.70 mg. The capacity of the 1390 Zone Reservoir is 0.40 mg. The water storage required for the homes within the proposed 1000 Zone will be supplied by the proposed 1200 Zone Reservoir.

The Proposed Project will require the following water infrastructure to be constructed for the build-out condition:

- YLWD capital improvements
  - Increase firm pumping capacity of the existing Fairmont Pump Station
  - Construction of a parallel 16-inch diameter pipeline (3,500 linear feet) and future abandonment of the existing 12-inch diameter Zone 1000-1 pipeline along Fairmont Boulevard between Fairmont Pump Station and Forest Avenue
  - Construction of a new 24-inch diameter pipeline in Fairmont Boulevard from Bastanchury Road to the Fairmont Pump Station
  - Additional off-site well capacity and pipeline upgrades (including zone reconfiguration improvements) to be determined by the YLWD staff
- Esperanza Hills Infrastructure Improvements
  - 16-inch 780 Zone off-site transmission waterline along existing 100-foot MWD easement and 50-foot roadway/public utilities

easement from existing 33-inch transmission pipeline (780 Zone) at Dorinda Road to proposed 1200 Zone BPS
- 12-inch 1200 Zone on-site waterline within the project from the proposed 1200 Zone BPS to proposed 1200 Zone Reservoir and 1390 Zone BPS
- 12-inch 1390 Zone on-site waterline within the project from the proposed 1390 Zone BPS to proposed 1390 Zone Reservoir
- Proposed 1200 BPS completed to its ultimate firm capacity of 835 gpm
- Proposed 1390 BPS completed to its ultimate firm capacity of 290 gpm
- Proposed 1390/1200 and 1200/1000 Pressure Reducing Station
- 0.7 mg 1200 Zone Reservoir within Project Site
- 0.4 mg 1390 Zone Reservoir within Project Site
- 8-inch on-site water distribution lines

The proposed YLWD capital improvements identified herein are preliminary and will be verified by YLWD during final design. The proposed infrastructure facilities are consistent with the YLWD Water Master Plan and the 2013 NEAPS. The Proposed Project will be required to contribute the Project's fair share cost of the proposed off-site water improvements.

## 2. Sanitary Sewer Service

The Proposed Project is in the Orange County Sanitation District (OCSD) service area for sewer treatment and the Yorba Linda Water District (YLWD) for local sewer service. On January 8, 2012, the YLWD provided a conditional will-serve letter for sewer service to the Project Site. A commitment by the YLWD is subject to the availability of sewer facilities and the planning, design and construction of adequate facilities to meet the demands of the project. The provision of such services will be in accordance with the terms and conditions of a Development Agreement between the Project Applicant and the YLWD for water and sewer service.

The YLWD has informed the Project Applicant that it will require gravity-sewer service from all areas of the Proposed Project development, with such service extending southerly and westerly downward to and through the adjacent proposed Cielo Vista project to connect to existing YLWD sewers.

Preliminary Sewer Reports (Option 1 and Option 2) dated June 2013 were prepared by KWC Engineers to assess the estimated sewer contributions for the Proposed Project and how they relate to existing improvements in the area. The reports identify the appropriate alignments and pipe sizes for the proposed sewer facilities, provide information concerning existing facilities, and recommend sewer facilities and phasing to support the project. The reports are included herein as Appendix P.

### a. Orange County Sanitation District (OCSD)

The OCSD Facilities Master Plan dated December 2009 provides a regional study identifying existing and proposed major sewer facilities within the OCSD service area. The study includes capital improvements required for the OCSD to maintain the required level of service. No improvements are proposed along the downstream path of the Project Site.

### b. Yorba Linda Water District 2010 Sewer Master Plan Update

The Yorba Linda Water District 2010 Sewer Master Plan Update, dated February 2011, provided a regional study of the area to the west of the Proposed Project identifying existing and proposed major sewer facilities within the YLWD service area. The YLWD has not completed an update to the Sewer Master Plan incorporating the recently acquired sewer service area from the City, which would include the Proposed Project Site and the downstream facilities.

### c. Design Criteria

The design criteria from the YLWD used to estimate the sewage flows and evaluate existing and recommended sewer system improvements are shown in Table 5-15-8 below.

**Table 5-15-8 Design Criteria**

| Description | YLWD Criteria |
|---|---|
| Average Daily Flow - Planned Residential Development | 0.0015 cfs/ac |
| Multiplication Factor Average Daily Flow to Peak Flow | 2 ratio |
| Minimum Diameter of Pipe (VCP) | 8 inches |
| Velocity - minimum | 2 feet per second |
| Velocity - maximum | 15 feet per second |
| Slope - minimum (8") | 0.40% |
| Slope - maximum | 15% |
| Maximum d/D: 8" - 12" diameter | 0.5 ratio |
| Maximum d/D: 15" - 18" diameter | 0.75 ratio |
| Depth of Cover - minimum | 7 feet |
| Distance between manholes for 8" - 15" - maximum | 300 feet |
| Radius of Curvature for 8" - 12" - minimum | 150 feet |

Gravity sewers are designed to convey peak flow. All new sewers for the Proposed Project were designed to maintain a minimum velocity of 2 fps at design capacity to prevent the deposition of solids. To minimize excessive wear and tear of the pipe, the maximum velocity was not to exceed 15 fps.

- **Existing Facilities** - There is an existing 10-inch sewer line in Stonehaven Drive, draining to the south, which drains into an existing 10-inch main in Yorba Linda Boulevard, then into a 12-inch main in Via de la Escuela. Flows are conveyed southwesterly toward the 51-inch OCSD Santa Ana River Interceptor (trunk line) which

drains southwesterly to Wastewater Treatment Plant #1 in Fountain Valley. Treatment Plant #1 and Treatment Plant #2 (Huntington Beach) treat an average of 207 mg of wastewater each day. Treatment Plant #1 has a total rated primary capacity of 108 mgd and secondary treatment capacity of 80 mgd, for a total of 188 mgd. Treatment Plant #2 has a rated primary capacity of 168 mgd and secondary treatment capacity of 90 mgd, for a total of 258 mgd. Therefore, adequate capacity exists for the Proposed Project at Treatment Plant #1. In consultation with the YLWD, the Proposed Project sewer system was designed to convey the flows out towards Stonehaven Drive with either Option 1 or Option 2.

- **Proposed Facilities** - The Proposed Project will install approximately 32,100 feet of 8-inch vitrified clay pipe (VCP) gravity sewer. The proposed sewers will be installed in typical private street sections within an easement to the YLWD. Two exceptions are a cul-de-sac which drains through an easement and down an engineered slope and the project outlet through the adjacent Cielo Vista site. A portion of the Cielo Vista site north of Stonehaven Drive will drain into the proposed sewer pipe connecting to the existing Stonehaven Drive pipe. The proposed point of connection to the existing 10-inch sewer in Stonehaven Drive is approximately 170 feet northeast of the intersection of Stonehaven Drive and Via de la Roca.
- **Projected Sewage Flows** - Typical generation rates provided in the YLWD Sewer Master Plan Update are shown in Table 5-15-9 below.

**Table 5-15-9 Typical Generation Rates**

| | |
|---|---|
| Typical household density | 3.1 people per dwelling unit |
| Average generation rate | 77 gallons per capita per day |
| Peaking factor | 2 × average flow |

Using the above criteria, the average sewage generation rate is 0.000369 cubic feet per second (cfs) per lot.

To project the ultimate build-out condition estimated sewer flows, the KWC analysis combined the adjacent proposed Cielo Vista project, a portion of which (95 lots) will drain into the proposed sewer pipe, and the adjacent Friend project (42 lots) plus the Proposed Project. All three projects are proposed to drain into Stonehaven Drive as well as the existing lots along the sewer lines downstream. The table below depicts the projected totals.

**Table 5-15-10 Projected Sewer Flows**

| Phase | Number of Lots | Average Flow (cubic feet per second) | Peak Flow (cubic feet per seconds) |
|---|---|---|---|
| 1- Esperanza Hills project | | | |
| Option 1 | 334 | 0.125 | 0.250 |
| Option 2 | 340 | 0.125 | 0.250 |
| 2- Friend project | 42 | 0.015 | 0.031 |
| 3- Cielo Vista project | 95 | 0.035 | 0.070 |
| Total | 477 | 0.175 | 0.350 |

The peak sewer flows above were used in the Sewer Network Analysis utilizing the H2OMAP SWMM computer software to analyze the existing and proposed sewer lines per the YLWD design guidelines. The existing 10-inch VCP sewer in Yorba Linda Boulevard was analyzed from Via del Agua to Via de la Escuela for the proposed condition. The existing slope varies from 2.52% to 6.20%. Calculated flow depths over pipe diameter (d/D) are less than 0.5 in the proposed condition. The results (Option 1 and Option 2) are summarized in Table 5-15-11 below.

**Table 5-15-11 Sewer Flow Velocity/Slopes**

| | Upstream of Via del Cerro (CDT-95) | Downstream of Via del Cerro (CDT-97) |
|---|---|---|
| Slope | 6.2% | 2.52% |
| Flow (cfs) | 0.408 | 0.430 |
| d/D | 0.041 | 0.202 |
| Max d/D | 0.415 | 0.415 |
| Velocity (fps) | 1.33 | 3.95 |

The proposed 8-inch VCP sewer lines on-site were analyzed using the computer modeling software, design criteria, and peak flow generation described above. Proposed pipe slopes were determined using the Site Plan/Grading Plan, assuming manholes would typically be 8 feet deep. Slopes range from 0.4% to 11.8%, with flow depths ranging up to 0.17 feet (2.04 inches). The maximum velocity is 4.96 fps.

### d. Proposed Sewer System – Option 1 and Option 2

- **Option 1** - Option 1 proposes a system of sewer collection lines that collect flows from the homes within the Proposed Project and approximately 140 future single-family residential lots adjacent and tributary to the project from other proposed developments. The proposed sewer collection system will consist of constructing approximately 32,100 feet of 8-inch gravity sewer line. A segment of the sewer system will consist of a temporary sewer siphon system located near Stonehaven Drive and Via de la Roca and in place until the future Sage development occurs. The

sewer flow is conveyed southerly to an existing 10-inch sewer collection system located in Stonehaven Drive and Yorba Linda Boulevard before entering into the YLWD and OCSD trunk sewer systems located southwesterly of the Project Site. The flows will drain to the existing Wastewater Treatment Plant #1 in Fountain Valley for treatment. Treatment Plant 1 and Treatment Plant #2 treat an average of 207 mg of wastewater each day.

- **Option 2** - Option 2 proposes a system of sewer collection lines that collects sewer flows from the Proposed Project and approximately 140 future single-family residential lots adjacent and tributary to the project from other proposed developments. The sewer collection system will be designed and constructed similar to the system proposed in Option 1.

The existing sewer system contains adequate capacity under current conditions. Using typical generation rates, the Proposed Project will result in 0.000369 cfs per lot with average flows of 0.175 (cfs) and peak flows of 0.350 cfs. The reports state that the proposed sewer infrastructure facilities with respect to their proximate locations, alignments, and sizes are consistent with the YLWD 2010 Sewer Master Plan Update and the OCSD Facilities Master Plan. The existing 10-inch sewer lines in Stonehaven Drive and Yorba Linda Boulevard will be sufficient to accept the proposed flows from the Esperanza Hills project as well as the proposed Cielo Vista and Friend projects. On-site 8-inch sewer lines will be sufficient to serve the Proposed Project and the future Friend project based on peak flows of 0.350 cfs.

The analysis presented in the KWC Sewer Report is a preliminary estimate of anticipated sewer facility requirements. Further studies may be required by YLWD during the development phase of the project.

## 3. Solid Waste

Yorba Linda Disposal has expressed its ability to service the project, as proposed, in a letter dated June 13, 2013. Yorba Linda Disposal anticipates that each residence will generate approximately 95 pounds of trash per week (approximately 14 pounds per day), which is the standard generation rate for single-family residences.[38] The Olinda Alpha landfill accepts a maximum of 8,000 tons of trash daily. Using the above trash generation rates, the Proposed Project would result in 4,760 pounds (2.4 tons) of trash per day or approximately 0.03% of the landfill's daily capacity. Per discussion with Mark McGee, Operations Manager of Yorba Linda Disposal, the Proposed Project is not anticipated to generate an amount of solid waste that cannot be accommodated by Yorba Linda Disposal and the Olinda Alpha landfill; therefore, impacts will be less than significant.

[38] Personal communication with Mark McGee, Operations Manager, Yorba Linda Disposal, July 22, 2013

## 4. Electricity

Appendix F of the CEQA Guidelines, Energy Conservation, requires consideration of energy impacts and conservation measures to reduce impacts. As described in Section 5.2, Air Quality (beginning on page 5-65), the Proposed Project includes a number of energy-saving features designed to reduce impacts due to greenhouse gas emissions. These design features include the use of Energy Star appliances and dual paned windows, water conservation hardware, and drought tolerant landscaping among others. These design features have the added benefit of reducing energy consumption generally for the post-construction operation of the project. Energy use will be typical of residential uses in the area, and no commercial or industrial uses will be incorporated into the Proposed Project that could result in high energy consumption.

SCE has expressed its ability to service the Project, as proposed, in a letter dated October 17, 2013. Services will be provided via an extension of the existing electrical lines from Aspen Way or Stonehaven Drive. The transmission lines and easement currently on the Project Site will remain in place. Grading of the site could impact existing facilities if grading occurs in close proximity to the transmission lines. Therefore, Mitigation Measure U-3 is included to ensure adequate coordination to protect existing SCE facilities scheduled to remain in place and to ensure that impacts due to providing electricity to the Project Site will be less than significant.

## 5. Natural Gas

Southern California Gas (SCG) has expressed its ability to service the project, as proposed, in a letter dated May 16, 2013. The letter states that service will be provided subject to availability and in accordance with the rules and regulations in effect at the time service is initiated. In order to identify the location of existing facilities and prevent damage due to grading and construction activities, the project developer will be required to coordinate with SCG prior to initiation of gas line construction. Service will be provided via an extension of the existing gas lines from Aspen Way or Stonehaven Drive. Therefore, Mitigation Measure U-4 is included to ensure adequate coordination with SCG to provide the gas line extensions. Implementation of the mitigation will ensure that impacts due to provision of natural gas to the Project Site will be less than significant.

## 6. Telephone

AT&T has been contacted regarding its ability to service the project, as proposed. To date, AT&T has not provided a letter; however, telephone calls and emails have been exchanged to verify service. Existing service connection points in are located at Aspen Way and Stonehaven Drive. Project implementation will require the extension of existing service connections to provide connection to the Esperanza Hills community. Therefore, Mitigation Measure U-5 has been included to ensure adequate

coordination with AT&T and that the impacts due to provision of telephone service will be less than significant.

### 7. Cable

Time Warner Cable has been contacted regarding its ability to service the Project, as proposed. Telephone and email communications with engineering staff have occurred, but to date a letter has not been provided. A site visit was scheduled by Time Warner to verify its ability to provide connection throughout the site. Existing points of connection are located in Aspen Way and Stonehaven Drive. Mitigation Measure U-6 has been included to ensure adequate coordination with Time Warner and that the impacts due to provision of cable services will be less than significant.

## 5.15.4 Mitigation Measures

U-1 Prior to issuance of building permits, the Project Applicant shall enter into a Development Agreement with the Yorba Linda Water District for the provision of water facilities and service.

U-2 Prior to issuance of building permits, the Project Applicant shall enter into a Development Agreement with the Yorba Linda Water District for the provision of sanitary sewer facilities and service.

U-3 Prior to issuance of building permits, project developer shall coordinate with Southern California Edison to identify the location of the connection to existing electric service lines based on the final determination of access via Option 1 or Option 2 and to protect existing transmission lines on the Project Site.

U-4 Prior to issuance of building permits, project developer shall coordinate with Southern California Gas to identify the location of the connection to existing natural gas lines based on the final determination of access via Option 1 or Option 2.

U-5 Prior to issuance of building permits, project developer shall coordinate with AT&T to identify the location of the connection to existing telephone service lines based on the final determination of access via Option 1 or Option 2.

U-6 Prior to issuance of building permits, project developer shall coordinate with Time Warner Cable to determine the location of the connection to existing cable service lines based on the final determination of access via Option 1 or Option 2.

## 5.15.5 Level of Significance after Mitigation

The Proposed Project will not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board (RWQCB). OCSD has provided a conditional will-serve letter, and an agreement will be entered into with the YLWD outlining terms and conditions for provisions of such services.

The Project Applicant will be required enter into to a Development Agreement with the YLWD for water and sewer service prior to construction of such facilities. Based on technical reports for water and wastewater facility demands, the Proposed Project will not require construction or expansion of facilities to accommodate the Proposed Project. Mitigation has been included to ensure that the YLWD and the Project Applicant enter into agreements for the provision of water service to the Project Site so that the Proposed Project is adequately served. Provision of infrastructure as described will ensure that adequate facilities are provided to meet the water demands of the Proposed Project.

The Proposed Project will not require the construction of new storm water drainage facilities or expansion of existing facilities beyond those included as part of the Proposed Project. Because the Proposed Project is adjacent to existing development, storm water drainage facilities are available to connect with the proposed drains.

The Proposed Project will have sufficient water supplies available to serve the project. The YLWD UWMP has stated that water supply is available to serve the YLWD service area up to year 2035. As stated in the NEAPS, the combination of the proposed off-site YLWD water system improvements and the Proposed Project water infrastructure improvements will not only meet the demands of the future developments in the area but also improve the water service reliability and fire protection for the surrounding area.

The Proposed Project will be served by landfills with adequate capacity to accommodate the Project's needs. Orange County Waste Management has confirmed that the Proposed Project will be serviced by the Frank R. Bowerman landfill and subsequently by the Prima Deschecha landfill. All regulations and statues will be complied with related to solid waste.

Therefore, implementation of the Proposed Project would not result in significant adverse impacts related to water service, sanitary sewer service, solid waste disposal, electrical service, natural gas service, telephone service, or cable service. Utilities and service systems are not anticipated to experience significant impacts due to developer and service fees typically allocated to fund necessary on-site and off-site improvements, as well as the provision of the water and sewer system improvements outlined herein. Points of connection will be sufficient to accept increased flows from the Proposed Project. Adequate water supplies will be available to serve the Proposed Project. The Proposed Project will be served by a landfill with adequate capacity and will comply with all federal, state, and local statutes and regulations related to solid waste. Mitigation measures have been identified to ensure coordination with service providers in order to reduce potential impacts to a less than significant level.

## 5.15.6 Cumulative Impacts

Implementation of the Proposed Project would increase the demand for utility and service systems. Cumulative impacts from increased water demand by the Proposed Project and development of the proposed Cielo Vista and Friend residential projects can be met by the YLWD with appropriate improvements to the existing water delivery infrastructure. The NEAPS report was based on the addition of 340 residences in the Proposed Project, 112 residences in the proposed Cielo Vista project, and 42 residences in the proposed Friend project for a total of 494 residences. The cumulative total does not exceed the 500-residence threshold under SB 610 for the preparation of a water supply assessment, and a specific assessment was not required for the Proposed Project. However, the YLWD Water Master Plan and the 2013 NEAPS have considered the extent of the total development proposed and indicated that adequate water supply exists to serve the Proposed Projects.

## 5.15.7 Unavoidable Adverse Impacts

Implementation of recommended mitigation measures will reduce potential impacts to a level of less than significant for project implementation and cumulative conditions. Therefore, no unavoidable adverse impacts to utilities and service systems will result from the Proposed Project.

# 6. Alternatives Analysis

## 6.1 Introduction

CEQA has long recognized that a rigorous evaluation of project alternatives is key to ascertaining whether major environmental impacts brought about by a Proposed Project can be avoided or significantly lessened. CEQA and its associated case law require that alternatives be evaluated that are capable of feasibly attaining most of the basic project objectives and offering substantial environmental advantages over the project proposed. CEQA does not require that an agency speculate unnecessarily or re-evaluate previously analyzed alternatives where no new significant information - i.e., in an earlier CEQA document - shows that such alternatives will now be feasible. Additionally, CEQA does not require that the agency evaluate ostensibly infeasible alternatives, or address alternatives that are independent of the goal of reducing environmental impacts.

Therefore, an adequate alternatives analysis is focused on avoiding or substantially lessening the significant environmental impacts brought on by the project as proposed taken in the context of previous environmental and policy evaluations. CEQA is not intended to be used as a means of studying alternative dispositions of a project independent of the environmental impacts that attend it. In other words, CEQA does not require the EIR to address alternatives that are unrelated to the reduction of impacts.

The County of Orange General Plan was adopted in 2009 and designates the site as Open Space (5) and zoned General Agriculture (A1) with a General Agriculture/Oil Production overlay (O). In order to implement the Proposed Project, a General Plan amendment will change the land use designation to Suburban Residential (1B). In addition, a Specific Plan will be adopted for the Proposed Project to regulate development, replacing the A1 and A1(O) zoning designations.

To allow an appropriate context for evaluating alternatives, CEQA requires that the Lead Agency enumerate the basic project objectives. This disclosure assists in developing the range of project alternatives to be investigated in this section, as well as providing a rationale for the adoption of a Statement of Overriding Considerations, if one is in fact adopted. Listed below are the main goals and objectives as stated in Section 4.8, Project Goals and Objectives (beginning on page 4-27).

- Create a low-density single-family development
- Create a planned community of appropriate density and scale that respects the existing topography and natural backdrop of the Project Site

- Create clustered residential neighborhoods buffered from adjacent existing residential development by abundant open space while preserving and enhancing permanent open space and habitat
- Provide recreational opportunities for residents in the project vicinity for access to Chino Hills State Park from the south and west to the Old Edison Trail
- Design compatible land uses within the project and to surrounding areas
- Preserve open space, natural landforms, and vegetation surrounding and within planned and developed residential areas
- Preserve the northern and eastern ridgelines adjacent to Chino Hills State Park
- Provide fire breaks, firefighting staging areas, access points and emergency ingress/egress plans to enhance safety to the residents and surrounding community
- Provide construction standards and requirements that meet or exceed Orange County Fire Authority fire protection requirements for communities bordered by wildland areas
- Enhance the visual quality of the areas around the oil extraction operations to the extent that extraction operations are continued
- Integrate hydromodification principles with biological resources to create bio-retention and bio-detention areas, passive parks and aesthetically pleasing landscape features

Although CEQA calls for the evaluation of alternatives that could feasibly attain most of the basic purposes of the project, the central goal of the EIR alternatives analysis is to reduce or eliminate environmental effects of the Proposed Project that have been identified in the analytical portions of the EIR (CEQA Guidelines §15126.6), not to evaluate project alternatives that are not capable of reducing impacts, or that merely are variations on a theme.

It is the intent of this chapter to describe, or reference the description of, reasonable and feasible alternatives to the Proposed Project that could attain most of the basic project objectives and avoid or substantially lessen any significant effects of the project. These alternatives appeal to a wide range of mitigation and palliative effects, and provide a strong foundation for public discussion. Sufficient information is presented herein to create variations of alternatives, if desired.

## 6.2 Feasibility

Section 15126.6(f)(1) of the CEQA Guidelines explains how feasibility is to be considered for alternatives capable of otherwise resolving environmental impacts resulting from the project as proposed. This section states that among the factors that may be taken into account in determining feasibility are:

- Site suitability
- Economic viability
- Availability of infrastructure
- General Plan consistency
- Other plans and regulatory limitations
- Jurisdictional boundaries (projects with a regionally significant impact should consider the regional context)
- Whether the proponent can reasonably acquire, control, or otherwise have access to an alternative site or off-site areas

## 6.3 Alternatives Considered But Not Advanced

CEQA does not require that the discussion of alternatives be exhaustive, or demand evaluation of alternatives that are not realistically possible, given the failure to meet the basic project objectives and limitation of time, energy and funds. The EIR does not consider alternatives that are infeasible, and the alternatives discussed in this section were rejected for the following reasons:

- The project alternative is considered infeasible due to failure to carry out the basic goals and objectives of the Proposed Project.
- The project alternative is considered infeasible because its implementation is remote and speculative.
- The project alternative suggested has already been analyzed in the DEIR.

The following project alternatives were considered but not advanced for future review. These alternatives fail to carry out the goals and objectives of the Proposed Project.

- Alternative Location - The surrounding area is nearly built-out, and few larger tracts of vacant land remain for development within this area of unincorporated Orange County. The project site was designated in the Orange County General Plan as Open Space. This designation is not an indication of a long-term commitment to open space uses and may be developed for other uses. The Yorba Linda General Plan (Yorba Linda GP) has identified the project site for future residential development.
- Option 1 (Stonehaven Drive) and Option 2 (Aspen Way) Access - A comment letter received during the IS/NOP public review period advanced

the suggestion that the Option 2 site access (Aspen Way) could occur following project development even if Option 1 access (Stonehaven Drive) was approved and constructed. The letter states that this would create cumulatively considerable impacts to on-site drainages and other local resources and these potential impacts should be analyzed. Impacts due to grading and access under both options have been fully analyzed. Option 2 proposes access via an extension to the existing terminus of Aspen Way. However, this Option also includes a dedicated fire access road that extends from Stonehaven, using the same alignment as access under Option 1. Therefore, impacts from road construction at both Aspen Way and Stonehaven Drive are included herein and no further analysis is required.

## 6.4 Alternatives Presentation

The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice (CEQA Guidelines §15126.6(f)). With the historical and regulatory context as a backdrop, a review can proceed of alternatives to the project that minimize impacts brought about by the project and are not addressed in other CEQA documents. The reader will find five alternatives in this section, which in some cases may be combined, including:

- No Project Alternative - This Alternative allows decision makers to compare the impacts of approving the Proposed Project with the impacts or not approving the Proposed Project and leaving the site in its current condition.
- Access Option 2A Access Alternative - This Alternative is substantially the same as Option 2 (Aspen Way) analyzed in this DEIR with the exception that access to the Project Site will be provided via a main access roadway connected to San Antonio Road through City of Yorba Linda (City) open space approximately 1,850 feet south of Aspen Way as opposed to either the Option 1 (Stonehaven Drive) or Option 2 (Aspen Way) access options.
- Access Option 2B Access Alternative - This Alternative provides access via San Antonio Road approximately 1,850 feet south of Aspen Way, and via Stonehaven Drive. The San Antonio Road access will be the primary access with secondary access via Stonehaven Drive.
- Lower/Reduced Density Alternative - This Alternative would result in the development of Planning Area 1, which is the southernmost portion of the Project site. Planning Area 2 would remain undeveloped under this scenario. Under the Proposed Project, Planning Area 1 would provide up to 218 lots on 310 acres, and Planning Area 2 would provide 122 lots,

including 2 estate lots, on 159 acres. This Alternative would result in the development of 218 lots on 310 acres in Planning Area 1.

- City of Yorba Linda General Plan Alternative - This Alternative considers development of the Proposed Project site using the General Plan and zoning designations established by the City for the Murdock Property, of which the Project Site is a part. The General Plan vision for the Murdock Property is for low-density residential that averages one dwelling unit per acre. The Proposed Project density is less than 1 dwelling unit per acre at 0.73 dwelling units per acre. This alternative would result in a project with 469 dwelling units compared to the 340 dwelling units proposed.

While an array of alternatives is presented herein, the DEIR itself, as well as the Project Alternatives section, provide sufficient documentary material from which to construct any permutation of alternatives on the project insofar as environmental impacts are concerned. CEQA Guidelines §15126.6 states that "(a) Alternatives to the Proposed Project: An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly obtain most of the basic objectives of the project, and evaluate the comparative merits of the alternatives." Therefore, this analysis is intended to allow decision-makers to identify a range of alternatives based on sufficient analysis for each environmental topic. Conceptual Site Plans of the Proposed Project are shown on Exhibit 4-9 (page 4-13) and Exhibit 4-10 (page 4-15) for reference and comparison purposes with alternatives analyzed herein. Table 6-4-1 below lists a comparison of these alternatives with the Proposed Project.

**Table 6-4-1 Summary Matrix of Impacts of Alternatives in Relation to Proposed Project as Mitigated**

| Alternative | Aesthetics | Air Quality | Biological Resources | Cultural Resources | Geology/ Soils | Greenhouse Gas Emissions | Hazards/ Hazardous Materials | Hydrology/ Water Quality | Land Use/ Relevant Planning | Noise | Population/ Housing | Public Services | Recreation | Transportation/ Traffic | Utilities/ Service Systems |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alternative 1 - No Project | – | – | – | * | – | – | + | + | – | – | – | – | + | – | + |
| Alternative 2 - Option 2A Alternative | * | – | + | * | * | * | * | * | * | – | * | * | * | * | * |
| Alternative 3 – Option 2B Alternative | * | * | * | * | – | * | */– | * | * | – | * | – | * | – | * |
| Alternative 4 - Lower/Reduced Density | – | * | – | * | – | * | + | * | * | – | + | – | + | – | – |
| Alternative 5 - Yorba Linda General Plan | * | + | + | * | * | * | * | * | – | + | – | + | + | + | + |

+ Potential impacts are greater than proposed project
- Potential impacts are less than proposed project
* Potential impacts are equal to proposed project

# 6.5 Project Alternative 1 - No Project

## 6.5.1 Description of Alternative

The No Project Alternative assumes that the project would not be built as described in this EIR. A review of the No Project Alternative must be included in every EIR pursuant to state law. Impacts from the Proposed Project would not be as stated in this EIR. The Proposed Project is designated Open Space in the County's General Plan Land Use Plan, which allows for other types of development based on market pressures to serve a growing County population. Therefore, the site could be built to a more intense use than currently exists, and it cannot be said that no impacts would occur at all.

The Project Site is zoned A1(O), General Agricultural/Oil Production. No expansion of oil facilities is anticipated under the Proposed Project or the No Project Alternative, but expansion of oil facilities could occur under existing zoning. The selection of the No Project Alternative merely stands for the proposition that the project as currently proposed would not be implemented. Since the site is largely undeveloped with the exception of oil wells, graded roads, and utility transmission, the No Project Alternative would not involve any new environmental impacts.

### 1. Aesthetics

The Project Site consists of rolling hills that support a mix of habitats including non-native grasslands, limited areas of riparian habitat and small stands of woodlands. Four intermittent drainage areas are located on or near the site. The property is currently utilized for oil production, water line transmission, and energy transmission. The No Project Alternative would maintain the current functions of the site. This alternative would not affect the existing appearance of the site which would substantially remain as undeveloped open space. The Proposed Project would result in greater impacts due to the construction of housing where no development currently exists. With the No Project Alternative, views across the Project Site would not be altered, and typical residential night lighting would not occur. Therefore, this Alternative has no impacts in the area of Aesthetics when compared to the Proposed Project.

### 2. Air Quality

Short-term construction and long-term operational impacts to air quality would not occur under the No Project Alternative. The site would continue its current nominal uses. The Air Quality Assessment showed that short-term Project impacts can be mitigated to a less than significant level. Long-term emissions associated with the Proposed Project are not expected to exceed identified thresholds with the exception of greenhouse gas emissions. The Proposed Project will add emissions above the SCAQMD's advisory level, and the cumulative impact will remain significant and unavoidable. Therefore, the No Project Alternative has fewer impacts and would not

result in any significant unavoidable impacts to air quality when compared to the Proposed Project.

### 3. Biological Resources

Under the No Project Alternative, there would be no impact to the biological resources located on the Project Site. The existing habitats and drainage areas would remain as they currently exist. The Biological Resources Report identified sensitive species that occurred on the site prior to the 2008 Freeway Complex Fire. The entire site was burned, and most of the undisturbed portions of the site are in recovery status and may not return to former conditions with respect to certain species. Total recovery of the site could take a decade or more. The Proposed Project includes the preservation of significant open space and the inclusion of native landscaping to support the vegetation currently on the site. The Proposed Project also includes the removal of non-native vegetation, which is considered a benefit to biological resources and fire prevention. Under the Proposed Project, implementation of the identified mitigation measures will ensure that impacts to Biological Resources will be less than significant.

Special status species of birds and wildlife were addressed in the Biological Report. It was reported that with mitigation, potential impacts to special status wildlife would be less than significant. While the loss of open space is not considered a significant biological impact because undisturbed open space will remain on-site, non-native vegetation will be removed, and mitigation will ensure that project impacts are less than significant, additional open space would exist with the No Project Alternative. Therefore, the No Project Alternative has fewer impacts when compared to the Proposed Project in the area of Biological Resources.

### 4. Cultural Resources

In the event archaeological or paleontological resources are present on the Project Site, such resources would remain undisturbed under the No Project Alternative. The Cultural Resources Assessment prepared for the Proposed Project indicates that no cultural resources were discovered within the Project boundaries and the site has not been listed as a potential location for such resources. However, mitigation measures have been provided to prevent impacts if site preparation reveals artifacts, fossils, or human remains. Therefore, impacts in the area of Cultural Resources will be relatively the same under the No Project Alternative.

### 5. Geology and Soils

Under the No Project Alternative, no earthwork would occur and, therefore, no impacts to existing geological conditions on the site would result. The Proposed Project includes approximately 15 to 16 million cubic yards of grading, which will include reinforcement of existing hillsides, where required, to reduce the potential for surficial slope failures. Because the Whittier Fault runs across the Project Site's southernmost boundary, a seismic setback zone has been established where habitable

structures are prohibited. Mitigation measures have been incorporated to reduce all potentially significant geological impacts to a less than significant level. Potential cumulative impacts have been identified resulting from potential erosion due to grading if the adjoining proposed Cielo Vista project is developed concurrently. The No Project Alternative would not result in any potentially significant impacts to structures or population, and is therefore superior to the Proposed Project in the area of Geology and Soils.

### 6. Greenhouse Gas Emissions

There will be no impacts due to greenhouse gas emissions under the No Project Alternative because no development will occur. Therefore, this Alternative is superior to the Proposed Project where the impact due to greenhouse gas emissions will remain significant and unavoidable.

### 7. Hazards and Hazardous Materials

The operating oil wells and transmission lines would remain in place with no change from the present condition. However, fuel modification, fire breaks, gravity-fed reservoirs, firefighting staging areas, and other features planned for the Proposed Project would not occur under the No Project Alternative and the potential danger of wildfire would remain with no buffer for existing and future adjacent development. Removal of non-native vegetation along the existing utility easements and along Blue Mud Canyon to provide additional buffers will not occur under the No Project Alternative. Gravity-fed water reservoirs planned for the Proposed Project would not be built, reducing water supply availability with adequate water pressure for fire-fighting purposes. Under the No Project Alternative, no additional dwelling units would be added to the project site which could further congest the evacuation routes from the community. However, OCFA's Ready, Set, Go Program was implemented following the 2008 Freeway Complex Fire and is intended to promote earlier evacuation (among many other goals) than occurred in 2008, thereby reducing evacuation related congestion. Therefore, with respect to Hazards and Hazardous Materials, the Proposed Project is superior to the No Project Alternative in that the risk of fire hazard on the existing residential communities would potentially be reduced, and fire protection in the area would be improved with implementation of the enhanced water supply and facilities associated with the Proposed Project.

### 8. Hydrology and Water Quality

The No Project Alternative would not involve any form of development, including grading and construction. The Proposed Project would grade the development area to support the residential development, parks, and roadways, thereby increasing impermeable surfaces. However, the Proposed Project would provide short-term construction and long-term operational best management practices and mitigation that would reduce impacts to hydrology and water quality to a less than significant level.

Based on the hydrology study prepared for the Proposed Project, post development peak runoff levels for the various drainage areas would be significantly lower than pre-development conditions with implementation of strategically located detention basins. Storm drain outlets would provide better erosion protection due to drainage than currently exists. The drainage system has been sized to accommodate and mitigate long term surface runoff drainage impacts. Under the No Project Alternative, there would be no improvement to existing erosion, runoff, and drainage conditions. Water quality would be improved as a result of Project Design Features, and runoff would be directed to storm drains and detention basins. While the Project Site will experience alterations to the existing drainage patterns, the Proposed Project would have a positive impact regarding Hydrology and Water Quality compared to allowing the site to remain in its current condition under the No Project Alternative.

## 9. Land Use and Planning

The No Project Alternative would not require amending the County of Orange General Plan and a change in zoning designation with approval of a Specific Plan. The General Plan designation of Open Space (5) indicates areas that may ultimately be developed for other uses. The zoning designation of General Agriculture is intended to be used as an interim zone in those areas that the General Plan may designate for more intensive urban uses in the future. The Proposed Project includes approval of a General Plan designation of Suburban Residential (1B) and a Specific Plan to provide development standards and establish zoning that would be consistent with the intent of existing designations.

The Yorba Linda GP vision for the Project Site is for low-density residential that averages one dwelling unit per acre, where the Proposed Project would be less than one dwelling unit per acre. The Proposed Project does not comply with provisions of the City's Hillside Development/Grading Ordinance with respect to the height of retaining walls and ridgeline grading. The Proposed Project is within the City's Sphere of Influence with a potential for future annexation. The Yorba Linda GP recognizes existing oil production in the unincorporated area adjacent to the City. Under the No Project Alternative no General Plan Amendments or Zoning Amendments would be necessary; therefore, impacts in the area of Land Use and Planning would be slightly less than impacts associated with the Proposed Project.

## 10. Noise

Under the No Project Alternative, current noise levels on the site would remain unchanged, with intermittent noise generated from the oil operations and vehicles traversing the site. The Proposed Project will introduce 340 new residences to an area where no development currently exists. This will result in a permanent increase in ambient daily noise levels due to short-term construction activities and long-term operational noise typical to residential areas, including noise from traffic, where noise levels would not increase under the No Project Alternative. Impacts in the area of Noise for the No Project Alternative would be less than the Proposed Project.

## 11. Population and Housing

No residential development would occur under the No Project Alternative. The residential units proposed under the Project will serve a regional need for housing which is anticipated by the City of Yorba Linda General Plan and Housing Element and as projected under the Orange County General Plan. This Alternative will not contribute housing to the area, as will other identified projects, and will not add to the population. There will be no substantial change from existing conditions, and this Alternative would not have any significant environmental effects. However, the No Project Alternative would not advance the City's or the County's RHNA allocations for additional housing.

## 12. Public Services

The Orange County Sheriff's Department and the Orange County Fire Authority (OCFA) currently provide fire protection, emergency response, law enforcement, and police service to the site and the surrounding areas. The No Project Alternative will not increase the use or population of the site, and therefore, there would be no increase in demand for such services. Fire and police protection services are in close proximity to the Project Site and will be provided by Orange County Sheriff's Department and OCFA personnel. Adequate capacity exists within the schools to serve the projected population; in fact, as the Placentia-Yorba Linda Unified School District is experiencing declining enrollments, the additional students generated by the Proposed Project and the school fees derived from the development would be beneficial. The City is currently in the process of providing a greatly expanded library facility to serve area residents. This facility will be adequate to meet the needs of the projected population increase anticipated with the Proposed Project. However, impacts under the No Project Alternative are mixed when compared to the Proposed Project, but will be considered slightly less under the No Project Alternative, as expansion of the identified services would not be necessary.

## 13. Recreation

Under the No Project Alternative, existing informal trail corridors through the private property would remain in place. The Proposed Project would provide three distinct public trail systems (equestrian, pedestrian, multi-use) with linkages to existing trails for the City and Chino Hills State Park, which is considered a benefit when compared to the existing condition. The Proposed Project will provide nine neighborhood parks within the site boundaries. Under the No Project Alternative, increased recreational opportunities would not be provided, but additional residents requiring recreational amenities would not be generated. Therefore, impacts to Recreation would be mixed and are considered no greater than the Proposed Project.

### 14. Transportation and Traffic

There are no impacts related to traffic and transportation under the No Project Alternative, as the site is substantially undeveloped. The introduction of 340 residential units with development of the Proposed Project will generate approximately 3,167 daily trips based on the Traffic Impact Analysis prepared for the Project. Mitigation has been included in the EIR to reduce impacts related to traffic. However, the No Project Alternative would not generate any additional traffic that would adversely affect circulation in the Project Area. The No Project Alternative would eliminate the project-related impacts and is therefore superior with respect to potential Transportation and Traffic impacts when compared to the Proposed Project.

### 15. Utilities

The No Project Alternative would result in the water line and electrical transmission facilities being left in place within existing easements through the site in addition to the three working oil wells. The Proposed Project would result in gas, electric, telephone, water, and sewer service being extended from existing lines in adjacent residential areas to the new residential areas. Under the proposed project, two underground water reservoirs would be constructed, creating a gravity-fed system for firefighting and also providing water for residential uses. The Yorba Linda Water District estimates a 2% annual increase in water demand with the Proposed Project. No significant impact would result from the Proposed Project, as all service providers have indicated their ability to serve the Project Site. However, although no increased demand for water would occur under the No Project Alternative, the two water reservoirs would not be constructed. As a result, the existing deficiency in the water demand for firefighting would continue. Therefore, impacts in the area of water facilities and service would be greater under the No Project Alternative as compared to the Proposed Project. The No Project Alternative would not result in any potential impacts to sewer facilities and service, solid waste disposal, electricity, natural gas, telephone, and/or cable television.

## 6.5.2 Attainment of Project Objectives

With the exception of preserving the vast majority of the Project Site as open space, the No Project Alternative is not capable of attaining most of the project objectives, which include development of a single-family residential community in accordance with development envisioned in the County and City General Plans, providing facilities for upgrading existing water quality impacts due to runoff, enhancing vegetation and natural open space areas to promote recovery from recent wildfire damage, providing enhanced wildfire protection to enhance safety to existing and future residents and homes and creating new recreational opportunities including equestrian, hiking and biking trails with links to existing trails.

# 6.6 Project Alternative 2 – Option 2A Access Alternative

## 6.6.1 Description of Alternative

Two options for roadway access to the Proposed Project have been designed and analyzed in this DEIR.

Option 1 would provide a primary connection going south to Stonehaven Drive following an existing dirt road that has been used for oil well and utility access purposes and would include a bridge over Blue Mud Canyon. Emergency access under Option 1 would be provided via Esperanza Hills Parkway as well as an emergency only access roadway off Via del Agua approximately 130 feet northeast of Via de la Roca. The separate ingress/egress road for emergency purposes only extends south along the western edge of the project through the Cielo Vista property along an existing 50-foot wide roadway and utility easement. Option 2 would provide a primary connection going west from the site across the Cielo Vista property to Aspen Way, which then connects to San Antonio Road with emergency access provided via a bridge across Blue Mud Canyon to Stonehaven Drive.

Option 1 proposes 340 residential dwelling units, while Option 2 proposes 334 dwelling units. The Option 2A Access Alternative is substantially the same as Option 2 with the exception that access to the site will be provided via a main access roadway connected to San Antonio Road approximately 1,850 feet south of Aspen Way. This connection would cross open space owned by the City of Yorba Linda and the adjacent Cielo Vista property, through the potential access corridor identified in the Cielo Vista Area Plan. Option 2A proposes 334 dwelling units in the same configuration as Option 2, and would provide emergency access to Stonehaven Drive. Exhibit 6-1 – Conceptual Site Plan, Option 2A - San Antonio Road depicts the location of access for Option 2A. Exhibit 6-2– Conceptual Entry Road – Option 2A shows the conceptual entry road detail including landscaping and trail connections.

### 1. Aesthetics

This Alternative would not substantially alter views compared to the Proposed Project. The re-alignment of the roadway approximately 1,850 feet from where the Option 2 roadway is presented would not change views for existing or future residents of the surrounding area other than placing a road where no roadway currently exists. No viewsheds related to hills, open space or ridgelines would change from that identified with the Proposed Project and, therefore, impacts to Aesthetics related to this Alternative would remain the same as the Proposed Project.

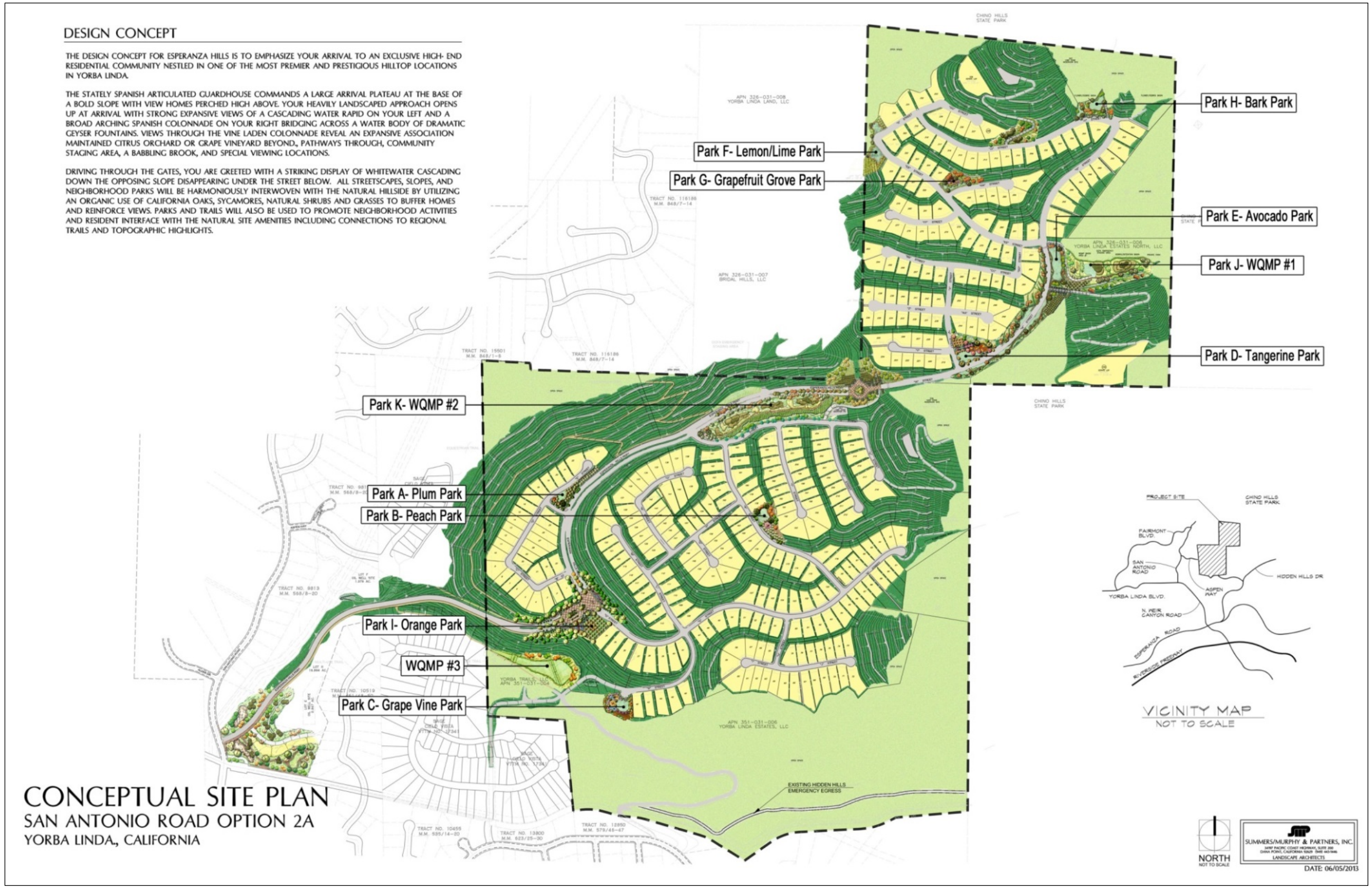



**Exhibit 6-1 – Conceptual Site Plan, Option 2A - San Antonio Road**

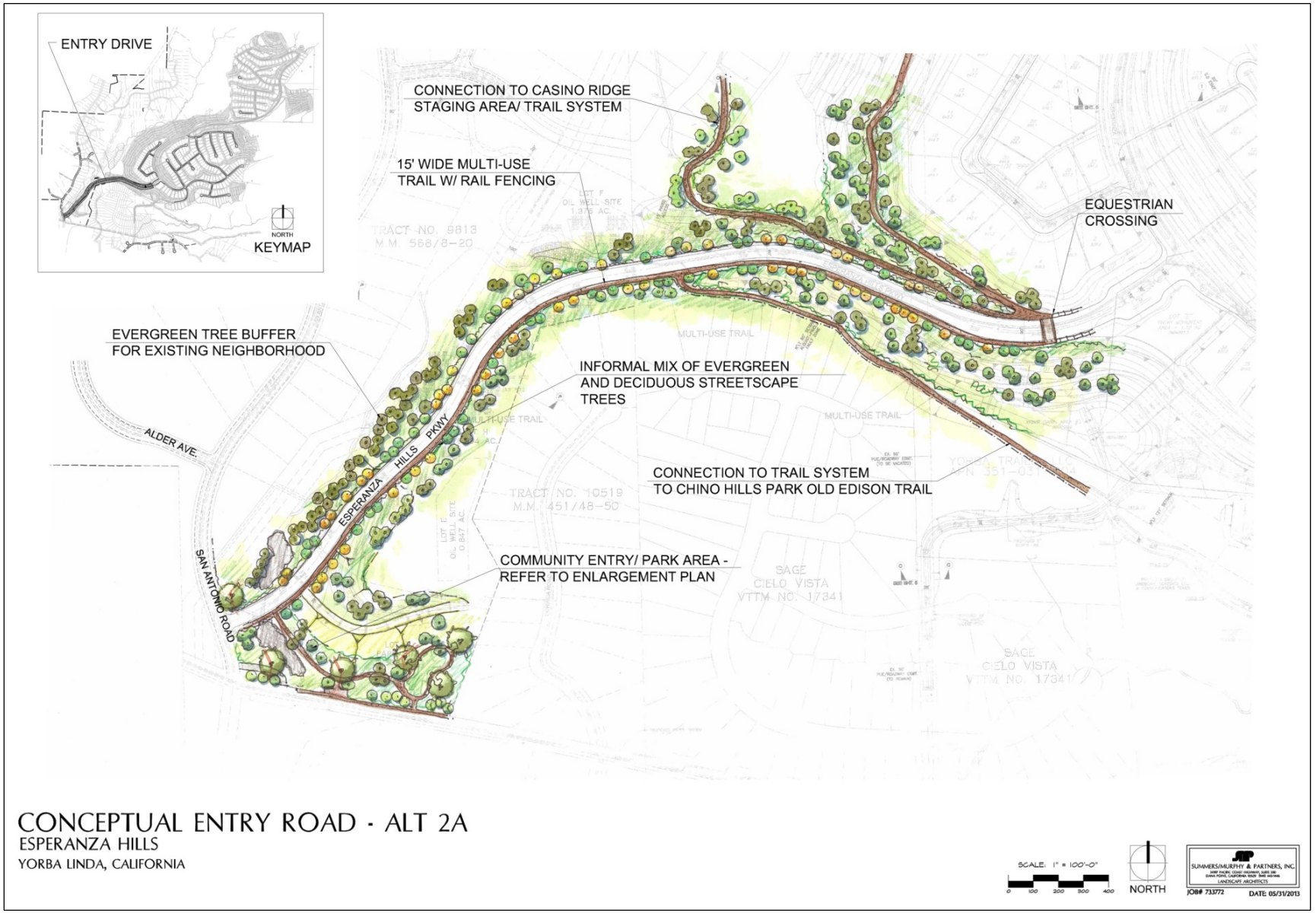



**Exhibit 6-2 – Conceptual Entry Road – Option 2A**

## 2. Air Quality

The Air Quality analysis indicates that proximity of sensitive receptors to the roadway alignment for this Alternative is 250 feet while proximity to sensitive receptors is 50 feet under both Option 1 and Option 2. Site disturbance due to grading and construction activity would remain the same under all Access Options. Localized significance thresholds are not exceeded under any option and operational impacts would remain the same since all Options anticipate development of 340 residential units. The following table depicts estimated construction activity emissions. As shown, similar to Options 1 and 2, the $NO_X$ daily emissions threshold will be exceeded; however, with the incorporation of the mitigation measures prescribed for the Proposed Project, the potentially significant impact resulting from this Alternative would be reduced to less than significant.

**Table 6-6-1 Construction Activity Emissions, Option 2A**

| | Maximum Daily Emissions (pounds per day) | | | | | |
|---|---|---|---|---|---|---|
| **Maximal Construction Emissions** | **ROG** | **$NO_X$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| 2014 | | | | | | |
| Unmitigated | 15.0 | 123.5 | 65.3 | 0.1 | 20.8 | 12.4 |
| Mitigated | 11.7 | 55.0 | 77.5 | 0.1 | 9.7 | 6.3 |
| 2015 | | | | | | |
| Unmitigated | 14.2 | 113.7 | 62.4 | 0.1 | 16.3 | 8.2 |
| Mitigated | 11.5 | 53.7 | 76.8 | 0.1 | 8.4 | 2.7 |
| 2016 | | | | | | |
| Unmitigated | 3.9 | 24.0 | 25.9 | 0.1 | 3.5 | 1.4 |
| Mitigated | 3.9 | 24.0 | 25.9 | 0.1 | 3.5 | 1.4 |
| 2017 | | | | | | |
| Unmitigated | 3.6 | 21.9 | 25.0 | 0.1 | 3.3 | 1.2 |
| Mitigated | 3.6 | 21.9 | 25.0 | 0.1 | 3.3 | 1.2 |
| 2018 | | | | | | |
| Unmitigated | 3.3 | 20.0 | 24.2 | 0.1 | 3.2 | 1.1 |
| Mitigated | 3.3 | 20.0 | 24.2 | 0.1 | 3.2 | 1.1 |
| 2019 | | | | | | |
| Unmitigated | 3.1 | 18.3 | 23.5 | 0.1 | 3.1 | 0.9 |
| Mitigated | 3.1 | 18.3 | 23.5 | 0.1 | 3.1 | 0.9 |
| 2020 | | | | | | |
| Unmitigated | 44.7 | 16.7 | 22.9 | 0.1 | 2.9 | 1.1 |
| Mitigated | 44.7 | 16.7 | 22.9 | 0.1 | 2.9 | 1.1 |
| 2021 | | | | | | |
| Unmitigated | 44.6 | 1.6 | 2.8 | 0.0 | 0.5 | 0.1 |
| Mitigated | 44.6 | 1.6 | 2.8 | 0.0 | 0.5 | 0.1 |
| SCAQMD Thresholds | 75 | 100 | 550 | 150 | 150 | 55 |

Source: CalEEMod.2011.1.1 output in appendix, includes on-road materials delivery as well as construction crew commuting

Earthwork borrow quantities for Option 2A are 57,000 cubic yards, with a haul distance estimate of 2,400 feet. All grading will be balanced on-site.

With regard to traffic, carbon monoxide (CO) emissions were analyzed under Option 2A conditions. The following tables provide one-hour and eight-hour results. As shown, microscale CO levels are not exceeded.

**Table 6-6-2 One-Hour CO Concentrations, Option 2A**

| Intersections | 1-Hour CO Concentrations, including 2.7 ppm background concentration (parts per million) | | | | | |
|---|---|---|---|---|---|---|
| | Existing No Project | Existing + Option 2A | 2020 No Project | 2020 + Option 2A | Future No Project | Future + Option 2A |
| AM Peak Hours | | | | | | |
| Yorba Linda Boulevard | | | | | | |
| Las Palomas | 3.5 | 3.2 | 3.2 | 3.5 | 3.0 | 3 |
| San Antonio | 3.6 | 3.3 | 3.3 | 3.6 | 3.1 | 3.1 |
| Yorba Ranch | 3.6 | 3.3 | 3.3 | 3.6 | 3.1 | 3.1 |
| La Palma | 4.1 | 3.7 | 3.7 | 4.1 | 3.4 | 3.5 |
| PM Peak Hours | | | | | | |
| Yorba Linda Boulevard | | | | | | |
| Las Palomas | 3.6 | 3.6 | 3.5 | 3.3 | 3.0 | 3.1 |
| San Antonio | 3.7 | 3.7 | 3.5 | 3.3 | 3.1 | 3.1 |
| Yorba Ranch | 3.6 | 3.6 | 3.6 | 3.3 | 3.1 | 3.1 |
| La Palma | 4.4 | 4.4 | 4.3 | 3.8 | 3.7 | 3.7 |

**Table 6-6-3 Eight-Hour CO Concentrations, Option 2A**

| Intersections | 8-Hour CO Concentrations, including 2.1 ppm background concentration (parts per million) | | | | | |
|---|---|---|---|---|---|---|
| | Existing No Project | Existing + Option 2A | 2020 No Project | 2020 + Option 2A | Future No Project | Future + Option 2A |
| Yorba Linda Boulevard | | | | | | |
| Las Palomas | 2.6 | 2.6 | 2.4 | 2.4 | 2.3 | 2.3 |
| San Antonio | 2.7 | 2.7 | 2.4 | 2.5 | 2.3 | 2.3 |
| Yorba Ranch | 2.6 | 2.6 | 2.4 | 2.5 | 2.3 | 2.3 |
| La Palma | 3.0 | 3.0 | 2.7 | 2.7 | 2.6 | 2.6 |

Therefore, Option 2A is marginally superior with respect to proximity to sensitive receptors extending from 50 feet to 250 feet, but identical with respect to all other air quality impacts.

## 3. Biological Resources

The Biological Technical Report included analysis of all three Access Options. Options 1 and 2 were analyzed in detail in the Section 5.3, Biological Resources (beginning on page 5-91). The following analysis identifies project impacts related to Option 2A, and compares the impacts with Options 1 and 2 as applicable.

### a. Summary of Impacts to Vegetation Associations/Cover Types

The following table identifies total disturbed acreages for vegetation on the Project Site for each Alternative. Study area boundaries include off-site areas where disturbance may occur. Detailed identifications of each type of vegetation are provided starting on page 5-98 in Section 5.3, Biological Resources and found in Table 5-3-2, Summary of Vegetation/Land Use Types for Study Area (page 5-98). Option 2A results in marginally greater impacts to vegetation.

**Table 6-6-4 Summary of Impacts to Vegetation Associations/Cover Types**

| Alternative | Total in Study | Total Impacts | Total Percent |
|---|---|---|---|
| Option 1 | 504.20 | 336.50 | 67 |
| Option 2 | 504.20 | 340.193 | 67 |
| *Option 2A* | *504.20* | *343.133* | *68* |

### b. Summary of Impacts to Special Status Habitats

As shown in the table below, Option 2A will have different impacts to California Walnut Woodland (the same as Option 2, fewer impacts than Option 1), Southern willow scrub (creates an impact where both Option 1 and Option 2 avoid impacts) and Blue Elderberry Woodland (greater than Option 1, and less than Option 2).

**Table 6-6-5 Summary of Impacts to Special-Status Habitats**

| Type | Option 1 | Option 2 | Option 2A |
|---|---|---|---|
| California Walnut Woodland (6.37 acres) | 0.48 | 0.22 | 0.22 |
| Southern Willow Scrub (31.28 acres) | Avoided | Avoided | 0.36 |
| Blue Elderberry Woodland (31.28 acres) | 16.64 | 18.33 | 17.07 |

### c. Summary of Impacts to Special Status Wildlife Resources

As shown in the table below, impacts to Special-Status Wildlife will be substantially the same with all access options.

**Table 6-6-6 Summary of Impacts to Special-Status Wildlife Resources**

| Species | Option 1 | Option 2 | Option 2A |
|---|---|---|---|
| Cooper's hawk | No nests observed | Minimal Impacts | Minimal Impacts |
| Golden eagle | No suitable habitat | No suitable habitat | No suitable habitat |
| Grasshopper sparrow | 1 observed (minimal impact) | 1 observed (minimal impact) | 1 observed (minimal impact) |
| Least Bell's vireo | Off-site vegetation impacts | Off-site vegetation impacts | Off-site vegetation impacts |
| Northern harrier | Does not breed on-site | Does not breed on-site | Does not breed on-site |
| Peregrine falcon | Does not breed on-site | Does not breed on-site | Does not breed on-site |
| Sharp-shinned hawk | Does not breed on-site | Does not breed on-site | Does not breed on-site |
| Southern California rufous-crowned sparrow | Observed foraging (minimal impact) | Observed (minimal impact) | Observed (minimal impact) |
| Yellow-breasted chat | Frequent occurrence, minimal impacts | Frequent occurrence, minimal impacts | Frequent occurrence, minimal impact |
| Yellow warbler | Minimal Impacts | Minimal Impacts | Minimal Impacts |

### d. Summary of Impacts to Special Status Plant Resources

The Biological Report indicated that impacts to the five special-status plant resources were the same under all three access options.

Impacts to nesting birds show that all three access options have the potential to support nesting birds protected by the Migratory Bird Treaty Act. Mitigation has

been proposed to reduce impacts to less than significant under all Alternative scenarios.

California gnatcatcher critical habitat impacts would be less than significant under all access options because the site is not occupied by this species nor has it been in the past several years based on surveys conducted by various biologists.

Impacts to ACOE and CDFW jurisdictional waters would occur with each Alternative. However, proposed mitigation will reduce impacts to less than significant. The following tables depict the impacts for each identified drainage.

**Table 6-6-7 Impacts to Corps Jurisdiction, Alternative 2A**

| Drainage | Total Corps Jurisdictional Impacts | | | Linear Length of Impacts (feet) |
|---|---|---|---|---|
| | Non-Wetland Waters (acres) | Wetland (acres) | Total (acres) | |
| A | 0.10 | 0 | 0.10 | 2,984 |
| B | 0 | 0 | 0 | 0 |
| C | 0 | 0 | 0 | 0 |
| D | 0.49 | 0.09 | 0.58 | 7,374 |
| E | 0.46 | 0 | 0.46 | 7,530 |
| F | 0.01 | 0.02 | 0.03 | 143 |
| G | 0 | 0 | 0 | 0 |
| **Total** | **1.06** | **0.11** | **1.17** | **18,031** |

**Table 6-6-8 Impacts to CDFW Jurisdiction - Alternative 2A**

| Drainage | Total CDFW Jurisdictional Impacts | | | Linear Length of Impacts (feet) |
|---|---|---|---|---|
| | Unvegetated Streambed (acres) | Riparian Streambed (acres) | Total (acres) | |
| A | 0.10 | 0 | 0.10 | 2,984 |
| B | 0 | 0 | 0 | 0 |
| C | 0 | 0 | 0 | 0 |
| D | 0.29 | 1.70 | 1.99 | 7,374 |
| E | 0.41 | 0.13 | 0.54 | 7,530 |
| F | 0.004 | 0.07 | 0.074 | 143 |
| G | 0 | 0 | 0 | 0 |
| **Total** | **0.804** | **1.90** | **2.704** | **18,031** |

The following table summarizes impacts under each option.

| Access Option | ACOE (linear feet) | CDFW (linear feet) |
|---|---|---|
| Option 1 | 16,461 | 16,461 |
| Option 2 | 17,835 | 17,835 |
| Option 2A | 18,031 | 18,031 |

Option 2A impacts are greater than the Proposed Project with respect to jurisdictional impacts. While there is slight deviation between the access options, with implementation of mitigation measures, impacts to biological resources are less than significant under each access option.

## 4. Cultural Resources

The Cultural Resources Assessment prepared for the Proposed Project indicates that no cultural resources were discovered within the Project boundaries and the site has not been listed as a potential location for such resources. However, mitigation measures have been provided to prevent impacts should site preparation reveal artifacts, fossils or human remains. The same mitigation measures would apply to Option 2A. Therefore, impacts in the area of Cultural Resources will be the same as compared to the Proposed Project.

## 5. Geology and Soils

Site characteristics from a geotechnical standpoint are very similar under each Access Option. The design for Option 2 and Option 2A differ from Option 1 relative to the location of the main access routes and use substantially fewer retaining walls to achieve design grades. The road alignment for Option 2A will extend northward from San Antonio Road through City of Yorba Linda open space up the east side of Canyon A then eastward into Canyon B. The alignment will cross the Whittier Fault Zone within Canyon B but not cross the existing natural gas pipelines. Option 1 includes the conversion of the existing access road within Blue Mud Canyon for use as Esperanza Hills Parkway, the main route of access under that Option. Cut/fill slopes, cut/fill depths, and construction of retaining walls under Option 2A are consistent with those proposed for Option 2. Exhibit 6-3 provides a Conceptual Grading Plan for Option 2A. The grading quantity estimate for Option 1 (Stonehaven) is 15,529,249 cubic yards, and the grading quantity estimate for Option 2A (Stonehaven) is 15,569,983 cubic yards.

Mitigation measures have been included to reduce all potentially significant geological impacts to a less than significant level. However, cumulative impacts have been identified resulting from potential erosion due to grading if the adjoining proposed Cielo Vista project is developed concurrently. Therefore, with the exception of fewer retaining walls under Option 2 or Option 2A, geologic/soils conditions and potential impacts will remain substantially the same under Option 2A as compared to Option 1 and Option 2.


**Exhibit 6-3 – Conceptual Site Plan/Grading, Option 2A**

## 6. Greenhouse Gas Emissions

There are no established thresholds for greenhouse gas emissions at this time. The SCAQMD Governing Board adopted an Interim Quantitative GHG Significance Threshold for residential projects of 3,000 metric tons per year $CO_{2(e)}$.

While no thresholds have been adopted by the state at the time of this writing, greenhouse gas emissions exceed the proposed significance threshold under all Access Options. As shown in the table below, construction emissions for all Options are under threshold levels on an amortized basis due to the duration of construction activities.

**Table 6-6-9 Construction Emissions**

| Year | Construction Emissions | | |
|---|---|---|---|
| | Option 1 (metric tons $CO_2(e)$) | Option 2 (metric tons $CO_2(e)$) | Option 2A (metric tons $CO_2(e)$) |
| Year 2014 | 1,557.3 | 1,525.5 | 1,512.7 |
| Year 2015 | 1,501.9 | 1,470.9 | 1,487.6 |
| Year 2016 | 613.0 | 613.0 | 613.0 |
| Year 2017 | 607.5 | 607.5 | 607.5 |
| Year 2018 | 606.9 | 606.9 | 606.9 |
| Year 2019 | 604.2 | 604.2 | 604.2 |
| Year 2020 | 490.1 | 490.1 | 497.8 |
| Year 2021 | 24.4 | 24.4 | 28.1 |
| **Overall Total** | **6,005.2** | **5,942.4** | **5,957.9** |
| **Amortized** | **200.2** | **198.1** | **198.6** |

*CalEEMod Output provided in appendix *[to Air Quality and Greenhouse Gas Emissions Impact Analysis dated July 12, 2013]*

The potential operational emissions include a cumulative total from area sources, energy utilization, mobile sources, solid waste generation, water consumption, and annualized construction. The following table shows the projected operations emissions under all options. Total operational GHG emissions are above the proposed significance threshold of 3,000 metric tons per year.

**Table 6-6-10 Proposed Residential Operational Emissions**

| Consumption Source | MT $CO_2(e)$ tons/year |
|---|---|
| Area sources | 256.2 |
| Energy utilization | 1,572.1 |
| Mobile sources | 4,535.7 |
| Solid waste generation | 201.6 |
| Water consumption | 166.2 |
| Annualized construction | 198.6 |
| **Total** | 6,930.4 |

As with short-term and long-term construction air quality emissions, all Access Options will have the same impact related to greenhouse gas emissions.

Since development of the Project Site under this Alternative would exceed the interim threshold, the impact would be significant and unavoidable. Therefore, the impact to

Greenhouse Gas Emissions for this Alternative would be similar to the Proposed Project and this Alternative.

## 7. Hazards and Hazardous Materials

The Proposed Project will not result in any impacts due to hazardous materials and is not located within a hazardous materials site. On-site oil wells have the potential for accidental release of gas/methane from continued operation. However, mitigation measures have been included to address such potential and are applicable under any of the access options.

The Project Site is within a Very High Fire Hazard Severity Zone (VHFHSZ). A fuel modification zone (FMZ) has been incorporated into the Project design and will require approval by the OCFA. Exhibit 6-4 depicts the Conceptual Fuel Modification Plan for Option 2A. Emergency ingress/egress for Option 2A is depicted in Exhibit 6-5 – Emergency Ingress/Egress Plan, Option 2A. In addition, a Fire Protection and Emergency Evacuation Plan (FPEP) has been prepared that includes recommendations for FMZs, fire breaks, emergency vehicle staging areas, and the provision of adequate water and water pressure for fire-fighting purposes. Compliance with mitigation measures identified in this DEIR will result in less than significant impacts due to Hazards and Hazardous Materials.

This Alternative would be implemented based on the same requirements as Option 1 and Option 2 with respect to potential hazards and hazardous materials. Therefore, potential impacts would be identical under this Alternative as compared to the Proposed Project.

## 8. Hydrology and Water Quality

This Alternative would not result in additional impacts in the area of hydrology/water quality. An Addendum to the Conceptual Water Quality Management Plan (CWQMP) for Option 2A dated August 16, 2013 was prepared by KWC Engineers. The Addendum is included in Appendix M herein. The Conceptual Site Plan for Option 2A is shown on Exhibit 6-1 (page 6-13).

Option 2A would include the same four WQMP basins as Option 2. The potential storm water pollutants, hydrologic conditions of concern, post-development drainage characteristics, watershed description, hydromodification control BMPs, and structural and non-structural source control BMPs remain the same. The discharge point into the canyon south of existing Aspen Way is also the same. Exhibit 6-6 depicts the CWQMP BMPs for Option 2A. The primary differences with Option 2A relate to the length and alignment of the entry road, the length and alignment of the storm drain culvert under Aspen Way/Esperanza Hills, slopes and landscaping along the entry road, and the tributary area to the catch basins within the entry road. For Option 2A, the bio-filters are located on the downstream end of Esperanza Hills Parkway just before to San Antonio Road. Exhibit 6-7 depicts the drainage path from Basin 4 under Option 2A conditions.

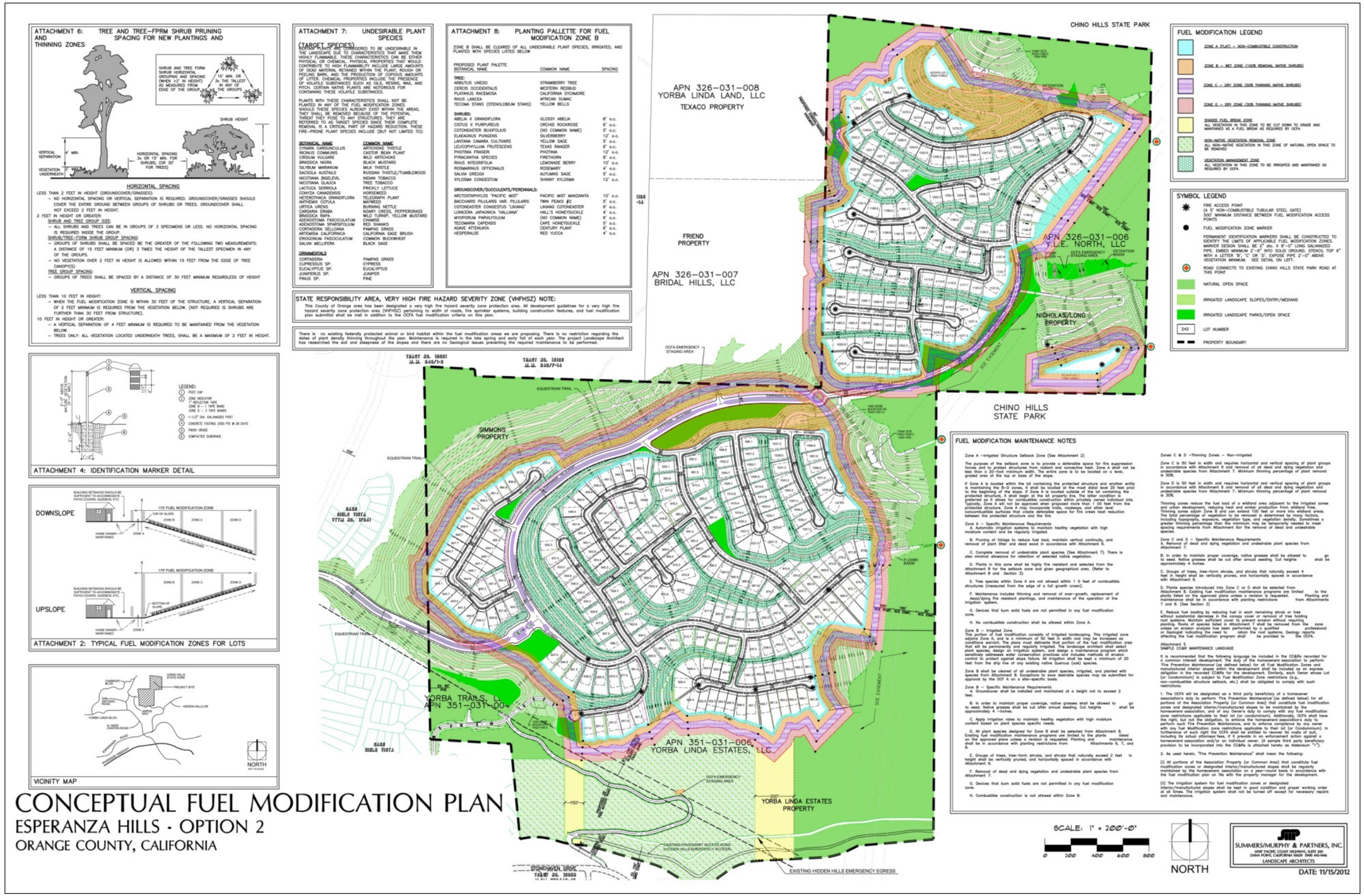



**Exhibit 6-4 – Conceptual Fuel Modification Plan, Option 2A**

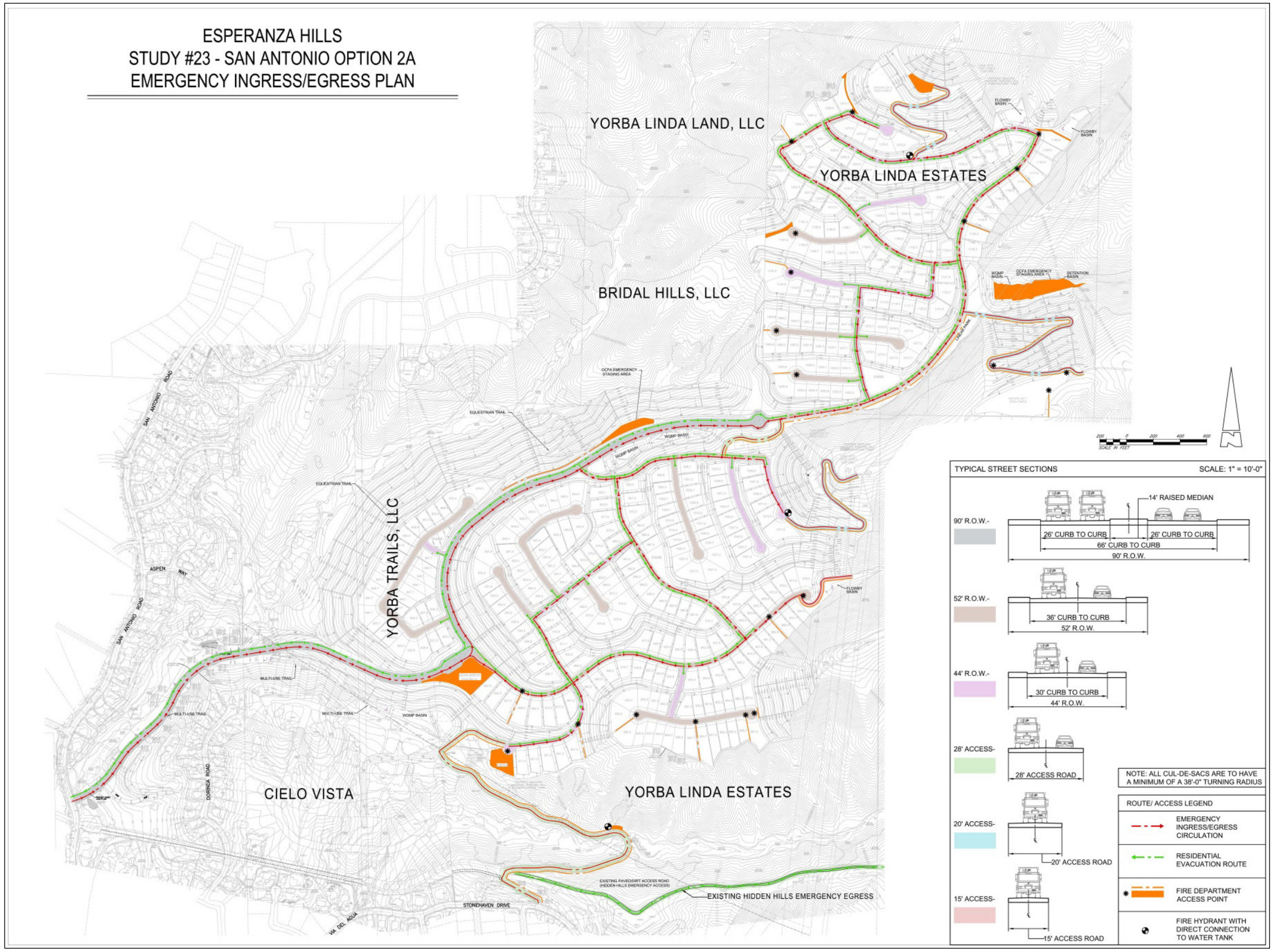



**Exhibit 6-5 – Emergency Ingress/Egress Plan, Option 2A**

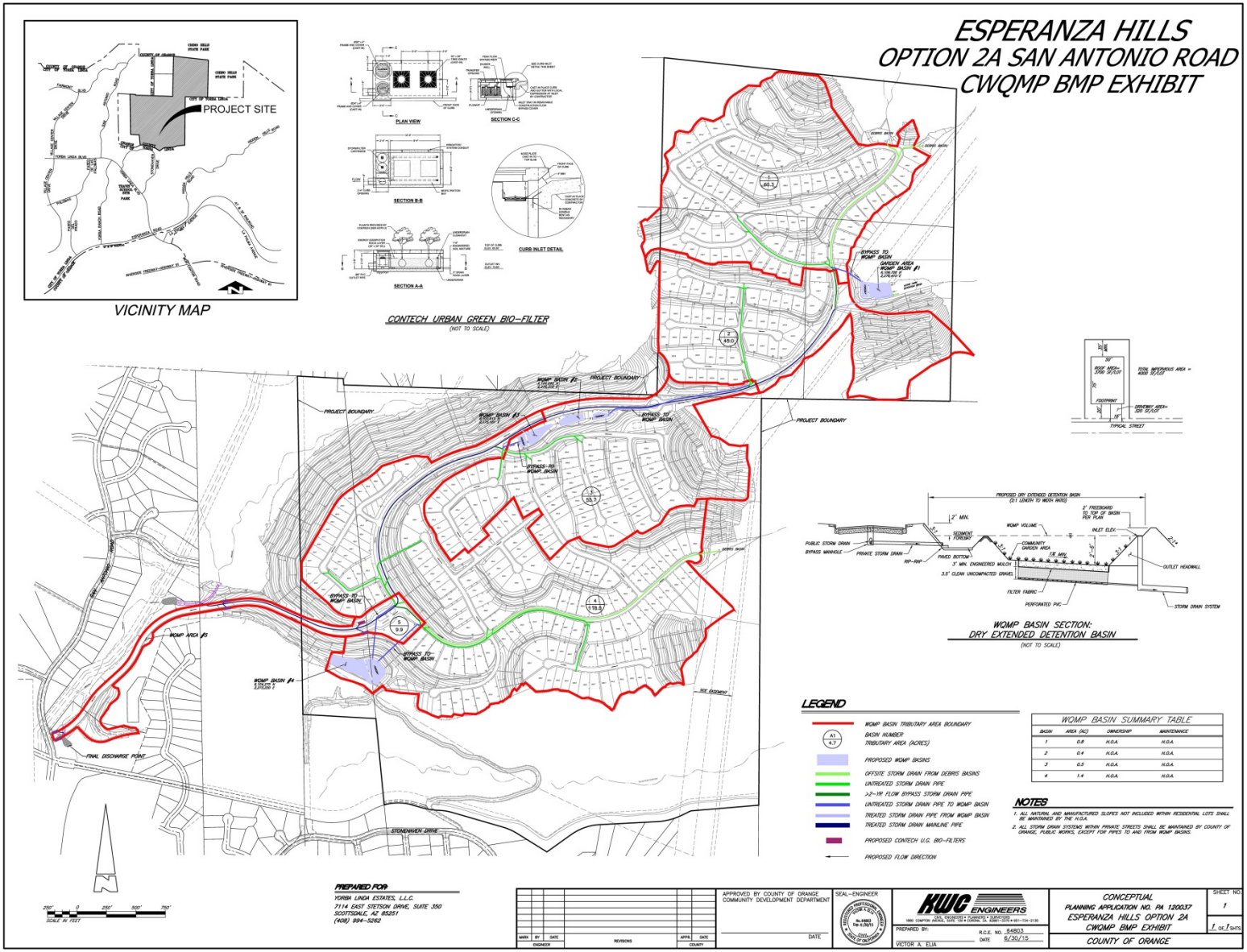



**Exhibit 6-6 – CWQMP BMPs – Option 2A, San Antonio Road**

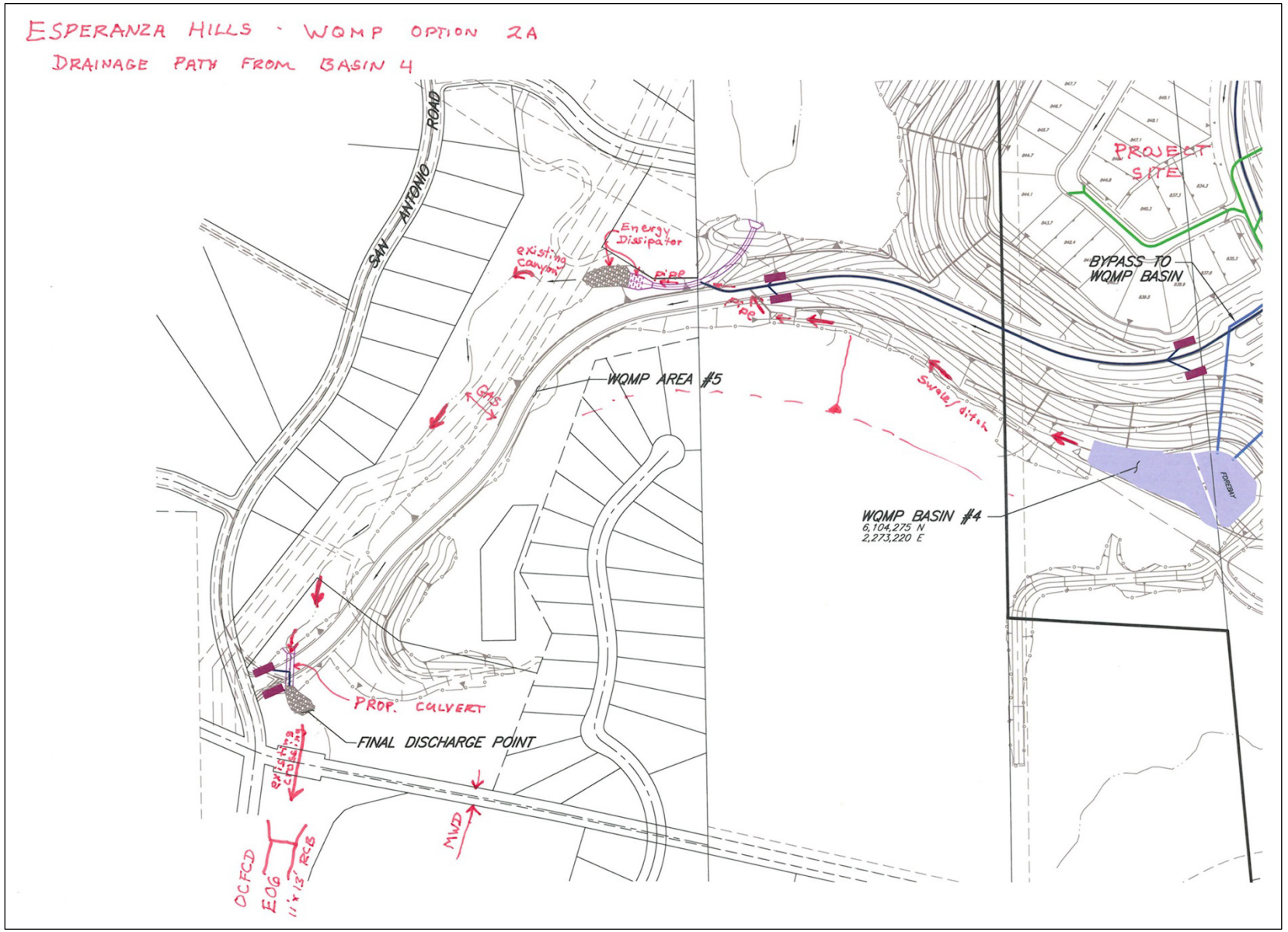



**Exhibit 6-7 – Drainage Path from Basin 4 – WQMP, Option 2A**

The Option 2A Alternative would require grading in a different location than Option 1 or Option 2, but Conditions of Approval and Project Design Features would be applicable to any Option selected to reduce impacts for short-term and long-term conditions.

Proposed drainage improvements would reduce water runoff and improve water quality from runoff for construction and post-construction. Exhibit 6-8 depicts the proposed storm drain facilities plan for Option 2A. Option 1 proposes to outlet the public storm drain mainline on-site prior to the Project's westerly boundary. Storm water discharge will flow through the existing natural canyons on the adjacent Cielo Vista property prior to flowing in the City of Yorba Linda Open Space property and drainage facility E06. Option 2 proposes a storm drain mainline westerly through the Cielo Vista property via the proposed extension of Aspen Way discharging into the existing natural canyon just prior to the City of Yorba Linda Open Space property, which flows into facility E06.

As noted, proposed CWQMP retention basins are depicted on Exhibit 6-6 – CWQMP BMPs – Option 2A, San Antonio Road (page 6-29) for Option 2A conditions. The provision of such basins is substantially the same in all three access options.

Impacts under this Alternative would be substantially the same as the Proposed Project.

## 9. Land Use and Planning

This Alternative would require conformance with the County of Orange General Plan policies and zoning regulations. There would be no change in the proposed number of dwelling units as compared to Option 2 and this Alternative would not result in a conflict with the applicable County land use plans. There would be no change to the potential future annexation. The City would be a responsible agency under this alternative. Discretionary approval from the City would be required to provide for access across City open space. No mitigation measures would be required for the Proposed Project, and no mitigation would be required under the Option 2A Alternative. Therefore, no environmental impacts would occur with either this Alternative or the Proposed Project.

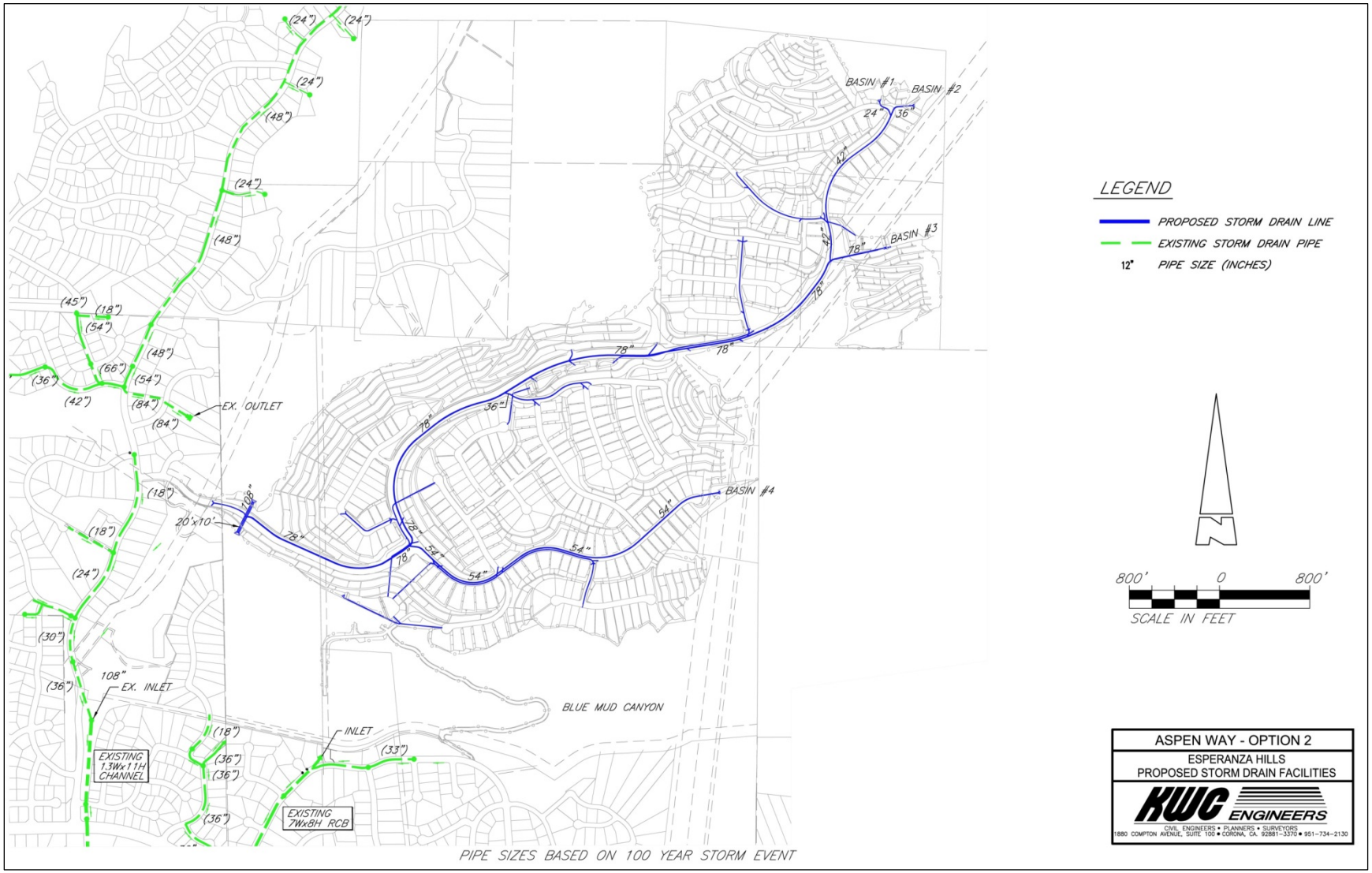



**Exhibit 6-8 – Proposed Storm Drain Facilities Plan, Option 2A**

## 10. Noise

The Noise Analysis found that construction noise would be noticeable under Options 1, 2, and 2A. Distance attenuation, variations in terrain elevation or presence of existing structures will act as noise barriers. Construction hours will be limited to County of Orange permissible hours to minimize adverse impacts under all three option scenarios.

Construction vehicle noise would occur within 50 feet of the nearest residences (sensitive receptors) under Options 1 and 2. With Option 2A, the distance to the nearest residence is 250 feet, thereby reducing short-term noise impacts from construction traffic. The calculated peak daily construction traffic noise, compared to the measured baseline and the General Plan standard is as follows:

| Access Location | Peak Noise (dB CNEL) | Compared to | |
|---|---|---|---|
| | | Baseline | GP Standard |
| Option 1 Stonehaven Drive | 54 dB | +5 dB | -11 dB |
| Option 2 Aspen Way | 54 dB | +5 dB | -11 dB |
| Option 2A San Antonio | 47 dB | -2 dB | -18 dB |

For long-term operational impacts, the Noise Analysis concluded that this Alternative would impact the same San Antonio Road residences as compared to Option 2 between the access point and Yorba Linda Boulevard. However, because the residences are more than 100 feet from the access roadway centerline, noise levels would continue to be less than the CNEL threshold of 65 db, which is the case for both Options 1 and 2. The following table depicts noise levels assuming that three large pieces of equipment operate in close proximity.

| Distance to Source | Hourly Level |
|---|---|
| 100 feet | 81 dBA |
| 200 feet | 75 dBA |
| 300 feet | 71 dBA |
| 400 feet | 69 dBA |
| 500 feet | 67 dBA |
| 640 feet | 65 dBA |
| 800 feet | 63 dBA |
| 1000 feet | 61 dBA |

This Alternative prevents new traffic from passing the residences in the northern portion of the proposed Cielo Vista project, thereby reducing noise impacts for existing and future residences. The Option 2 road would be nearer to the planned Cielo Vista residences and the existing residences on Aspen Way compared to Option 2A. The road through City open space would provide a greater separation. While this will place a new roadway between residences, the distance will be greater.

Option 2A would result in short-term construction noise-related impacts that are less than the noise created under Options 1 and 2 because of the increased distance of the access roadway to sensitive receptors. In addition, long-term traffic noise impacts would be slightly less than long-term noise impacts under Options 1 and 2, also due

to the distance from sensitive receptors. Therefore, Option 2A would have fewer impacts as compared to the Proposed Project.

## 11. Population and Housing

Option 2A would provide the same number of dwelling units as compared to Option 2 (334). There will be no change in the maximum number of units under this Alternative and, therefore, impacts in the area of Population and Housing will remain substantially the same between the two project options and this alternative access option.

## 12. Public Services

This Alternative would neither increase nor decrease the need for public services when compared to the Proposed Project, as there will be no change in the maximum number of residential units projected for development. Emergency access has been designed under Options 1, 2 and 2A to ensure that there will be no significant impact to fire and police access and protection. The projected population will remain substantially the same under this Alternative with regard to schools and libraries. Therefore, impacts in the area of Public Services will be substantially the same as the Proposed Project.

## 13. Recreation

The Proposed Project has been designed with nine active and passive community parks, and equestrian, bicycle and hiking trails, some of which provide linkages to existing trails in the area. The Proposed Conceptual Trails Plan for Option 2A is depicted on Exhibit 6-9. Option 2A would provide the same nine parks proposed in Options 1 (13.16 acres) and Option 2 (12.18 acres). Option 2A will provide 12.18 acres of parks. The park locations are depicted on Exhibit 6-10 – Conceptual Parks Plan, San Antonio Road Option 2A. In addition to the nine parks, two WQMP basins have been designed as bioretention facilities and provide passive and active park use in addition to their functional uses. The parks and WQMP basins are similar under each access option. The following table provides park and WQMP basin information.

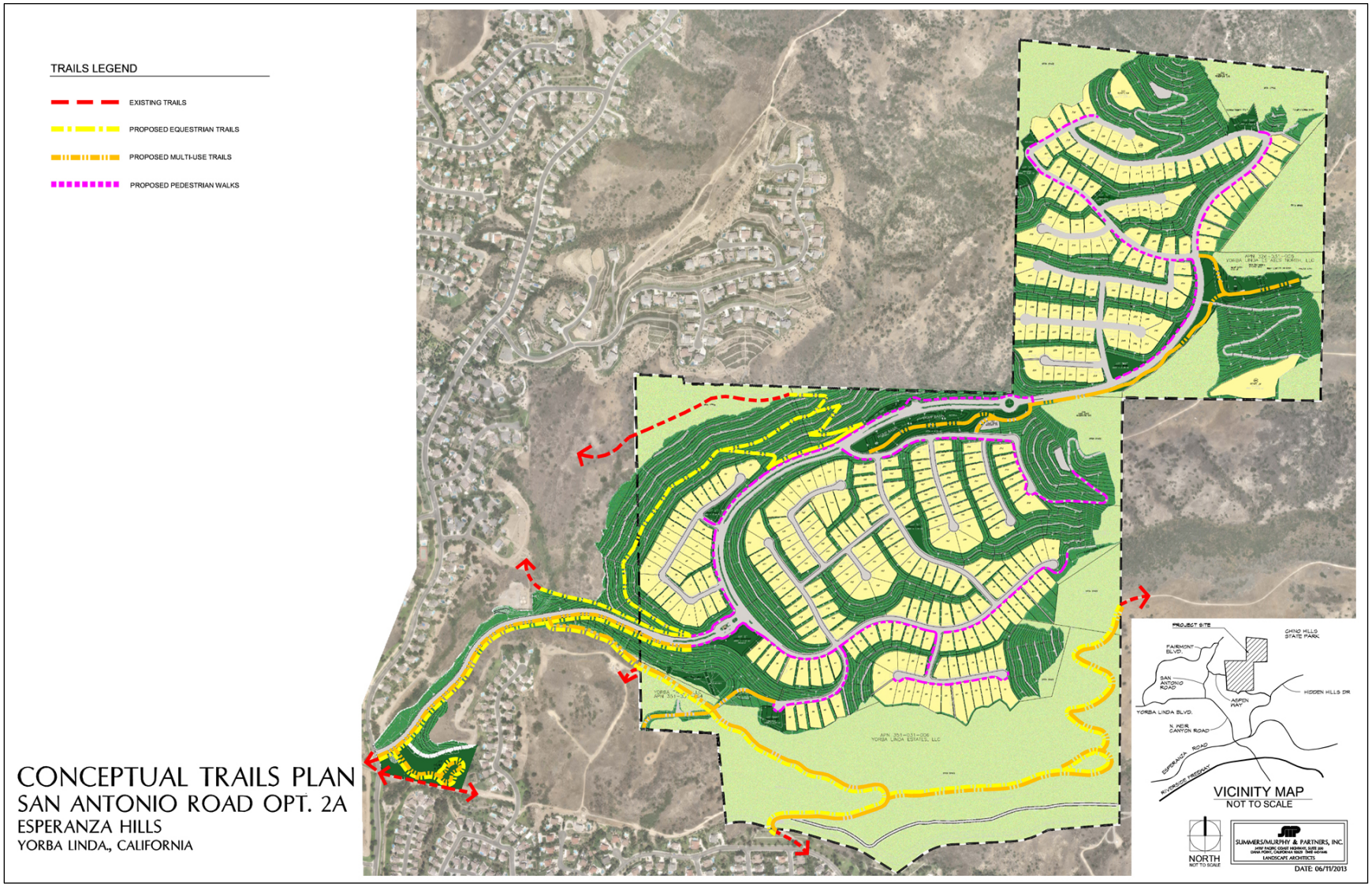



**Exhibit 6-9 – Conceptual Trails Plan, Aspen Way Option 2A**

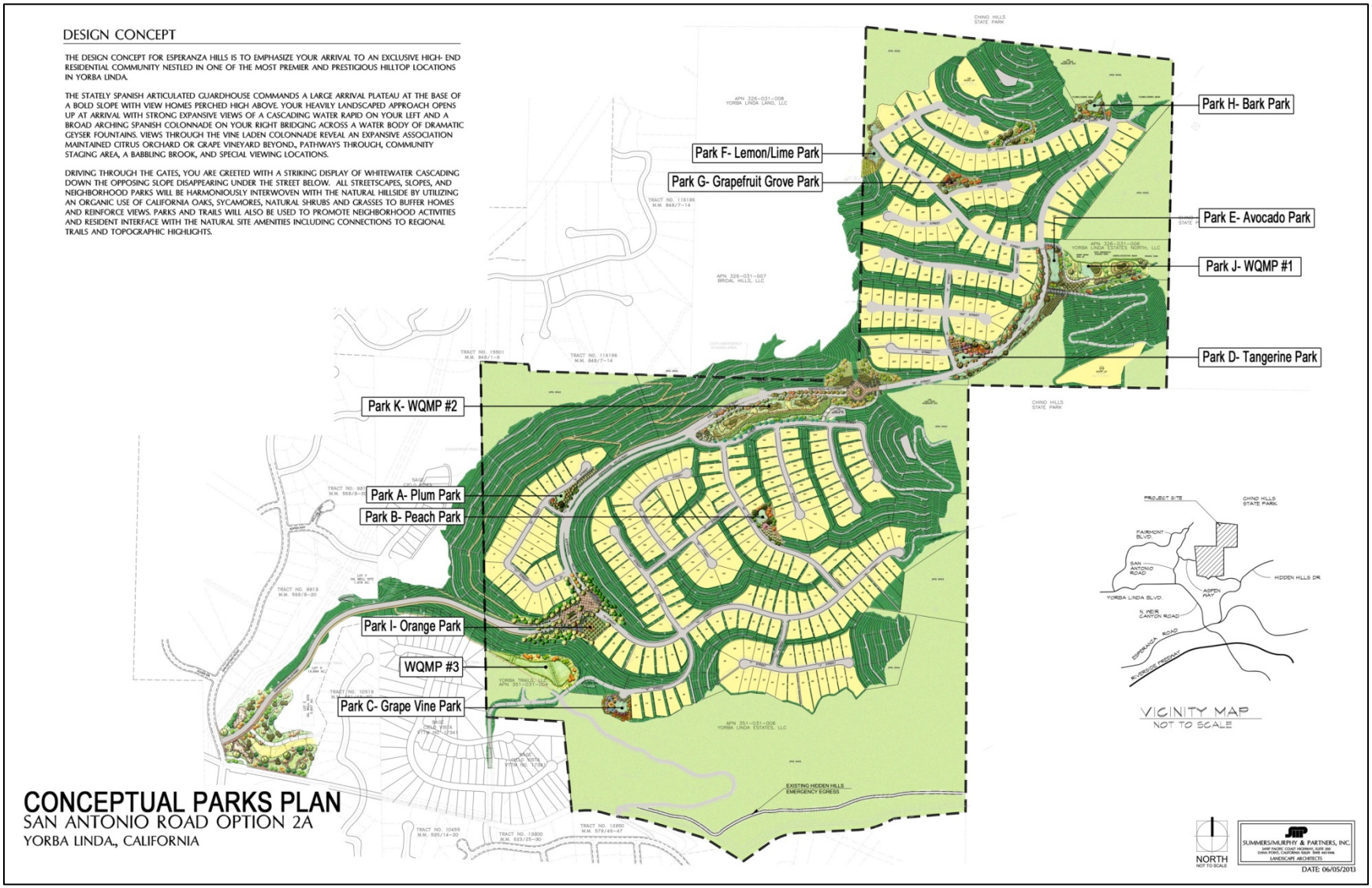



**Exhibit 6-10 – Conceptual Parks Plan, San Antonio Road Option 2A**

The following table provides park and WQMP basin information.

**Table 6-6-11 Park and Water Quality Management Features**

| Item | Item | Square Feet | | Acres | |
|---|---|---|---|---|---|
| | Parks | | | | |
| 1 | Park A - Plum Park | 18,400 | | 0.42 | |
| 2 | Park B - Peach Park | 24,430 | | 0.56 | |
| 3 | Park C – Grape Vine Park | 25,300 | | 0.58 | |
| 4 | Park D – Tangerine Park | 43,670 | | 1.00 | |
| 5 | Park E – Avocado Park | 128,900 | | 2.96 | |
| 6 | Park F – Lemon/Lime Park | 26,720 | | 0.61 | |
| 7 | Park G – Grapefruit Grove Park | 16,300 | | 0.37 | |
| 8 | Park H – Bark Park | 18,950 | | 0.44 | |
| 9 | Park I – Main Entry – Orange Park | Option 1 – 90,910 | Option 2 – 47,945 | Option 1 – 2.08 | Option 2 – 1.10 |
| | Total active parks | Option 1 – 393,580 | Option 2 – 350,615 | Option 1 – 9.03 | Option 2 – 8.05 |
| | WQMP/Park Areas | | | | |
| 1 | Park J – WQMP #1 | 60,300 | | 1.38 | |
| 2 | Park K – Bioretention area/park/WQMP #2 | 119,650 | | 2.75 | |
| | Total WQMP/Park Area | 179,950 | | 4.13 | |
| | **Total Park and WQMP/Park Areas** | **Option 1 – 573,530** | **Option 2 – 530,565** | **Option 1 – 13.16** | **Option 2 – 12.18** |

This Alternative would provide the same recreation amenities as Option 2 and therefore, impacts would be substantially the same under Option 2A as compared to the proposed project.

## 14. Transportation and Traffic

The Traffic Impact Analysis included Option 2A to determine impacts related to short- and long-term traffic generated by the Proposed Project. The Option 1, Option 2, and Option 2A access alignments are depicted on the Conceptual Site Plans for each option, included as Exhibit 6-11, Exhibit 6-12, and Exhibit 6-13. Options 1 and 2 impacts are described below for comparison to Option 2A.

Under Option 1, the Analysis determined that potential impacts could occur at the intersection of Yorba Linda Boulevard at Via del Agua. The proposal of the adjacent Cielo Vista project to install a three-way traffic signal at this intersection would reduce the impact to insignificant. The queue length at this intersection will also be impacted. However, mitigation has been included to require payment of fair-share fees (9% of cost) to extend the left-turn pocket along Yorba Linda Boulevard from the existing 100 feet to 286 feet. In addition, two key intersections were forecast to operate at an unacceptable level of service during AM and/or PM peak hours:

- Yorba Linda Boulevard at Savi Ranch Parkway
- Weir Canyon Road at SR-91 EB Ramps

Mitigation has been included to require payment of fair share fees to widen and re-stripe the westbound approach at Yorba Linda Boulevard and Savi Ranch Parkway to provide an additional (third) westbound left-turn lane. Option 1 is expected to add less than 0.010 to the ICU value at Weir Canyon/SR- 91 EB Ramps and is thus not considered significant.


**Exhibit 6-11 – Access Alignments Option 1**

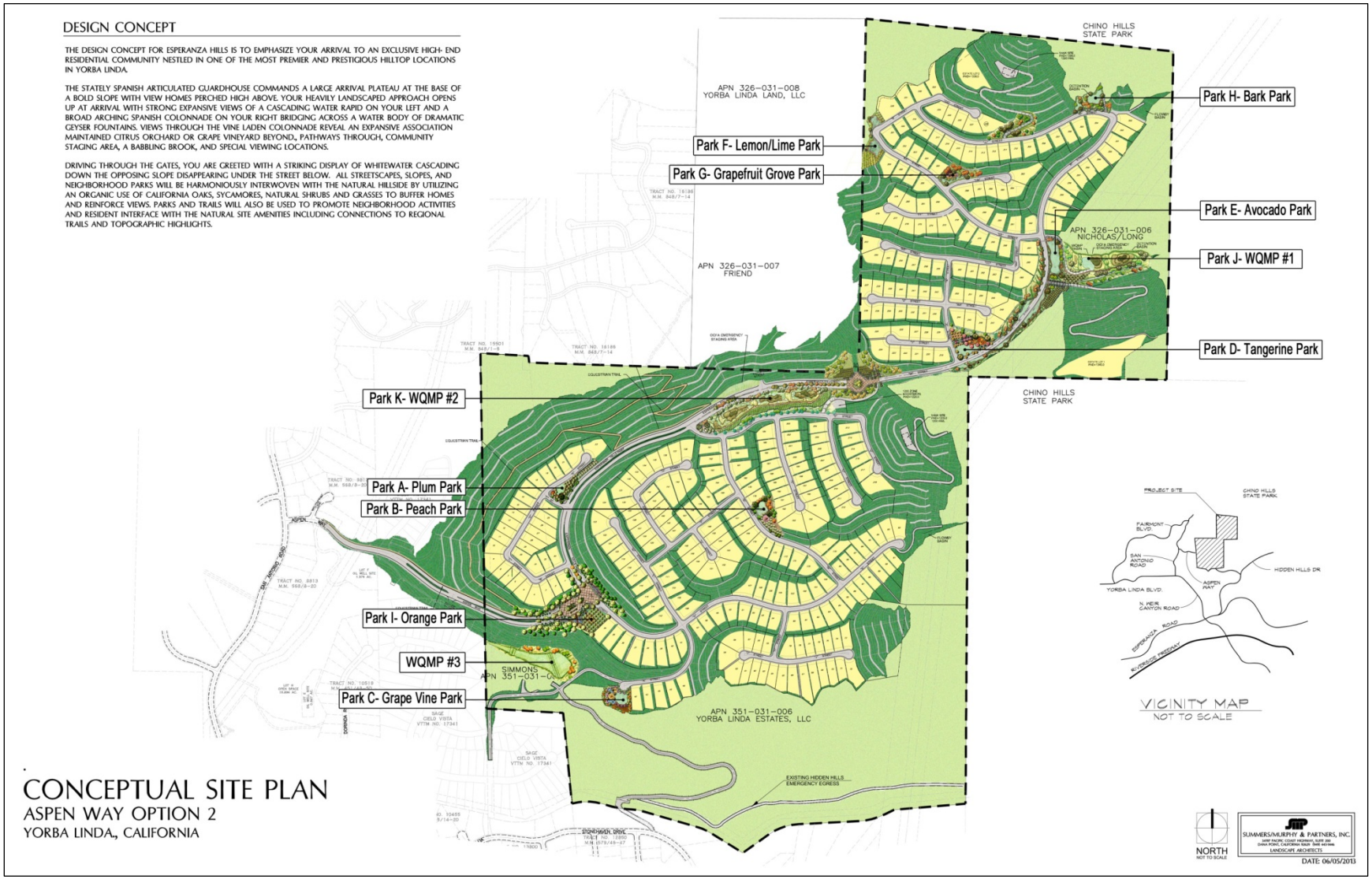



**Exhibit 6-12 – Access Alignment, Option 2**

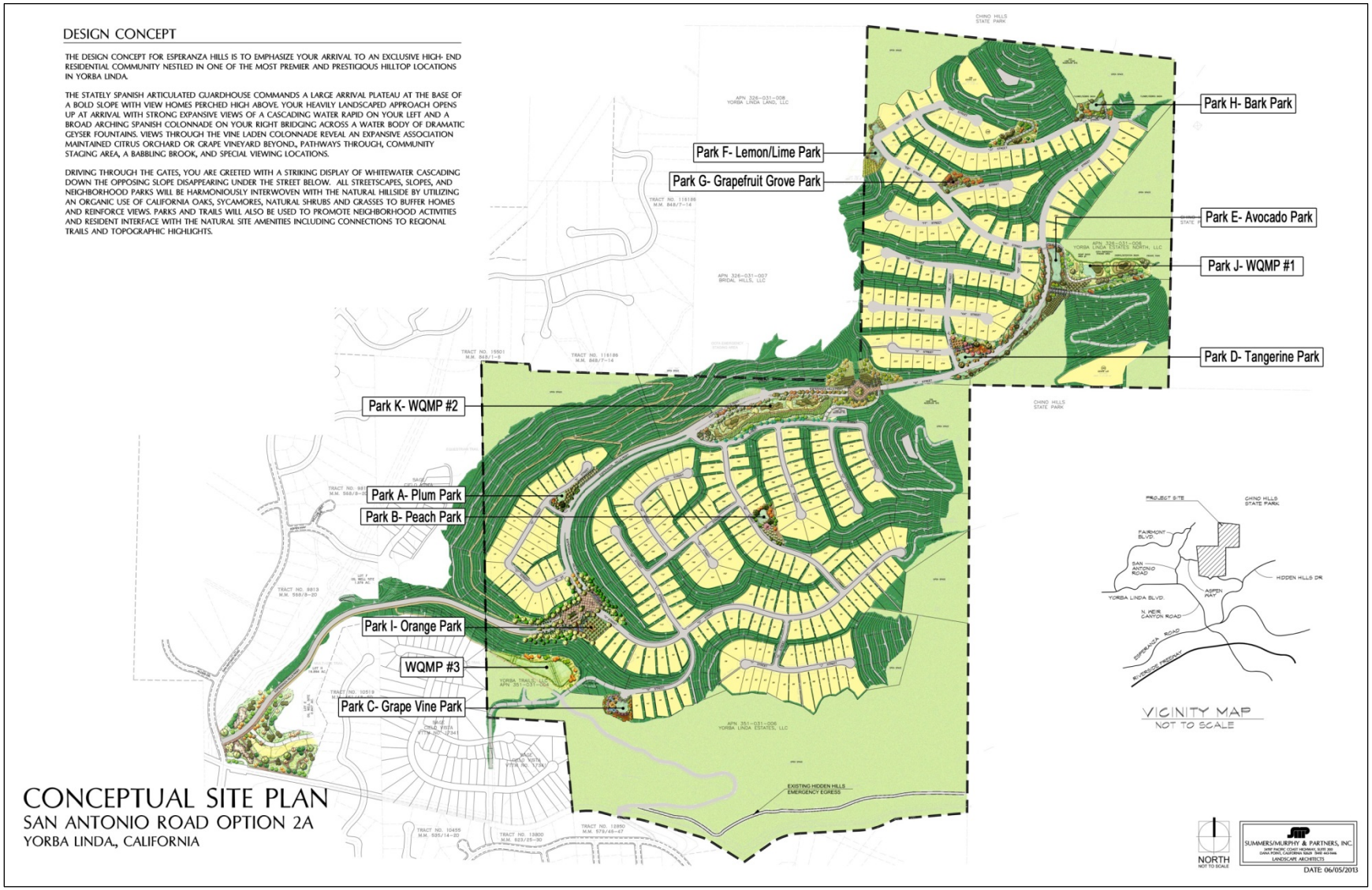



**Exhibit 6-13 – Access Alignment, Option 2A**

Emergency access under Option 1 is proposed via Esperanza Hills Parkway and an emergency only access roadway provided off Stonehaven Drive approximately 130 feet northeast of Via de la Roca as depicted on Exhibit 6-14.

Under Option 2, the Proposed Project will significantly impact the level of service at the intersection of Yorba Linda Boulevard at Via del Agua. This intersection currently operates at an adverse service level. As with Option 1, installation of a three phase traffic signal will reduce impacts to insignificant.

As with Option 1, Option 2 will impact the following intersections during AM and/or PM peak hours:

- Yorba Linda Boulevard at Savi Ranch Parkway
- Weir Canyon Road at SR-91 EB Ramps

Mitigation identified for Option 1 will reduce significant impacts under the Option 2 Project to insignificant. Cumulative impacts under both Options will be reduced to an insignificant level with implementation of the proposed mitigation measures.

Emergency access under Option 2 is proposed via both the extension of Aspen Way as well as the existing emergency access roadway located off Stonehaven Drive, as depicted on Exhibit 6-15.

Option 2A was analyzed with Option 2 in the Traffic Impact Analysis because the two options are similar with the exception that access to the site will be provided via a main access roadway connected to San Antonio Road approximately 1,850 feet south of Aspen Way (Option 2 access location). The Project no longer adds traffic to San Antonio Road at Aspen Way (Option 2) so analysis was based on the remaining 14 key intersections where level of service results will remain unchanged. The Option 2A access location south of Aspen Way is expected to operate at an acceptable level of service C during the AM and PM peak hours under existing, Year 2020 cumulative plus Project conditions and year 2035 cumulative plus Project conditions.

As with Options 1 and 2, Option 2A will worsen the service level at the intersection of Yorba Linda Boulevard at Via del Agua which is currently deficient and operating at level of service F in the AM peak hours and Level of Service D in the PM peak hours. Similarly, Option 2 and Option 2A will impact the intersection of Yorba Linda Boulevard at Savi Ranch Parkway under year 2035 conditions. Mitigation Measures identified for Options 1 and 2, when applied to Option 2A, will reduce impacts to below a level of significance.

Emergency access for Option 2A will be provided off Stonehaven Drive and will connect to the southernmost internal street system within the project site via an existing emergency access roadway which currently serves the surrounding hillside area. Exhibit 6-16 depicts the location of the emergency ingress/egress provided under Option 2A.

Impacts under Options 1, 2, and 2A are substantially the same and mitigation has been provided that applies to all Options. However, Option 2A proposes primary access through City-owned open space and would require City approval for such access.

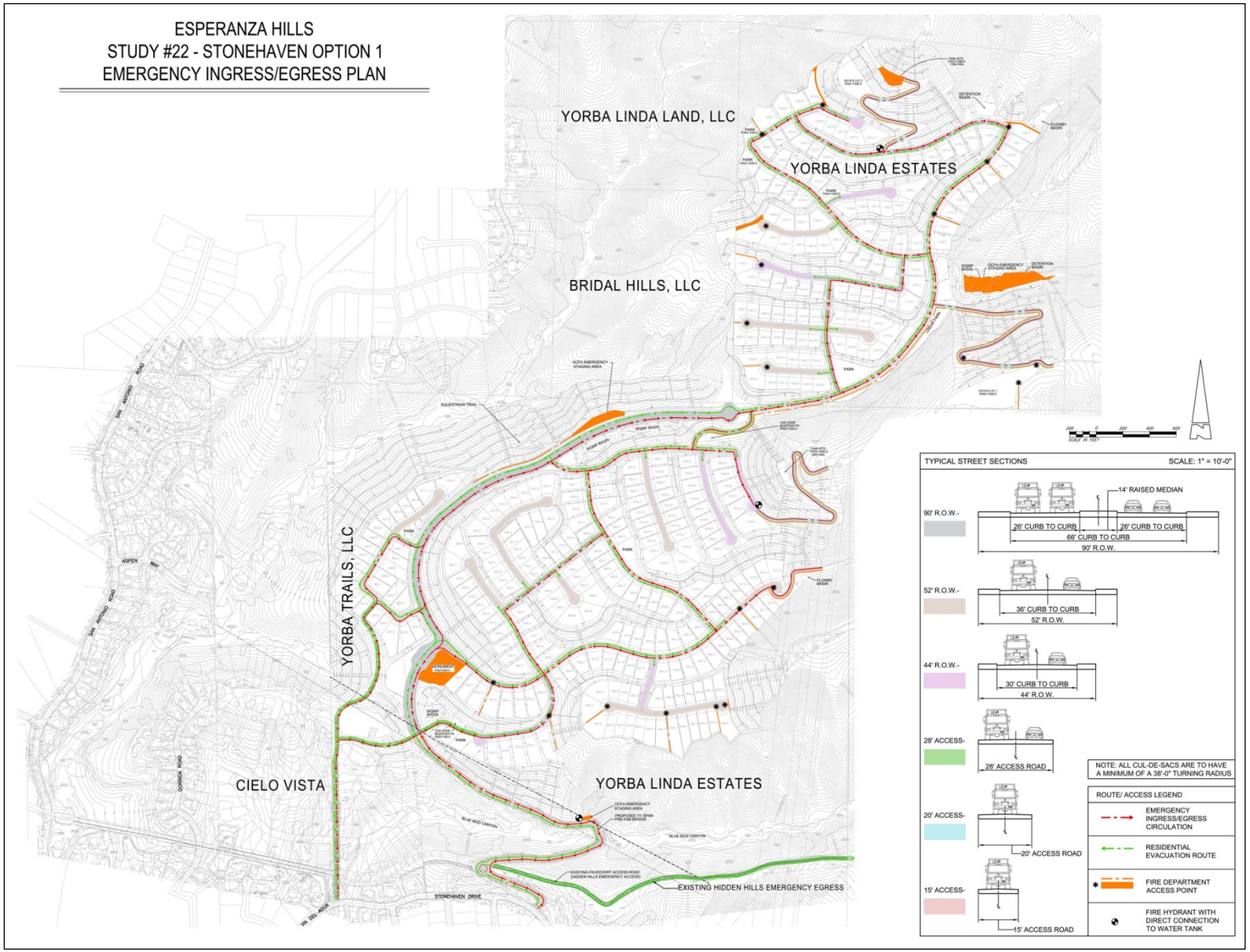



**Exhibit 6-14 – Emergency Ingress/Egress, Option 1**

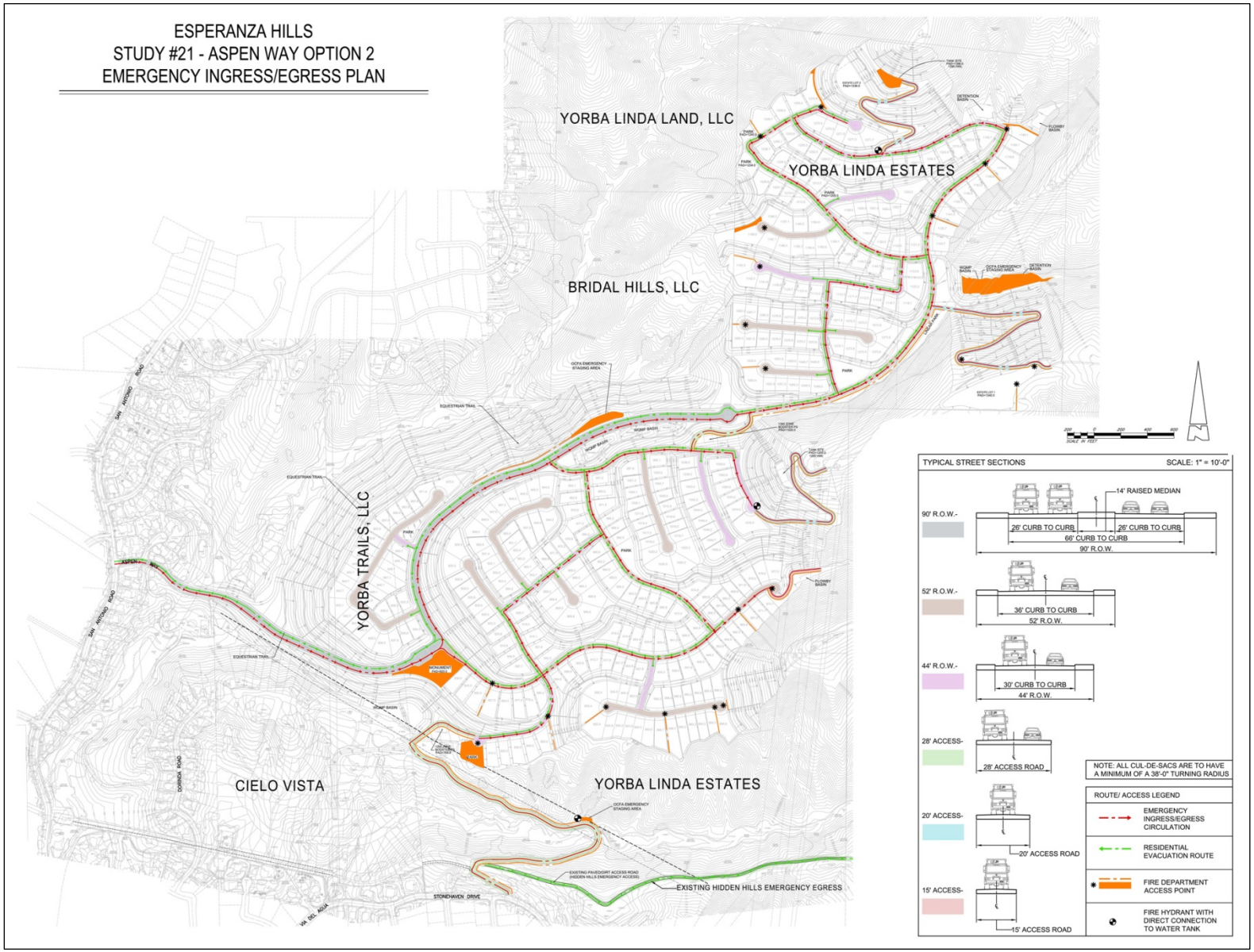



**Exhibit 6-15 – Emergency Ingress/Egress Plan, Option 2**

## 15. Utilities and Service Systems

The location of the primary access under each access option would not impact the ability to provide utility and services to the Proposed Project. Water will be provided by the Yorba Linda Water District (YLWD) via off and on-site water system improvements as depicted on Exhibit 6-17 – Proposed Water Facilities. Implementation of this Alternative would require the same domestic water storage and distribution facilities as required for Option 1 and Option 2.

The Yorba Linda Water District will connect with on-site sewer systems to provide local sewer service as depicted in Exhibit 6-18 – Proposed Sewer Facilities. The exhibit shows the proposed sewer facilities plan, which will convey wastewater to existing YLWD and OCSD trunk sewer system connections. The existing sewer lines in Stonehaven Drive and Yorba Linda Boulevard will be sufficient to accept the proposed flows from the project as well as flows from the proposed Cielo Vista project and the Friend property.

Yorba Linda Disposal will service the project site with respect to solid waste. Service for the utility systems will be provided as follows:

- Electricity - Southern California Edison
- Natural gas - Southern California Gas
- Telephone - AT&T
- Cable - Time Warner Cable

Mitigation Measures requiring the Project Applicant to coordinate with all utility and service providers has been included in this DEIR. There will be no new impacts under Option 2A as the same utilities and service systems will occur regardless of the access option selected. Therefore, there is no change to impacts under the Option 2A Alternative.

The existing Southern California Gas line will remain in place and will be avoided with regard to construction activities.

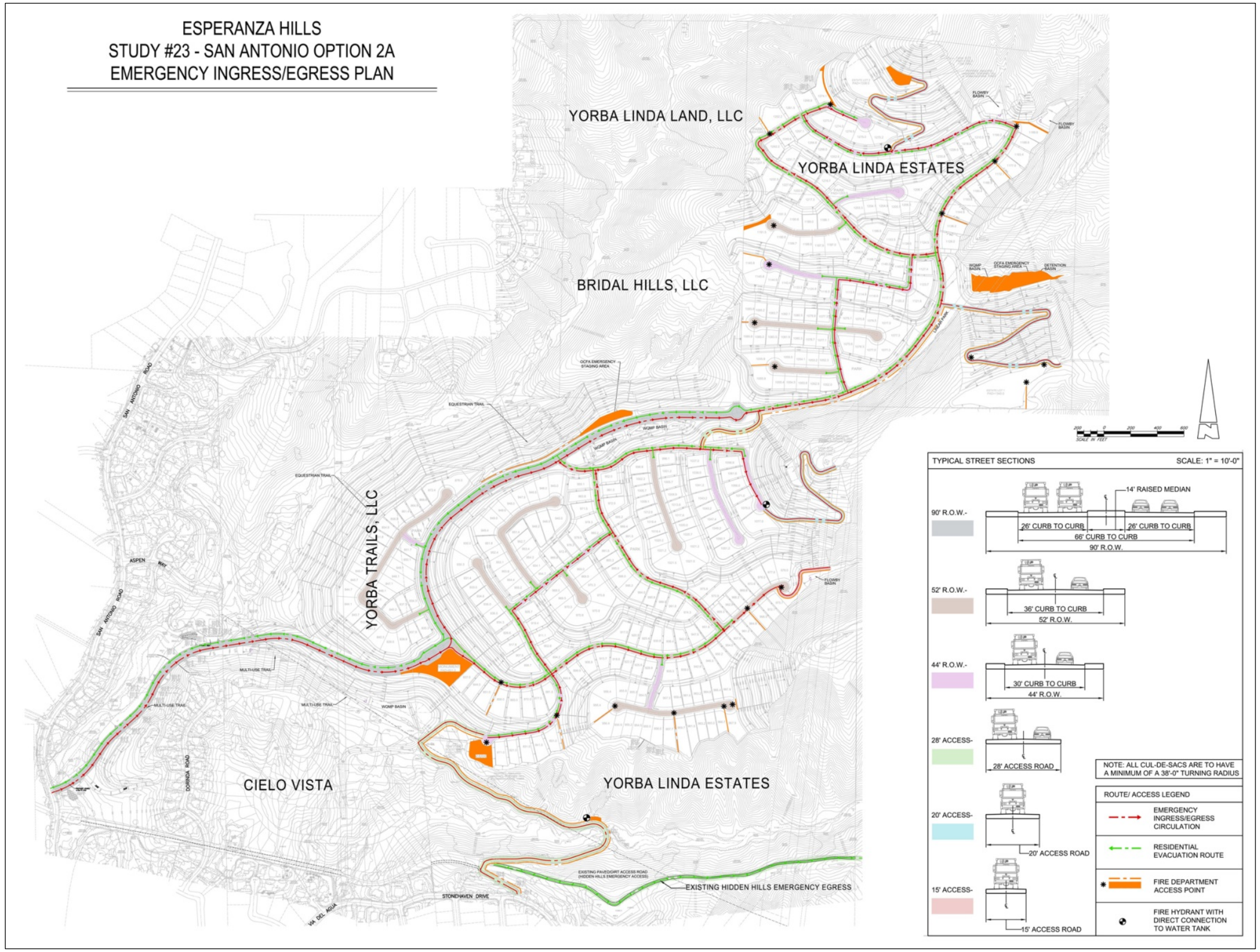



**Exhibit 6-16 – Emergency Ingress/Egress Plan, Option 2A**

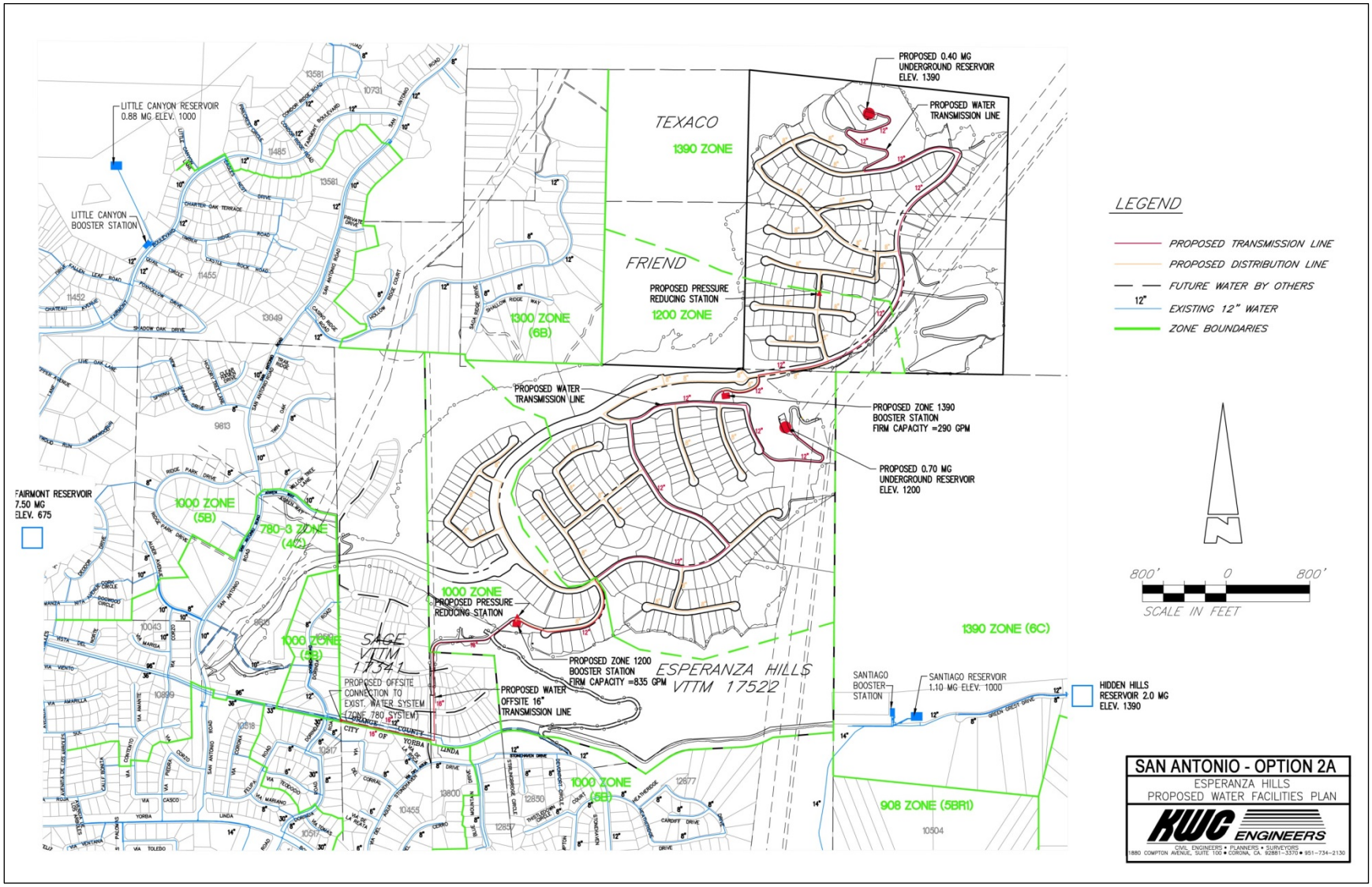



**Exhibit 6-17 – Proposed Water Facilities, Option 2A**

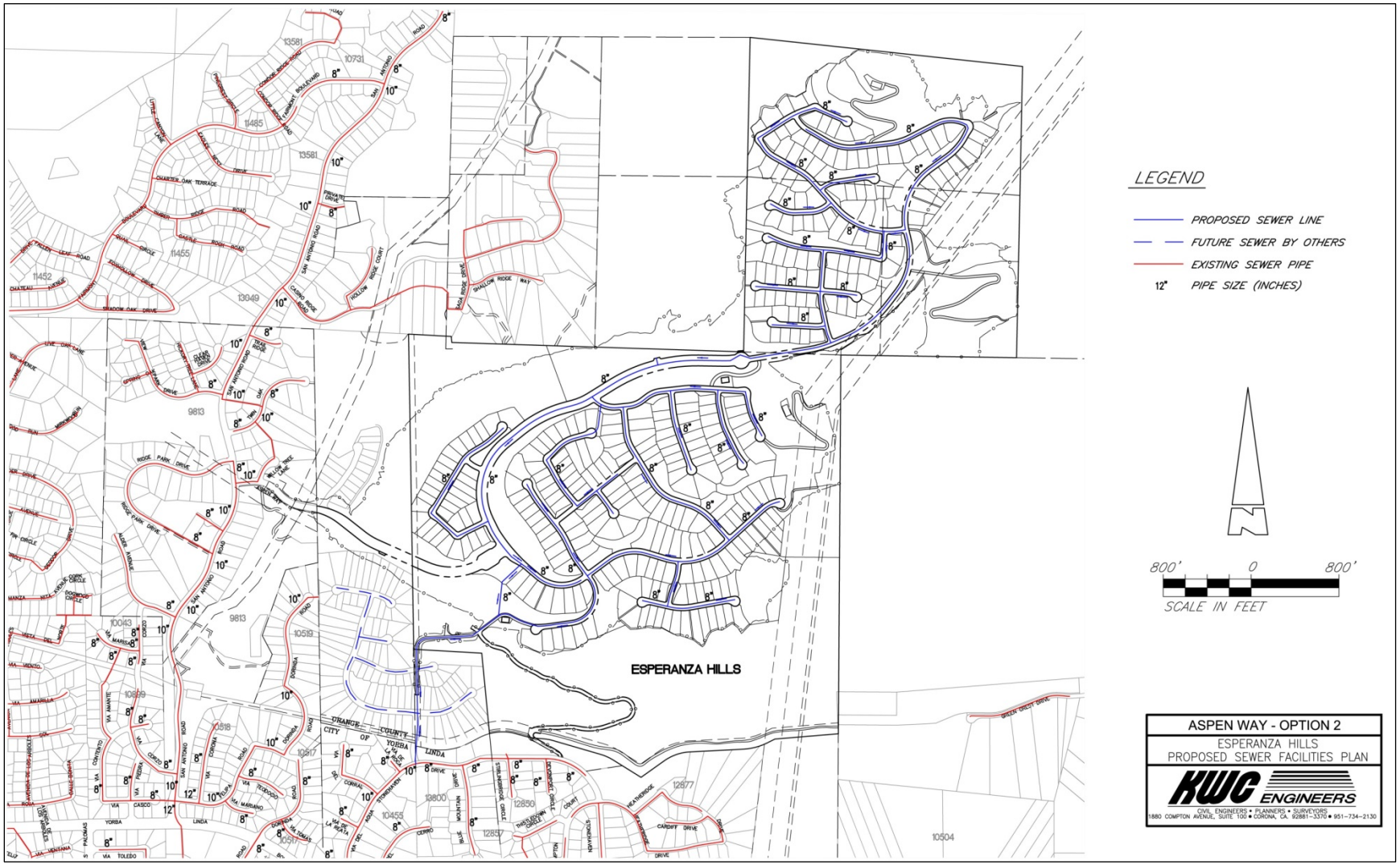



**Exhibit 6-18 – Proposed Sewer Facilities**

### 6.6.2 Attainment of Project Objectives

The Option 2A Alternative achieves the following project objectives:

- creates a low-density single-family development of appropriate density and scale, clustered and buffered from adjacent development and open space
- respects the existing topography and natural backdrop of the site
- provides recreational opportunities
- preserves open space, natural landforms, vegetation, and the northern and eastern ridgelines
- provides fire breaks, firefighting staging areas, emergency ingress/egress plans
- provides construction standards that meet or exceed OCFA requirements
- enhances the visual quality of the area around oil well operations
- integrates hydromodification principles with biological resources to create bio-retention and bio-detention areas, passive parks and aesthetically pleasing landscape features

With regard to impacts under Option 2A, the selection of the Option 2A access alignment results in greater impacts to biological resources than Option 1; however, proposed mitigation will reduce impacts. This Alternative will result in fewer noise impacts to sensitive receptors under both short-term construction and long-term operational conditions due to a greater set-back from sensitive receptors (i.e., existing residential development). The Option 2A Alternative would result in less noise than the Proposed Project under either Option 1 or Option 2. The same number of homes would be developed and, therefore, construction activity, provision of water, sewer and utility services, traffic and the requirement for public services such as schools, fire and police protection and libraries would remain substantially the same as with the Proposed Project. Impacts to air quality, aesthetics, geology and soils, recreation, and the potential for wildfires would also remain identical under Option 1, Option 2, and Option 2A. The Option 2A access crosses City open space and would require City permitting.

While this Alternative would attain the project goals and objectives, it would create a greater impact to biological resources in the area of protection of habitat due to the off-site grading required to accomplish the access location.

# 6.7 Project Alternative 3 – Option 2B Access Alternative

## 6.7.1 Description of Alternative

Two options for roadway access to the Proposed Project have been designed and analyzed in this DEIR and are referenced as Options 1 and 2. Additional access options are presented as project alternatives because they would reduce project impacts associated with Options 1 and 2. Option 2B is provided herein as a second Alternative and is substantially the same as Option 2A detailed in Section 6.6 above. The two main differences between Option 2A and Option 2B relate to the provision of a secondary access road and a modification to the grading plan, which will reduce off-site grading and reduce retaining wall heights. All access options are briefly described below, and Option 2B is analyzed with regard to each environmental topic where it differs from the analysis for Option 2A. Exhibit 6-19 – Conceptual Site Plan, Option 2B depicts the two access roads proposed with this Option.

Option 1 would provide a primary connection going south to Stonehaven Drive following an existing dirt road that has been used for oil well and utility access purposes and would include a bridge over Blue Mud Canyon. Emergency access under Option 1 would be provided via Esperanza Hills Parkway as well as an emergency only access roadway off Via del Agua approximately 130 feet northeast of Via de la Roca. The emergency access will pass through the adjacent Cielo Vista property via a 50-foot roadway and utility easement, and may impact the lot design of the proposed Cielo Vista project.

Option 2 would provide a primary connection going west from the site across the Cielo Vista property to Aspen Way, which then connects to San Antonio Road and will require an access and grading easement over the adjacent Cielo Vista property or other legal entitlement. Emergency access will be provided via a bridge across Blue Mud Canyon to Stonehaven Drive.

Alternative Option 2A would provide access via a main access roadway connected to San Antonio Road approximately 1,850 feet south of Aspen Way. This connection would cross open space owned by the City of Yorba Linda and the adjacent Cielo Vista property through the potential access corridor identified in the Cielo Vista Area Plan. Emergency access would be provided to Stonehaven Drive. As noted, the Option 2A access alternative is substantially the same as Option 2.

Alternative Option 2B would provide access via both San Antonio Road approximately 1,850 feet south of Aspen Way and Stonehaven Drive as proposed in Option 2A. Under Option 2B, the San Antonio Road access will be the primary access and a secondary project access will be provided via Stonehaven Drive. Under this alternative, both access roadways will serve resident and guest traffic, in addition to emergency access. Exhibit 6-20 – Conceptual Entry Road, Option 2B shows the conceptual entry road detail including landscaping and trail connections.

As indicated above, there are two main differences between Option 2A and Option 2B.

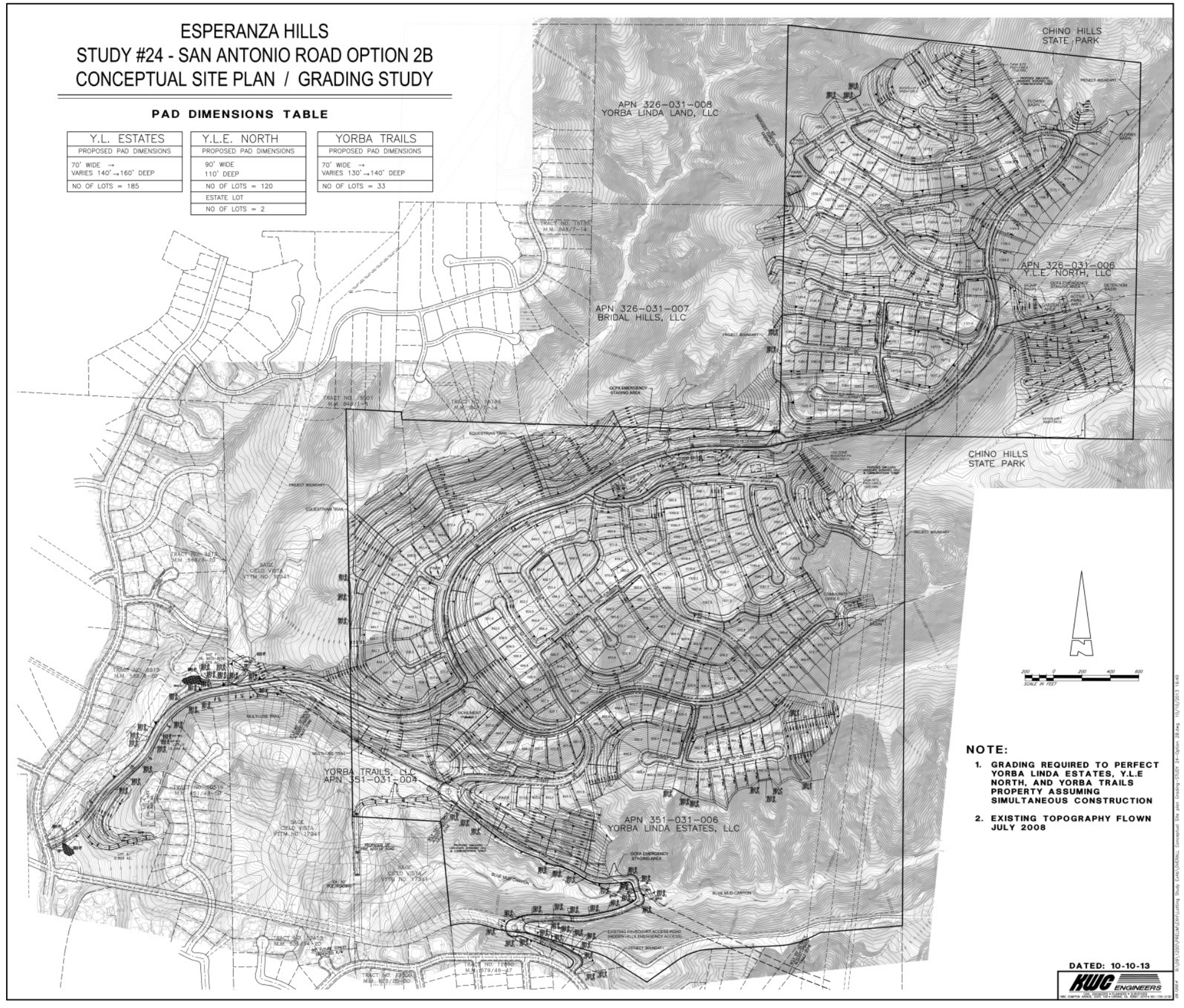



**Exhibit 6-19 – Conceptual Site Plan, Option 2B**

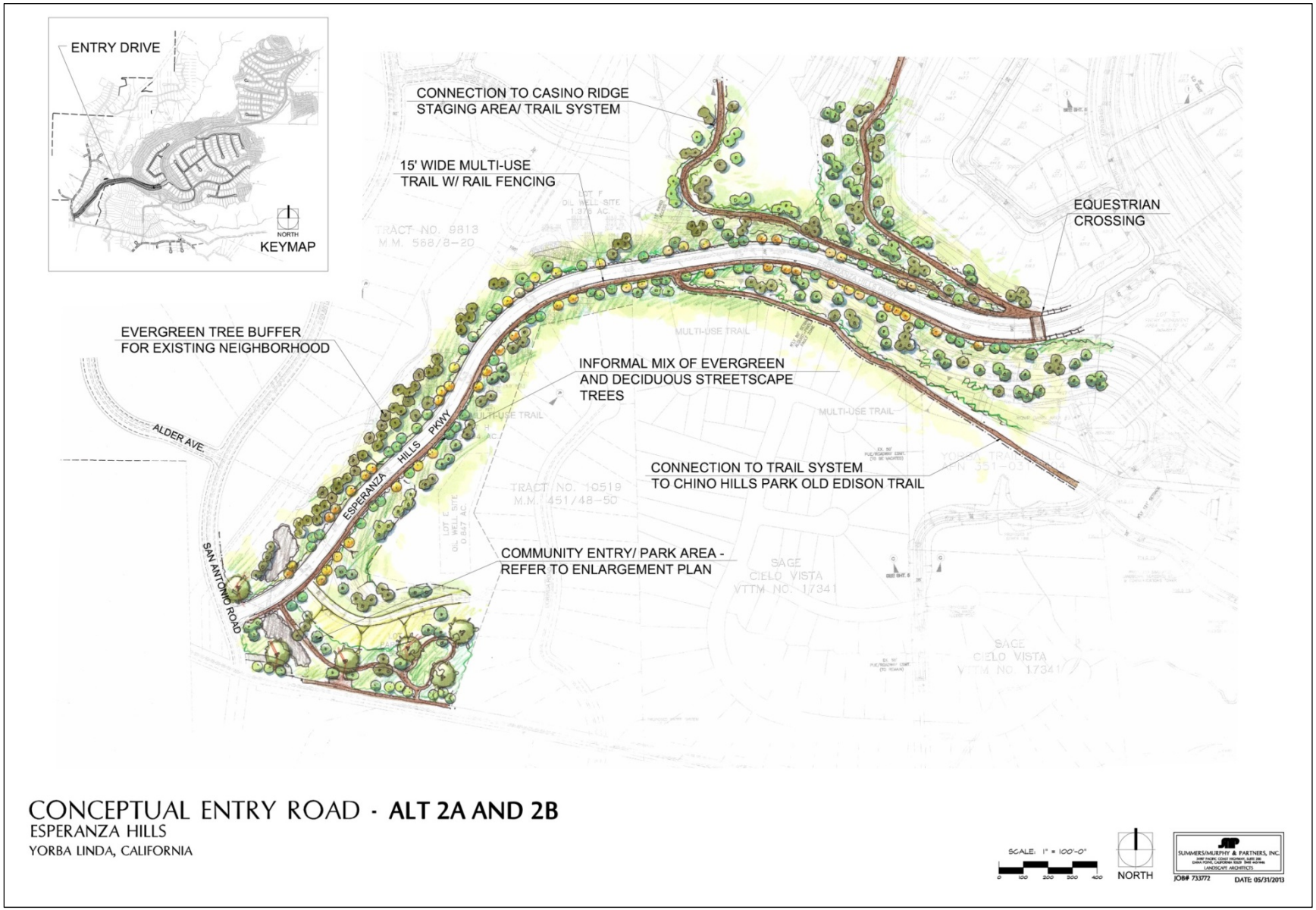



**Exhibit 6-20 – Conceptual Entry Road, Option 2B**

1. The emergency access to Stonehaven Drive provided under Option 2A would be converted to a secondary access point, allowing for resident and guest access to the project via Stonehaven Drive. The access road from Stonehaven Drive would be expanded from 28′ to 40′ in width to accommodate both daily ingress/egress and emergency ingress/egress. This secondary access would distribute project traffic to San Antonio Road and to Stonehaven Drive, thereby reducing the amount of traffic from either access point.

2. Off-site grading along the western edge of the project site, nearest the upper portion of the Cielo Vista project site, would be pulled back onto the Esperanza Hills site as depicted on Exhibit 6-21 – Alternative Lotting/Access Study. The change in the grading would reduce the height of retaining walls from a maximum of 31 feet to a maximum of 8 feet and would result in less change to the existing landform, creating an improved visual effect with shorter retaining walls in that location.

## 1. Aesthetics

This Alternative would not substantially alter views compared to the Proposed Project. The re-alignment of the roadway approximately 1,850 feet from where the Option 2 roadway is presented was analyzed as Option 2A. Aesthetics impacts related to San Antonio Road, Stonehaven Drive, and Aspen Way were analyzed in Options 1, 2 and 2A. Under Option 2B, there would be an improvement to aesthetics at the western edge of the project site where off-site grading would be avoided as compared with the grading limits under Option 2, and lower retaining walls would replace the higher retaining walls required in Option 1. There would be no new or greater impacts related to aesthetics under Option 2B. No viewsheds related to hills, open space or ridgelines would change from that identified with the Proposed Project. Therefore, with less grading and lower retaining walls on a portion of the site, impacts related to this Alternative would be less than the Proposed Project or the other Options presented.

## 2. Air Quality

The Air Quality analysis indicated that site disturbance due to grading and construction activity would remain the same under all access options. Localized significance thresholds are not exceeded under any option and operational impacts would remain the same since all Options anticipate development of 340 residential units.

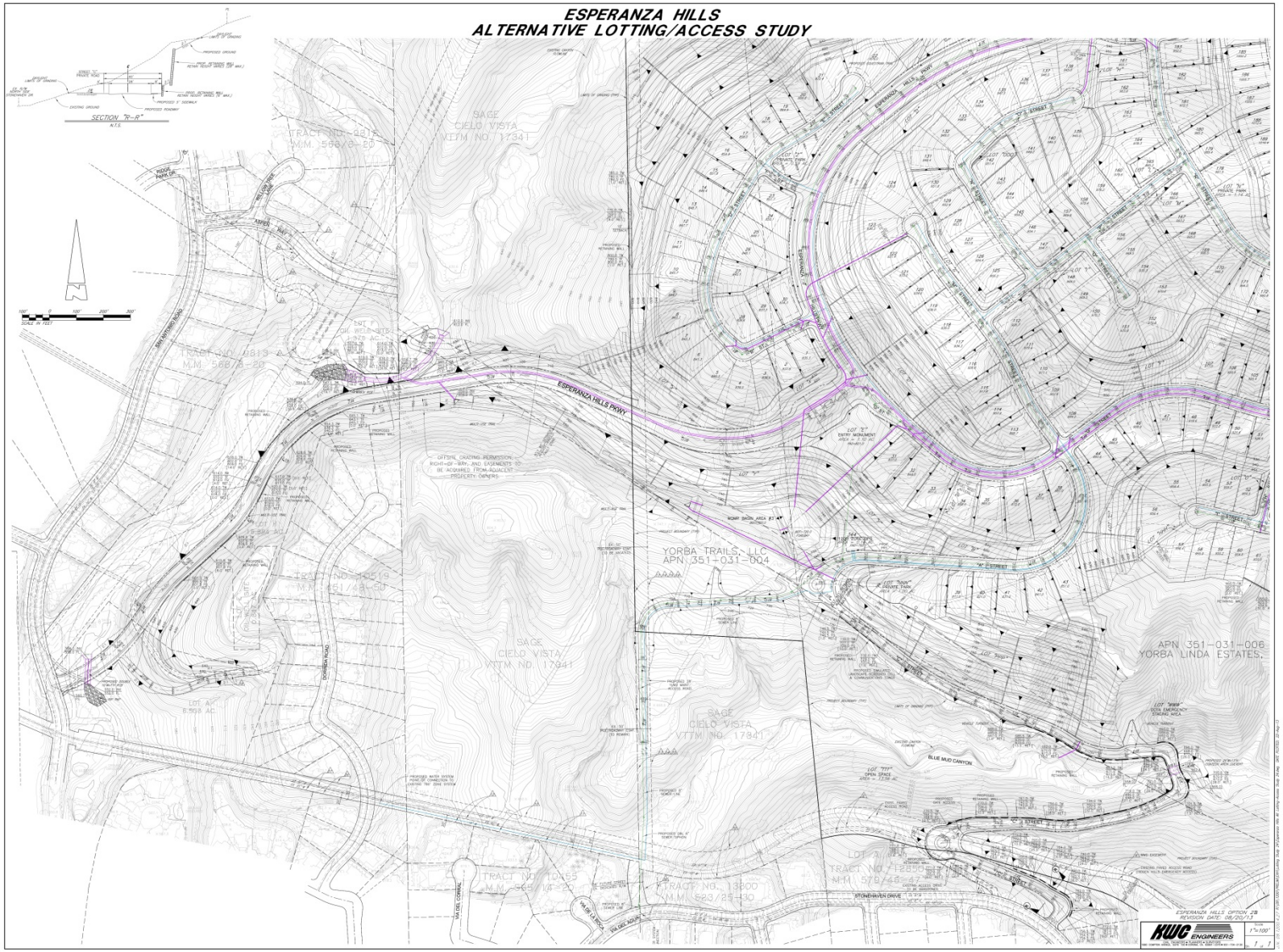



**Exhibit 6-21 – Alternative Lotting/Access Study**

With regard to traffic, carbon monoxide (CO) emissions were analyzed and showed that microscale CO levels will not be exceeded. This Alternative further disperses potential CO hotspots by providing two access options.

Option 2B is anticipated to result in the same emissions as analyzed for all options with the same roadways and residential development. Therefore, for short-term construction and long-term operations, all access options will have the same impact related to air quality.

## 2. Biological Resources

The Biological Technical Report included analysis of three access options. Therefore, access via the roadways proposed under Option 2B would result in substantially the same impacts to biological resources since these roadways were analyzed as either primary access or emergency access with Option 1, Option 2 and Option 2A.

## 3. Cultural Resources

The Cultural Resources Assessment prepared for the Proposed Project indicates that no cultural resources were discovered within the Project boundaries and the site has not been listed as a potential location for such resources. Therefore, impacts in the area of Cultural Resources under Option 2B will be the same as compared to the Proposed Project.

## 4. Geology and Soils

Site characteristics from a geotechnical standpoint are very similar under each Access Option. The road alignment for Option 2B 1,850 feet south of Aspen Way, will extend northward from San Antonio Road through City of Yorba Linda open space up the east side of Canyon A then eastward into Canyon B as proposed for Option 2A. The road alignment for the Stonehaven Drive access would be substantially the same as proposed for Option 1 going south to Stonehaven via an existing dirt road. Cut/fill slopes, cut/fill depths, and construction of retaining walls under Option 2B are consistent with those proposed for Option 1 and Option 2A except for the western edge of the Project Site, where off-site grading is avoided and development has been "pulled back" from the Project boundary. This will require less grading than for Option 2 and lower retaining walls than for Option 1. Exhibit 6-22 – Off-Site Grading Differences depicts the grading limit differences between Option 2 and Option 2B. Therefore, there will be less impact under Option 2B as compared to Option 1, Option 2 and Option 2A.

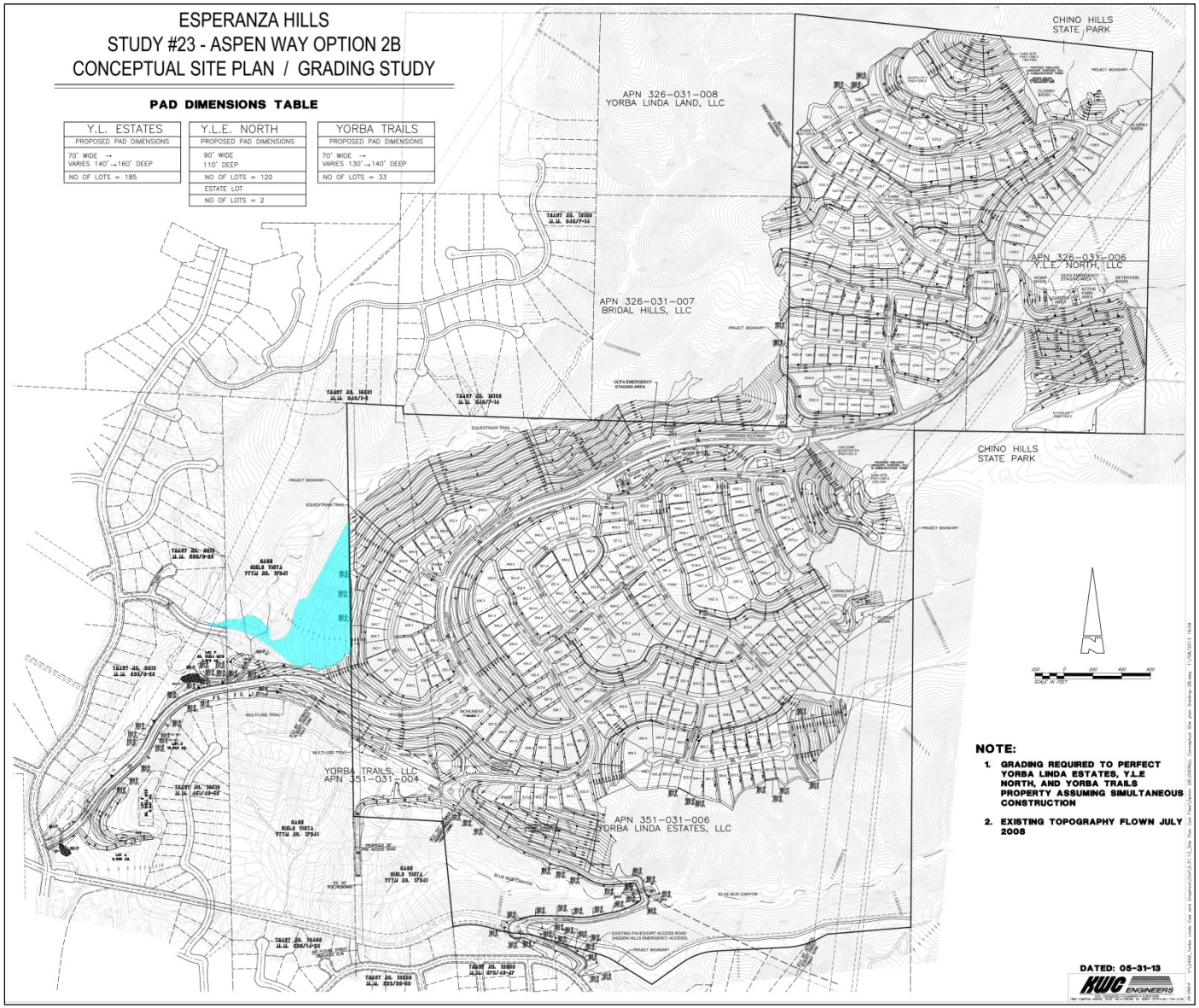



**Exhibit 6-22 – Off-Site Grading Differences**

## 5. Greenhouse Gas Emissions

While no thresholds have been adopted by the state at the time of this writing, greenhouse gas emissions exceed the proposed significance threshold under all Access Options. There will be minimally less grading under Option 2B. However, this Option is anticipated to result in the same emissions as analyzed for all options with the same roadways and residential development. Therefore, impacts will remain similar under all Options.

## 3. Hazards and Hazardous Materials

The Proposed Project will not result in any impacts due to hazardous materials and is not located within a hazardous materials site. On-site oil wells have the potential for accidental release of gas/methane from continued operation. However, mitigation measures have been included to address such potential and are applicable under any of the Access Options.

The Project Site is within a Very High Fire Hazard Severity Zone. A fuel modification zone has been incorporated into the Project design and will require approval by the Orange County Fire Authority. Fuel modification will remain substantially the same as depicted for Option 1 and Option 2A. Compliance with Mitigation Measures identified in this DEIR will result in less than significant impacts due to Hazards and Hazardous Materials.

This Alternative is superior in the area of community evacuation in the event of a fire. The two access points provide an opportunity for traffic to be diverted in two directions towards either Yorba Linda Boulevard (east-west) or San Antonio Road (north-south).

This Alternative would be implemented based on the same requirements as Option 1, Option 2 or Option 2A with respect to potential hazards and hazardous materials. However, this Alternative is superior to Options 1, 2 and 2A in terms of access and evacuation in the case of a fire.

## 6. Hydrology and Water Quality

This Alternative would not result in additional impacts in the area of hydrology/water quality. Potential impacts would be the same as analyzed under Option 1, Option 2 and Option 2A conditions. Therefore, impacts under this Option would be substantially the same as the Proposed Project.

## 7. Land Use and Planning

This Alternative would require conformance with the County of Orange General Plan policies and zoning regulations. There would be no change in the proposed number of dwelling units as compared to the Proposed Project and this Alternative would not result in a conflict with the applicable County land use plans. There would be no change to the potential future annexation. As with Option 2A, the City would be a

responsible agency under this alternative. Specifically, discretionary approval from the City would be required to provide for access across City open space. No mitigation measures would be required for the Proposed Project, and no mitigation would be required under the Option 2B Alternative. Therefore, no environmental impacts would occur with either this Alternative or the Proposed Project.

## 8. Noise

To analyze the noise impacts of providing two access roads under this Option, Giroux Associates prepared an Addendum to the Noise Analysis (Addendum) originally prepared for the Proposed Project. The Addendum, dated October 23, 2013, provided results of additional meter readings to determine baseline noise levels along Stonehaven Drive and San Antonio Road. The Addendum is included in Appendix N to this EIR.

As discussed in Section 5.10, Noise (beginning on page 5-459) the Noise Analysis found that construction noise would be noticeable under Options 1, 2, and 2A. The same conclusion can be made for Option 2B as both Stonehaven Road and San Antonio access were analyzed for all Options either as primary or emergency access. Because both roads currently have relatively low ambient noise levels, the introduction of long term traffic related noise would perceptibly increase the noise levels. However, the County's 65 dB CNEL threshold would not be exceeded under operational conditions.

Additional long term noise measurements were conducted for 72 hours from October 18, 2013 to October 21, 2013 using two noise monitors. Measurement locations are shown in Exhibit 6-23 – Noise Meter Location, Meter 3 (off Stonehaven Drive along current Water District Access Road) and Exhibit 6-24 – Noise Meter Location, Meter 4 (San Antonio Road at Proposed Project Access Road) The results of the hourly meter readings are presented in Table 6-7-2Table 6-7-2Noise Measurements – Existing Hourly Leq's (dB), Option 1 Stonehaven Drive Alternative and Table 6-7-3, Noise Measurements – Existing Hourly Leq's (dB), Option 2A San Antonio Road Alternative. It should be noted that in the original Noise Analysis, the noise was modeled at these locations. The actual metered measurements in the Addendum conformed to the modeling results as described below.

Meter 3 was located along the Project access road off Stonehaven Drive along the current water district road. The meter was placed at the existing gate, approximately 200 feet from the Stonehaven Drive centerline. Measured CNEL levels at the gate were in the mid to upper 40s. This equates to 51-55 dB CNEL at 50 feet from the centerline. Modeled existing noise levels are 53-55 dB CNEL at 50 feet from the centerline. The analysis showed that measured and modeled traffic noise levels are in agreement.

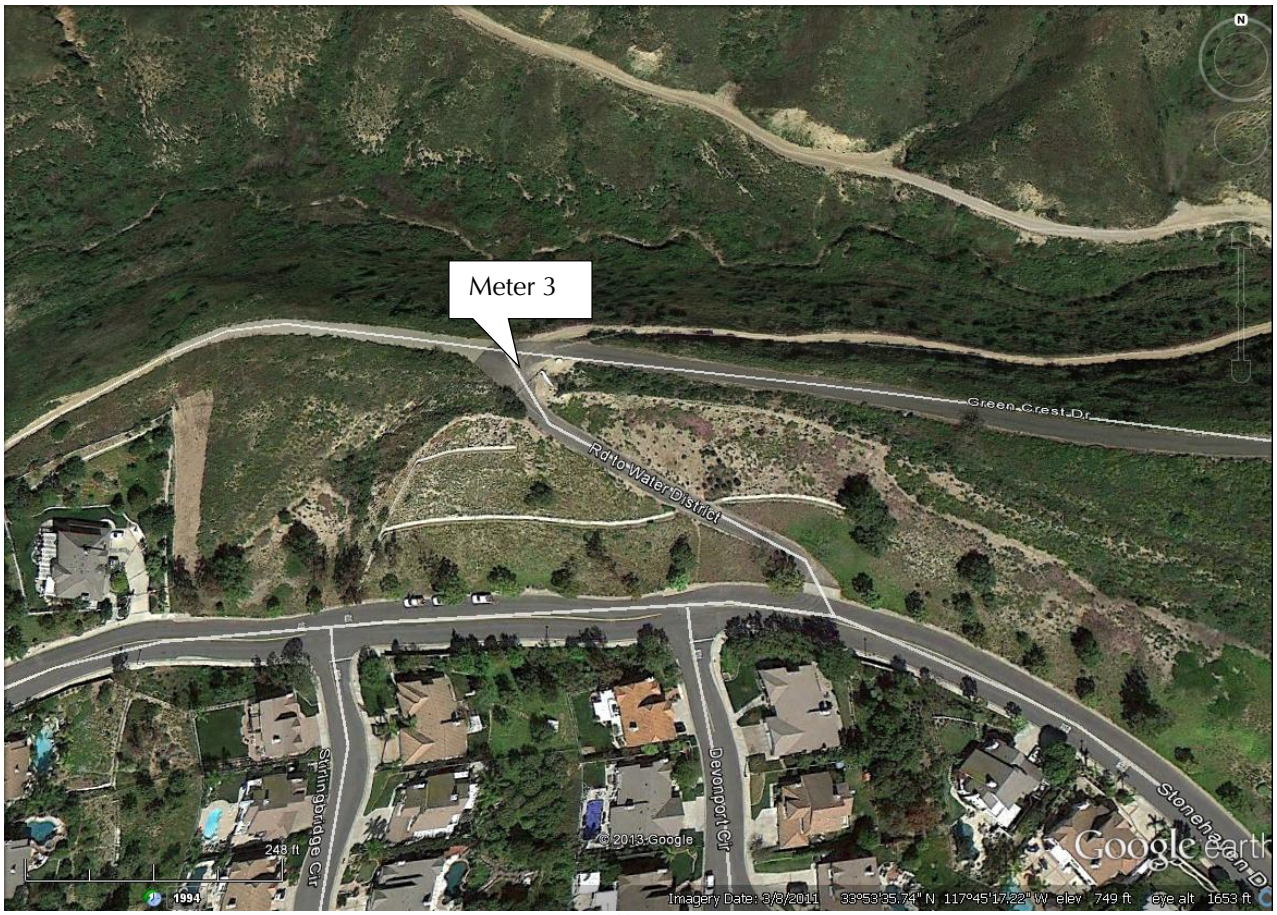



**Exhibit 6-23 – Noise Meter Location, Meter 3 (off Stonehaven Drive along current Water District Access Road)**


**Exhibit 6-24– Noise Meter Location, Meter 4 (San Antonio Road at Proposed Project Access Road)**

Meter 4 was located along San Antonio Road approximately 50 feet from the roadway centerline at the approximate location of the Project access road. Measured CNELs were 57-59 dB CNEL. Modeled noise levels are approximately 57 dB CNEL at 50 feet from the centerline. Again, measured and modeled traffic noise levels are in agreement. Noise levels along San Antonio Road are slightly higher than those along Stonehaven Drive. Results for both meters are shown in Table 6-7-1.

**Table 6-7-1 Noise Measurements, Stonehaven Drive and San Antonio Road**

| Measurement Parameter 24-Hour CNEL | Day 1 | Day 2 | Day 3 |
|---|---|---|---|
| Stonehaven Drive | 49 | 48 | 45 |
| San Antonio Road | 59 | 58 | 57 |

**Table 6-7-2 Noise Measurements – Existing Hourly Leq's (dB), Option 1 Stonehaven Drive Alternative**

| Time Interval | Leqs Day 1 | Leqs Day 2 | Leqs Day 3 |
|---|---|---|---|
| 14:00-15:00 | 39 | 38 | 39 |
| 15:00-16:00 | 37 | 36 | 41 |
| 16:00-17:00 | 38 | 42 | 39 |
| 17:00-18:00 | 53 | 52 | 38 |
| 18:00-19:00 | 43 | 45 | 51 |
| 19:00-20:00 | 39 | 42 | 39 |
| 20:00-21:00 | 41 | 41 | 41 |
| 21:00-22:00 | 44 | 42 | 40 |
| 22:00-23:00 | 44 | 42 | 39 |
| 23:00-24:00 | 40 | 41 | 37 |
| 0:00-1:00 | 37 | 41 | 38 |
| 1:00-2:00 | 39 | 40 | 36 |
| 2:00-3:00 | 43 | 41 | 36 |
| 3:00-4:00 | 41 | 38 | 35 |
| 4:00-5:00 | 41 | 41 | 33 |
| 5:00:6:00 | 41 | 41 | 34 |
| 6:00-7:00 | 42 | 41 | 37 |
| 7:00-8:00 | 45 | 44 | 43 |
| 8:00-9:00 | 49 | 45 | 45 |
| 9:00-10:00 | 45 | 41 | 47 |
| 10:00-11:00 | 44 | 42 | 41 |
| 11:00-12:00 | 40 | 38 | 46 |
| 12:00-13:00 | 39 | 41 | 40 |
| 13:00-14:00 | 37 | 37 | 37 |

**Resultant CNEL (dB)**

| Measurement Parameter | Day 1 | Day 2 | Day 3 |
|---|---|---|---|
| 24-Hour CNEL | 49 | 48 | 45 |

**Table 6-7-3 Noise Measurements – Existing Hourly Leq's (dB), Option 2A San Antonio Road Alternative**

| Time Interval | Leqs Day 1 | Leqs Day 2 | Leqs Day 3 |
|---|---|---|---|
| 14:00-15:00 | 58 | 62 | 58 |
| 15:00-16:00 | 58 | 57 | 58 |
| 16:00-17:00 | 58 | 57 | 57 |
| 17:00-18:00 | 59 | 58 | 56 |
| 18:00-19:00 | 55 | 55 | 54 |
| 19:00-20:00 | 54 | 54 | 53 |
| 20:00-21:00 | 54 | 54 | 51 |
| 21:00-22:00 | 52 | 53 | 49 |
| 22:00-23:00 | 53 | 50 | 48 |
| 23:00-24:00 | 52 | 49 | 43 |
| 0:00-1:00 | 50 | 50 | 43 |
| 1:00-2:00 | 50 | 49 | 39 |
| 2:00-3:00 | 48 | 47 | 40 |
| 3:00-4:00 | 46 | 44 | 40 |
| 4:00-5:00 | 43 | 43 | 42 |
| 5:00:6:00 | 46 | 42 | 54 |
| 6:00-7:00 | 52 | 50 | 50 |
| 7:00-8:00 | 56 | 50 | 56 |
| 8:00-9:00 | 59 | 54 | 57 |
| 9:00-10:00 | 60 | 54 | 57 |
| 10:00-11:00 | 58 | 54 | 56 |
| 11:00-12:00 | 59 | 56 | 57 |
| 12:00-13:00 | 58 | 60 | 59 |
| 13:00-14:00 | 59 | 56 | 57 |

**Resultant CNEL (dB)**

| Measurement Parameter | Day 1 | Day 2 | Day 3 |
|---|---|---|---|
| 24-Hour CNEL | 59 | 58 | 57 |

Because existing noise levels along Stonehaven Drive are lower than existing San Antonio Road noise levels, the Option 2B alternative would cause a slightly greater impact for adjacent residences. That is to say that the noise increase would be perceptible, because the existing noise levels are low. However, as shown in the Noise Analysis, neither the Stonehaven Drive nor San Antonio Road access is expected to create a "with project" noise level that exceeds the recommended 65 dB CNEL noise compatibility threshold for residential use.

This Alternative, as with Option 2A, prevents new traffic from passing the residences in the northern portion of the proposed Cielo Vista project, thereby reducing noise impacts for existing and future residences. This would result in greater compatibility with the proposed Cielo Vista project as well as slightly reduced traffic noise generally because traffic will be spread between two entry/exit points.

Short-term construction impacts would be the same as under Option 1 and Option 2A. Long--term traffic noise generally will be slightly less with vehicle traffic being distributed across two access roads. Therefore, impacts would be slightly less under Option 2B as compared to the Proposed Project.

## 9. Population and Housing

Option 2B would provide the same number of dwelling units as compared to the Proposed Project. There will be no change in the maximum number of units under this Alternative and, therefore, impacts to population and housing will remain substantially the same under any access option.

## 10. Public Services

This Alternative would neither increase nor decrease the need for public services as there will be no change in the maximum number of residential units projected for development. Emergency access has been designed under all access options to ensure that there will be no impact to fire and police access and protection. However, Option 2B could provide a benefit to police and fire personnel with easier access and potentially reduced response time. Projected population will remain substantially the same under this Alternative with regard to use of schools and libraries. Therefore, impacts in the area of Public Services will be slightly improved in the area of police and fire access compared to the Proposed Project.

## 11. Recreation

The Proposed Project has been designed with nine active and passive community parks, and equestrian, bicycle and hiking trails, some of which provide linkages to existing trails in the area. In addition to the nine parks, two WQMP basins have been designed as bioretention facilities and provide passive and active park use in addition to their functional uses. The parks and WQMP basins are similar under each access option.

This Alternative would provide the same recreation amenities and, therefore, impacts would be the same under Option 2B as compared to the Proposed Project.

## 12. Transportation and Traffic

A Traffic Impact Analysis Addendum for the Proposed Esperanza Hills Development Option 2B (Addendum) dated October 14, 2013 was prepared by Linscott, Law & Greenspan (LLG). The Addendum is included herein as Appendix O. The Addendum analyzed Alternative Option 2B to determine impacts related to short- and long-term traffic. Because Option 2B proposes both of the same access options analyzed for Option 1 and Option 2A, Option 2B does not present a new road configuration which was not previously considered. Rather, Option 2B provides for a primary and secondary access using the same roads that provided one primary and one emergency access under Option 1 and Option 2A.

Under Alternative 2B, approximately 65% of the Project traffic is directed to San Antonio Road via the main entrance, while approximately 35% is directed to Stonehaven Drive via the secondary entrance based on the internal circulation network of the Project site plan. The Addendum notes that the distribution pattern only differs at four study intersections and two Project driveways compared to the distribution pattern for the other three Options. This indicates that the traffic volumes at the other ten study intersections are identical to the traffic volumes in the Traffic Impact Analysis (TIA) which analyzed Options 1, 2 and 2A. The project distribution pattern for Option 2B is shown on Exhibit 6-25 – Project Distribution Pattern, Option 2B. The four intersections where the distribution pattern differs are:

- Project access at San Antonio Road approximately 1,850 feet south of Aspen Way
- San Antonio Road at Yorba Linda Boulevard
- Via del Agua at Yorba Linda Boulevard
- Stonehaven Drive at Yorba Linda Boulevard

The anticipated AM and PM peak hour project only traffic volumes associated with Option 2B are shown in Exhibit 6-26 and Exhibit 6-27, respectively. The volumes are based on the distribution pattern shown in Exhibit 6-25 and on the traffic generation forecasted in the TIA.

As shown on Exhibit 6-28 and Exhibit 6-29, Existing Plus Project AM and PM Peak Hour Traffic Volumes, respectively, the traffic volumes associated with Option 2B reflect a change at four study intersections compared to the TIA.

Exhibit 6-30 and Exhibit 6-31, Year 2020 Plus Project AM and PM Peak Hour Traffic Volumes, respectively, reflect a change at four study intersections. Exhibit 6-32 and Exhibit 6-33, Year 2035 Plus Project AM and PM Peak Hour Traffic Volumes, respectively, reflect a change at four study intersections.

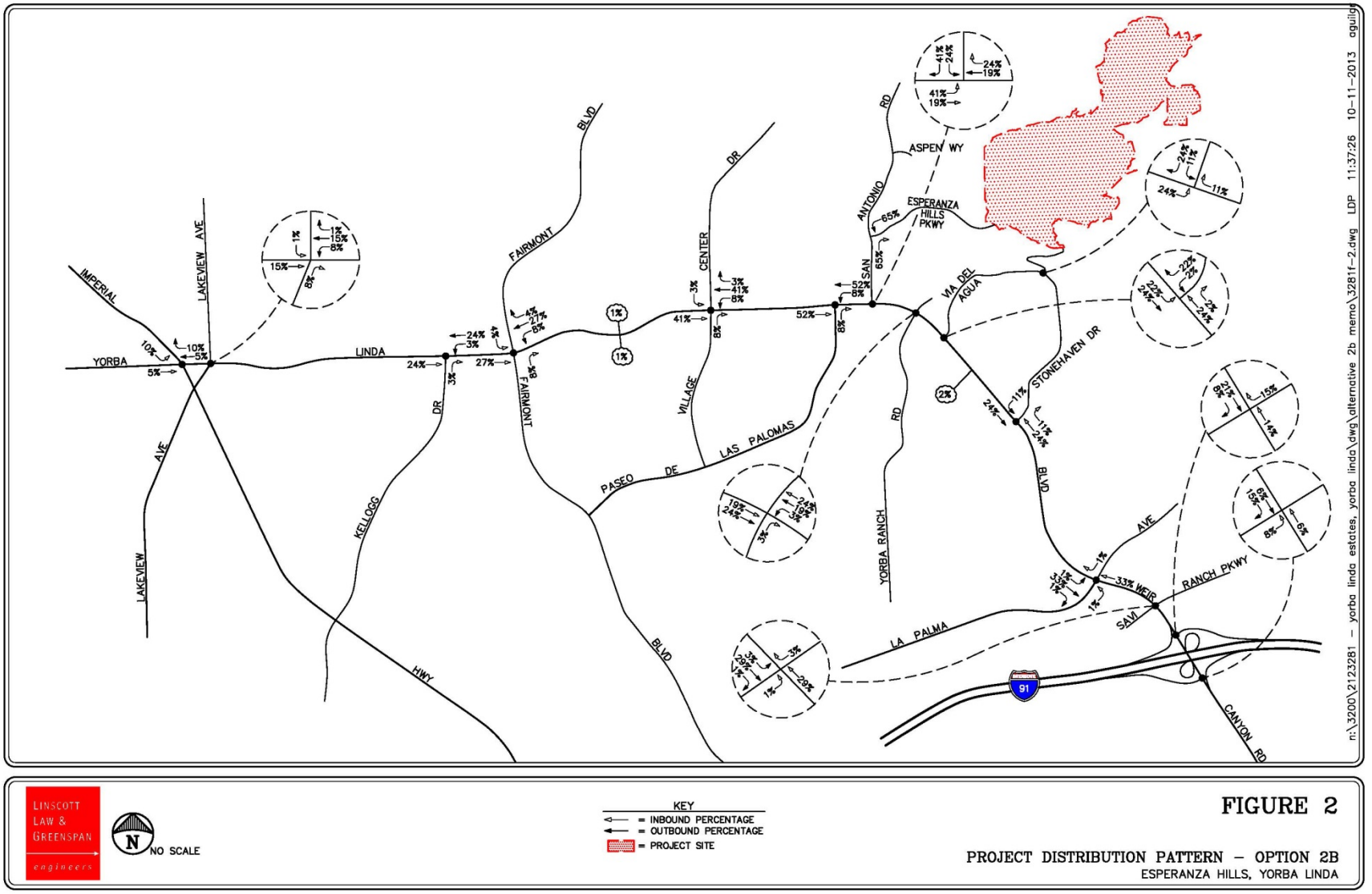



**Exhibit 6-25 – Project Distribution Pattern, Option 2B**

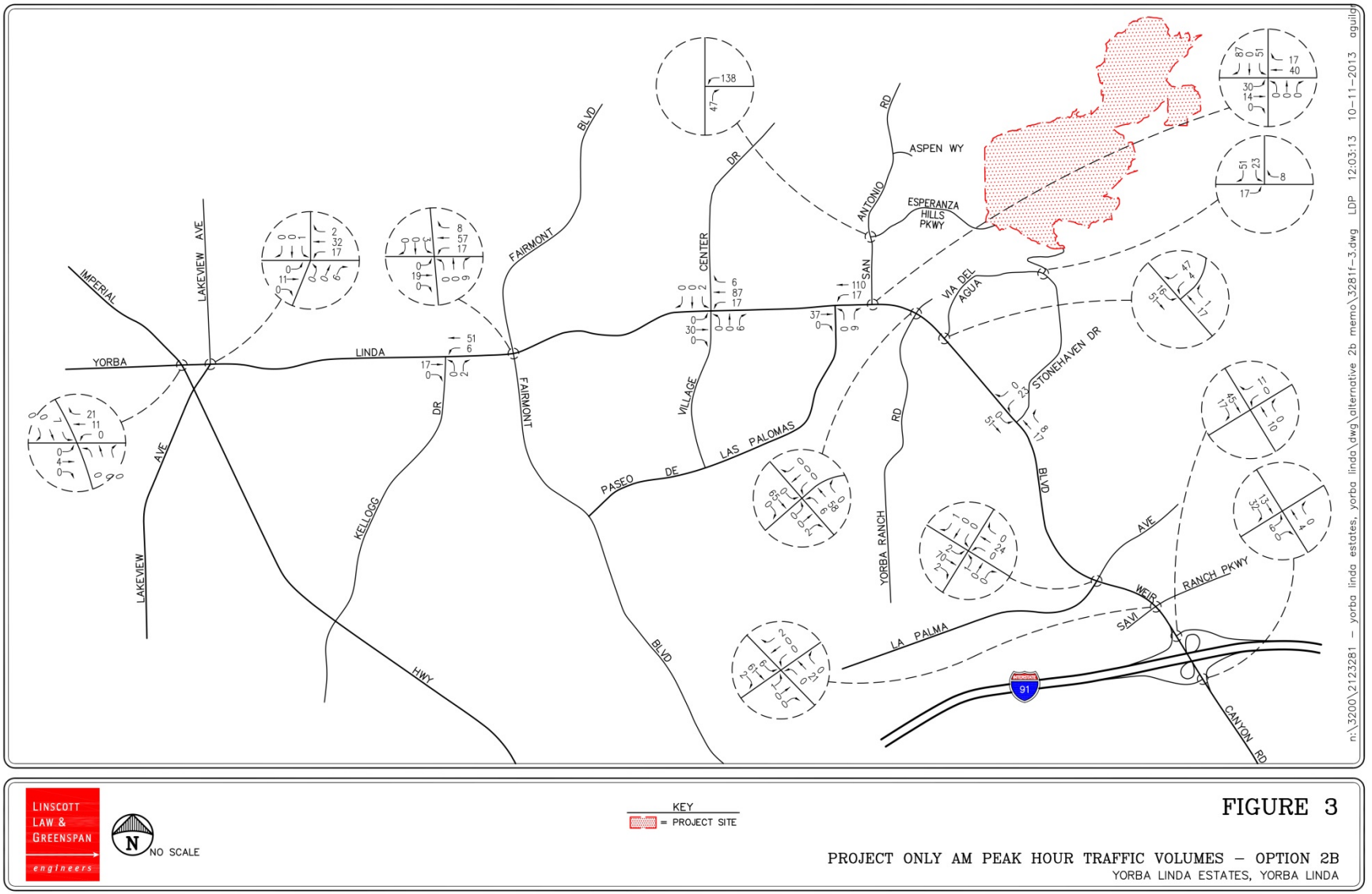



**Exhibit 6-26 – Project Only AM Peak Hour Traffic Volumes, Option 2B**

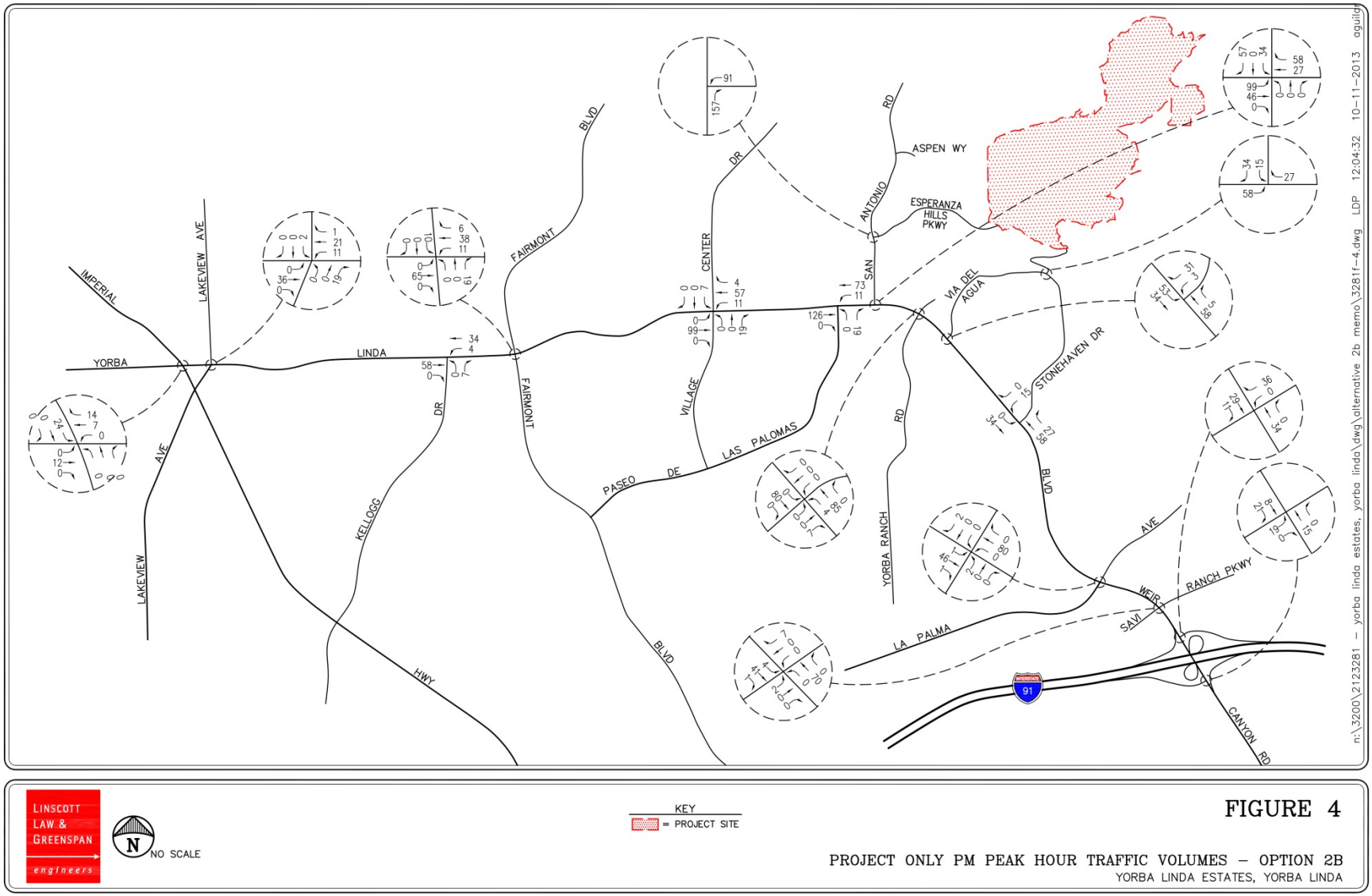



**Exhibit 6-27 – Project Only PM Peak Hour Traffic Volumes, Option 2B**

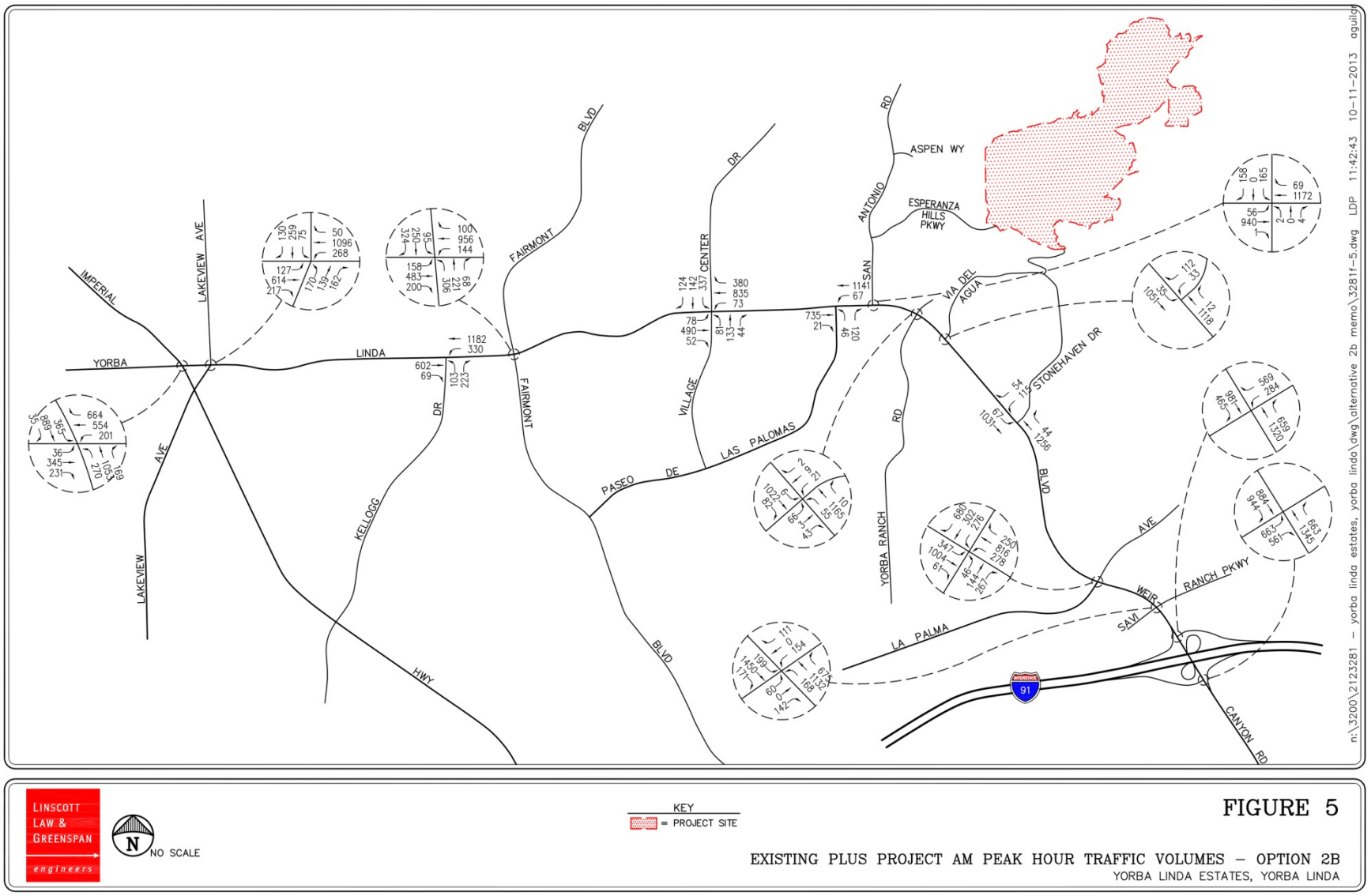



**Exhibit 6-28 – Existing Plus Project AM Peak Hour Traffic Volumes, Option 2B**

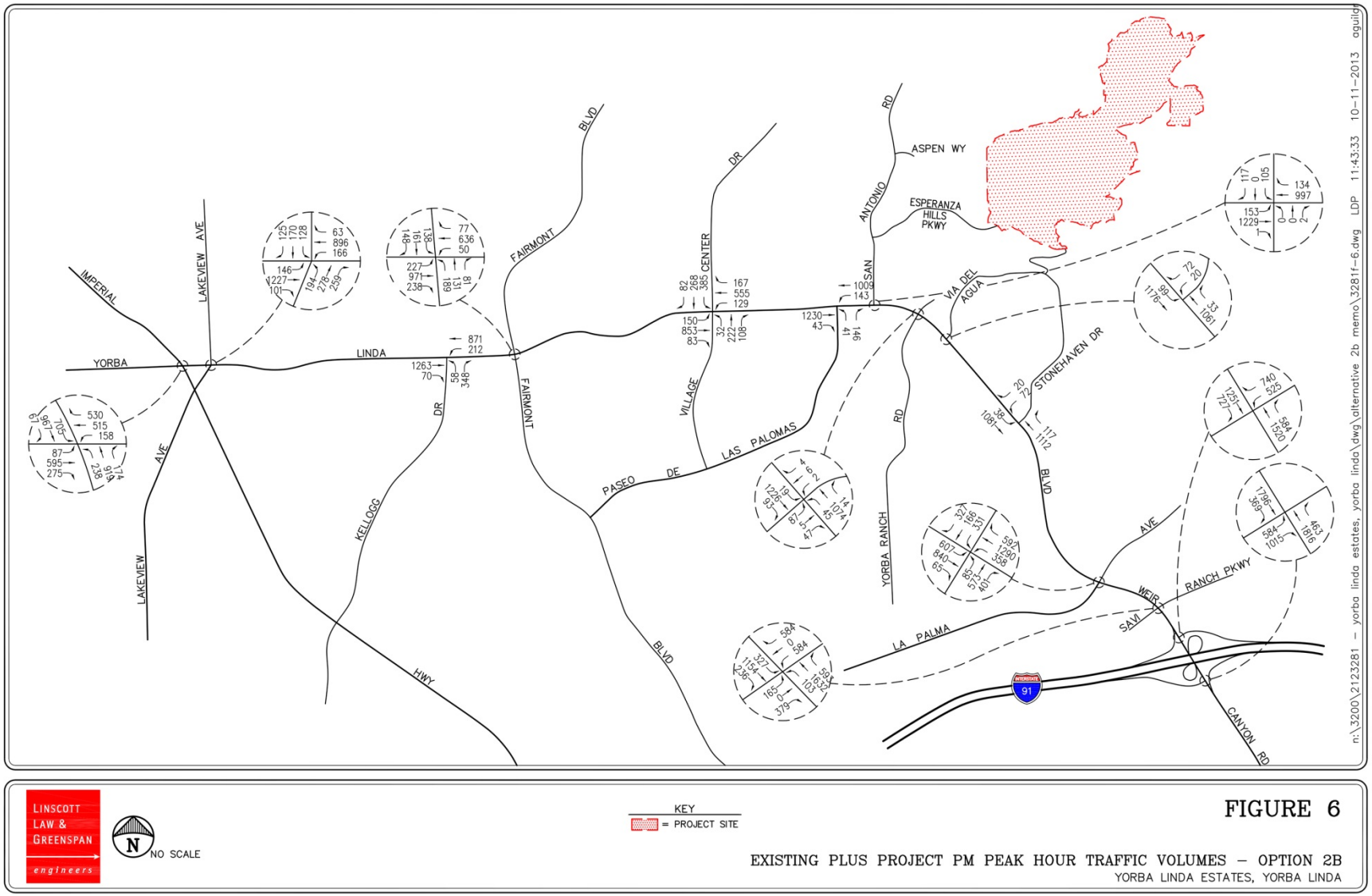



**Exhibit 6-29 – Existing Plus Project PM Peak Hour Traffic Volumes, Option 2B**

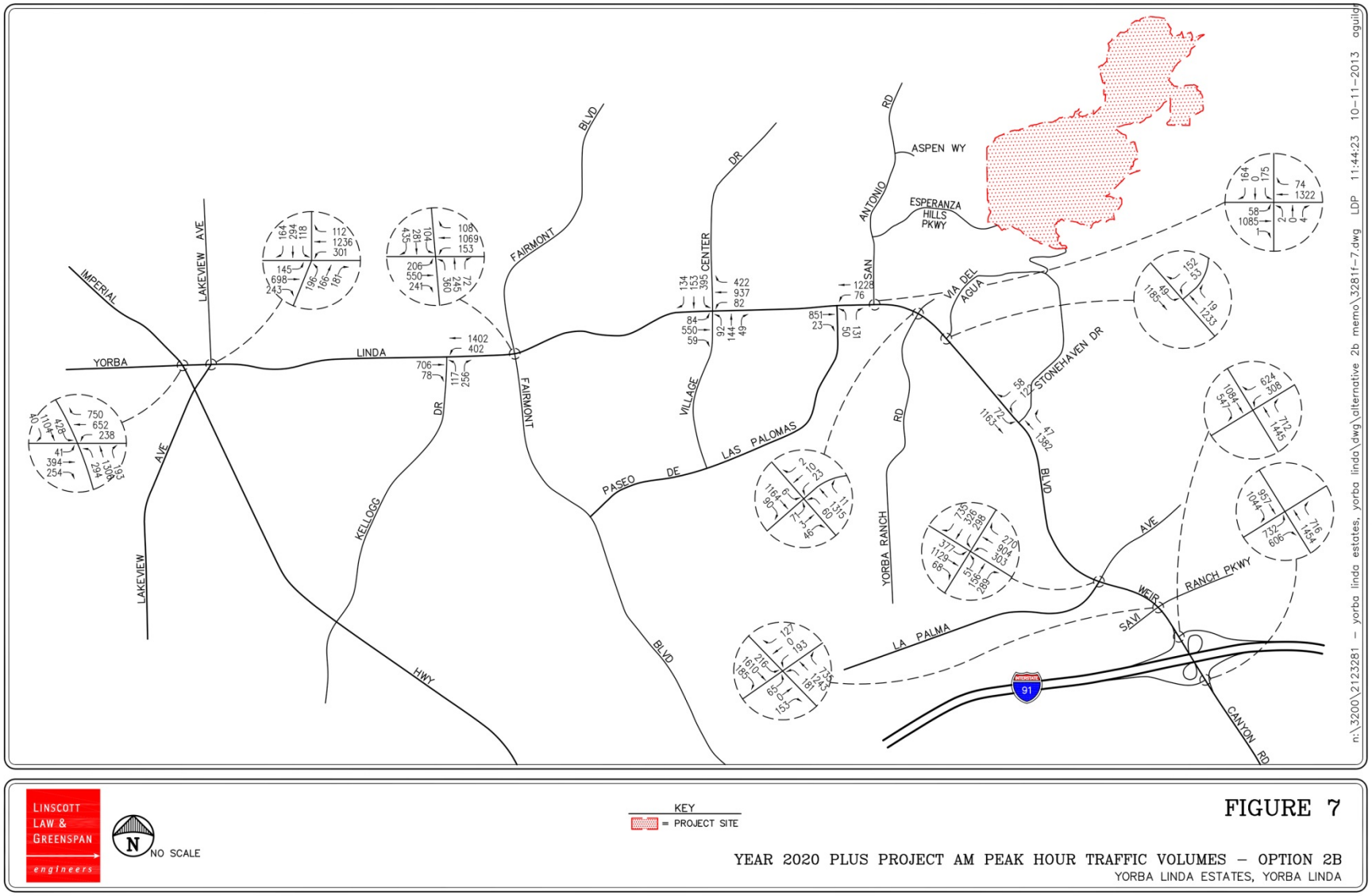



**Exhibit 6-30 – Year 2020 Plus Project AM Peak Hour Traffic Volumes, Option 2B**

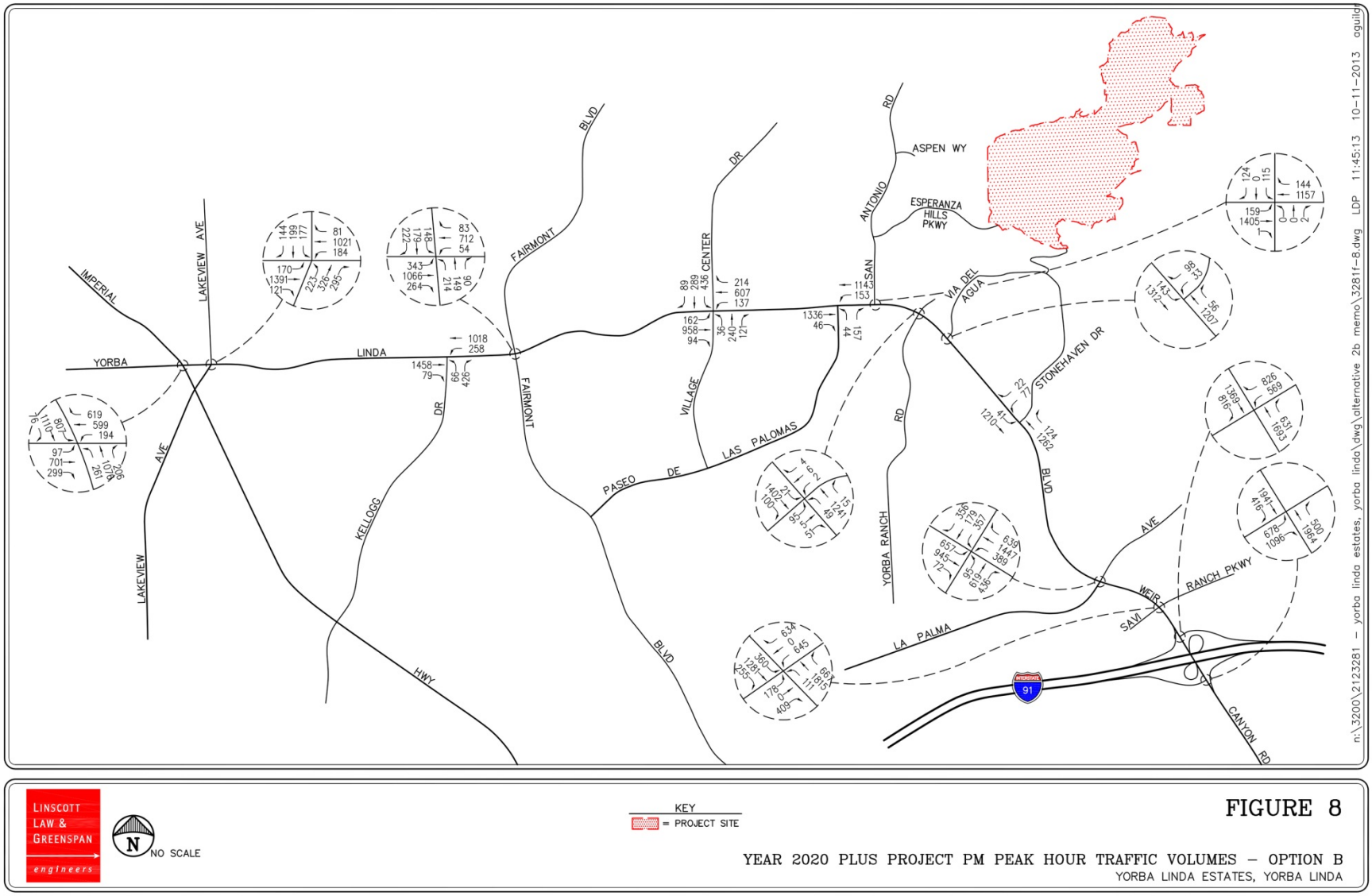



**Exhibit 6-31 – Year 2020 Plus Project PM Peak Hour Traffic Volumes, Option 2B**

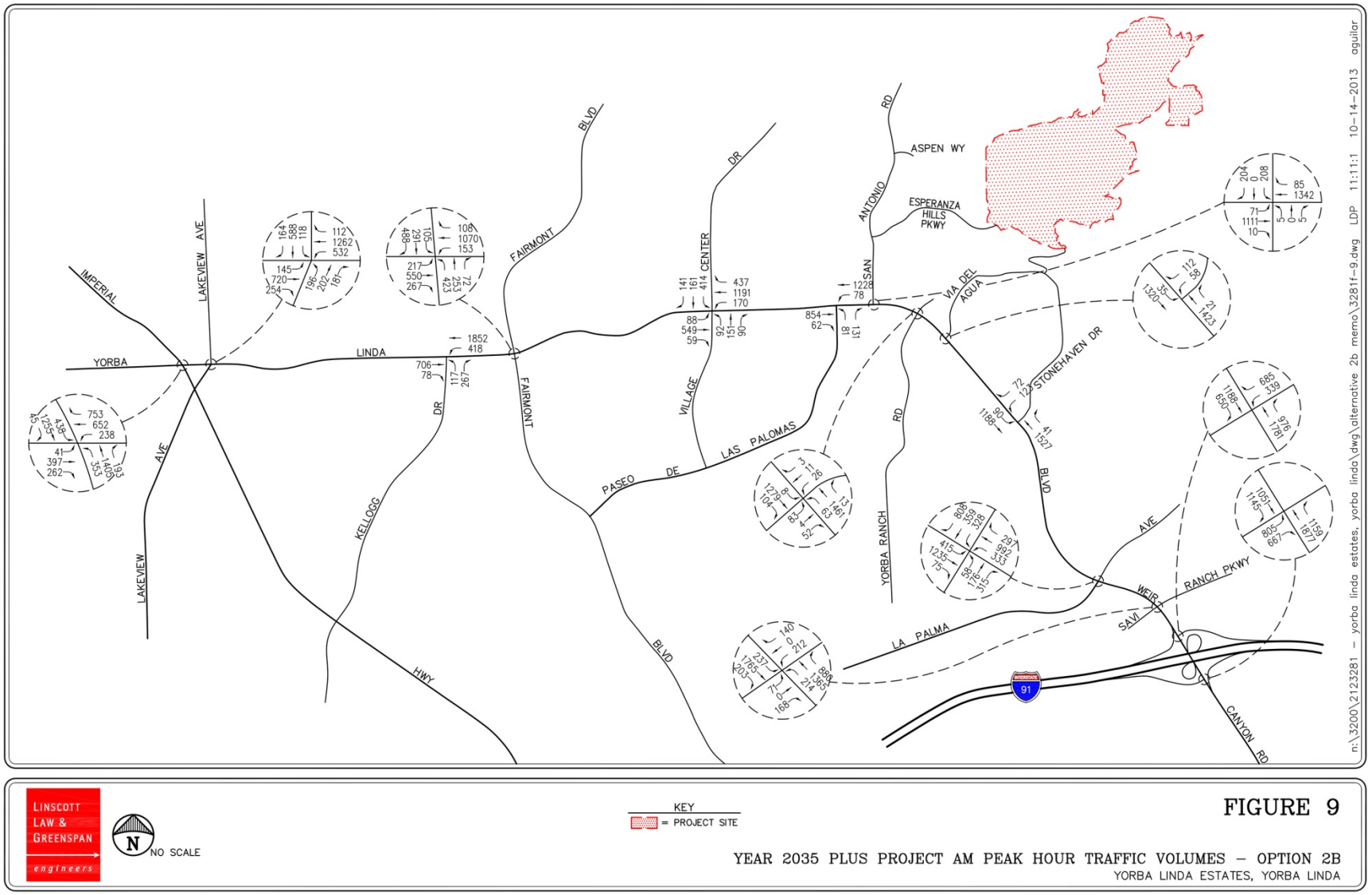



**Exhibit 6-32 – Year 2035 Plus Project AM Peak Hour Traffic Volumes, Option 2B**

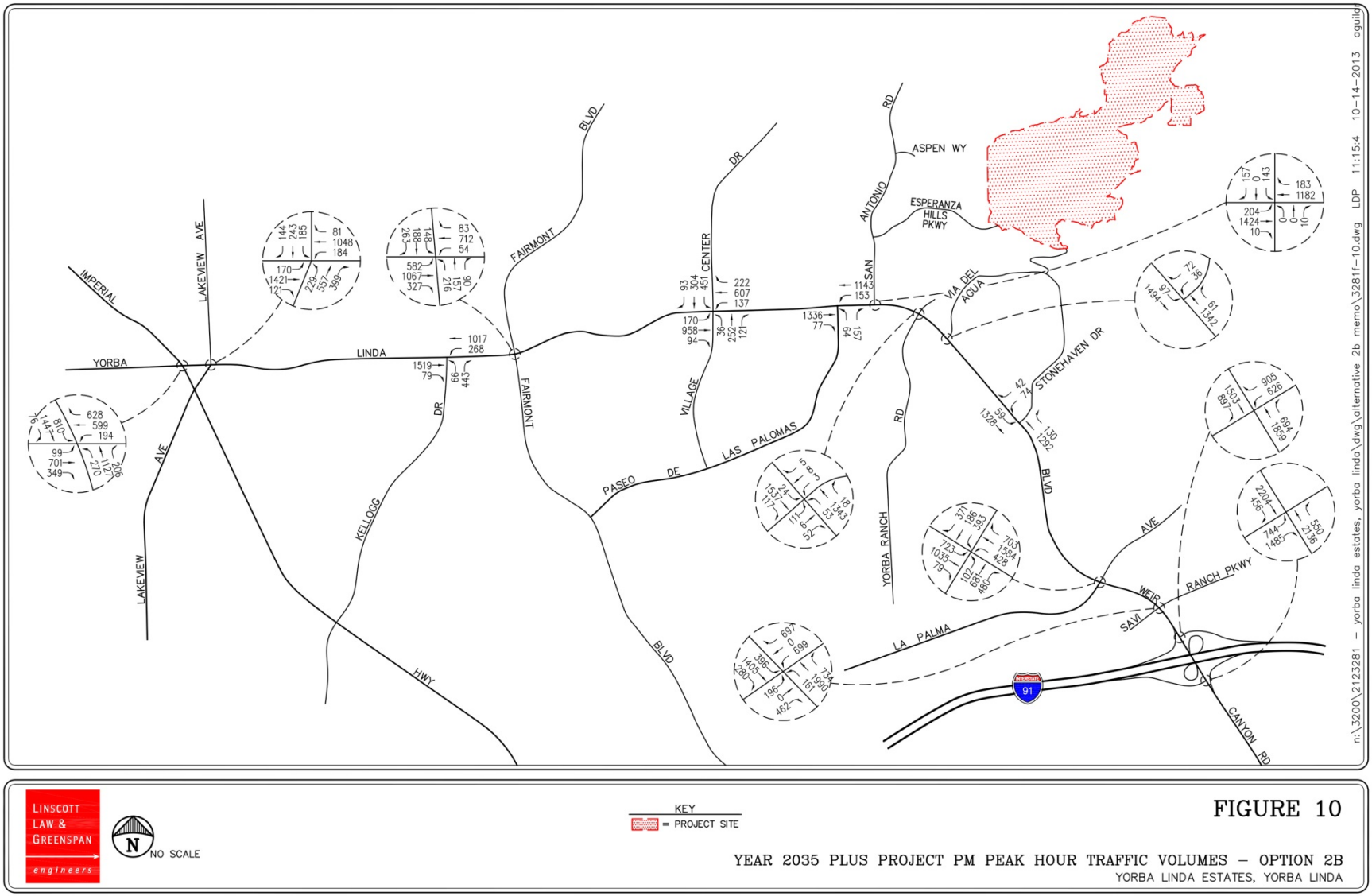



**Exhibit 6-33 – Year 2035 Plus Project PM Peak Hour Traffic Volumes, Option 2B**

The Addendum concludes, that based on traffic volumes shown on Exhibit 6-26 through Exhibit 6-33, the only change to the TIA consists of a redistribution of Project traffic through four study intersections and two Project driveways (Stonehaven at the Project entrance and Esperanza Hills Parkway at the Project entrance) in the vicinity of the Project site that provide local access to the Project. However, since Options 1, 2 and 2A represent a worst case traffic volume distribution and assignment at these six study locations, depending on the Option, compared to Option 2B, no new significant traffic impacts are associated with Option 2B. The only relevant change is related to the Project's fair-share towards the recommended traffic signal at the intersection of Yorba Linda Boulevard and Via del Agua.

## Fair Share Fees

The Traffic Impact Analysis recommended installation of a traffic signal at the intersection of Yorba Linda Boulevard and Via del Agua and considered the signal a planned improvement in conjunction with development of the proposed Cielo Vista project. Since the timing and/or certainty of the completion of the Cielo Vista project cannot be confirmed, it was determined that a project-related fair-share contribution should be included for analysis. Both Option 1 and Option 2B will direct traffic to the impacted intersection. Options 2 and 2A do not direct or attract any Project traffic to or from the Project site via Stonehaven or Via del Agua and therefore do not require a project-related fair-share contribution.

Table 6-7-4 depicts the fair-share contribution required under Option 2B for installation of a traffic signal at Yorba Linda Boulevard and Via del Agua. The Table reflects conditions and fair share fee portions both with and without the development of the proposed Cielo Vista project.

**Table 6-7-4 Fair Share Fee Contribution**

| Key Intersections | Impacted Time Period | Existing Traffic | Project Only Traffic | Year 2020 Cumulative + Project | Project Percent Increase |
|---|---|---|---|---|---|
| With Cielo Vista as part of Cumulative Base | AM | 2,225 | 136 | 2,691 | 29.2% |
| | PM | 2,277 | 184 | 2,849 | 32.2% |
| Without Cielo Vista as part of Cumulative Base | AM | 2,225 | 136 | 2,613 | 35.1% |
| | PM | 2,277 | 184 | 2,744 | 39.4% |

Impacts under Options 1, 2, 2A and 2B are substantially the same as projected traffic volumes are identical under all Options. Therefore, mitigation has been provided that applies to all Options. However, Option 2B is superior to the Proposed Project in that it distributes the traffic volume to two access points rather than one which will reduce the volume of vehicles traversing the existing residential neighborhoods. In addition, the provision of an additional egress point for evacuation during conditions which require such evacuation is a benefit.

### 13. Utilities and Service Systems

The location of the primary access under each access option would not impact the ability to provide utility and services to the Proposed Project. Water will be provided by the Yorba Linda Water district via off and on-site water system improvements. Yorba Linda Water District will also connect with on-site sewer systems to provide local sewer service. The existing Southern California Gas line will remain in place and will be avoided with regard to construction activities.

Mitigation Measures requiring the Project Applicant to coordinate with all utility and service providers has been included in this DEIR. There will be no new impacts under Option 2B as the same utilities and service systems will occur regardless of the access option selected. Therefore, there is no change to impacts under the Option 2B Alternative.

## 6.7.2 Attainment of Project Objectives

The Option 2B access alignment does not result in greater impacts under any environmental topic as both the Stonehaven Drive and San Antonio scenarios were fully analyzed under Option 1 and Option 2A. Both roads were included in the analysis for either primary or emergency access and required the same grading and road improvements in order to provide such access. Using both roads for primary access will be substantially the same with regard to impacts. This Alternative will result in fewer hazards impacts because the provision of two entry/exit roads rather than one will allow for better distribution of traffic. There will be fewer impacts to the traffic distribution generally with additional ingress/egress options rather than all project traffic entering and exiting at one access point. This Alternative also provides improvements in the areas of aesthetics and geology through redesign of the western edge to pull development back and shortening the height of retaining walls in that area. Reduced grading to achieve the development pull back will result slightly improved conditions with respect to air quality.

Under Option 2B, the same number of homes would be developed and, therefore, construction activity, provision of water, sewer and utility services and the requirement for public services such as schools, fire and police protection and libraries would remain substantially the same as with the Proposed Project. Impacts to recreation, and the potential for wildfires would also remain identical under Option 1, Option 2, Option 2A and Option 2B.

This Alternative achieves the following project objectives:

- creates a low density single-family development of appropriate density and scale, clustered and buffered from adjacent development and open space
- respects the existing topography and natural backdrop of the site
- provides recreational opportunities
- preserves open space, natural landforms, vegetation, and the northern and eastern ridgelines

- provides fire breaks, firefighting staging areas, emergency ingress/egress plans
- provides construction standards that meet or exceed OCFA requirements
- enhances the visual quality of the area around oil well operations
- integrates hydromodification principles with biological resources to create bio-retention and bio-detention areas, passive parks, and aesthetically pleasing landscape features

Therefore, this Alternative would attain most of the Project goals and objectives, would reduce impacts on the environment compared to the Proposed Project as described above and would not result in greater impacts to any environmental topic compared to Options 1, 2 and 2A.

# 6.8 Project Alternative 4 - Lower/Reduced Density

## 6.8.1 Description of Alternative

This Alternative assumes development of Planning Area 1 only, with Planning Area 2 remaining in its current condition. As described in Section 4.3, Project Description (beginning on page 4-11), Planning Area 1 includes up to 218 lots on 310 acres with minimum building pads of 70 feet wide by 140 feet deep and minimum lot sizes of approximately 12,000 square feet. Planning Area 1 contains four parks, a water reservoir, open space, existing natural open space, riparian areas, and a trail corridor linking to surrounding properties. While not part of this Alternative, Planning Area 2 includes 122 units, including two estate lots, on 159 acres on the northeastern portion of the site. Minimum pads are 90 feet wide by 110 feet deep. Planning Area 2 contains five parks, an underground water reservoir, open space, existing natural open space, and a trail system. These project components would be eliminated under this Alternative. The Planning Areas are depicted on Exhibit 6-34.

The analysis in this Alternative is based on general assumptions. Technical analysis for this specific Alternative has not been performed and is not required by CEQA.

### 1. Aesthetics

While the Proposed Project has been designed to minimize visual impacts and to achieve consistency with surrounding residential communities, this Alternative would result in no development on the higher elevations of the project site within Planning Area 2. However, significant landform modification due to grading would still be required with this Alternative, permanently altering exist views of open space and hillsides, because Planning Area 1 proposes 218 lots where no development currently exists. Under the Proposed Project, development in Planning Areas 1 and 2 has been designed to retain the prominent northern and eastern ridgelines adjacent to Chino Hills State Park to minimize impacts to viewsheds. While less grading would be necessary, this Alternative, would still modify the existing landform, including excavating hillsides and filling canyons and may also require grading into Planning Area 2 in order to achieve slope stability and a balanced grading operation.

The introduction of light and glare into an undeveloped area will result in an impact and mitigation has been provided for the Proposed Project to reduce light and glare to a less than significant level. Development of Planning Area 1 only would require the same mitigation to reduce impacts related to light and glare.

Impacts to aesthetics under this Alternative would be somewhat less than with the Proposed Project based on retention of open space on the higher elevations of the project site. In addition, the Estate Lot depicted in Exhibit 5-22 – View 12 (page 5-55 would not be developed, and there would be no impact to views from Chino Hills State Park.

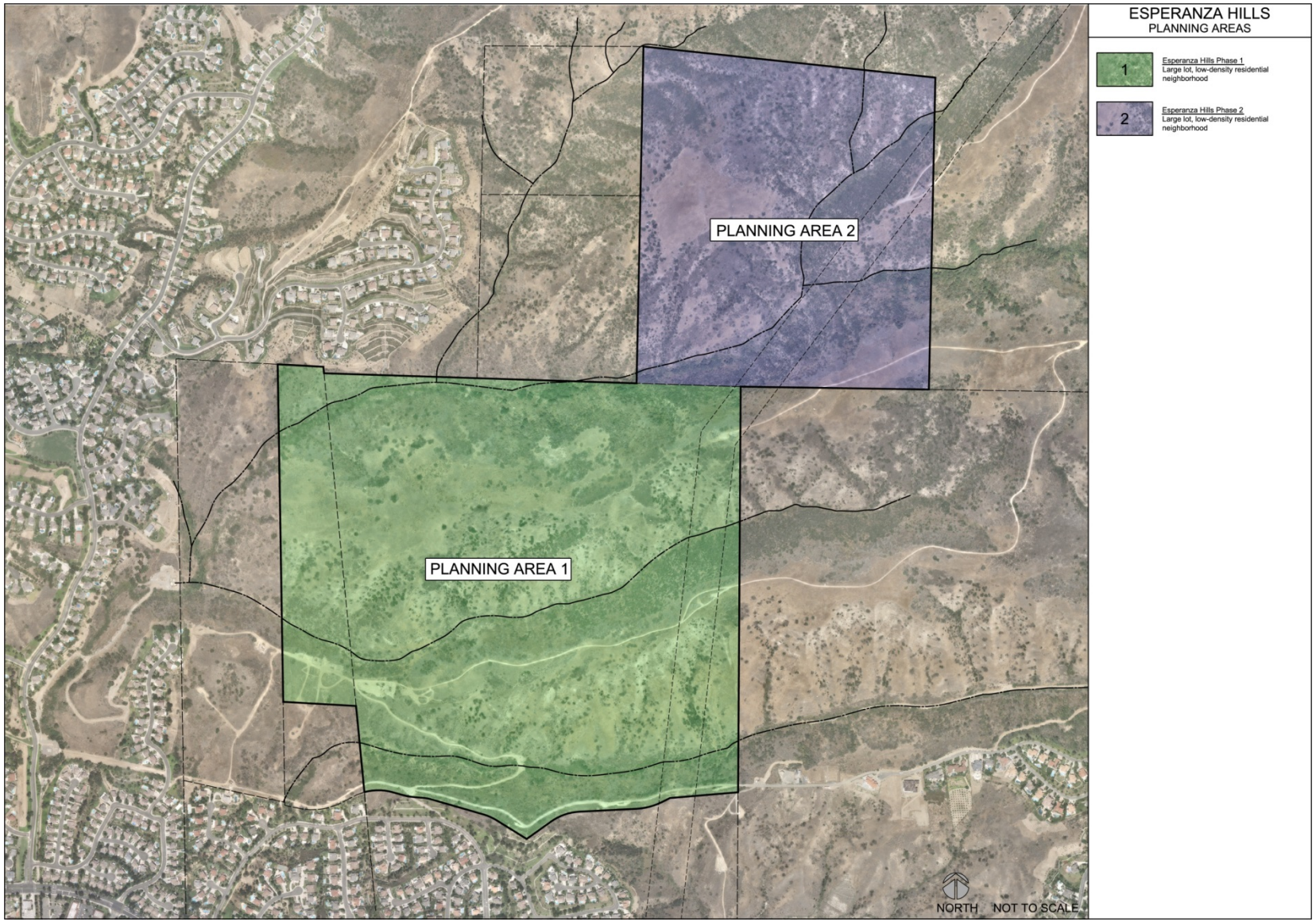



**Exhibit 6-34 – Planning Areas**

## 2. Air Quality

Under this Alternative, grading and construction would be reduced and impacts to air quality would be reduced commensurately. In addition, traffic impacts would be less with 122 fewer residences, reducing vehicle emissions under long-term operational conditions. However, impacts due to air quality would remain significant and unavoidable. Therefore, this Alternative is superior to the Proposed Project in the area of Air Quality.

## 3. Biological Resources

This Alternative would reduce the disturbed area by up to 159 acres, resulting in less disturbance of the project site. Exhibit 5-26 – Special Status Biological Resources Map (page 5-113), depicts the location of the vegetation resources. If no development occurred in Planning Area 2, the depicted vegetation would remain undisturbed. The Biological Report found impacts to three special status habitats: California walnut woodland, southern willow scrub and blue elderberry woodland. Mitigation has been included to reduce potential impacts to less than significant for special status plants: Braunton's milk-vetch, Catalina mariposa lily, and intermediate mariposa lily. The project, as proposed, has the potential to impact the least Bell's vireo and nesting birds under the Migratory Bird Treaty Act. Fill of drainages due to grading and hillside stabilization could potentially impact ACOE and CDFW jurisdictional waters. However, in all instances for potential impacts, mitigation has been provided in addition to project design features that will reduce the impacts to less than significant.

This Alternative would not result in a substantial reduction to areas of potential impact as the biological resources occur throughout the site based on the existing concentration of resources on site. This Alternative would lessen the amount of disturbed area, and it would result in a reduction of impacts to Braunton's milk-vetch, which is located in the higher elevations of Planning Area 2. In addition, drainages occurring in Planning Area 2 would not be disturbed with grading activities. Therefore, impacts associated with the Reduced Density Alternative would be reduced compared to impacts from the Proposed Project.

## 4. Cultural Resources

The Cultural Resources Assessment prepared for the Project indicates that no cultural resources were discovered within the Project boundaries and the site has not been listed as a potential location for such resources. If Planning Area 2 is not developed, there would be no possibility for impacts if such resources are located in that portion of the Project Site. However, mitigation measures have been provided to prevent impacts should site preparation reveal artifacts, fossils, or human remains. Therefore, impacts in this area will be relatively the same with this Alternative as with the Proposed Project.

## 5. Geology and Soils

This Alternative would substantially reduce grading as landform alteration within Planning Area 2 would either be eliminated or greatly reduced depending on slope stability and the ability to balance the grading operation on-site and the topography of the upper portion of the project site would remain in its current condition. Less grading would also decrease the amount of potential erosion and would reduce the overall amount of time that top soil was exposed during construction. Therefore, this Alternative would be superior to the Proposed Project in the area of geology and soils.

## 6. Greenhouse Gas Emissions

There are no established thresholds for greenhouse gas emissions at this time. The SCAQMD Governing Board adopted an Interim Quantitative GHG Significance Threshold for residential projects of 3,000 metric tons per year $CO_{2e}$. Since development of the Project Site under this Alternative would exceed the interim threshold, even though fewer residences would mean a reduction in operational greenhouse gas emissions. the impact would be significant and unavoidable. Therefore, the impact to Greenhouse Gas Emissions for this Alternative would be similar to the Proposed Project and this Alternative.

## 7. Hazards and Hazardous Materials

This Alternative would be basically the same as the Proposed Project in that provision for fuel modification zones and enhanced wildfire protection will still occur. The on-site oil wells are located in Planning Area 1 and would not be impacted. Adherence to procedures outlined in Section 5.7, Hazards and Hazardous Materials (beginning on page 5-275) would be enforced in terms of emergency evacuation, emergency ingress/egress routes, project design features that require strict building code adherence and maintenance of oil wells according to codes and standards will all occur either with the Proposed Project or this Alternative. The existing oil well operations are located in Planning Area 1. The layout of the fuel modification and location of the fire breaks may differ, but could likely accomplish the same goal as compared to the proposed project. However, with the elimination of Planning Area 2, the 1,390-foot elevation water reservoir would not be constructed. This would reduce the amount of water in a gravity-fed system available for firefighting capabilities. While fuel modification would remain similar, the Reduced Density Alternative would result in greater impacts related to the provision of gravity-fed water for firefighting purposes. The reservoirs constructed under the Proposed Project would be utilized for fighting wildfires that threaten the Project Site and would also to protect adjacent development. Therefore, this Alternative would result in a potentially greater impact in the area of Hazards and Hazardous Materials as compared to the proposed project.

## 8. Hydrology and Water Quality

This Alternative would create less impervious surface as compared to the Proposed Project resulting in less potential runoff under both short- and long-term conditions. Run-off impacts due to hardened soil types on the site would be improved with the Proposed Project because the drainage system will assist in preventing erosion of downstream canyons and detention basins will improve run off water quality. Less grading of the site would also reduce the amount of potential erosion. There would be less alteration of the existing drainage patterns within Planning Area 2. Drainages extending into Planning Area 1 would still be impacted. However, the Proposed Project includes debris basins, detention basins, storm drain main pipelines. Also included are energy dissipators and erosion protection which will reduce discharge velocities. Detention basins have been included in the site plan to capture the storm water volumes and allow sediments and pollutants to settle. The project design features and conditions of approval included in this DEIR will reduce impact to a level of insignificance. Because these features will be required even if Planning Area 2 is not developed, impacts to Hydrology and Water Quality will be similar under this Alternative as compared to the Proposed Project.

## 9. Land Use and Planning

The County of Orange General Plan allows for residential development in its Open Space designation and the Yorba Linda GP envisioned residential development on the Murdock property of which the Proposed Project is a part. The Orange County General Plan Suburban Residential land use designation allows a building intensity range of 0.5 to 18 dwelling units per acre. The Yorba Linda GP envisioned a low density residential designation that averages one dwelling unit per acre.

Under the Proposed Project, land use intensity was calculated at 0.73 unit per acre. Elimination of Planning Area 2, results in a lower density of 0.46 dwelling units per acre. Development under the Reduced Density Alternative would result in less than half of the density envisioned by the Yorba Linda GP, but otherwise would remain consistent with long-range local and regional planning programs and policies. Therefore, potential impacts associated with this Alternative would be substantially the same as the Proposed Project.

## 10. Noise

Noise will be generated by short-term construction activities and long-term vehicle traffic. Distance attenuation reduces noise substantially; however under the Proposed Project conditions, construction noise could reach threshold (65 dB) levels at the nearest existing residences until heavy equipment moves further away from the residences. This condition would similarly exist under the Reduced Density Alternative because Planning Area 1 is closest to the existing residences and would not provide any greater separation as compared to the Proposed Project. Therefore,

short-term construction impacts would be similar relative to existing homes close to the site.

The reduction in traffic associated with this Alternative would result in less noise for both adjacent developments. Although increased vehicle traffic associated with 218 dwelling units would still increase the ambient noise levels, impacts associated with long-term vehicular noise would be slightly less than those impacts associated with the Proposed Project.

## 11. Population and Housing

Reducing the number of homes will impact goals for meeting the Regional Housing Needs Assessment (RHNA) allocation for both unincorporated Orange County and the City of Yorba Linda. The construction of 340 homes with the Proposed Project is considered a benefit in order to meet the projected housing need. However, due to the type of housing proposed, the homes will be in the "above-moderate" RHNA income category. Population will be reduced commensurately with this Alternative for 218 dwelling units and the opportunity for additional employment due to construction will also be reduced. Therefore, the Proposed Project is superior to this Alternative with respect to population and housing impacts.

## 12. Public Services

Impacts to police, fire, parks, and library services associated with the Reduced Density Alternative will be proportionately less than impacts associated with the Proposed Project due to the reduction in the projected population generated by the project and the resulting demand. However, fewer homes would result in the generation of fewer students and may negatively impact schools with regard to state funding levels and the provision of developer fees. Nevertheless, this Alternative would result in fewer impacts in the area of Public Services as compared to the Proposed Project.

## 13. Recreation

The Proposed Project includes nine active and passive community parks. Four parks are proposed to be developed in Planning Area 1 and five parks in Planning Area 2. This Alternative would reduce the number of parks available to residents but would still provide adequate park acreage under the Quimby Act and County standards based on population. None of the major equestrian and hiking trail connections would occur in Planning Area 2. The internal trail system would be more limited and would not include improvements into Planning Area 2 from Planning Area 1. Although the demand and the resulting impacts associated with this Alternative are less when compared to the Proposed Project, implementation of the Lower Density Alternative would result in fewer recreation amenities.

### 14. Transportation and Traffic

A reduction in the number of residences under this Alternative would result in a corresponding reduction in the amount of traffic generated by the project. The Proposed Project would generate 3,617 daily trips. The Reduced Density Alternative would generate 2,086 daily trips. The Proposed Project will result in adverse impacts related to roadway operational deficiencies. However, mitigation has been included herein to reduce impacts to a less than significant level. Therefore, this Alternative will result in less traffic with the reduction in daily trips due to fewer residents accessing the site.

### 15. Utilities and Service Systems

The Proposed Project includes construction of drainage, water, and sewer facilities that will provide service to the residences and improve water quality by directing dry and wet weather runoff. Electric, gas, phone, and cable service will be supplied by providers who currently service the adjacent developments. The Proposed Project includes the construction of two underground water reservoirs to supply water to residences and for use in firefighting. One reservoir will be located in each Planning Area. This Alternative would eliminate construction of one reservoir.

The NEAPS Study noted that it is anticipated that the new reservoirs would likely lead to decreased retention times and simpler cycling practices to enhance water quality in addition to the provision of water for gravity-fed fire flow improvement. The reservoir proposed for Planning Area 2 is at a higher elevation (1,390 feet) than the Planning Area 1 reservoir (1,200 feet). The new reservoirs and the increased water demand due to additional development would be a benefit in controlling water quality in existing reservoirs, which is a concern in some of the District's reservoirs due to high water age or conditions of mixing free chlorine with combined chlorine, causing microbial growth.

This Alternative will result in the need for less electricity, gas, phone, and cable service and will reduce the need for water. In that regard, this Alternative is marginally superior to the Proposed Project.

## 6.8.2 Attainment of Project Objectives

This Alternative achieves the following project objectives:

- creates a low density single-family development of appropriate density and scale, clustered and buffered from adjacent development and open space
- respects the existing topography and natural backdrop of the site
- provides recreational opportunities
- preserves open space, natural landforms, vegetation, and the northern and eastern ridgelines
- provides fire breaks, firefighting staging areas, emergency ingress/egress plans

- provides construction standards that meet or exceed OCFA requirements
- enhances the visual quality of the area around oil well operations
- integrates hydromodification principles with biological resources to create bio-retention and bio-detention areas, passive parks, and aesthetically pleasing landscape features

However, this Alternative, while providing recreation opportunities, would not provide the same number of parks and trail connections would be impacted if Planning Area 2 is not developed to provide the linkages. The elimination of one of the proposed water reservoirs would also reduce capacity for firefighting.

With regard to impacts under this Alternative, the Lower/Reduced Density Alternative has fewer environmental impacts than the Proposed Project in the areas of aesthetics, air quality, geology, noise, public services, and traffic.

Similar to recreation goals not achieved, there is an impact from an environmental standpoint. Recreational opportunities will be reduced because five active/passive parks and the multi-use trail that extends from Planning Area 1 through Planning Area 2 would not be constructed though fewer people would place reduced demand on those facilities. Also, the reduction in housing stock would be a negative impact to an area that has not met the Regional Housing Need Assessment allocations. The elimination of one of the two proposed water reservoirs would have a negative impact in provision of water for fire-fighting and the Yorba Linda Water District would not have the benefit of controlling water quality due to stagnation, which is occurring in some of the District's reservoirs.

While this Alternative does meet most of the goals and objectives of the Proposed Project, it would not provide the number of homes, parks, trails, and amenities envisioned for an area that has been considered for future residential development.

# 6.9 Project Alternative 5 - Yorba Linda General Plan

## 6.9.1 Description of Alternative

This Alternative considers development of the Project Site using the General Plan (Yorba Linda GP) and Zoning designations established by the City of Yorba Linda for the 630-acre Murdock property, of which the Project Site is a part. The Murdock Property is within the City's Sphere of Influence and is identified as an area for potential future annexation into the City. The General Plan contemplated an overall density of 1.0 dwelling units per acre over the entire 630 acres with clustered residential units to allow open space and recreation opportunities, as well as consideration of the site's topography. The anticipated access would include improvements to San Antonio Road and Via del Agua/Stonehaven Drive. Using the General Plan density of one dwelling unit per acre, this Alternative would result in the construction of up to 469 residential units.

### 1. Aesthetics

The City's Hillside Development/Grading/Fire Protection ordinance establishes standards for hillside development that include preservation of ridgelines to the degree possible and placement of buildings against landforms to prevent structures from being visible against the horizon. The requirements also state that the viewscapes from the adjacent Chino Hills State Park be protected.

This alternative would add 129 residences to the 340 with the Proposed Project. It is likely that the increased number of homes would result in increased hillside disturbance to accommodate additional homes while allowing for as much open space as possible. The Proposed Project protects northern and eastern ridges adjacent to Chino Hills State Park. However, due to fuel modification requirements, the structure on Estate Lot 1 cannot be screened with landscaping and will be visible from Chino Hills State Park. From a visual standpoint, the development of additional homes could be more visually apparent from off-site locations than with the Proposed Project, depending on the site layout, thus altering views. Night lighting and glare would still occur, so impacts in this regard would be similar to the Proposed Project.

The Proposed Project is generally consistent with the Yorba Linda GP standards for development related to clustered development, open space, recreational opportunities, and protection of ridgelines to the degree possible. Regarding the City's Hillside Development/Grading/Fire Protection Ordinance, although Estate Lot 1 is viewed at a distance from San Juan Hill Lookout in Chino Hills State Park, the Proposed Project is consistent with the Ordinance due to incorporation of Project Design Features to reduce the visual impact. Therefore, this Alternative is similar to the Proposed Project with respect to Aesthetics.

## 2. Air Quality

Air Quality impacts are analyzed based on compliance with the South Coast Air Quality Management District, California Air Resources Board and Federal Clean Air Act regulations and standards. The Proposed Project must be consistent with, and provide mitigation where impacts occur, based on thresholds identified by these agencies, in addition to compliance with CEQA thresholds of significance. The construction of more homes would result in longer construction times and could involve more grading. This would result in incremental increases in air quality emissions. Therefore, this Alternative results in greater impacts than the Proposed Project with regard to Air Quality.

## 3. Biological Resources

The regulatory setting for Biological Resources is the same under the Proposed Project and this Alternative. Analysis is based on the Federal Endangered Species Act, California Endangered Species Act, Army Corps of Engineers, California Department of Fish and Wildlife and Regional Water Quality Control Board jurisdiction, standards and regulations. It is reasonable to assume that there would be more disturbance to biological resources to accommodate an increase in the number of homes. Therefore, the impact of this Alternative will be slightly greater than the Proposed Project with regard to Biological Resources.

## 4. Cultural Resources

Since the archeological and historical records search for the Proposed Project determined that there are no known cultural resources within the project area boundaries, analysis would be substantially the same under the Proposed Project and the Yorba Linda GP. Mitigation has been included herein to provide protection for any resources discovered during project construction. Even with a larger project footprint to accommodate an increased number of homes, mitigation measures would reduce impacts to less than significant. Therefore, impacts to Cultural Resources would be the same as with the Proposed Project.

## 5. Geology and Soils

The Yorba Linda GP Safety Element includes policies relating to hazards associated with geologic instability, soil issues, and seismic hazards. These policies require grading and construction standards to address the potential for landslides, preparation of reports related to liquefaction, groundwater levels, soil types and the presence of seismic faults and monitoring of potential geologic hazards within the City.

The Yorba Linda GP establishes a lower retaining wall requirement, which would result in grading differences. However, impacts could occur due to additional grading to construct 129 more homes than the Proposed Project.

The Proposed Project was analyzed for gross slope stability, ground rupture due to adjacent fault zones, liquefaction, landslide potential, groundwater levels, settlement of fill and compressible and expansive soils. Mitigation measures are included herein to reduce the level of significance using standards and techniques to avoid or use construction methods that protect the site from such impacts. While the Proposed Project is generally in compliance with all standards and policies set forth in the Yorba Linda GP, this Alternative would result in lower retaining walls but additional grading and, therefore, impacts under this Alternative would be the similar to the Proposed Project.

## 6. Greenhouse Gas Emissions

There are no established thresholds for greenhouse gas emissions at this time. The SCAQMD Governing Board adopted an Interim Quantitative GHG Significance Threshold for residential projects of 3,000 metric tons per year $CO_{2e}$. Since development of the Project Site under this Alternative would exceed the interim threshold, the impact would be significant and unavoidable. Therefore, the impact to Greenhouse Gas Emissions for this Alternative would be similar to the Proposed Project.

## 7. Hazards and Hazardous Materials

This Alternative would require compliance with the policies and standards established in the Yorba Linda GP Safety Element. Included are maintaining standards for building construction in seismically active areas, prohibiting the location of habitable structures within an Alquist-Priolo Special Study Zone or within 50 feet of an active fault, and constructing buildings to high standards for seismic activity.

Regarding fire hazards, the Yorba Linda GP includes goals for the Project Site regarding density, preservation, and enhancement of the natural setting, provision of adequate facilities, protection of water quality and be supported by adequate public infrastructure. The City's Hillside Development/Grading/Fire Protection Ordinance requires establishment of development standards for reducing the risk of wildfires, maintaining buffers to reduce fire risks including specific fuel modification zones, maintaining an emergency response plan, ensure adequate water supply sources, and prepare disaster response plans for access and evacuations. Plans and policies are also provided for consistency with Federal Emergency Management Agency requirements for building within a 100-year floodplain.

The Proposed Project analysis has included provision for each of the above identified potential hazards with mitigation measures and project design features that will reduce impacts to a less than significant level. Therefore, the Proposed Project is in compliance with Yorba Linda GP goals and the Hillside Development Ordinance, and impacts would be substantially the same under either the Proposed Project or this Alternative.

## 8. Hydrology and Water Quality

Potential impacts related to hydrology and water quality are generally regulated by the U.S. Army Corps of Engineers (ACOE), the California Department of Fish and Wildlife (CDFW), the U.S. Fish and Wildlife Service (USFWS), the Regional Water Quality Control Board (RWQCB), and the County of Orange. These agencies require conformance with National Pollutant Discharge Elimination System (NPDES) permits, regional basin plans, water quality management plans and master plans of drainage. The City of Yorba Linda Master Plan of Drainage is based on the Orange County Esperanza Hills Master Plan and is also based on the Yorba Linda GP ultimate land use of open space and residential use of the Murdock property.

The Proposed Project will implement the recommendations of a WQMP for the protection of water quality. The Project would be in compliance with the standards of the Orange County Drainage Area Management Plan, the NPDES Permit for Waste Discharge and the Orange County Esperanza Channel Master Plan of Drainage and will implement best management practices to enhance and improve drainage and water quality. Drainage facilities would be planned to accommodate the additional impervious surface resulting from an increase in the number of residences.

This Alternative would require compliance with the City's Master Plan of Drainage as well as the resource agencies for impacts to intermittent drainage areas subject to ACOE and CDFW jurisdiction.

Since both the Proposed Project and the project identified under this Alternative would be required to comply with the regulatory agencies and plans listed above, impacts would be substantially the same under either the Proposed Project or this Alternative.

## 9. Land Use and Planning

Anticipated development for the Murdock Property under the Yorba Linda GP is an average density of 1.0 dwelling units per acre, an increase of 129 units from the Proposed Project. The City has not established pre-zoning for the Project site. If the Project is annexed to the City, the Esperanza Hills Specific Plan would serve as the City's zoning. The Specific Plan development standards and permitted land uses have been designed to be consistent with the City's development standards.

The Proposed Project is consistent with the Yorba Linda GP vision that the residential units be clustered to provide more open space and opportunities for recreation and designed to accommodate the topography of the site. In that respect, the Project is consistent with the City's Hillside Management Ordinance with regard to consideration of views from off-site, preservation of natural slopes and ridgelines, preservation of vegetation and blending features to reflect the natural terrain. However, the Project is inconsistent with the portion of the ordinance concerning the height of retaining walls and viewscapes from Chino Hills State Park. The ordinance requires that grading and landscape plans include, for each lot viewed, specific measures, including height

limits, setbacks, landscaping, berms and/or other measures that will assure than any structure built on the lot will not be viewed from Chino Hills State Park. Due to fuel modification requirements, the structure on Estate Lot 1 cannot be screened with landscaping. The driveway access, as designed, prevents construction of berms to screen the structure. However, the Proposed Project will protect the northern and eastern ridgelines adjacent to Chino Hills State Park.

The Proposed Project and this Alternative are substantially the same with regard to compliance with Yorba Linda GP policies and goals, with the exception of retaining wall heights. The one-dwelling-unit-per-acre development is also consistent with the County General Plan. Development of the Project Site with residential uses was considered in both general plans. This Alternative would provide consistency with the Yorba Linda GP with respect to anticipated numbers of dwelling units. Therefore, this Alternative is marginally superior to the Proposed Project.

## 10. Noise

The Proposed Project is consistent with the County of Orange standards for noise levels and construction activities will be limited to the hours of 7:00 a.m. to 8:00 p.m. The City has established noise compatibility thresholds and exempts construction noise between 7:00 a.m. and 8:00 p.m. The construction of more homes would result in longer construction time, which would expose neighbors to higher noise levels from the use of construction equipment, as well as construction traffic for a longer period of time. In addition, the increase in vehicular trips could also result in increases in ambient noise levels along local roadways adjacent to residential neighborhoods. Therefore, this Alternative could result in slightly greater impacts to Noise than the Proposed Project.

## 11. Population and Housing

The Proposed Project is in compliance with the Yorba Linda GP Housing Element which notes that future housing growth can be accommodated via annexation of undeveloped land within the Sphere of Influence. The Murdock Property area is identified in the City's General Plan with a potential for up to 536 new housing units. The City has not met its Regional Needs Housing Assessment allocations and the Proposed Project will have a positive effect in that respect if annexation occurs. Population increases resulting from development of the Project Site in accordance with the City's long-range plan are consistent with the projected regional growth estimate. Therefore, this Alternative is slightly better than the Proposed Project, because it would provide more homes and more jobs.

## 12. Public Services

There would be no major change in the providers of fire, police, schools, libraries, and park services if the Proposed Project were developed under the Yorba Linda GP. The increase in the demand for such services would be proportionally greater when compared to the Proposed Project.

## 13. Recreation

The Yorba Linda GP requires that 4.0 acres per 1,000 population be maintained as the City's park standard. This standard exceeds the Quimby Act standard for parkland dedication which is 3.0 acres per 1,000 population.

Total acreage required by the Proposed Project under the Yorba Linda GP is 4.4 acres. The Proposed Project will provide up to 13.16 acres of active and passive parks. Under this Alternative, parkland would be necessary for approximately 1,500 persons. Using the City's requirement of 4.0 acres per 1,000 population would result in a total of 4.6 acres of parkland under this Alternative, which is less than the amount provided with the Proposed Project. In addition, the Proposed Project will provide between 35,000 and 43,000 linear feet of trails, depending on which access option is selected. The greater number of residences with this Alternative would result in a larger population and a greater demand for recreational amenities. Therefore, the Proposed Project is superior to the Yorba Linda GP with regard to Recreation, because it provides recreational amenities in excess of what is required by the General Plan.

## 14. Transportation and Traffic

There will be an increase in the amount of traffic generated with this Alternative. The County General Plan Transportation Element identifies Level of Service D as the threshold for County intersections. The Yorba Linda GP has also established Level of Service D as the minimum acceptable condition during peak commute hours for intersections.

This Alternative would result in the generation of 4,488 average daily trips compared with the 3,617 daily trips under the Proposed Project. This Alternative would increase impacts to key intersections beyond those identified in the Proposed Project with the addition of 870 daily trips. Therefore, it is possible that more extensive mitigation could be required for this incremental increase to meet the City's threshold. Therefore, impacts to Transportation and Traffic will be greater with this Alternative than with the Proposed Project.

## 15. Utilities and Service Systems

Utilities will be provided to the site by the same providers currently serving the area, regardless of whether the County General Plan or the Yorba Linda GP is considered. However, there would be an incremental increase in demand for utilities with this Alternative, resulting in a greater impact than the Proposed Project.

### 6.9.2 Attainment of Project Objectives

Under this Alternative, impacts to air quality, noise, recreation, and traffic would be greater than the Proposed Project. The Proposed Project provides more recreational opportunities with parks and trails than required by the Yorba Linda General Plan and traffic would be commensurately less under the Proposed Project with 129 fewer residences. Impacts would be less under this Alternative for land use and population and housing. However, unavoidable impacts would remain substantially the same with either the Proposed Project or this alternative.

This Alternative meets the general goals and objectives because the Proposed Project has been analyzed for potential annexation to the City of Yorba Linda. The Yorba Linda GP goals and policies were included in order to determine if the Project was consistent. Thresholds established by the City were also included to analyze deficiencies with the Proposed Project in meeting those thresholds.

This Alternative would not meet the following goals and objectives:

- *Create a planned community of appropriate density and scale that respects the existing topography and natural backdrop of the Project site* – This objective would not be met in the same way as the Proposed Project if development were clustered as envisioned by the Yorba Linda General Plan. The addition of 129 homes would create the need for additional grading to expand the development footprint, potentially altering the topography and creating a more densely designed overall view of the site.
- *Provide recreational opportunities for residents in the project vicinity for access to Chino Hills State Park from the west to Old Edison Trail* – The Proposed Project will provide far more recreational opportunities with the provision of up to 13.16 acres of parks in addition to up to 43,205 linear feet of trails, depending on which access option is selected. With this Alternative, the project would be required to provide 4.5 acres of parkland.

## 6.10 Environmentally Superior Alternative

Of the Alternatives evaluated, the No Project Alternative would be the most successful at reducing the level of significant impacts associated with the proposed project including the unavoidable adverse impact associated with air quality and global climate change. As required by CEQA Guidelines §15126.6(e)(2), if the No Project Alternative is the environmentally superior alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.

Alternative 3 - Lower/Reduced Density - would reduce significant impacts created by the Proposed Project. While this alternative would result in more significant impacts in the areas of Hazards and Hazardous Materials, Population and Housing, and Recreation, impacts in the areas of Aesthetics, Air Quality, Biological Resources, Geology, Noise, Public Services, and Transportation and Traffic would be less with this alternative than with the Proposed Project.

# 7. Summary of Cumulative Impacts

CEQA requires the consideration of cumulative impacts. Defined, these impacts are "two or more individual effects, which when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines §15355).

The Proposed Project is located in an unincorporated area of Orange County adjacent to existing residential neighborhoods within the City of Yorba Linda, with little opportunity for additional development in the immediately adjacent areas. To the north and east is Chino Hills State Park, to the south is dedicated open space (City of Yorba Linda), and to the west/southwest is undeveloped property that is proposed for the 112-residential-unit Cielo Vista project. Further to the south, southeast, and west are existing single-family homes in the City of Yorba Linda (City). Where the project will create an impact to the existing residential developments, such impacts are noted in Chapter 5 of the DEIR. In addition to an assessment of impacts on the environment, including the existing built environment, this section analyzes whether the project will result in incremental effects that, when combined with other past, present, and probable future projects, are cumulatively considerable.

The Proposed Project has the greatest chance of creating a cumulative impact when combined with the proposed Cielo Vista project, which is immediately adjacent to the Project Site, because of the proximity of the project sites. In addition, the Bridal Hills project is a reasonably foreseeable development and has been considered herein for analysis in Air Quality, Transportation/Traffic, and Population/Housing. Nevertheless, all past, present, and probable future projects have been identified in order to accurately assess the potential cumulative impacts associated with the Proposed Project. Great care has been taken throughout this DEIR to accurately describe the impacts directly attributable to the Proposed Project without suggesting impacts from the Cielo Vista project, with the exception of potential cumulative impacts identified herein.

The City of Yorba Linda General Plan (Yorba Linda GP) was also examined to assess cumulative impacts. However, the City is currently in the process of conducting a comprehensive update to the General Plan and, therefore, a list of related projects, consistent with CEQA Guidelines §15130(b)(1)(A) was developed.

In addition to the existing built environment within the City and the surrounding area, a number of anticipated development and redevelopment projects are located within a two-mile radius of the Proposed Project as researched at the cities of Yorba Linda, Anaheim, Brea, Placentia, and Orange, and unincorporated County of Orange. Of the 18 potential related projects, 17 are expected to be built and occupied by Year 2020. For near -term (Year 2020), 16 related projects are located in the City, and one is

located in the City of Brea. Table 7-1-1 below provides a brief description of the 18 related projects and identifies the occupancy percentage for each. Exhibit 7-1 graphically illustrates the location of the 18 projects.

**Table 7-1-1 Description of Related Projects**

| No. | Related Project | Land Use | Occupancy Percentage | |
|---|---|---|---|---|
| | | | Year 2020 | Year 2035 |
| 1 | North Yorba Linda Estates | 364 single-family residential dwelling units | 100% | 100% |
| | | 110 condo/townhomes | 100% | 100% |
| 2 | Cielo Vista | 112 single-family residential dwelling units | 100% | 100% |
| 3 | Hover/Bastanchury Holding Co. | 48 single-family residential dwelling units | 100% | 100% |
| 4 | Yorba Linda Town Center | 32 single-family residential dwelling units | 100% | 100% |
| | | 119 condo/townhomes | 100% | 100% |
| | | 1,200-seat performing arts center | 100% | 100% |
| | | 24,000-square-foot library | 100% | 100% |
| | | 5,200 square feet of general office uses | 100% | 100% |
| | | 61,600 square feet of commercial retail uses | 100% | 100% |
| | | 16,400 square feet of restaurant uses | 100% | 100% |
| 5 | Oakcrest Terrace | 69 apartments | 100% | 100% |
| 6 | Canal Annex – Savi Ranch | 84 apartments | 100% | 100% |
| 7 | Nixon Archive Site | 59 single-family residential dwelling units | 100% | 100% |
| 8 | SWC Bastanchury/Lakeview | 180 apartment units | 100% | 100% |
| | | 109 single-family residential dwelling units | 100% | 100% |
| 9 | Friends Christian High School | 1,200 students | 100% | 100% |
| 10 | Prospect (Greenhouse) | 55 single-family residential dwelling units | 100% | 100% |
| 11 | Wabash & Rose | 17 single-family residential dwelling units | 100% | 100% |
| 12 | Yorba Linda/Prospect | 122 apartment units | 100% | 100% |
| 13 | Postal Annex SE Lemon & Eureka | 5 single-family residential dwelling units | 100% | 100% |
| 14 | 4622 Plumosa | 10 apartment units | 100% | 100% |
| 15 | Lakeview & Mariposa | 149 apartment units | 100% | 100% |
| 16 | Palisades at Vista del Verde | 143 condo/townhomes | 100% | 100% |
| **City of Anaheim** | | | | |
| 17 | Mountain Park | 1,675 single-family residential dwelling units | 0% | 100% |
| | | 825 condos/townhomes | 0% | 100% |
| | | 3,000-square-foot convenience market | 0% | 100% |
| | | 800-student elementary school | 0% | 100% |
| | | 15 acres of park | 0% | 100% |
| **City of Brea** | | | | |
| 18 | La Floresta Development | 398 medium-density residential dwelling units | 100% | 100% |
| | | 787 high-density residential dwelling units | 100% | 100% |
| | | 150 mixed-use residential dwelling units | 100% | 100% |
| | | 156,800 square feet of mixed-use commercial | 100% | 100% |
| | | 18-hole golf course | 100% | 100% |
| | | 20,000-square-foot community center | 100% | 100% |
| | | 5.30-acre public facility (active adult) | 100% | 100% |
| | | 75.60 acres of natural open space | 100% | 100% |

Source: City of Yorba Linda, City of Anaheim, City of Brea, City of Placentia, City of Orange, and County of Orange

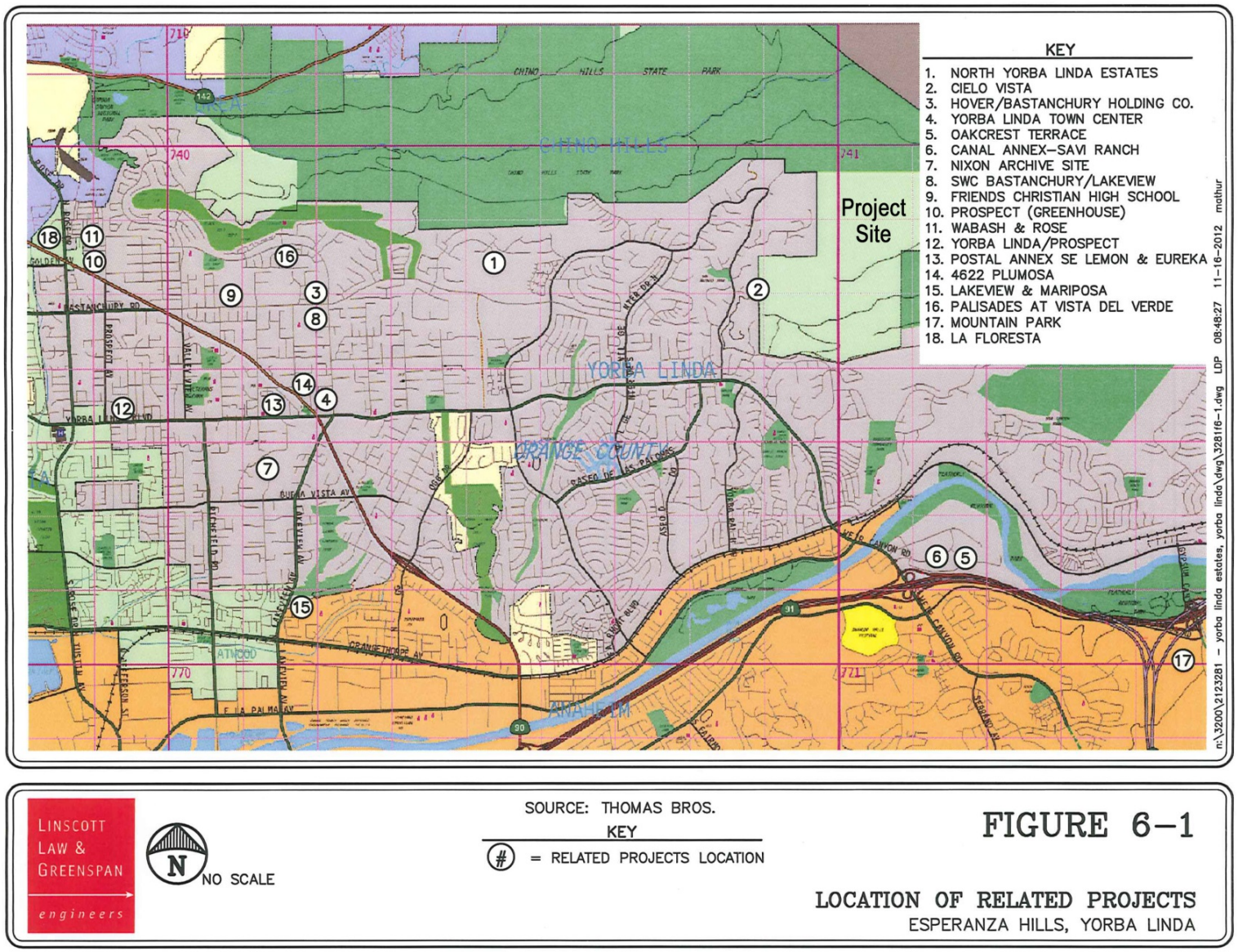



**Exhibit 7-1 – Location of Related Projects**

The existing residential and commercial developments, and related projects listed above, including potential impacts attributable to the proposed Cielo Vista project, were taken into consideration to assess impacts as discussed in each topical section below. Chapter 5 of this DEIR contains additional analysis of cumulative impacts for each topical environmental section. Specifically, the existing built environment was used to accurately describe the existing setting without the Proposed Project and was contemplated to determine whether the Proposed Project, when combined with other past, present, and reasonably foreseeable future projects, would result in cumulatively considerable impacts. Cumulative impact conclusions are based on two key criteria:

1. Level of project-specific impact. When an analysis concludes a project's impacts are individually minor but "cumulatively considerable," the project may have a significant impact on the environment.

2. Consideration of non-existing conditions and other cumulative projects. If there is a serious existing problem such that any additional amount of impact, when compared to the pre-existing conditions, would be significant, any additional amount of project impact would contribute to a cumulative impact.

The table below identifies each environmental topic and discusses cumulative impacts related to each.

**Table 7-1-2 Cumulative Impacts Summary**

| Environmental Issue/Topic | Project Specific Impact | Conclusion Regarding Cumulative Impacts |
|---|---|---|
| Aesthetics | Construction of residences in an otherwise undeveloped area will create visual impacts due to landform alteration and placement of homes. Sources of light and glare will be introduced to the site. Mitigation measures and project design features have been incorporated into the project to reduce aesthetics impacts to less than significant. | The Proposed Project, combined with the proposed Cielo Vista project, will introduce residential development to open space. However, the project site is adjacent to existing residential development within the City of Yorba Linda and will provide a similar development (i.e., single-family homes on large lots) The proposed project, when combined with the proposed Cielo Vista project and all other past, present, and probable future projects, will not create any new or more severe impacts to aesthetics. Cumulative impacts to aesthetics are therefore less than significant. |
| Air Quality | Implementation of mitigation measures would result in additional reductions in project emissions in short-term and long-term conditions. | The Proposed Project, in conjunction with growth and development with the South Coast Air Basin (SCAB), would hinder conformance with the regional AQMP. Because the SCAB has been classified as a non-attainment air basin, the Proposed Project will have a cumulatively considerable incremental increase in air emissions. In addition, the Proposed Project will contribute greenhouse gas emissions to the environment in excess of SCAQMD's advisory level. Therefore, the Proposed Project will result in cumulatively considerable and significant impacts to air quality. |

| Environmental Issue/Topic | Project Specific Impact | Conclusion Regarding Cumulative Impacts |
|---|---|---|
| Biological Resources | The proposed project has the potential to impact the least Bell's vireo and nesting birds under the Migratory Bird Treaty Act. Additional impacts to least Bell's vireo are:<br>• Option 1 - .05 acre of mulefat scrub<br>• Option 2 - .05 acre of mulefat scrub, .19 acre of black willow<br>• Option 2A - .05 acre of mulefat scrub, .09 acre of black willow, .36 acre of southern willow scrub<br>Fill of drainages due to grading and hillside stabilization could potentially impact ACOE and CDFW jurisdictional waters.<br>However, mitigation measures and project design features have been included that will reduce the impacts to less than significant. There are no unavoidable significant impacts associated with biological resources. | The adjacent proposed Cielo Vista project will impact the same habitat areas for least Bell's vireo as the Proposed Project in the areas of off-site grading. The impacts of the Proposed Project will be fully mitigated with implementation of a re-vegetation plan resulting in a net increase in riparian habitat suitable for least Bell's vireo.<br>Impacts to ACOE and CDFW jurisdiction will be mitigated through implementation of a restoration plan and a habitat mitigation and monitoring program.<br>There will be no cumulative considerable or significant impacts to biological resources. The Proposed Project analyzed off-site impacts, which are consistent with Cielo Vista impacts. Cumulative impacts to biological resources, when combined with the proposed adjacent Cielo Vista project, are not considerable with implementation of proposed mitigation measures |
| Cultural Resources | No cultural resources are known to exist within the project site. However, mitigation has been included to address unanticipated discovery of cultural resources during project grading. No unavoidable significant impacts are associated with cultural resources. | Project development in combination with other cumulative projects would not significantly alter any regional or cumulative cultural, scientific, or historic resource. |
| Geology and Soils | The geotechnical investigation and fault hazard report contain recommendations pertaining to slope stability, ground rupture, liquefaction, landslide potential, groundwater levels, settlement of fill, and compressible and expansive soils. With incorporation of mitigation measures, impacts will be reduced to less than significant. | Significant cumulative impacts due to potential erosion from grading and wind-related soil disturbance could occur if the proposed project grading occurs concurrently with adjacent development of the proposed Cielo Vista project. No other significant cumulative impacts will occur in the area of geology and soils. |
| Greenhouse Gas Emissions | GHG emissions will remain above the SCAQMD advisory level for construction, operation, and cumulative conditions and are therefore considered significant and unavoidable. | The project will contribute greenhouse gas emissions to the environment. Therefore, the project will result in cumulative impacts to greenhouse gas emissions and global climate change. |
| Hazards and Hazardous Materials | On-site oil well operations have the potential for accidental release of gas/methane. Mitigation measures have been incorporated to reduce such impact to less than significant. The project is located in a Very High Fire Hazard Severity Zone (VHFHSZ). A Fire Protection and Emergency Evacuation Plan has been prepared and includes recommendations for fuel modification zones, fire breaks, emergency vehicle staging areas, and the provision of adequate water and water pressure. Implementation of the mitigation measures provided will result in less than significant impacts. There are no unavoidable significant impacts with | There are 13 active wells and 12 abandoned oil and gas wells within the project area, including on the adjacent Cielo Vista site and within the surrounding community. On the project site there are 3 active wells and 4 abandoned wells. Mitigation has been included to require a Combustible Gas/Methane assessment and a Methane Control Plan if necessary to reduce impacts to less than significant.<br>Implementation of the proposed project will result in lower fire hazard risk than currently exists on the site, because project design features and mitigation measures will provide |

| Environmental Issue/Topic | Project Specific Impact | Conclusion Regarding Cumulative Impacts |
|---|---|---|
| | project implementation. | benefits to the surrounding areas through redundant layers of fire protection systems. Two gravity-fed water reservoirs on-site will provide water and adequate water pressure for firefighting purposes. Fuel modification zones are required, significantly reducing the site's fuel sources for a wildfire. A large area of highly flammable vegetation will be converted to lower flammability landscapes. Fuel breaks will be provided on the south and southwestern portions of the site within Blue Mud Canyon, which serve as an extension of the formal fuel modification zones. Project design includes fire-hardened structures that are ember-resistant. A community evacuation plan will be in place, including implementation of the OCFA Ready, Set, Go Program to educate residents about evacuation procedures. Emergency vehicle staging areas will be provided in three locations. With implementation of mitigation measures and project design features, cumulative impacts are less than significant. |
| Hydrology and Water Quality | The Proposed Project has the potential to degrade water quality during grading and construction operations. However, the project has been designed to comply with all water quality standards and SWPPP and NPDES requirements. Project Design Features include dry detention basins, rip-rap pads, flow restrictors, and best management practices to reduce erosion and siltation from storm water runoff post-construction. These features have been incorporated to ensure that impacts to hydrology and water quality will be less than significant. There are no unavoidable significant impacts associated with the project. | The increase in impervious surfaces resulting from the Proposed Project and the surrounding proposed development could increase the potential for flooding. Cumulative development will increase impervious surfaces and could potentially increase the potential for flooding in the area as well as result in the alteration of drainage patterns. However, the County requires all new development to design and implement low impact development that mimics the pre-development existing flows, volumes and water quality prior to discharge from the site. In addition, the Proposed Project will result in a reduction of runoff with implementation of a Water Quality Management Plan and a drainage system. Therefore, no cumulative impacts will occur to the proposed project or adjacent development. |
| Land Use and Planning | The Proposed Project is consistent with County of Orange General Plan Land Use Element policies and complies with zoning regulations. The project is also consistent with City of Yorba Linda General Plan policies, including density assumptions for the site. However, it is inconsistent with provisions of the City's Hillside Development/Grading/Fire Protection ordinance with respect to the height of retaining walls and grading on ridgelines. Prominent ridgelines on the site, including the northern and eastern ridgelines separating the site | The Proposed Project, combined with other development and future development in the surrounding area, will increase the intensity of the land use regionally. The Proposed Project and the proposed adjacent Cielo Vista project are consistent with the City's General Plan designation for single-family residential use, which identifies a density of 1.0 dwelling unit per acre. The Proposed Project has a density of 0.73 units per acre, while the proposed Cielo Vista project has a density of 1.33 units per acre. |

| Environmental Issue/Topic | Project Specific Impact | Conclusion Regarding Cumulative Impacts |
|---|---|---|
| | from Chino Hills State Park, would not be impacted by the project. The inconsistency with the City's Hillside ordinance is not considered a significant impact, because the ordinance does not apply to County projects. No mitigation measures are required. There are no unavoidable significant impacts associated with the Proposed Project. | Cumulatively, both projects are consistent with the Murdock Area development envisioned in the Yorba Linda GP. Although Estate Lot 1 is viewed at a distance from San Juan Hill Lookout in Chino Hills State Park, the Proposed Project is consistent with the Yorba Linda Hillside Development/Grading/Fire Protection Ordinance because the Proposed Project has incorporated design features to reduce this visual impact. There will be no cumulative impacts related to land use. The Proposed Project is substantially consistent with the goals and policies of the Yorba Linda GP and the Chino Hills State Park General Plan. With the approval of the proposed General Plan Amendment, the Proposed Project will be consistent with the County General Plan. Therefore, cumulative impacts are less than significant. |
| Noise | Short-term construction and long-term operational impacts have been reduced through the provision of mitigation measures. However, because the project vicinity has low baseline levels for ambient noise, small increases in noise due to construction will be perceptible to adjacent existing development. These are short-term impacts and will cease upon construction completion.<br>Long-term impacts include the increase in noise due to additional traffic. Impacts are considered significant if they increase noise levels by 3 dB CNEL. Therefore, traffic noise is considered significant. However, noise levels are anticipated to remain under the 65 dB CNEL County threshold. | A substantial noise increase of +3 dB CNEL from project-related traffic will occur in both the existing and future time period under both Option 1 and Option 2. A significant cumulative traffic noise increase above the +3 dB CNEL threshold will occur under Option 2 along Aspen Way, under Option 2 access conditions, and along San Antonio Road north of Yorba Linda Boulevard. Therefore, it is anticipated that the Proposed Project will result in cumulative noise impacts in that a permanent increase in ambient noise levels will occur, notwithstanding that County noise level standards of 65 dB CNEL will not be exceeded. The Proposed Project, when combined with the proposed Cielo Vista project, will create additional noise from traffic that will exceed the 3 dB perceptible noise threshold and will be cumulatively considerable and significant. |
| Population and Housing | Development of the project site was anticipated in the County and Yorba Linda General Plans. The Proposed Project will provide additional housing to meet housing needs and will provide employment during project construction. While an additional 1,787 dwelling units are anticipated in the area in the next 6 to 7 years, the RHNA projections for 2008-2014 and 2014-2012 accommodate the residences, as well as the 340 dwelling units form the Proposed Project. The Proposed Project will not result in significant impacts, and no mitigation measures are required. There are no anticipated unavoidable significant impacts related to population and housing. | The proposed Cielo Vista project, which is adjacent to the project site, will result in an additional 112 single-family residential units. This will have a positive benefit in meeting housing needs. The RHNA projections through 2012 accommodate the cumulative and Project proposed developments. No significant cumulative impacts will result related to the additional population and housing. |

| Environmental Issue/Topic | Project Specific Impact | Conclusion Regarding Cumulative Impacts |
|---|---|---|
| Public Services | The Proposed Project will not result in significant impacts. Mitigation measures are included that provide for payment of fair share fees for capital and infrastructure needs, and payment of SB 50 school impact fees will reduce impacts to less than significant. | The Proposed Project, in addition to past, present, and planned probable projects in the vicinity, will result in an increased need for fire, police, school, parks, and library services. Impacts will be mitigated on a project-by-project basis with the payment of required fees to reduce such impacts. Both the Proposed Project and the proposed Cielo Vista project will be serviced by the same providers and will not create significant cumulative impacts. |
| Recreation | The Proposed Project exceeds the minimum requirements for provision of parks. In addition, the project will provide trails and trail connections that will be a positive benefit to surrounding residents. No mitigation measures are required related to recreation. | Surrounding developments will have access to the proposed public trails and trail linkages to existing equestrian, hiking, and biking trails. This is a positive benefit and will not create a cumulative impact. Because the Proposed Project will include nine community parks and several trails and trail connections, cumulative impacts will be less than significant. |
| Transportation and Traffic | Option 1 Access - Impacts under existing and Year 2020 conditions will be less than significant with mitigation as proposed. Year 2035 is forecast to operate at an unacceptable level of service at Yorba Linda Boulevard at Savi Ranch Parkway and Weir Canyon Road at SR-91 EB Ramps.<br>Option 2 Access - Impacts under existing and Year 2020 conditions will be less than significant with mitigation as proposed. Year 2035 conditions will impact the same two intersections as Option 1.<br>Mitigation Measures included herein, including increasing the queue length at Yorba Linda Boulevard and Via del Agua and the payment of fair share fees are expected to reduce impacts to less than significant. | The Proposed Project is expected to contribute to roadway operation deficiencies at the intersection of Yorba Linda Boulevard at Via del Agua and Yorba Linda Boulevard at Savi Ranch Parkway. However, mitigation proposed for both intersections will offset the cumulative impacts.<br>The proposed Cielo Vista project will add 112 residential units to the surrounding area. These residences were included in the Traffic Analysis prepared for the proposed project. A three-phase signal at Yorba Linda Boulevard and Via del Agua is considered a planned improvement with the proposed Cielo Vista development. Installation of the signal will reduce impacts for both projects to a less than significant level at this intersection.<br>The Traffic Impact Analysis determined that the Proposed Project, combined with the proposed Cielo Vista project, will not result in significant cumulative impacts with implementation of mitigation and payment of fair-share fees. Fees will be collected by the City to provide new and upgraded transportation improvements when necessary to mitigate impacts. No cumulative impacts are anticipated with project develop-ment. |
| Utilities and Service Systems | The Proposed Project will provide adequate water and sewer infrastructure as approved by the YLWD, two underground water reservoirs, and on-site improvements to accommodate gas, electric, telephone and cable service. Mitigation measures are included to ensure coordination with service | Cumulative impacts will result in an increase in the demand for utility and service systems for new development in the area. The adjacent proposed Cielo Vista and anticipated Friend developments will result in a total of 494 new residences. |

| Environmental Issue/Topic | Project Specific Impact | Conclusion Regarding Cumulative Impacts |
|---|---|---|
| | providers to reduce potential impacts to less than significant. There are no unavoidable significant adverse impacts associated with utilities and service systems. | The YLWD 2005 Water Master Plan and the 2013 NEAPS have determined that adequate water supply exists, and no cumulative impacts are anticipated.<br><br>The Sewer Report prepared for the Proposed Project concludes that there will be adequate sewer capacity for the Proposed Project, the proposed adjacent Cielo Vista project, and all other past, present, and probable future projects to connect to existing systems. The Proposed Project will not share any drainage improvements with the proposed adjacent Cielo Vista project or any other projects. The Fountain Valley and Huntington Beach wastewater treatment facilities have adequate capacity for their service areas and no cumulative impacts will result.<br><br>Gas and electric service has been confirmed and adequate capacity exists for provision of these services. Future developments will be required to secure service on a project-by-project basis for gas, electric, telephone, and cable.<br><br>Mitigation measures have been included for the Proposed Project to require that adequate coordination occurs with all utilities and service providers to ensure no cumulative impacts will result. |

# 8. Growth-Inducing Impacts

CEQA requires the consideration of growth-inducing impacts. Pursuant to CEQA Guidelines §15126.2(d), such impacts are ways in which the Proposed Project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included are projects that would remove obstacles to growth. In addition, growth-inducing impacts could be realized if the project would encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively.

Potential growth-inducing impacts have been discussed throughout this DEIR, but are brought to focus under this section. The Proposed Project, while in an unincorporated area of Orange County, could ultimately be annexed to the City of Yorba Linda, which is nearly built-out. Few opportunities remain in the vicinity, either in the County or the City, for new development. Potential future development in the City would likely consist of redevelopment of existing urban areas through re-zoning and amendments to General Plan development limits. There is little potential for additional projects of the size and scope proposed for Esperanza Hills. The Project, as proposed, would directly induce growth through the introduction of up to 340 additional residences to an undeveloped area. However, the population growth associated with this Project was considered in the City of Yorba Linda General Plan Land Use Element and Housing Element. In addition, the County General Plan applied the Open Space land use designation to the site, which is not necessarily an indication of a long-term commitment to permanent open space uses, but rather, due to market pressures to serve a growing County population, may ultimately be developed in other ways.

Project-related infrastructure improvements, such as construction of two underground water reservoirs, water and sewer lines throughout the developed areas, and improved drainage facilities to improve water quality from runoff, will serve the Proposed Project. The proposed improvements will not foster population growth beyond the project, unless adjacent planned developments extend such facilities to serve the development area. The Proposed Project, in itself, will not extend infrastructure improvements into adjacent areas.

As detailed in Chapter 5.15 - Utilities - the “Yorba Linda Water District 2005 Domestic Water System Master Plan” and the “Yorba Linda Water District 2010 Sewer Master Plan Update” were considered in this analysis. The Yorba Linda Water District provided input for the design and capacity requirements for the proposed water reservoirs and the sewer system, which have been designed to accommodate the Proposed Project only, and the infrastructure improvements will not be used to serve further residential development beyond that identified herein. Additional development in the area was not considered in the design and capacity. Therefore, the construction of water and sewer infrastructure will not induce growth in surrounding areas even

though additional development potential is available through General Plan and Zoning designations. In addition, the Project Site is bounded by existing residential and Chino Hills State Park, which limits future development.

The Proposed Project will directly result in growth-inducing impacts related to the 340 homes and approximately 1,088 residents. However, the Proposed Project must also be examined in reference to other proposed or reasonably foreseeable future projects. In this regard, the proposed Cielo Vista (112 residential units) and Bridal Hills (38 residential units) projects, which are immediately adjacent to the Proposed Project, if approved, would add a total of 150 residential units and approximately 480 residents in the unincorporated area. Each project would be required to provide infrastructure to serve the development. The amount of additional developable land in the vicinity is limited due to existing residential and Chino Hills State Park adjacent to the project site. Therefore, the lack of developable land restricts the possibility that the Proposed Project will result in indirect growth inducing impacts.

# 9. Inventory of Mitigation Measures

## Aesthetics

AE-1 Prior to the issuance of building permits, the Project Applicant shall demonstrate that all exterior lighting has been designed and located so that all direct rays are confined to the property in a manner meeting the approval of the Manager, OC Planning, or designee. Lighting shall be designed to minimize visibility of light sources by directing lighting toward the on-site structures and not illuminating areas outside property boundaries.

## Air Quality

AQ-1 During construction, the Project Applicant shall ensure the use of enhanced control measures for diesel exhaust emissions to maintain NOX impacts at a less than significant level. These measures shall include:

- Utilize well-tuned off-road construction equipment
- During grading, require that contractors use Tier 3 on all heavy equipment (excavators, graders, and scrapers exceeding 100 HP rated power) if the entire project is graded at one time for NOX emissions, unless use of such mitigation is demonstrated to be technically infeasible for a given piece of equipment
- During grading, require that contractors employ oxidation catalysts during grading for excavation graders and scrapers exceeding 100 HP rated power if the entire project is graded at one time, unless use of such mitigation is demonstrated to be technically infeasible for a given piece of equipment.
- Enforce 5-minute idling limits for on-road trucks and off-road equipment

AQ-2 During construction, the Project Applicant shall ensure that standard construction practices as set forth in the SCAQMD Handbook shall be implemented.

AQ-3 During construction, the Project Applicant shall ensure that best management practices for dust control are implemented. These include:

- Apply soil stabilizers or moisten areas that are inactive for 96 hours or more.
- Prepare a high wind dust control plan
- Address previously disturbed areas if subsequent construction is delayed more than 96 hours

- Water exposed surfaces as needed to avoid visible dust leaving the construction site (typically three times per day)
- Wet down or cover all stockpiles with tarps at the end of each day or as needed
- Provide water spray during loading and unloading of earthen materials
- Minimize in-out traffic from construction zone
- Cover all trucks hauling dirt, sand or loose material or require all trucks to maintain at least two feet of freeboard
- Sweep streets daily if visible soil material is carried out from the construction site
- Use perimeter sandbags and wind fences for erosion control

## Biological Resources

Bio-1 Prior to the issuance of grading permits, the Project Applicant shall prepare a re-vegetation plan for mulefat scrub, black willow riparian forest, and blue elderberry woodland located within Blue Mud Canyon. The plan will also incorporate California black walnut into the plant palette to mitigate the loss of 0.48 or 0.22 acre of walnut woodland associated with Options 1 and Option 2, respectively. The plan shall be prepared by a qualified biologist for review and approval by the Manager of OC Planning. At a minimum, the plan shall include restoration of mulefat scrub and black willow riparian forest vegetation that also includes a black walnut component. The plan shall include replacement of habitat at a minimum a ratio of 1:1; responsibility and qualifications of the personnel to implement and supervise the plan; site selection; site preparation and planting implementation; schedule; maintenance plan/guidelines; monitoring plan; and long-term preservation.

Bio-2 Prior to the issuance of grading permits, a detailed restoration program shall be prepared by a qualified biologist for approval by the County of Orange. The program shall provide for planting of 326 greenhouse-propagated individuals of intermediate mariposa lily in the Study Area within an undisturbed area of coastal sage scrub.

Bio-3 Prior to the issuance of grading permits, a detailed restoration program shall be prepared by a qualified biologist for approval by the County of Orange. The program shall provide for planting of 400 greenhouse-propagated individuals of Braunton's milk-vetch in the Study Area within an undisturbed area of suitable habitat and soils, slope and exposure.

Bio-4 Prior to the issuance of grading permits, the Project Applicant shall prepare a re-vegetation plan for mulefat scrub and black willow riparian forest located within Blue Mud Canyon. The plan will also incorporate California black walnut into the plant palette to mitigate the loss of walnut woodland

as described in Mitigation Measure Bio-1. The plan shall be prepared by a qualified biologist for review and approval by the Manager of OC Planning. At a minimum, the plan shall include: restoration of mulefat scrub and black willow riparian forest vegetation at a ratio of 1:1; responsibility and qualifications of the personnel to implement and supervise the plan; site selection; site preparation and planting implementation; schedule; maintenance plan/guidelines; monitoring plan; and long-term preservation.

Bio-5 Prior to the issuance of grading permits, the Project Applicant shall include the following measures on the grading plan to be implemented with grading operations:

1. Prior to the commencement of clearing operations or other activities involving significant soil disturbance, all areas of mulefat scrub and black willow riparian forest habitat to be avoided shall be identified with temporary fencing or other markers that are clearly visible to construction personnel.
2. A USFWS-approved Biological Monitor shall be on-site during any clearing of mulefat scrub and black willow riparian forest. The Project Applicant shall advise the U.S. Fish & Wildlife Service at least 7 calendar days – but preferably 14 calendar days – prior to the clearing of mulefat scrub and black willow riparian forest. The Biological Monitor shall flush avian or other mobile species from habitat areas immediately prior to brush-clearing and earth-moving activities. It shall be the responsibility of the monitoring biologist to ensure that identified bird species are not directly impacted by brush-clearing and earth-moving equipment in a manner that also allows for construction activities to continue on a timely basis.
3. Following the completion of initial clearing activities, all areas of mulefat scrub and black willow riparian forest habitat to be avoided by construction equipment and personnel shall be marked with temporary fencing or other clearly visible, appropriate markers. No construction access, parking, or storage of equipment shall be permitted within such marked areas.

Bio-6 Prior to the issuance of grading permits, the Project Applicant shall prepare a Restoration Plan for mulefat scrub, black willow riparian forest, coast live oak riparian woodland, and other appropriate wetland/riparian habitats at an acreage ratio of 1:1 to be located within Blue Mud Canyon. The plan shall be prepared by a qualified biologist for review and approval by the Manager of OC Planning. The Restoration Plan shall include the following:

1. Impacts to living coast live oak trees within CDFW jurisdiction will be mitigated through planting liners or locally collected acorns within Blue Mud Canyon at the following ratios:
    - For healthy trees to be removed for development:
        - trees less than 5 inches diameter at breast height (DBH) should be replaced at 3:1

- trees between 5 and 12 inches DBH should be replaced at 5:1
- trees between 12 and 36 inches DBH should be replaced at 10:1
- trees greater than 36 inches DBH should be replaced at 20:1

- For damaged trees (including trees damaged by construction and fire damaged trees to be removed for development):
  - trees less than 12 inches DBH should be replaced at 3:1
  - trees greater than 12 inches DBH should be replaced at 5:1
  - Impacts to trees that were killed by the 2008 Freeway Complex Fire do not require mitigation.

2. The sizes, condition, and total number of impacted trees will be determined after verification of the limits of CDFW jurisdiction and prior to issuance of any permit that results in ground disturbance.

Bio-7 Prior to the issuance of grading permits, the Project Applicant shall prepare a Habitat Mitigation and Monitoring Program (HMMP). The HMMP shall be prepared by a qualified biologist for review and approval by the Manager of OC Planning. The HMMP shall include responsibility and qualifications of the personnel to implement and supervise the plan; site selection; site preparation and planting implementation; schedule; maintenance plan/guidelines; monitoring plan; and long-term preservation.

The Project Applicant shall be fully responsible for the implementation of the Habitat Mitigation and Monitoring Program until the restoration areas have met the success criteria outlined in the approved plan. The Manager of OC Planning shall have final authority over mitigation area sign-off.

Bio-8 Prior to the issuance of any grading permit the Project Applicant shall include the following measures on the grading plan to be implemented with grading operations:

1. Prior to the commencement of clearing operations or other activities involving significant soil disturbance, all areas of ACOE and CDFW jurisdiction to be avoided shall be identified with temporary fencing or other markers that are clearly visible to construction personnel.

2. A USFWS-approved Biological Monitor shall be on-site during any clearing of riparian vegetation. The Project Applicant shall advise the US Fish & Wildlife Service at least 7 calendar days – but preferably 14 calendar days – prior to the clearing of riparian vegetation. The Biological Monitor shall flush avian or other mobile species from habitat areas immediately prior to brush-clearing and earth-moving activities. It shall be the responsibility of the monitoring biologist to ensure that identified bird species are not directly impacted by brush-clearing and earth-moving equipment in a manner that also allows for construction activities to continue on a timely basis.

3. Following the completion of initial clearing activities, all areas of ACOE and CDFW jurisdiction to be avoided by construction

equipment and personnel shall be marked with temporary fencing or other clearly visible, appropriate markers. No construction access, parking, or storage of equipment shall be permitted within such marked areas.

Bio-9 Prior to the issuance of grading permits, the Project Applicant shall include the following condition on the grading plan for implementation during vegetation removal operations:

No vegetation removal shall occur between the dates of March 15 to August 31, unless a qualified biologist surveys the Project's impact area prior to disturbance to confirm the absence of active nests. If an active nest is discovered, vegetation removal within a particular buffer surrounding the nest shall be prohibited until nesting is complete; the buffer distance shall be determined by a qualified biologist (in consultation with the CDFW or the USFWS, if applicable) and in consideration of species sensitivity and existing nest site conditions. Limits of avoidance, which can be up to 300 feet for nesting raptors, shall be demarcated with flagging or fencing. The Biologist shall record the results of the recommended protective measures described above and shall submit a memo summarizing any nest avoidance measures to the Manager of OC Planning to document compliance with applicable state and federal laws pertaining to the protection of native birds, including nesting raptors.

Bio-10 Prior to the issuance of building permits, the Project Applicant shall prepare a resident Environmental Awareness Program to be reviewed and approved by the Manager of OC Planning. The Environmental Awareness Program is intended to increase awareness to residents of the sensitive plants, wildlife, and associated habitats that occur in the preserved open space areas. The intention of the program shall be to encourage active conservation efforts among the residents to help conserve the habitats in the preserved open space. The program shall address inadvertent impacts from the introduction of invasive plant species (including escapees), human intrusion, trash and debris, creation of ad hoc trails, domestic cats, and light pollution. At a minimum, the Environmental Awareness Program shall include the following components:

- Informational kiosks shall be constructed at entrance points to hiking and equestrian trails and at various locations along the fence line that separates the Project Site and the open space area to inform residents and trail users on the sensitive flora and fauna that rely on the habitats found within the preserved open space. The intent of these kiosks is to bring awareness to the sensitive plants, wildlife and associated habitats which occur in the area along with discouraging creation of ad hoc trails and trash and debris.
- The Project Applicant shall provide residents or the HOA for nearby subdivisions (if applicable) with a brochure that includes a list of plant species to avoid in residential landscaping to prevent the introduction of

invasive plant species and impacts from human intrusion, light pollution and domestic cats to the surrounding natural communities.

Bio-11 Prior to the issuance of grading permits the Project Applicant shall include the following measures on the grading plan to be implemented with grading operations:

- No clearing, grubbing, grading, or other construction activities shall occur within and in the vicinity of riparian habitat occupied by least Bell's vireo between March 15 and September 15, the breeding season of the least Bell's vireo, until the following requirements have been met:

  1. A qualified biologist shall survey riparian areas that would potentially be subject to construction noise levels exceeding 60 decibels [dB(A)] hourly average for the presence of least Bell's vireo. Surveys for this species shall be conducted pursuant to the protocol survey guidelines established by the U.S. Fish & Wildlife Service within the breeding season prior to the commencement of construction. If the least Bell's vireo is present, then the following conditions must be met:

     a. Between March 15 and September 15, no clearing, grubbing, or grading of occupied least Bell's vireo habitat shall be permitted. Areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist;

     b. Between March 15 and September 15, no construction activities shall occur within any portion of the site where construction activities would result in noise levels exceeding 60 dB(A) hourly average at the edge of occupied least Bell's vireo habitat. An analysis showing that noise generated by construction activities would not exceed 60 dB(A) hourly average at the edge of occupied habitat must be completed by a qualified acoustician and/or qualified biologist (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) and approved by the U.S. Fish & Wildlife Service at least two weeks prior to the commencement of construction activities. Prior to the commencement of any construction activities during the breeding season, areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist;

     c. If it is desired to conduct construction activities adjacent to habitat determined to be occupied by least Bell's vireo during pre-construction surveys, then at least two weeks prior to the commencement of construction activities,

under the direction of a qualified acoustician and/or qualified biologist, noise attenuation measures (e.g., berms, walls) shall be implemented to ensure that noise levels resulting from construction activities will not exceed 60 dB(A) hourly average at the edge of habitat occupied by the least Bell's vireo. Concurrent with the commencement of construction activities and the construction of necessary noise attenuation facilities, noise monitoring shall be conducted at the edge of occupied area to ensure that noise levels do not exceed 60 dB(A) hourly average. If the noise attenuation techniques implemented are determined to be inadequate by the qualified acoustician and/or biologist, then the associated construction activities shall cease until such time that adequate noise attenuation is achieved or until the end of the breeding season (September 16).

Construction noise shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB(A) hourly average or to the ambient noise level of it already exceeds 60 dB(A) hourly average. If not, other measures shall be implemented in consultation with the biologist as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.]

2. If least Bell's vireos are not detected during the protocol survey, the qualified biologist shall submit substantial evidence to the U.S. Fish & Wildlife Service that demonstrates whether or not mitigation measures such as noise walls are necessary between March 15 and September 15 as follows:

   - If this evidence indicates the potential is high for least Bell's vireo to be present based on historical records or site conditions, then condition 1.c shall be adhered to as specified above.
   - If this evidence concludes that no impacts to this species are anticipated, no further surveys or monitoring would be necessary.

## Cultural Resources

CR-1 Prior to the issuance of any grading permit, a grading note shall be added to the grading plan that states: "If any unanticipated cultural resources,

including human remains, are discovered during ground-disturbing activities; work in that location shall be temporarily diverted a minimum of 25 feet away until a County qualified archaeologist can evaluate the find. Recommendations by the archaeologist and as approved by the County of Orange Planning Manager shall be complied with for any further ground-disturbing work."

CR-2 Prior to the issuance of any grading permit, the Project Applicant shall prepare and submit to the Manager, OC Planning for review and approval a Paleontological Resources Mitigation Plan as detailed in the "Archaeological and Paleontological Resources Assessment Update" for the Esperanza Hills Project, dated January 2013, prepared by Cogstone. The Paleontological Resources Mitigation Plan shall include the following: 1) paleontological resources awareness training for all earthmoving personnel, 2) monitoring of excavations more than five feet below the current surface (not for shallow excavations), 3) adjustments by the principal paleontologist to monitoring requirements based on fossil yield, depth and location of impact, and 4) recovery and curation of fossils meeting the significance criteria established in the Paleontological Resources Mitigation Plan.

## Geology and Soils

Geo-1 Prior to issuance of building permits, the Project Applicant and the County hall ensure that geologic conditions underlying design slopes and those to remain natural in areas adjacent to the development perimeter shall be investigated and analyzed for gross stability in accordance with current geotechnical engineering practice. Investigation shall include areas where larger landslides are suspected to exist, mainly in natural slope areas bordering the development, including analysis of distribution and dimension regarding conditions of gross stability.

Geo-2 During grading, the Project Applicant and the County shall ensure that unstable areas be avoided or that design slopes determined to be grossly unstable be stabilized by construction of buttresses or stabilization fills, flattening gradients, lowering overall heights, improving stability through use of tie-back/grade-beam systems, use of geogrid, use of cement-treated-soil or similar supplemental stabilization measures or combinations of these methods.

Geo-3 During grading, the Project Applicant shall ensure that zones of weathered bedrock be removed from back cuts and/or areas upon which new fill is to be placed.

Geo-4 Prior to issuance of building permits, the Project Applicant shall ensure that construction across the trace of active faults and/or outside the limits of the setback zone will be avoided to the maximum extent practicable, and no residential lots are designed within the setback zone established for the Whittier Fault. Where access roads, retaining walls, bridge structures or

structural fills are planned within the setback zone, the direction and magnitude of anticipated fault offset and severity of anticipated ground shaking shall be incorporated into the design.

Geo-5 Prior to issuance of building permits, the Project Applicant shall ensure that the design for improvements that cross the Whittier Fault should be minimal, and the trend in which crossings are made should be oriented as nearly perpendicular (20 degrees east of north) to the trend of the fault as possible. The prefabricated bridge structure spanning Blue Mud Canyon under Option 1 shall be positioned and designed to accommodate expected fault offset. The Project Applicant shall consider use of alternative geotechnical engineering technologies to minimize impacts to structures constructed above active fault strands. These may include the incorporation of geo-fabric materials into fill bodies to add to fill strength and/or select placement of gravel blankets within subgrade areas to diffuse shear forces relating to ground rupture.

Geo-6 Prior to issuance of building permits, the Project Applicant shall ensure that utility lines located in or near the Whittier Fault incorporate flexible joints into their design, to accommodate anticipated ground rupture in a right-lateral strike-slip sense.

Geo-7 Prior to issuance of building permits, the Project Applicant shall verify that the existing seismic setback zone margins are appropriate for encountered geologic conditions and, where changes are warranted, evaluate any impacts to design plan elements and assure any revisions to the margins are depicted on final plan sets.

Geo-8 Prior to issuance of building permits, the County shall ensure that the Project Applicant has provided geotechnical investigations and engineering analyses to evaluate retaining wall design and stability, establish foundation design recommendations and determine conditions of gross and surficial stability of overall wall/slope combinations. In surficially unstable slopes where no remedial grading is permitted, wall foundations shall be strengthened to accommodate a potential loss of lateral support. Where natural slopes are grossly unstable, possibly due to the presence of a larger landslide, the slope shall be stabilized or buttressed through grading methods. Where grading is not permitted, structural stabilization shall be accomplished through the design of retaining walls and/or soldier pile walls, tie backs, or some combination of both.

Geo-9 Prior to issuance of building permits, the Project Applicant shall ensure that natural slope areas adjacent to development are analyzed for stability and estimated volumes of failure material determined. Setback zones or design of a bench in the upper slopes shall be employed to reduce the potential for failures to migrate into graded areas. Areas of rock creep influence shall require use of tie-backs and structural sheets to prevent this occurrence.

Geo-10 Prior to issuance of building and grading permits, the Project Applicant shall ensure that the following methods are incorporated into the design to prevent slope failure:

- Where daylight fill lots lie adjacent to ascending natural slopes, building pad elevations shall be raised, and toe-of-slope catchment troughs have been designed into which the failure materials can accumulate. These areas should be designated as "common areas" and maintained by homeowners associations.
- In areas where a more significant volume of debris is expected, such as an area situated within the path of adjacent natural drainage swales, impact or deflection walls shall be installed.
- Use of design stabilization fills, which are typically the width of standard grading equipment, shall be used for surficially unstable cut or fill slopes.

Geo-11 During the conceptual design phase, the Project Applicant and the County shall ensure that no lots are designed with habitable structures within the fault hazard setback zone as determined in the Fault Study, and no building permits shall be applied for or granted for any habitable structures within the hazard fault setback zone in the future. Asymmetrical floor plans shall be avoided, because these kinds of buildings tend to twist in addition to shaking laterally.

Geo-12 Prior to issuance of building permits, the Project Applicant shall demonstrate to the County that deep fills have undergone a cycle of "primary" settlement sufficient to allow safe construction. The Project Applicant may opt to employ supplemental geotechnical measures to minimize anticipated settlement time. Such measures could include vertical wick-drain installation, use of higher fill compaction standards, use of granular fill zones prone to less settlement, and/or placement of surcharge fills.

Geo-13 During construction, Project Applicant and the County shall ensure that appropriate conventional engineering measures are implemented to reduce impacts of excessive differential settlement in cut/fill transition areas as determined by the County building official. These measures can include a flattening of removal profiles to 2:1 or shallower, deepening over-excavation of building pads within zones of expected impacts, use of higher compaction standards, limiting construction of certain improvements within structural setback zones or construction of stiffened foundation systems including post-tension foundations caisson walls or mat slabs as determined feasible and appropriate.

Geo-14 During grading, the Project Applicant and the County shall ensure that removal and re-compaction of compressible native soils shall be performed in areas of proposed structural fills to minimize settlement of new fill and/or prevent loss of lateral support. The limits of removals shall extend beyond conceptual plan boundaries and potentially beyond the limits of grading

into areas to remain natural. Where no removals are permitted beyond the boundaries of design, engineered structures shall be installed such as pin piles to achieve proper slope stability.

Geo-15 Prior to issuance of building permits, the County shall verify that testing has been conducted to evaluate the chemical character of fill soils. Results of such testing shall be used to formulate appropriate foundation design criteria to reduce the adverse effects of corrosive soils.

Geo-16 Prior to issuance of building permits, the County shall ensure that the Project Applicant has provided geotechnical studies to evaluate the occurrence and character of expansive clay soil on the Project Site. Based on the results of the studies, criteria for foundation design shall be formulated to reduce adverse effects such as selective grading methods including placement of adverse clay soils in deeper fill areas, or non-structural fill areas, and/or increasing the vertical distance between in-situ clayey bedrock and design structures through building pad over-excavation. Post grading studies and testing shall be conducted on finished building pads to verify the adequacy of foundation design.

Geo-17 Prior to grading, the County shall ensure that the Project Applicant has conducted geotechnical investigations of recent alluvium deposits to evaluate the potential for liquefaction. Findings of such investigations shall be incorporated into the design of structures proposed in areas where there is a potential for liquefaction to occur.

Geo-18 Prior to construction, the Project Applicant shall ensure that a network of subdrains and back-drains shall be installed in areas of expected groundwater or active seepage.

Geo-19 Prior to issuance of building permits, the County shall ensure that the Project Applicant has conducted geotechnical investigations and engineering analyses in areas where proposed roadways cross existing natural gas pipelines or transmission towers exist adjacent to proposed cut slopes and designed roadway crossings to avoid or minimize damage to these facilities.

## Greenhouse Gas Emissions

GHG-1 Prior to issuance of building permits for residential units, the County shall ensure that all fireplaces are gas rather than wood burning.

GHG-2 Prior to construction of project, the developer shall implement or develop a plan for implementation of one or more mitigation strategies for the reduction of greenhouse gas (GHG) emissions from the report "CEQA and Climate Change" prepared by the California Air Pollution Control Officers Association (CAPCOA) as updated in 2010. The total benefit of the mitigation strategies must result in a minimum 5% reduction in GHG emissions from the business-as-usual value. Alternative strategies not listed in the CAPCOA report may be used with approval of the Orange County Planning Director. The selected strategies, including measures for their

long-term maintenance, must be described in a memo submitted to and approved by the County Planning Department prior to initial occupancy of any on-site facility.

## Hazards and Hazardous Materials

Haz-1 Prior to the issuance of building permits the Project Applicant shall provide a Combustible Gas/Methane Assessment Study for review and approval by the OCFA. The Project Applicant shall submit and obtain OCFA approval for a Methane Control Plan to control the release of combustible gas/methane from operation oil wells in the event that measurable quantity of methane gas is identified in the Combustible Gas/Methane Assessment Study.

Haz-2 Prior to the issuance of grading permits the Project Applicant shall ensure that a Phase II ESA is prepared for review and approval by the Manager of OC Planning. The Phase II ESA shall identify the abandoned well locations, and any hidden pits or accumulations of drilling mud in the vicinity of the wells. The assessment shall include a review of available well logs and abandonment documentation in order to verify regulatory compliance of previously abandoned wells. In the event pits are encountered during the Phase II ESA investigation or during grading, the pits will be sampled for hazardous substances and will be disposed of at a certified hazardous waste facility.

Haz-3 Prior to the issuance of grading permits, the Project Applicant shall ensure that an RAP is prepared for the previously abandoned oil wells to address the appropriate measures consistent with state law.

Haz-4 Prior to the closure of any existing oil wells, the Project Applicant shall ensure that the operators of the oil wells prepare an RAP to address appropriate measures for closure consistent with state law.

Haz-5 Prior to the issuance of any grading permit that results in the disturbance of any vegetation, the Project Applicant shall submit a Fire Master Plan for review and approval by the OCFA. The Fire Master Plan shall be based on the Esperanza Hills FPEP and shall contain details regarding evacuation roads, including road surface type, firefighting staging areas, emergency secondary access, turning radii, vegetation clearance buffers along roadways, exits, and locations of hydrants and reservoir.

Haz-6 Prior to the issuance of any occupancy permit, the Project Applicant shall submit a Community Evacuation Plan (CEP) for the Project for review by the OCFA and the OCSD and approved by the OCFA. The CEP will incorporate the information on community plans from the Orange County Office of Emergency Services and the San Diego Office of Emergency Services. The Esperanza Hills FPEP shall be the basis of the CEP, which shall include provisions for:

- Pre-fire planning and preparations

- Post-fire recovery actions
- Communications/registering with Alert OC (Orange County's Reverse 911 system and sign-up for cell phone/text notice)
- Prevention (maintenance of fuels around buildings, gutter and roof clearance, vent protection)
- Emergency contact numbers
- Annual evacuation training schedule
- Fire Prevention Measures during High Fire Danger and Red Flag Warning periods
- Annual review and update requirements
- Wildfire Emergency Evacuation Plan Details
- On-site partial relocation versus off-site evacuation
- Revisions/updates to the CEP shall be reviewed and approved by OCFA

Haz-7 Prior to the recordation of the final tract map, the Project Applicant shall record the deed restrictions for each residential lot. The deed restriction shall include any portion of the FMZs on the private lot, approved plant palettes, and prohibitions regarding combustible structures, including fencing and other accessory structures. Deed restrictions will run with the land and be conveyed to any subsequent owner of the private lot.

Haz-8 Prior to the recordation of the Final Tract Map for Lots 7, 8, 9, 224, 225, 236, 237, 253, 254, ad 278 in Option 1 and Lots 8, 9, 10, 224, 225, 236, 237, 253, 254, and 278 in Option 2 that include an FMZ that extends beyond the private lot or development, the Project Applicant shall obtain written legal permission in the form of a Fuel Modification Easement from any off-site landowners. The Fuel Modification Easement shall be recorded for each lot. In any situations where the FMZ extends into biological open space or other sensitive biological areas, or other areas controlled by the County and/or resource agencies, formal written permission shall be obtained from all applicable agencies.

Haz-9 Prior to the issuance of building permits, the Project Applicant shall prepare a Private Property Owners' Guide for fire-safe vegetation management, which shall be distributed by the Esperanza Hills HOA to each new home buyer. The Guide shall be based on the Orange County Fire Authority Vegetation Management Guidelines as approved in the Fuel Modification Plan approved by the OCFA. Periodic inspections by the OCFA shall be at the expense of the Esperanza Hills HOA.

Haz-10 Prior to the recordation of the final tract map, the Project Applicant shall submit the Project Covenants, Conditions, and Restrictions (CC&Rs) to the Manager of OC Planning for review and acceptance by County Counsel and will include:

- A reference to the Esperanza Hills FPEP to ensure compliance with the features with the plan. The HOA is required to enforce compliance with the Plan. Owners of private lots will be notified in the project's CC&Rs

and property disclosures that they are prohibited from conducting any vegetation management activities outside their private property.

- Provisions for continuous maintenance of common areas by the Esperanza Hills Homeowners' Association and individual properties by owners. Maintenance refers to anything needed to maintain the fuel modification area in a fire safe condition as required by the OCFA, including periodic removal of undesirable, combustible vegetation; replacement of dead and dying fire-resistant plantings; maintenance of the operational integrity and programming of irrigation systems; and preservation of identification markers.
- A provision that the HOA is responsible for and has the authority to ensure long-term funding, and ongoing compliance with all provisions of the approved Fire Master Plan and Community Evacuation Plan, including vegetation planting, fuel modification, vegetation management, and maintenance requirements on all private lots, parks, common areas, roadsides, and open space under their control (if not considered biological open space). Any water quality basins, flood control basins, channels, and waterways should be kept clear of flammable vegetation, subject to the environmental restrictions.
- A provision that the HOA will annually fund and obtain an inspection and report from an OCFA-approved Wildland Urban Interface Fire Safety Inspector in June, certifying that vegetation management activities throughout the Project Site have been performed pursuant to the approved Fire Master Plan.

Haz-11 Prior to the issuance of building permits, the Project Applicant shall submit to the Manager of OC Planning plans demonstrating a water system for the Project capable of handling the minimum fire flow storage of 1,500 gallons per minute for a 2-hour duration with a minimum residual pressure of 20 pounds per square inch.

Haz-12 Prior to issuance of building permits, the Project Applicant shall provide a plan that depicts the appropriate number of fire hydrants and their specific locations to be constructed for each phase of development for review and approval by the OCFA Fire Marshal.

Haz-13 Prior to ground disturbance in environmentally sensitive areas that contain sensitive habitat, cultural sites, riparian areas, biological buffer areas, detention basins, etc., the Project Applicant shall obtain written permission from the OC Planning Manager, and the appropriate resource agencies (e.g., the CDFW, the USFWS, and the ACOE) prior to any vegetation management activities occurring.

Haz-14 Prior to the issuance of any building permit for access gates the Project Applicant shall submit for review and approval by the OCFA access gate plans consistent with the applicable Fire Code, and all operated gates shall be equipped with emergency opening devices approved by the OCFA.

## Noise

N-1 During the construction phase, Project Applicant shall ensure that all construction activities shall be limited to the hours of 7:00 a.m. to 8:00 p.m. on weekdays and Saturdays with no construction permitted on national holidays or Sundays in compliance with the Orange County Noise Ordinance. High noise-producing activities should be scheduled between the hours of 8:00 a.m. and 5:00 p.m. to minimize disruption to sensitive uses.

N-2 During the construction phase, Project Applicant shall ensure that all construction and demolition equipment shall be fitted with properly operating and maintained mufflers.

N-3 During the construction phase, Project Applicant shall ensure that all noise-generating construction equipment and construction staging areas should be located as far as possible from existing residences.

N-4 During the construction phase, Project Applicant shall ensure that construction-related equipment, including heavy duty equipment, shall be turned off when not in use for more than 10 minutes.

N-5 Prior to construction, the Project Applicant shall prepare and submit to the County for approval a haul plan for construction-related traffic that limits impacts on residential development by avoiding such residential development areas where feasible.

N-6 During the construction phase, Project Applicant shall ensure that construction hours, allowable work days, and the telephone number of the job superintendent are clearly posted at all construction entrances to allow residents to contact the job superintendent. If the job superintendent receives a complaint, the superintendent shall investigate, take appropriate corrective action, and report the action taken to the appropriate reporting party.

## Public Services

PS-1 Prior to issuance of the grading permit, if deemed necessary by the Orange County Fire Authority, the Project Applicant shall enter into a Secured Fire Protection Agreement with the Orange County Fire Authority providing for payment of fair share fees for impacts to capital and infrastructure needs.

PS-2 Prior to issuance of building permits, the Project Applicant will be required to comply with Senate Bill 50 and pay the applicable school impact fees as adopted by the Placentia-Yorba Linda Unified School District.

## Transportation and Traffic

T-1 For Option 1, prior to issuance of building permits, the Project Applicant shall contribute to the installation of a three-phase traffic signal at the Yorba Linda Boulevard/Via del Agua intersection in the event the Cielo Vista

project is not constructed. The Project Applicant's fair share contribution shall be 39% with the proposed Cielo Vista project as part of the cumulative base traffic condition, and 46% without the Cielo Vista project.

T-2 Prior to issuance of building permits, the Project Applicant shall pay a 9% fair-share contribution for the following improvement at Yorba Linda Boulevard at Savi Ranch Parkway: Widen and re-stripe the westbound approach to provide an additional (third) westbound left-turn lane.

T-3 Prior to issuance of certificates of occupancy, Project Applicant shall pay a 9% fair-share contribution for the following improvement: extend the left-turn pocket along Yorba Linda Boulevard at Via del Agua from the existing 100 feet to 275 feet, with 11 feet in the transition area of the turn pocket to achieve 286 feet. However, the County cannot compel the City to implement such improvement. If the City does not implement the improvement, the impact will be significant and unavoidable.

## Utilities and Service Systems

U-1 Prior to issuance of building permits, the Project Applicant shall enter into a Development Agreement with the Yorba Linda Water District for the provision of water facilities and service.

U-2 Prior to issuance of building permits, the Project Applicant shall enter into a Development Agreement with the Yorba Linda Water District for the provision of sanitary sewer facilities and service.

U-3 Prior to issuance of building permits, project developer shall coordinate with Southern California Edison to identify the location of the connection to existing electric service lines based on the final determination of access via Option 1 or Option 2 and to protect existing transmission lines on the Project Site.

U-4 Prior to issuance of building permits, project developer shall coordinate with Southern California Gas to identify the location of the connection to existing natural gas lines based on the final determination of access via Option 1 or Option 2.

U-5 Prior to issuance of building permits, project developer shall coordinate with AT&T to identify the location of the connection to existing telephone service lines based on the final determination of access via Option 1 or Option 2.

U-6 Prior to issuance of building permits, project developer shall coordinate with Time Warner Cable to determine the location of the connection to existing cable service lines based on the final determination of access via Option 1 or Option 2.

# 10. Inventory of Unavoidable Adverse Impacts

## Greenhouse Gas Emissions

Contribution of greenhouse gas emissions, impact on global climate change

## Noise

Increase in noise levels for short-term construction and a permanent 3 dB increase for long-term operations. This 3 dB increase is a significant impact based on CEQA thresholds, because a 3 dB increase is a perceptible increase in noise levels. While the Proposed Project will exceed the CEQA threshold, the noise level will remain under the County threshold of 65 dB CNEL.

# 11. Organizations Affiliated with the Project

The County of Orange is the Lead Agency for the Proposed Project. Contact persons for the project are:

**County of Orange**

OC Public Works/OC Planning
300 N. Flower Street
Santa Ana, CA 92702-4048
(714) 667-8847
Kevin Canning

**Environmental Consultant**

CAA Planning, Inc.
65 Enterprise, Suite 130
Aliso Viejo, CA 92656
(949) 581-2888

Shawna L. Schaffner
Thomas B. Mathews
Kathleen M. Crum
Paul Shaver

**Project Applicant**

Yorba Linda Estates, LLC
Gary Lamb/Douglas Wymore
7114 E. Stetson Drive, Suite 350
Scottsdale, AZ 85251
(480) 994-5262

**Other Organizations Affiliated with the Project**

Air Quality and Noise
Giroux & Associates
1820 E. Garry Street
Santa Ana, CA 92705
(949) 387-5477

Archaeology/Paleontology
Cogstone
1518 W. Taft Avenue
Orange, CA 92865
(714) 974-8300

Architect
Lamb Architects
7114 E. Stetson Drive, Suite 350
Scottsdale, AZ 85251
(480) 994-5262

Biological Resources
Glen Lukos Associates, Inc.
29 Orchard Street
Lake Forest, CA 92630
(949) 837-0404

Fire Hazards
Dudek
31878 Camino Capistrano, Suite 200
San Juan Capistrano, CA 92675
(949) 450-2525

Geotechnical - Fault Hazard Assessment/Phase I Site Assessment
American Geotechnical, Inc.
22725 Old Canal Road
Yorba Linda, CA 92887
(714) 685-3900

Hydrology/Water Quality/Drainage/Sewer
KWC Engineers
1880 Compton Avenue, Suite 100
Corona, CA 92881
(951) 734-2130

Transportation/Traffic
Linscott, Law & Greenspan
1580 Corporate Drive, Suite 122
Costa Mesa, CA 92626
(714) 641-1587