City of San Ramon

Northwest Specific Plan/ Faria Preserve Community

DRAFT Environmental Impact Report

EDAW

July 2006

CITY OF SAN RAMON

2222 CAMINO RAMON
SAN RAMON, CALIFORNIA 94583
PHONE: (925) 973-2500
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July 21, 2006

State Clearinghouse
1400 Tenth Street, Suite 222
Sacramento, CA 95814

Subject: Submittal of a Notice of Completion Northwest Specific Plan and the Faria Preserve Community Draft Environmental Impact Report. SCH 2003022102

To Whom It May Concern:

In accordance with California State Clearinghouse procedures, the City of San Ramon is submitting, by delivery service, to the State Clearinghouse one (1) completed copy of "Form A – Notice of Completion & Environmental Document Transmittal" and 15 CD copies of Draft Environmental Impact Report and fifteen (15) Summaries for distribution to the appropriate state agencies. Please return a copy of this letter via fax (925) 806-0118 acknowledging receipt.

The required 45 day posting period for review of the Draft Environmental Impact Report will be from July 21, 2006 to September 7, 2006.

Thank you for your assistance in this matter. If you have any questions, please feel free to contact me directly at (925) 973-2566.

Sincerely,

Debbie Chamberlain
Planning Services Manager

Notice of Completion -

Mail to: State Clearinghouse, 1400 Tenth Street, Sacramento, CA 95814 916/445-0613

SCH# 2003022102

Project Title: Northwest Specific Plan & Faria Preserve Community EIR

Lead Agency: City of San Ramon Planning Department | Contact Person: Debbie Chamberlain

Street Address: 2222 Camino Ramon, P.O. Box 5148 | Phone: (925) 973-2566

City: San Ramon | Zip Code: 94583 | County: Contra Costa County

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Project Location

County: Contra Costa County | City/Nearest Community: San Ramon

Cross Streets: Crow Canyon Road and Bollinger Canyon Road Boulevard (northwest quadrant) | Zip Code: 94583 | Total Acres: 354 acres

Assessor's Parcel Nos. 208-240-048, 208-240-005, 208-260-046, 208-250-011, 208-240-039, 208-240-009, 208-240-007, 208-240-008.

Within 2 Miles: State Hwy #: Interstate 680 | Waterways: Bollinger Creek; San Ramon Creek

Airports: None | Railways: None | Schools: Twin Creeks Elementary, Iron Horse Middle School

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Document Type

CEQA:
- ☐ NOP
- ☐ Early Cons
- ☐ Neg Dec
- ☒ Draft EIR
- ☐ Supplemental/Subsequent
- ☐ EIR (Prior SCH No.)
- ☐ Other

NEPA:
- ☐ NOI
- ☐ EA
- ☐ Draft EIS
- ☐ FONSI

Other:
- ☐ Joint Document
- ☐ Final Document
- ☐ Other

Local Action Type

- ☐ General Plan Update
- ☐ General Plan Amendment
- ☐ General Plan Element
- ☐ Community Plan
- ☒ Specific Plan
- ☐ Master Plan
- ☒ Plan Development
- ☐ Site Plan
- ☐ Rezone
- ☒ Prezone
- ☐ Use Permit
- ☒ Land Division (Subdivision, Parcel Map, Tract Map, etc.)
- ☒ Annexation
- ☐ Redevelopment
- ☐ Coastal Permit
- ☐ Other

Development Type

- ☒ Residential: *Units* 830 max *Acres* 354 ac.
- ☐ Office: *Sq. ft.* _____ *Acres* _____ *Employees* _____
- ☐ Commercial: *Sq. ft.* _____ *Acres* _____ *Employees* _____
- ☐ Industrial: *Sq. ft.* *Acres* *Employees*
- ☒ Educational: 1.6 acre facility
- ☒ Recreational: 12.7 acre community park; 0.5 acre rose garden; 2-acre neighborhood park; 6.1-acre house of worship site.
- ☒ Water Facilities: *Type* Project-serving pressure zone 345,000 gpd
- ☐ Transportation: *Type*
- ☐ Mining: *Mineral*
- ☐ Power: *Type* *Watts*
- ☐ Waste Treatment: *Type*
- ☐ Hazardous Waste: *Type*
- ☐ Other

Funding (approx.) Federal $ _____ State $ _____ *Total $* _____

Project Issues Discussed in Document

- ☒ Aesthetic/Visual
- ☒ Agricultural Land
- ☒ Air Quality
- ☒ Archaeological/Historical
- ☐ Coastal Zone
- ☒ Drainage/Absorption
- ☐ Economic/Jobs
- ☒ Flood Plain/Flooding
- ☒ Forest Land/Fire Hazard
- ☒ Geologic/Seismic
- ☒ Minerals
- ☒ Noise
- ☒ Population/Housing Balance
- ☒ Public Services/Facilities
- ☒ Schools/Universities
- ☐ Septic Systems
- ☒ Sewer Capacity
- ☒ Soil Erosion/Compaction/Grading
- ☒ Solid Waste
- ☒ Toxic/Hazardous
- ☒ Traffic/Circulation
- ☒ Water Quality
- ☒ Water Supply/Groundwater
- ☒ Wetland/Riparian
- ☒ Wildlife
- ☒ Growth Inducing
- ☒ Land Use
- ☒ Cumulative Effects

☐ Fiscal ☒ Recreation/Parks ☐ Vegetation ☐ Other _____

Project Description

This EIR studied the potential environmental impacts associated with both implementation of the Northwest Specific Plan as well as development of the Faria Preserve Community, which would occupy most of the Northwest Specific Plan Area. The Northwest Specific Plan (NWSP) provides the vision for creating a balanced community composed of public facilities, open space, and residential neighborhoods within an overall 354-acre planning area. The Plan provides guidance for the development of up to 830 single and multiple-family residential units emphasizing affordable housing opportunities, accommodation of important public facilities, and preservation of open space amenities. The Plan integrates open space, public trails, and wildlife habitat enhancement amenities with the development of a community park, a house of worship, an educational use facility, and five residential neighborhoods with densities ranging from 1.5 units per acre, to just over 40 units per acre. Overall, the Plan furthers a wide range of General Plan policies, including preserving at least 75% of the site area for public amenities and open space uses. The Faria Preserve Community is a combination of community facilities, 786 residential units, and substantial protected open spaces proposed within the Northwest Specific Plan Area. The Faria Preserve Community comprises the majority of the Northwest Specific Plan Area and implements the various amenities, objectives, and goals set forth in the NWSP, including those identified above.

Suggested Distribution

Resources Agency
Department of Parks and Recreation
Department of Fish and Game
Department of Water Resources
Native American Heritage Commission
State Lands Commission
Caltrans, District 4
Housing and Community Development
Public Works
Regional Water Quality Control Board, Region 2
Solid Waste Management Board
Department of Army Corps of Engineers
City/County Association of Governments
East Bay Municipal Utilities District (EBMUD)
Central Contra Costa Sanitary District
Contra Costa Local Agency Formation Commission
San Ramon Valley Fire Protection District
San Ramon Valley Unified School District
East Bay Regional Parks District
Contra Costa County
Alameda County
Town of Danville
Bay Area Air Quality Management District

Public Review Period (for Notice of Preparation)

Starting Date: July 21, 2006 Ending Date: September 7, 2006

Signature: _____ Date: 7-20-06

Consulting Firm:

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San Francisco, CA 94111
Josh Hohn, Project Manager
(415) 433-1484

Project Applicant:

City of San Ramon Planning Division
2222 Camino Ramon
San Ramon, CA 94583
Debbie Chamberlain, Planning Services Manager
(925) 973-2566

FOR SCH USE ONLY

Date Received at SCH _____
Date Review Starts _____
Date to Agencies _____
Date SCH _____
Clearance Date _____
Notes:

Catalog Number _____
Applicant _____
Consultant _____
Contract _____ **Phone** _____
Address _____

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1. INTRODUCTION

This Draft Environmental Impact Report (EIR) has been prepared to provide an assessment of the proposed Northwest Specific Plan (NWSP) and the proposed Faria Preserve, a mixed residential and community facilities project proposed within the Northwest Specific Plan Area (NWSP Area) east of Bollinger Canyon Road. The Draft EIR has been prepared in accordance with and in fulfillment of the California Environmental Quality Act (CEQA) and the State CEQA Guidelines. CEQA requires that all State and local government agencies consider the environmental consequences of projects over which they have discretionary authority. The City of San Ramon (San Ramon) is the Lead Agency for both the Northwest Specific Plan and the Faria Preserve.

1.1 PURPOSE OF THIS EIR

As Lead Agency, San Ramon has prepared this Draft EIR to assess the impacts of implementation of the NWSP and the Faria Preserve. This EIR has been prepared pursuant to CEQA (Public Resources Code Section, 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations, Section 15000 et seq.), as amended. It is intended to inform San Ramon decision-makers, other responsible agencies, and the public, of the environmental consequences of implementation of the NWSP and the Faria Preserve.

San Ramon has developed the NWSP in accordance with Article 10.6 of State Planning and Zoning Law. The NWSP is a policy document that provides a framework for meeting housing needs in San Ramon, as described in the City of San Ramon 2020 General Plan (General Plan) (City of San Ramon, 2002), but does not propose specific development projects. As such, the environmental consequences of implementation of the NWSP are assessed at a programmatic level.

The assessment of the Faria Preserve is based on the Vesting Tentative Map application for the Faria Preserve (Bellecci & Associates, Inc., April 2006) filed with the City of San Ramon. The environmental consequences that would result from the Faria Preserve are assessed at a project level. A full description of the NWSP and the Faria Preserve is provided in Chapter 3: Project Description.

When other specific development are proposed for the NWSP Area, and development applications are submitted to San Ramon, additional environmental review would be required pursuant to Public Resources Code Section 15168(c). If the City finds that pursuant to CEQA Guidelines Section 15162(a), no new significant effects would occur, no previously identified significant effects are substantially more severe, or no new mitigation measures would be required that would reduce significant effects, the City can adopt the project as being within the scope of the plan covered by the program EIR and no new environmental document would be required. If changes to a project or changes in circumstances would result in any of these consequences, the project proponent would be required to prepare appropriate environmental documentation prior to project approval. In addition, supplemental environmental review would be required if substantial changes occur with respect to the circumstances under which the project is undertaken, if these changes could result in new significant environmental effects, as required by Section 15162(a)(2) of the State CEQA Guidelines.

This EIR is a public document that discloses the significant environmental impacts of the NWSP and recommends mitigation measures to reduce these effects; significant impacts that cannot be avoided; growth-inducing impacts; effects found not to be significant; and significant cumulative impacts of past, present, and reasonably foreseeable future projects. This EIR is an informational document that is to be used in the planning and decision-making process. It is not the purpose of an EIR to recommend approval or denial of a project. CEQA requires decision-makers to balance the benefits of a proposed project against its environmental risks.

1.2 Focus of This EIR

The scope of this Draft EIR was established by San Ramon after completing a Notice of Preparation (NOP) on June 11, 2004, which is included as Appendix A to this EIR. The purpose of a NOP is to notify responsible and trustee agencies that an EIR will be prepared. A community scoping session on the NWSP was held on October 4, 2003 to inform the public of the proposed NWSP, solicit comments, and identify areas of concern. The scope was later amended to address the Faria Preserve.

Issues addressed in this EIR include the following:

1. Aesthetics
2. Air Quality
3. Biological Resources
4. Cultural Resources
5. Geology/Soils
6. Hazards & Hazardous Materials
7. Hydrology/Water Quality
8. Land Use/Planning
9. Noise
10. Transportation/Traffic
11. Utilities/Service Systems

1.3 Environmental Effects Found Not to Be Significant

As specified under Section 15126.2[a] of the CEQA Guidelines, "an EIR shall identify and focus on the significant environmental effects of the proposed project." It [EIR] "shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR (CEQA Guidelines Section

15128). This section focuses on the following resource topics with "no significant" or "less than significant" effects in either the proposed NWSP or the proposed Faria Preserve:

1. Agricultural Resources
2. Mineral Resources
3. Population/Housing
4. Public Services (Recreation)

A brief summary explaining the reasons why each of these resource areas was determined not to be significant is provided below. For purposes of this discussion, it is assumed that the proposed Faria Preserve would be consistent with the NWSP as proposed.

Agricultural Resources

The proposed NWSP was evaluated against Appendix G, Environmental Checklist, of the CEQA Guidelines. The thresholds used to determine whether significant impacts would occur include the following:

- Conversion of farmland (including prime, unique, or statewide importance) to non-agricultural uses
- Conflict with agricultural zoning or a Williamson Act contract

The NWSP Area is currently undeveloped, with sporadic clusters of native trees located on the site. According to Figure 4.3-2 of the City of San Ramon 2020 General Plan Draft Environmental Impact Report (General Plan EIR) (City of San Ramon, 2001), there is no prime farmland, unique farmland, or farmland of local importance within the NWSP Area, though it does contain grazing land, one of the seven categories identified by the Department of Conservation Farmland Mapping and Monitoring Program. None of the lands within the NWSP Area is regulated by a Williamson Act contract.

According to the City of San Ramon General Plan (which was approved by voter initiative in March 2002) the NWSP Area is intended to include mixed use, commercial and residential development, including Rural Conservation, Hillside Residential, Single Family-Medium Density, and Multiple Family-High Density. The NWSP Area also includes Open Space, Public and Semipublic designation, and Parks land use designations. The Open Space designation provides for some privately owned land used for agricultural purposes. As there is no important prime farmland, unique farmland, or farmland of statewide importance located on the site, significant impacts would not result. Consistent with the General Plan EIR, grazing land is not considered an important farmland, and as such, conversion of this type of land use would not be considered significant. No further discussion is required.

Mineral Resources

According to Appendix G of the CEQA Guidelines, a project would have significant impacts to mineral resources if it were to result in the loss of availability of a known mineral resource that is of value to the state, region, or local area.

As noted in Figure 8-4 of the Contra Costa County General Plan, no mineral resources are located in the vicinity of the NWSP Area. The City of San Ramon confirmed the lack of known mineral resources in the NWSP Area from a review of mineral resources by assessor parcel numbers (Chamberlain, 2004). As such, the proposed project would not result in significant impacts associated with the loss of known mineral resources and no further discussion is required.

Population/Housing

Impacts associated with population/housing would be considered significant if it would displace substantial numbers of housing or people such that replacement housing would be required elsewhere (CEQA Guidelines Appendix G).

The discussion focuses on displacement of existing people and housing, and not Growth Inducement, which is discussed in Chapter 6 of this EIR. As described above, the NWSP Area is currently undeveloped, and as such does not contain housing or other residential uses. As no displacement of housing or people would occur, no significant impacts would occur and no further discussion is required.

Public Services (Recreation)

According to the General Plan EIR, and consistency with Appendix G of the CEQA Guidelines, a project would have significant impacts associated with recreational public services if a project would result in the following:

- A shortage of parks facilities for new residents, which does not meet the General Plan standard of 6.5 acres/1,000 residents;
- Increase in the use of existing parks such that substantial physical deterioration of the facility would occur or be accelerated;
- Reduced access to parks or open space to greater than one-half mile radius of all homes; or
- Development of recreational facilities would have an adverse effect on the environment.

Implementation of the NWSP and Faria Preserve, including recreational components, are discussed various sections of Chapter 4. This section focuses on potential effects associated with the first three bullet items.

Policy 6.5-I-1 of the General Plan establishes a standard of 6.5 acres of public parks per 1,000 residents, and public facilities to be located within one-half mile of all homes. The NWSP proposes a community park (12.7 acres), neighborhood park (2.0 acres), memorial rose garden (0.5 acres), and extensive open space areas and public trails. The parkland that is proposed to be provide will meet

or exceed the park/resident ratio and be located within one-half mile of all homes in the NWSP Area. Funding and maintenance of these areas is ensured in the NWSP by Objective D, which requires the development of an Open Space Management Plan. As such, the provision of recreational facilities would not result in significant impacts and no further discussion is required.

1.4 REPORT ORGANIZATION

This Draft EIR is organized into the following chapters:

- **Chapter 1: Introduction** provides an introduction and overview describing the focus of this EIR and the environmental review process.
- **Chapter 2: Summary** summarizes environmental consequences that would result from the proposed Northwest Specific Plan and the Faria Preserve, and provides a summary table that denotes anticipated significant environmental impacts, describes recommended mitigation measures, and indicates the level of significance of impacts before and after mitigation.
- **Chapter 3: Project Description** describes the proposed Northwest Specific Plan and the Faria Preserve.
- **Chapter 4: Environmental Evaluation** provides an analysis of the potential environmental impacts of the proposed Northwest Specific Plan and the Faria Preserve, and presents recommended mitigation measures to reduce their significance.
- **Chapter 5: Cumulative Impacts** provides a summary of cumulative impacts that are anticipated with implementation of the Northwest Specific Plan and the Faria Preserve.
- **Chapter 6: Other CEQA-Required Conclusions** provides discussion of the following CEQA-mandated conclusions: growth inducement and significant irreversible environmental changes that would result from implementation of the Northwest Specific Plan and the Faria Preserve.
- **Chapter 7: Alternatives** summarizes alternatives to the Northwest Specific Plan and the Faria Preserve, and the comparative environmental consequences and benefits of each alternative. This chapter includes an analysis of the No Project Alternative, as required by CEQA. In addition, this chapter includes a discussion of alternative sites for the East Bay Municipal Utilities District (EBMUD) water tanks proposed as part of the Faria Preserve.
- **Chapter 8: References** identifies the references, organizations and persons consulted, and preparers of this Draft EIR.
- **Chapter 9: Report Preparation** identifies the lead agencies and consultants involved in the preparation of this report.

1.5 ENVIRONMENTAL REVIEW PROCESS

San Ramon has filed a Notice of Completion (NOC) with the Governor's Office of Planning and Research, State Clearinghouse indicating that this Draft EIR has been completed and is available for review and comment by the public.

This Draft EIR will be available for review by the public and interested parties, agencies and organizations for a review period of 45 days, as required by California law. Comments on this Draft EIR may be submitted in writing during the 45-day public review period to:

Ms. Debbie Chamberlain
Planning Services Manager
City of San Ramon
Department of Planning Services
2222 Camino Ramon
P.O. Box 5148
San Ramon, CA 94583
(925) 973-2560

In reviewing a Draft EIR, reviewers should focus on the document's adequacy in identifying and analyzing significant effects on the environment and ways in which the significant effects of implementing the Northwest Specific Plan and the Faria Preserve might be avoided or mitigated.

Following the close of the 45-day public comment period, responses to comments on the Draft EIR will be prepared and published as a separate document. The Draft EIR text and appendices, together with the responses to comments document, will constitute the Final EIR. The Final EIR will be considered for recommendation by the Planning Commission and prior to the consideration of certification by the San Ramon City Council.

The San Ramon Planning Commission and City Council will review the Final EIR for adequacy and consider it for certification pursuant to the requirements on Section 15090 of the State CEQA Guidelines. The Planning Commission will consider certification of the EIR as it relates to the Faria PreserveVesting Tentative Map, Development Plan, Architecture Review and related entitlements. If the City Council certifies the Final EIR, then the Council will consider the Northwest Specific Plan and related prezoning request and the Faria Preserve, if appealed, for approval or denial. If the Northwest Specific Plan and/or the Faria Preserve is approved, Findings on the feasibility of reducing or avoiding significant environmental effects will be made and, if necessary, a Statement of Overriding Considerations will be prepared. If the Planning Commission and City Council approves the projects following completion of these tasks, a Notice of Determination (NOD) will be prepared and filed with the State Clearinghouse. The NOD will include a description of the project, the date of approval, an indication of whether Findings and Statement of Overriding Considerations were prepared, and the address where the Final EIR and record of project approval are available for review.

1.6 Intended Use of this EIR

The following are the San Ramon approvals required for implementation of the Northwest Specific Plan to proceed and for development of the Faria Preserve to occur. This EIR is intended to serve as the environmental documentation for these City actions.

- Adoption of the Northwest Specific Plan.
- Prezoning from current Agriculture & Resource Conservation Overlay District and Rural Residential / Resource Conservation Overlay District (RCOD) to a Planned Development District to provide for development of the NWSP Area in accordance with the Northwest Specific Plan.
- Architectural review approval for all new construction.
- Tentative Subdivision Map approvals for division of the 290-acre site into separate parcels, leasehold interests and air space interests, to facilitate construction of a total of 786 dwelling units.
- Recordation of a conservation easement to provide for permanent protection of 143.8 acres of adjoining lands located outside the Specific Plan boundaries.
- Related City approvals, including encroachment permits, and construction permits.
- Park Plan Approval
- Final Subdivision Map
- Master Sign Program Approval.
- Development Plan for House of Worship and Educational Facility.
- Use Permit for House of Worship and Educational Facility.
- Creation of a Geologic Hazard Abatement District.
- Formation of a Community Facilities District.
- Formation of and/or annexation to Landscaping and Lighting District.

Consistent with the existing 2020 General Plan, the Northwest Specific Plan designated the 2.5-acre Panetta property as park. One of the 44 residential units allowed by the Northwest Specific Plan for the area west of Bollinger Canyon Road has been reserved for the Panetta property subject to future required land use entitlements, which are anticipated to be approved on the basis of this EIR.

The following agencies (in addition to San Ramon) are expected to use this EIR in their review of the project:

- California Department of Fish and Game (CDFG) plan review and possible Section 1602 Streambed Alteration Agreement.
- U.S. Army Corps of Engineers (USACE) verification of wetland delineation and issuance of Section 404 permit(s) pursuant to federal Clean Water Act.
- U.S. Fish and Wildlife Service (FWS) review of plans and consultation under provisions of Clean Water Act and Endangered Species Act.
- Contra Costa County Flood Control and Water Conservation District (approval of storm drainage design and mitigation).
- East Bay Municipal Utility District (EBMUD) annexation (project is currently within EBMUD Ultimate Service Area) and permits to connect to current District facilities.

- Central Contra Costa Sanitary District (CCCSD) annexation (project is currently within the District's Ultimate Service Boundary) and permits to connect to current District facilities for discharge of wastewater effluent.
- California Regional Water Quality Control Board (RWQCB) National Pollutant Discharge Elimination System stormwater discharge permit approval, and Section 401 Water Quality Certification.
- California Department of Transportation (Caltrans) review of plans and possible permits and related actions associated with improvements at Interstate 680.
- East Bay Regional Park District (EBRPD) acceptance of easement alignment and improvements for Calaveras trail linkage.
- Contra Costa Local Agency Formation Commission (LAFCO) approval of boundary reorganization, involving annexation to San Ramon, EBMUD and CCCSD.

REFERENCES

Bellecci and Associates, Inc., 2006. The Faria Preserve Subdivision 8891 Vesting Tentative Map and Preliminary Grading Plan; Deemed complete December 6, 2004; last amended April 25, 2006.

Chamberlain, Debbie, 2004. City of San Ramon Planning Services, personal communication with EDAW, January 5.

City of San Ramon, 2001. City of San Ramon 2020 General Plan Draft Environmental Impact Report. EIR Certified November 13, 2001.

City of San Ramon, 2002. City of San Ramon 2020 General Plan. Approved by Voters of the City of San Ramon on March 5, 2002.

2. SUMMARY

This summary presents an overview of the environmental analysis for the City of San Ramon Northwest Specific Plan and the proposed Faria Preserve community (the Faria Preserve), which is contained in Chapter 4 of this Draft Environmental Impact Report (EIR). Section 15123 of the State CEQA Guidelines requires that an EIR summary identify the following: 1) each significant effect with proposed mitigation measures and alternatives that would reduce or avoid that effect, 2) areas of controversy known to the Lead Agency including issues raised by agencies and the public, and 3) issues to be resolved including the choice among alternatives and whether or how to mitigate the significant effects.

2.1 PROJECT UNDER REVIEW

This Draft EIR has been prepared to provide an environmental assessment of the proposed Northwest Specific Plan (NWSP) and the proposed Faria Preserve community (Faria Preserve). The NWSP and Faria Preserve require review under the California Environmental Quality Act (CEQA) prior to adoption by the City of San Ramon.

Implementation of the NWSP includes the phasing, financing, and construction of infrastructure and public facilities necessary to serve the neighborhoods within the NWSP Area. The City of San Ramon is the public agency responsible for administration of the NWSP and related documents. The NWSP will be implemented in a manner consistent with all City rules, regulations, and policies.

Implementation of the Faria Preserve community would require a number of approvals by the City of San Ramon and other agencies, including but not limited to: approval of a Vesting Tentative Subdivision Map; design review approval; conservation easements for open space areas; encroachment, grading and construction permits; park plan approval; and use permits for facilities within the project site.

2.1.1 Northwest Specific Plan

The NWSP encompasses 354 acres of land west of Interstate 680, located in the western portion of San Ramon, California. The NWSP is a policy-based document that is intended as a framework to guide future development in this area of San Ramon. It was developed through a City and community member directed planning process, as noted in the City of San Ramon 2020 General Plan.

The NWSP discusses the community's vision and goals for this area of San Ramon, as well as proposed land use changes/opportunities, and would be used as a guide for implementing future development in northwestern San Ramon. The document is intended for several users that include City staff, commissions and other decision-making bodies, architects, designers, developers, property owners and business owners.

The NWSP Area includes the Faria Preserve (located east of Bollinger Canyon Road) and the Western Plan Area, which includes the Chang and Panetta properties (located west of Bollinger Canyon Road).

2.1.2 Faria Preserve

The Faria Preserve is proposed on approximately 291 of the 354 acres within the NWSP Area, and would include a total of 786 residential units comprised of single-family homes, town homes, condominiums, and senior housing units. The 786 residential units would include 715 base units and a 10 percent workforce housing incentive bonus. The Faria Preserve would include a community park, open space areas, and sites designated for a house of worship and an educational facility, along with various supporting infrastructure and public facilities.

2.2 AREAS OF CONTROVERSY/ISSUES TO BE RESOLVED

The City issued a Notice of Preparation (NOP) on June 10, 2004, which is included as Appendix A to this EIR. In addition, a community scoping session on the Northwest Specific Plan was held on October 22, 2003, to inform the public of the proposed project, solicit comments, and identify areas of concern.

Significant issues that were raised during the public outreach efforts are listed below. These issues are not necessarily "controversial" (i.e. debatable), but they represent issues key to the community:

- Potential increase in traffic in the surrounding neighborhoods as a result of site development (including access to the site);
- Retaining the site's natural topography
- Preservation of views of the site, including ridgelines;
- Maintenance of and access to open space (including links to regional parks);
- Availability of rental/affordable housing;
- Density of development on the project site; and
- Capacity of public facilities to meet demand created by development of the site.

This list represents issues that appear to be of most concern to the community. Additional comments were also documented during the scoping process. All of the comments gathered during the scoping period were considered in the development of this EIR. In particular, issues that raised significant environmental impact concerns are addressed.

2.3 SIGNIFICANT ENVIRONMENTAL IMPACTS

According to the CEQA Guidelines, a "significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance (CEQA Guideline, Section 15382).

Implementation of the NWSP and Faria Preserve has the potential to generate environmental impacts. Impacts related to the following environmental topics could be significant without the implementation of mitigation measures, but would be reduced to a less-than-significant level if the mitigation measures recommended in this report are implemented:

- Air Quality
- Biology
- Cultural Resources
- Geology / Soils
- Hazards
- Hydrology / Water Quality
- Noise
- Traffic and Circulation
- Utilities / Service Systems

These impacts are summarized in Table 2-1, which is presented at the end of this chapter. This Draft EIR suggests specific mitigation measures that would reduce impacts to less-than-significant levels. As defined by the CEQA Guidelines (Section 15370), mitigation measures either avoid the identified impact; minimize the impacts by limiting the degree or magnitude of the action and its implementation; rectify the impact by repairing, rehabilitating, or restoring the affected environment; reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action; or compensate for the impact by replacing or providing substitute resources or environments.

Impacts related to the following environmental topics are identified as significant and may not be mitigated to a less-than-significant level. They are therefore considered unavoidable. These unavoidable adverse impacts would require a Statement of Overriding Considerations if the project were to be approved by the City.

- Air Quality

More detail on these impacts is provided in the summary table at the end of this chapter, as well as within the more detailed technical analyses presented in Chapter 4 of this Draft EIR.

2.4 ALTERNATIVES TO THE PROJECT

Chapter 7 of this EIR summarizes potential impacts associated with the Faria Preserve alternatives in accordance with Section 15126(d) of the CEQA Guidelines. In addition to the No Project Alternative, CEQA requires the Lead Agency to consider alternatives to the proposed project that meet the project's basic objectives, while avoiding or reducing significant impacts. The following alternatives to the proposed Faria Preserve are considered in this EIR:

- Reduced Development Footprint with Limited Fill of Riparian Corridor to Accommodate Connector Road
- Alternative Access without Fill of Riparian Corridor Maintaining Original Project Densities
- Looped Internal Access with Conversion of Neighborhood A to High (Condominium) Density
- Balanced Cut/Fill, Single-Family Residential Reduced Footprint

CEQA also requires the identification of the environmentally superior alternative. Based on the information contained in Chapter 7, the No Project Alternative (Alternative 1) is considered the environmentally superior alternative because it would not result in the significant and unavoidable air quality and noise impacts that would result from the project and any of the other development alternatives discussed in this chapter. Among the development alternatives considered, the Balanced Cut/Fill Alternative (Alternative 5) would be considered the environmentally superior alternative because it would not add to the significant, unavoidable air quality impact, and it would avoid a significant, unavoidable impact related to noise, due to the elimination of Neighborhood D. It would also, unlike some other alternatives, further reduce impacts related to aesthetics, hazards, traffic and utilities. However, it should be noted that this alternative would neither reduce nor avoid the significant impact to air quality. In addition, this alternative would not provide as many residential units as the proposed project, for which there is a substantial need in the region. More detail on this alternative, and a comparison against the proposed project is provided in Chapter 7.

2.5 SUMMARY TABLE

Table 2-1 provides a summary of the environmental impacts of the proposed NWSP and Faria Preserve. The level of significance – significant (SIG), potentially significant (PS), or less than significant (LTS) – for each impact is provided, followed by recommended mitigation measures, and the level of impact significance after implementation of the mitigation measures. Whether impacts apply to the Faria Preserve, the Western Plan Area, or both, is indicated in the left-hand columns in the summary table.

Impacts are numbered in accordance with the environmental topic to which they pertain and in the order in which they appear within each EIR section. Please see Chapter 4 of this EIR for more information on the potentially significant impacts of the proposed Northwest Specific Plan and Faria Preserve.

Table 2-1 Summary of Environmental Impacts

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
AIR QUALITY					
X	X	**Impact Air Quality-1: Short-Term Construction Emissions.** Construction, grading, and excavation associated with new development under the Northwest Specific Plan could generate substantial amounts of fine particulate matter (PM_{10}).	SIG	**Mitigation Measure Air Quality-1 (Faria Preserve and Western Plan Area):** The BAAQMD has identified a set of feasible PM_{10} control measures for construction activities. These measures are divided into three separate tiers: Basic Control Measures, Enhanced Measures, and Optional Measures. The following Basic Control Measures, as discussed in Section 4.2.3 shall be implemented at all construction sites in the Faria Preserve and Western Plan Area, regardless of size. For construction sites greater than 4 acres, enhanced measures shall be implemented, as discussed in Section 4.2.3. Additional "Optional Measures," as discussed in Section 4.2.3 shall be implemented if further emission reductions are deemed necessary by the City and/or the BAAQMD. The BAAQMD requirements could change between the time that this EIR is certified and the time when construction of the proposed project begins. Therefore, the City shall require its contractors to consult with the BAAQMD to develop a list of appropriate dust abatement measures prior to beginning any construction project.	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
X	X	**Impact Air Quality-2: Consistency with the 2005 Ozone Strategy.** The population and VMT projections used in the proposed Northwest Specific Plan are inconsistent with those of the 2005 Ozone Strategy.	SU	Since the existing population and projected population for San Ramon are both greater than those used for the 2000 CAP, which were based on 1998 ABAG projections, the General Plan is inconsistent with the CAP (City of San Ramon 2001). The 2005 Ozone Strategy superseded the CAP. Also, average peak hour VMT growth in San Ramon, with an annual increase of about 2.0 percent, is greater than the 1.4 percent annual growth rate assumed for the entire Bay Area by the Clean Air Plan (City of San Ramon 2001). Thus, vehicle emissions resulting from development under the NWSP would be inconsistent with vehicle emissions projected by the 2005 Ozone Strategy. No additional feasible mitigation measures have been identified because development of the NWSP Area would contribute to the exceedance of the population assumptions of the 2005 Ozone Strategy. The annual rate of increase in population growth and VMT increase would exceed the assumptions of this most recent Clean Air Plan.	SU
X	X	**Impact Air Quality-3: Long-Term Emissions of Criteria Air Pollutants.** Development under the Northwest Specific Plan would result in increased emissions of criteria air pollutants. Operational emissions of ROG and NO_X would exceed the BAAQMD threshold of 80 pounds per day.	SU	**Mitigation Measure Air Quality-3 (Faria Preserve and Western Plan Area):** During project review, the City shall consult with the BAAQMD for determination of applicable mitigation measures to be incorporated for future projects associated with implementation of the NWSP, including the Faria Preserve. Such measures may include, but are not limited to, the following measures recommended by the BAAQMD, which were obtained from the most current BAAQMD CEQA Guidelines (BAAQMD, 1999), as	SU

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
				discussed in Section 4.2.3. Though these measures would help reduce emissions, their implementation would not reduce long-term emissions to a less-than-significant level. Due to the peripheral location of the NWSP Area, neither the proposed NWSP nor the Faria Preserve could be feasibly implemented without an increase in air emissions, particularly from mobile-sources, that exceeds the significance thresholds of 80 pounds per day for ROG and NO_X.	
BIOLOGICAL RESOURCES					
X	X	**Impact Biology-1: Loss of Sensitive Habitats.** Implementation of the Northwest Specific Plan would result in the loss of sensitive habitats. The Faria Preserve would impact 11.06 acres of valley foothill hardwood, 4.20 acres of valley foothill riparian, and 0.16 acre of fresh emergent marsh.	PS	**Mitigation Measure Biology-1a (The Faria Preserve Biological Mitigation/Enhancement and Monitoring Plan):** The project sponsor for the Faria Preserve Project Site has developed an extensive program referred to as the Faria Preserve Biological Mitigation/Enhancement and Monitoring Plan for the creation and enhancement of riparian and wetland habitat and the full mitigation of potential biological impacts, which the project sponsor shall implement, as discussed in Section 4.3.3. **Mitigation Measure Biology-1b** (Western Plan Area): The following actions shall be implemented by developers of the Western Plan Area to ensure adequate protection of trees. These measures implement mitigation in the Western Plan Area that is the same in scope to what is set forth in the Biological Mitigation/Enhancement and Monitoring Plan for the Faria Preserve Project Site.	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
				Mitigation Measure Biology-1c (Faria Preserve and Western Plan Area): Actions shall be implemented by developers to prevent pollution of streams and drainages, including wetlands, during construction. **Mitigation Measure Biology-1d (Western Plan Area):** Developers within the Western Plan Area to address impacts to sensitive habitats.	
	X	**Impact Biology-2: Special-Status Plant Species.** The Western Plan Area may contain special-status species that were not detected in field surveys and loss of such species in association with development could occur.	PS	**Mitigation Measure Biology-2 (Western Plan Area):** The developers on the Western Plan Area shall implement measures, as described in Section 4.3.3 to ensure that impacts to special-status plant species are avoided. If any special-status plant species are identified, their quantity and significance of the impact shall be assessed for review by the City of San Ramon and CDFG. Depending on the legal protection afforded the particular species, identified plants would either a) be fenced off by a biologist and avoided by construction activities; b) be salvaged and relocated on-site following consultation with CDFG; or c) be removed without further consequence, if so allowed by CDFG.	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
X		**Impact Biology-3(a) (Faria Preserve): Special-Status Animal Species.** Implementation of the Faria Preserve would result in a less than substantial reduction in the numbers and range of rare, endangered or threatened species.	LTS	**Mitigation Measure Biology-3a (Faria Preserve and Western Plan Area):** The following actions shall be implemented by developers of both the Faria Preserve and the Western Plan Area to further ensure that impacts to Alameda whipsnake are less than significant. **Mitigation Measure Biology-3b (Faria Preserve and Western Plan Area):** The developers of both the Faria Preserve and the Western Plan Area shall implement measures, as discussed in Section 4.3.3, to further ensure that impacts to nesting raptors and other special-status birds (e.g., horned lark, loggerhead shrike, yellow warbler) are less than significant:	LTS
	X	**Impact Biology-3(b)(Western Plan Area): Special-Status Animal Species.** Implementation of the Western Plan has the potential to result in the loss of habitat for special-status animal species that may reside or forage in the Western Plan Area, potentially resulting in a more than substantial reduction in the numbers and range of rare, endangered or threatened species.	PS	**See Mitigation Measure Biology 3a, above.** This measures applies to both the Faria Preserve and the Western Plan area in Section 4.3, but is listed separately here for ease of reference. **See Mitigation Measure Biology 3b, above.** This measures applies to both the Faria Preserve and the Western Plan area in Section 4.3, but is listed separately here for ease of reference. **Mitigation Measure Biology-3c (Western Plan Area):** The developer of the Western Plan Area shall implement measures, as discussed in Section 4.3.3 to ensure that potentially significant impacts to California red-legged frogs do not occur:	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
X		**Impact Biology-4: Jurisdictional Waters of the United States and Riparian Habitat.** Development of the Faria Preserve Project Site would result in the filling and replacement of 0.40 acre of wetlands and waters of the U.S.	SIG	**Mitigation Measure Biology-4a (Faria Preserve):** The Faria Preserve developer shall be responsible for mitigation of impacts to wetlands and jurisdictional waters, pursuant to a Mitigation and Monitoring Plan approved by the Corps. Further, prior to issuance of a grading permit, the developer shall provide written evidence that the following approvals have been received: • A Clean Water Act Section 404 permit by the U.S. Army Corps of Engineers. • A Section 401 Water Quality Certification from the Regional Water Quality Control Board. **Mitigation Measure Biology-4b (Faria Preserve):** Wetlands shall be mitigated and monitored as required by the Clean Water Act Section 404 permit. **Mitigation Measure Biology-4c (Faria Preserve):** During construction and prior to any clearing, grading, or construction activities, temporary barriers shall be placed around all wetlands and riverine intermittent drainages that are to be avoided by the development plan. These barricades shall create at least a 20-foot buffer area around drainages and shall be consistent with the Best Management Practices implemented as part of a Stormwater Pollution Prevention Plan (see Mitigation Measure Hydrology-1b). No clearing, operation of heavy equipment, or storage of construction materials shall be permitted within this area.	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
	X	**Impact Biology-5: Jurisdictional Waters of the United States and Riparian Habitat.** Development of the Western Plan Area could result in the filling and replacement of wetlands and/or waters of the U.S.	SIG	**Mitigation Measure Biology-5a (Western Plan Area)**: Developers of the Western Plan Area shall be responsible for conducting an on-site evaluation to determine whether any portion of the creek or drainage areas within the Western Plan Area would be subject to Corps jurisdiction as either wetlands or other "waters of the U.S." **Mitigation Measure Biology-5b (Western Plan Area):** If wetlands and/or waters of the U.S. under Corps jurisdiction are determined to be present within the Western Plan Area, the developer shall be responsible for mitigation of impacts to wetlands and/or jurisdictional waters, pursuant to a Mitigation and Monitoring Plan approved by the Corps. Further, prior to the issuance of a grading permit, the developer shall provide written evidence that the following approvals have been received: • A Clean Water Act Section 404 permit by the U.S. Army Corps of Engineers. • A Section 401 Water Quality Certification from the Regional Water Quality Control Board. **Mitigation Measure Biology-5c (Western Plan Area):** Wetlands shall be mitigated and monitored as required by the Clean Water Act Section 404 permit. **Mitigation Measure Biology-5d (Western Plan Area):** During construction and prior to any clearing, grading, or construction activities, temporary barriers shall be placed around all wetlands and riverine intermittent drainages that are to be avoided by the development plan. These barricades shall create at least a 20-foot buffer area around	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
				drainages and shall be consistent with the Best Management Practices implemented as part of a Stormwater Pollution Prevention Plan (see Mitigation Measure Hydrology-1b). No clearing, operation of heavy equipment, or storage of construction materials shall be permitted within this area.	
X	X	**Impact Biology-7: Colonization by Invasive Species.** Invasive non-native plants used in Faria Preserve Project Site and Western Plan Area landscaping could be dispersed from development areas where they are to be planted and eventually displace native plants within natural and created wildlife habitat areas.	PS	**Mitigation Measure Biology-7 (Faria Preserve and Western Plan Area):** In order to ensure integrity of the restored riparian zone on the Faria Preserve and to reduce impacts in the Western Plan Area to less than significant, the following mitigation measure will be implemented by developers of the Faria Preserve and Western Plan Area: • Landscape plans and plant selections for any portion of the Plan Area shall ***not*** include any invasive exotic plants listed by the California Invasive Plant Council (Cal-IPC) in their Invasive Plant Inventory (Cal-IPC, 2006).	LTS
CULTURAL RESOURCES					
X	X	**Impact Cultural-1: Cultural Resources.** Implementation of the Northwest Specific Plan could adversely affect unidentified, potentially significant subsurface cultural resources in the NWSP Area as a result of project specific ground-disturbing construction activities.	PS	**Mitigation Measure Cultural-1a (Western Plan Area):** Prior to any project-related ground disturbing activities, the Western Plan Area shall be re-inventoried. This survey shall incorporate a pedestrian survey of the site and a thorough recording and assessment of the sites presently known to exist within the area, in conformance with CEQA guidelines. Implementation of this mitigation measure would identify known cultural resources and ensure that they would be avoided.	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
				Mitigation Measure Cultural-1b (Western Plan Area and Faria Preserve): The City of San Ramon shall require implementation of a monitoring and response procedure during construction of any proposed project within the NWSP Area in order to avoid adverse effects on potentially significant archaeological resources, as discussed in Section 4.4.3.	
GEOLOGY/SOILS					
X		**Impact Geo-1: Surface Fault Rupture.** People or structures would be exposed to an increased risk of substantial adverse effects, including the risk of loss, injury or death as a result of surface fault rupture.	SIG	**Mitigation Measure Geo-1a (Faria Preserve):** The project sponsor shall require its geotechnical consultant to replot the Calaveras fault in the *Final Supplemental Fault Investigation, Fault A/Calaveras Fault Western Traces* based on its trenching data and reassess the setback distance between habitatable structures in Neighborhoods A and D (lots 67 to 74 and 86 units) and the Calaveras fault. In the geotechnical consultant's consideration of the western limit of the Calaveras fault setback zone below lots 67 and 74, the geotechnical consultant shall extend the western limit of the Calaveras fault setback zone in this area to coincide with the eastern ends of the exploratory trenches T7 and T9.	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
				Mitigation Measure Geo-1b (Faria Preserve): The project sponsor shall ensure the 50-foot setback separating all habitable structures from the known Calaveras fault zone would be incorporated in the Final Development Plan. Implementation of this mitigation measure is required to reduce the level of risk associated with potential damage to structures or harm (risk of loss, injury or death) to people from fault rupture to an acceptable level. **Mitigation Measure Geo-1c (Faria Preserve):** The project sponsor shall design utilities and road facilities that cross the Calaveras Fault to include additional protective features to reduce damage associated with fault rupture, as discussed in Section 4.5.3. **Mitigation Measure Geo-1d (Faria Preserve):** The project sponsor shall implement a minimum 25-foot setback separating all habitable structures (in lots 60, 61, 62, and 83) from Fault A. Implementation of this mitigation measure is required to reduce the level of risk associated with potential damage to structures or harm (risk of loss, injury or death) to people from fault rupture to an acceptable level.	

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
				Mitigation Measure Geo-1e (Faria Preserve): The project sponsor shall retain a licensed geologist on-site during grading activities. The licensed geologist shall map the landslide deposits along the western edge of the Calaveras Fault setback zone to more precisely locate the disturbed deposits and to assess the character of the shearing logged in two trenches. These features shall be shown on the as-built plans. Any changes in the nature of the shearing that might indicate they are related to active features of the Calaveras fault shall be addressed by the licensed geologist. Any changes made during grading to the precise location of active fault related features, the accompanying setback zone, or to the location of the residential units shall be updated in the Final Development Plan. **Mitigation Measure Geo-1f (Faria Preserve):** The licensed geologist retained for the purposes described in Mitigation Measure Geo-1e shall also map the Fault A featured, and if necessary, conduct exploratory excavations to precisely locate the trace of Fault A on the as-built plans. At the time of the grading, the setback zone location and width shall be considered with respect to Lots 60, 61, 62, and 83 in Neighborhood A.	

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
X	X	**Impact Geo-2: Seismic Event**. People or structures would be exposed to an increased risk of substantial adverse effects, including the risk of loss, injury or death as a result of ground shaking associated with a seismic event.	SIG	**Mitigation Measure Geo-2a (Western Plan Area and Faria Preserve):** The project sponsors shall implement seismic design standards of the most recent Uniform Building Code (UBC) to reduce damage to structures and harm to people associated with groundshaking. Structures shall be designed to accommodate seismic vibrations. The project design engineer shall evaluate the adequacy of the seismic design criteria of the current UBC for the proposed development. **Mitigation Measure Geo-2b (Western Plan Area and Faria Preserve):** The project sponsor shall ensure that construction is in strict accordance with approved plans and details, and recommendations contained in the geologic and geotechnical investigations. **Mitigation Measure Geo-2c (Faria Preserve):** The project sponsor has conducted a detailed geotechnical study of the EBMUD water tank site(s).. Recommendations of the geotechnical study shall be followed with respect to structural design of the tank foundations and the tanks to ensure minimization of ridgetop acceleration effects on the tanks. **Mitigation Measure Geo-2d (Faria Preserve):** The project sponsor shall remove and replace soils that are susceptible to seismic-related ground failure (e.g., with engineered fill where proposed improvements would be located), in accordance with the recommendations of the *Geologic Hazards Evaluation and Preliminary Geotechnical Engineering Study* conducted for the site, as well as those identified for Mitigation Measures Geo-4b and Geo-6b, below.	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
				Mitigation Measure Geo-2e (Western Plan Area): The project sponsor shall, prior to development, conduct a geologic hazards evaluation and preliminary geotechnical engineering study for the Western Plan Area. Removal and replacement of soils that are susceptible to seismic-related ground failure (e.g., with engineered fill where proposed improvements would be located), shall be conducted in accordance with the recommendations in the study.	
X	X	**Impact Geo-3: People or structures could be exposed to substantial effects, including the risk of loss, injury or death involving liquefaction.**	SIG	**Mitigation Measure Geo-3a (Western Plan Area and Faria Preserve):** The project sponsor shall implement Mitigation Measure Geo-6b. In addition to the overburden pressure resulting from this fill, liquefaction potential would be mitigated by measures intended to mitigate soil that is unstable and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse (see Mitigation Measure Geo-6b). Such measures would reduce soil settlement and mitigate liquefaction potential to less-than-significant levels.	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
X	X	**Impact Geo-4: Landslides.** People or structures would be exposed to an increased risk of substantial adverse effects, including the risk of loss, injury or death as a result of landslides and/or rock falls and slides.	SIG	**Mitigation Measure Geo-4a (Western Plan Area):** The project sponsor shall conduct a detailed geotechnical analysis (See Mitigation Measure Geo-2e), which shall include additional borings and deep trenches, for landslides identified in the Western Plan Area, as further described in Section 4.5.3. Analyses shall also include investigations of static and dynamic slope stability and identify specific mitigation to address the potential for landslide. Methods to reduce landslide hazards shall be consistent with the recommendations of the detailed geotechnical studies and include, but are not limited to the recommendations set forth in Section 4.5.3. The northern landslide west of Bollinger Creek would require grading beyond the NWSP Area for stabilization. For those landslides in areas upslope or outside of proposed developments in the Western Plan Area, it is likely that grading would be required beyond the areas proposed to be developed in order to stabilize the landslide. In such an instance, mitigation measures shall include catchment and diversion structures to prevent landslides from entering developed areas. **Mitigation Measure Geo-4b (Faria Preserve):** The project sponsor shall implement specific mitigation techniques to address landslide potential, which shall be in accordance with the recommendations of the *Geologic Hazards Evaluation and Preliminary Geotechnical Engineering Study* conducted for the site, as set forth in Section 4.5.3.	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
				Mitigation Measure Geo-4c (Faria Preserve): The EBMUD water tank site(s) shall be selected within the building envelope as delineated in the Preliminary Geotechnical Feasibility Study prepared for the proposed water tanks by ESCNC, March 2005. The building envelope was determined based on various factors, including the lack of landslides. The project sponsor shall conduct a design-level geotechnical study for the tank site(s) once details of the site(s) have been finalized. Recommendations of the geotechnical study shall be implemented to ensure minimization of landslide potential. Methods to reduce landslide potential include the techniques identified in Mitigation Measure Geo-4a, above. **Mitigation Measure Geo-4d (Faria Preserve):** To address rock slide hazards associated with unfavorably-oriented bedrock dip slopes (which are prone to landslides), the project sponsor shall construct retaining structures to hold bedrock slopes in place. Retaining structures could include retaining walls, rock bolts, and/or soil nailing.	
X	X	**Impact Geo-5: Erosion.** Excavation and earthmoving activities would increase the risk of erosion or loss of topsoil.	SIG	**Mitigation Measure Geo-5a (Western Plan Area):** The project sponsor shall require protection of the toe of the stream bank from future stream erosion by setting back development beyond a 2:1 (horizontal: vertical) line extending up from the toe of the bank (or gully). If the banks cannot be protected, a wider set back zone shall be maintained to allow for future erosion based on soil type and vegetation. Set back zones shall be determined after a detailed geologic and geotechnical site investigation is performed at the site	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
				Mitigation Measure Geo-5b (Western Plan Area): During repair of the existing landslide in the Western Plan Area, the project sponsor shall install subdrains beneath and upslope of the repaired landslide to collect groundwater and prevent it from saturating the engineered fill. **Mitigation Measure Geo-5c (Faria Preserve):** The project sponsor shall implement best management practices for erosion control as specified on the Faria Preserve Vesting Tentative Map. **Mitigation Measure Geo-5d (Faria Preserve):** Within the Faria Preserve Project Site, the project sponsor shall collect groundwater within the slope and remove it before the water daylights on the slope face. Methods to collect and remove the water shall be in accordance with the recommendations of the *Geologic Hazards Evaluation and Preliminary Geotechnical Engineering Study* conducted for the site, and could include any of the following: installation of finger drains, hydraugers, or gallery drains. As necessary, pumping or dewatering shall be implemented during grading activities. Please also refer to Mitigation Measure Hydrology-1b (see Section 4.7).	
X	X	**Impact Geo-6: Project Facilities Located on an Unstable Geologic Unit.** The project facilities could be located on a geologic unit or soil that is unstable and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.	SIG	**Mitigation Measure Geo-6a (Western Plan Area):** For the Western Plan Area, detailed geologic and geotechnical investigations (including laboratory testing) shall be conducted to assess the strength and compressibility of colluvial and alluvial deposits. In addition, onsite artificial fill shall be assessed for quality and surface and subsurface	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
				drainage details shall be verified. Methods to reduce the potential for settlement are described in Section 4.5.3. **Mitigation Measure Geo-6b (Faria Preserve):** For the Faria Preserve Project Site, the project sponsor shall implement mitigation measures that would reduce settlement. Methods shall be in accordance with the recommendations of the *Geologic Hazards Evaluation and Preliminary Geotechnical Engineering Study* conducted for the site, as set forth in Section 4.5.3.	
X	X	**Impact Geo-7: Surface Soil Expansion.** Structures could be damaged from expansion of the near surface soils.	SIG	**Mitigation Measure Geo-7a (Western Plan Area and Faria Preserve):** For the Western Plan Area and the water tank sites, the project sponsor shall conduct detailed geologic and geotechnical investigations (including laboratory testing) to assess the soils underlying the proposed structures. Mitigation measures that would reduce adverse effects resulting from expansive soils within the NWSP Area (including the Faria Preserve Project Site) are described in Section 4.5.3. Methods implemented at the Faria Preserve Project Site shall be in accordance with the recommendations of the *Geologic Hazards Evaluation and Preliminary Geotechnical Engineering Study* conducted for the site.	LTS
HAZARDS & HAZARDOUS MATERIALS					
X	X	**Impact Hazard-1: Construction of the 830 homes proposed for the NWSP Area would increase the risk of fire hazards since the proposed project is in an area with flammable brush and grass.**	SIG	**Mitigation Measure Hazard-1 (Western Plan Area and Faria Preserve):** An Open Space Management Plan shall be submitted to and approved by the San Ramon Valley Fire Protection District prior to filing the first final map for the Western Plan Area and the Faria Preserve. The Open	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
				Space Fire Management Plan shall be based on the fire modeling required by General Plan Policy 9.4-I-2, and shall propose specific measures to reduce potential fire hazards, including construction of buffers between the homes, and regular maintenance and disking of the property lines.	
HYDROLOGY/WATER QUALITY					
X	X`	**Impact Hydrology-1: Construction-related water quality impacts.** Implementation of the Northwest Specific Plan and Faria Preserve could introduce pollutants (namely suspended sediments, along with fuels, oils, lead solder, solvents and glues) to surface water or groundwater that could violate water quality standards or discharge requirements, or otherwise substantially degrade water quality (including sediment and other pollutants). These activities will be regulated under a Construction Activity NPDES Permit.	SIG	**Mitigation Measure Hydrology-1a (Western Plan Area and Faria Preserve): Construction Related NPDES Discharge Permit.** The San Francisco Regional Water Quality Control Board requires that any project with a combined disturbance area of over one acre acquire an NPDES Construction Activity Stormwater Permit. Discharge of surface runoff from the construction site to Bollinger Creek shall be subject to this permit. Monitoring of the effluent and creek flow shall be required to ensure that water quality standards are not broken, and annual reports shall be prepared and submitted to the San Francisco Regional Water Quality Control Board. While compliance with the NPDES Construction Activity Stormwater Permit would be required and is therefore assumed, it is nonetheless included here as a mitigation measure to ensure there is a mechanism for City monitoring of compliance.	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
				Mitigation Measure Hydrology-1b (Western Plan Area and Faria Preserve): Stormwater Pollution Prevention Plan. The NPDES Construction Activity Stormwater Permit shall also require the completion of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP shall require dischargers to implement Best Management Practices (BMPs) that prevent or reduce pollution into surface waters during construction at sites that disturb one acre or more. Types of BMPs include schedules of activities, prohibition of practices, maintenance procedures, management practices, or engineering controls, as further described in Section 4.7.3. **Mitigation Measure Hydrology-1c (Western Plan Area and Faria Preserve): Detention Basins.** Construction of the on-site detention basins shall occur prior to all other major construction activities such that these structures can be used to retain stormwater runoff and water from dewatering activities during the construction period. This would help to reduce sediment in surface runoff leaving the site.	

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
X	X	**Impact Hydrology-2: Water Quality.** Once implemented, the Northwest Specific Plan and Faria Preserve would introduce pollutants into the surface water or groundwater that could violate water quality standards or discharge requirements, or otherwise substantially degrade water quality (including sediment and other pollutants).	SIG	**Mitigation Measure Hydrology-2a (Faria Preserve): Streambank Protection.** A streambank protection corridor, similar to the riparian corridor designed for the central watershed on the Faria Preserve shall be implemented in the easterly watershed of the Faria Preserve property. This would improve both water quality and wildlife habitat in this drainage. Fencing shall be installed approximately 100 feet from either side of the stream, and any major reparations (or re-seeding) to the stream bank shall be made to reduce sediment load. Well-maintained vegetated streambank corridors have the capacity to reduce sediment load in runoff up to 75 percent or more (NRCS 2004). These buffer strips intercept surface and subsurface flow while stabilizing streambank sediment material. Native riparian tree and shrub species shall be planted on 8-foot centers throughout the streambank protection corridor creating a dense riparian corridor.	LTS
				Mitigation Measure Hydrology-2b (Western Plan Area and Faria Preserve): Fertilizer and Pesticide limitations. Fertilizer, herbicide, and pesticide applications within the NWSP Area shall be limited to the dry season (April 1 – October 1). Residents shall be notified of these restrictions. A pesticide and fertilizer application program shall be prepared for all public open space and landscaped areas. This program shall include limitations on the types and amounts of chemicals allowed on the site. The program shall be designed to minimize chemical and fertilizer use throughout the project site.	

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
				Mitigation Measure Hydrology-2c (Western Plan Area): Creek Crossings. Per Policy 8.1 N of the General Plan, creeks shall not be culverted or channelized where they cross roads. Rather, a wildlife sensitive open/natural channel design shall be implemented where the project roads cross Bollinger Creek. This would serve to maintain the integrity of the creek, reduce erosion often associated with culvert outlets, and create a contiguous wildlife corridor across the property.	
				Mitigation Measure Hydrology-2d (Western Plan Area and Faria Preserve): Low Impact Design. In order to meet the new requirements of Provision "C.3" in the Countywide NPDES Municipal stormwater permit, "Low Impact Design" (LID) features with multiple on-site "natural" water detention, infiltration, and treatment features shall be incorporated to reduce scouring flows in the receiving water bodies, and to reduce pollutant loads entering those water bodies from residential and developed areas. LID features shall be included in the street, residential, and landscape design, as further described in Section 4.7.3. Utilization of the LID features as part of the implementation of the Faria Preserve may reduce the size of the detention. Prior to implementation of the Faria Preserve, the required size of the detention basins shall be recalculated to account for the flood retention and reduction capacity of the LID features. Such redesign would be expected only to decrease the size of the detention basins.	

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
				The Contra Costa Clean Water Program has recently released the *Stormwater C.3 Guidebook* (Contra Costa Clean Water Program, 2005) to aid developers in meeting the RWQCB C.3 requirements (see Section 4.7.2 Regulatory Framework)	
X	X	**Impact Hydrology-3: Flooding.** Implementation of the Northwest Specific Plan and the Faria Preserve would alter existing drainage patterns within the NWSP Area and create/contribute runoff water such that flooding could occur or the capacity of existing or planned stormwater drainage systems could be exceeded.	PS	**Mitigation Measure Hydrology-3a (Faria Preserve): Detention Basin Storage.** In order to reduce the peak outflows under project conditions and have no net increase in flows, detention basins shall be provided within the Faria Preserve Project Site. The design and storage volumes of the detention basins shall be consistent with the design parameters contained in the drainage studies prepared by Bellecci and Associates (2005) and Kimley-Horn (2005a), and the recommendations contained in the Kimley-Horn (2005b). **Mitigation Measure Hydrology-3b (Western Plan Area): Detention Basin Storage.** In order to reduce the peak outflows under project conditions, stormwater detention facilities shall be provided within the Western Plan Area. Retention requirements necessary to detain the volume associated with the difference in runoff volume between pre- and post-Project conditions is estimated to be a minimum 0.4 acre feet, based on preliminary lot layouts developed for the Western Plan Area Kimley-Horn (2005a). More detailed hydrology studies shall be required at the time a development application for the Western Plan Area is filed to ensure that water quality, retention requirements and flood control objectives are met.	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
				Mitigation Measure Hydrology-3c (Western Plan Area and Faria Preserve): Maintain Watershed Boundaries and Area. The existing watershed boundaries and area shall be maintained. Watershed areas shall not be altered and all existing discharge points shall be maintained as closely as possible. Stormwater drainage from all developed areas shall be carefully designed such that runoff from streets, housing, and other impervious surfaces drains to the appropriate watershed based on pre-project drainage patterns (The Faria Preserve Project Site, as detailed in the Vesting Tentative Map, would do so). New developments are required under the Contra Costa Countywide NPDES Municipal Stormwater Permit, Provision C.3.f, to manage impacts from changes to the volume and velocity of stormwater runoff from new development and significant redevelopment projects, where these changes can cause excessive erosion damage to downstream watercourses. The LID actions proposed under Mitigation Measure Hydrology-2d would be considered as BMP's designed to manage hydrograph modification impacts.	
	X	**Impact Hydrology-4: Flood Zones.** The proposed development within the Western Plan area could place within a 100-year flood hazard area structures which could impede or redirect flood flows.	PS	**Mitigation Measure Hydrology-4 (Western Plan Area): Low Impact Bridge Design.** The proposed bridge crossing Bollinger Creek shall be designed to avoid the 100-year flood hazard zone, or shall be engineered so as not to impede or redirect flows in Bollinger Creek.	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
NOISE					
X	X	**Impact Noise-1: Short-Term Construction Noise.** Development under the NWSP, including the Faria Preserve, would expose existing noise-sensitive land uses to construction related noise. Ambient noise levels in areas near the NWSP Area may temporarily increase.	SIG	**Mitigation Measure Noise-1 (Faria Preserve and Western Plan Area): Short-Term Construction Noise.** The City shall require prime contractors to implement measures to reduce temporary construction noise as described in Section 4.9.3. By requiring that project construction would comply with Chapter V, Article 2, B6-100 of the San Ramon Municipal Code, Mitigation Measure Noise-1 would ensure that nearby sensitive receptors are not exposed to construction noise during the more sensitive evening and nighttime hours. Implementation of Mitigation Measure Noise-1 would also reduce the level of noise exposure at sensitive receptors during daytime construction activity.	LTS
X	X	**Impact Noise-2: Stationary- and Area-Noise Sources.** Noise levels generated by new stationary- and area-noise sources developed under the NWSP, including the Faria Preserve, would not exceed the city's "normally acceptable" land use compatibility standards at off-site sensitive receptors. Single event noise levels generated by garbage dumpster collection at some of the proposed land uses could result in increased sleep disruption and interference to nearby off-site sensitive receptors.	PS	**Mitigation Measure Noise-2:** The City shall ensure implementation of mitigation measures in the design and operation of the Faria Preserve to reduce exposure of nearby existing off-site sensitive receptors and proposed onsite receptors to noise levels that could potentially result in nighttime sleep disturbance, as discussed in Section 4.9.3. Implementation of Mitigation Measures Noise-2 would prevent nighttime sleep disruption at nearby existing and proposed on-site residential land uses by limiting garbage collection to daytime hours. Noise levels generated by garbage collection activity during daytime hours would also be reduced due to effective orientation of dumpster locations and on-site buildings. As a result, this impact would be reduced to a less-than-significant level.	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
X	X	**Impact Noise-4: Land Use Compatibility with Onsite Noise Levels.** Residential land uses developed under the NWSP, including the Faria Preserve, could be exposed to traffic noise levels that exceed both the City of San Ramon's "normally acceptable" land use compatibility exterior noise standard of 60 CNEL/L_{dn} and the Title 24 interior noise level standard of 45 CNEL/L_{dn}. In addition, some residential land uses proposed by the NWSP could be exposed to single-event noise levels generated by offsite commercial and industrial sources that result in sleep disturbance.	PS	**Mitigation Measure Noise-4 (Faria Preserve):** The City shall implement measures to reduce the exposure of sensitive receptors to significant noise associated with traffic from I-680 and local roadways and nearby commercial/industrial activities as described in Section 4.9.3.	LTS
TRANSPORTATION/TRAFFIC					
X		**Impact Traffic-1: Decrease in LOS due to Traffic.** Traffic generated by buildout of the NWSP would increase traffic volumes and delays at area intersections, and would result in the City's LOS standards being exceeded at three unsignalized intersections during peak hours. The three intersections are: San Ramon Valley Boulevard/Hooper Drive, San Ramon Valley Boulevard/Purdue Road and Bollinger Canyon Road/Norris Canyon Road.	SIG	**Mitigation Measure Traffic-1a (Faria Preserve):** Traffic signal at the intersection of San Ramon Valley Boulevard/Hooper Drive when warranted. The City shall monitor the intersection of San Ramon Valley Boulevard/Hooper Drive to determine if it meets signalization warrants other than peak hour warrants (e.g. based on accident experience and daily traffic volumes) and install a signal at this intersection when it meets one of the warrants. **Mitigation Measure Traffic-1b (Faria Preserve):** Traffic signal at the intersection of San Ramon Valley Boulevard/Purdue Road. The City shall install a traffic signal at the intersection of San Ramon Valley Boulevard/Purdue Road.	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
				Mitigation Measure Traffic-1c (Faria Preserve): Install a traffic signal at the intersection of Bollinger Canyon Road/Norris Canyon Road. The City shall monitor the intersection of Bollinger Canyon Road/Norris Canyon Road to determine if it meets signalization warrants other than peak hour warrants (e.g. based on accident experience and daily traffic volumes) and install a signal at this intersection when it meets one of the warrants.	
X	X	**Impact Traffic-3 (Cumulative): Decrease in LOS due to Traffic.** Under the Cumulative-plus-Project Scenario, traffic generated by buildout of the NWSP, when combined with traffic generated by buildout of the General Plan, would increase traffic volumes and delays at area intersections, and would result in the City's LOS standards being exceeded at four unsignalized intersections during peak hours. The four intersections are: San Ramon Valley Boulevard/Hooper Drive, San Ramon Valley Boulevard/ Purdue Road, Bollinger Canyon Road/Norris Canyon Road and Omega Road/Old Crow Canyon Road.	SIG	**Mitigation Measure Traffic-3a (Faria Preserve):** Implement Mitigation Measure Traffic-1a. The City shall implement Mitigation Measure Traffic-1a, which requires the City to monitor and install a signal at the intersection of San Ramon Valley Boulevard/Hooper Drive. **Mitigation Measure Traffic-3b (Faria Preserve):** Implement Mitigation Measure Traffic-1b. The City shall implement Mitigation Measure Traffic-1b, which requires the City to install a traffic signal at the intersection of San Ramon Valley Boulevard/Purdue Road.	LTS

Table 2-1 Summary of Environmental Impacts (Continued)

FARIA PRESERVE	WESTERN PLAN AREA	IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURE	SIGNIFICANCE AFTER MITIGATION
				Mitigation Measure Traffic-3c (Faria Preserve): Implement Mitigation Measure Traffic-1c. The City shall implement Mitigation Measure Traffic-1c, which requires the City to monitor the intersection of Bollinger Canyon Road/Norris Canyon Road to determine if it meets signalization warrants other than peak hour warrants (e.g. based on accident experience and daily traffic volumes) and install a signal at this intersection when it meets one of the warrants. **Mitigation Measure Traffic-3d (Faria Preserve):** Install a traffic signal at the intersection of Old Crow Canyon Road/Deerwood Road/Omega Road. The City shall monitor the intersection of Old Crow Canyon Road/Deerwood Road/Omega Road to determine if it meets signalization warrants other than peak hour warrants (e.g. based on accident experience and daily traffic volumes) and install a signal at this intersection when it meets one of the warrants.	

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3. PROJECT DESCRIPTION

3.1 OVERVIEW

This EIR evaluates the potential environmental impacts of two different but related projects: the City of San Ramon Northwest Specific Plan (NWSP) and the Faria Preserve, a mixed residential and community facilities project proposed for that portion of the NWSP Area east of Bollinger Canyon Road.

The NWSP provides a policy framework and implementation measures to guide future development of 354.1 acres in the City of San Ramon. The plan addresses development opportunities for residential neighborhoods and community-serving facilities, as well as preservation of and access to natural resources and open space, in accordance with the City of San Ramon 2020 General Plan (General Plan). The Draft Northwest Specific Plan serves as the basis for this EIR analysis of the NWSP.

The NWSP Area is bisected by Bollinger Canyon Road. The Faria Preserve includes the entire portion of the NWSP Area located east of Bollinger Canyon Road. The portion of the NWSP Area located west of Bollinger Canyon Road, which is not a part of the Faria Preserve, is referred to throughout this document as the Western Plan Area.

The NWSP Area is located adjacent to the City of San Ramon city limits. Annexation and development of the NWSP Area would result in a City boundary which is coterminous with the Urban Growth Boundary (UGB) as considered by the General Plan.

Applications have been filed with the City of San Ramon for the Faria Preserve, a mixed residential and community facilities project.[1] The Preserve is proposed on 290.6 of the 354.1 acres within the NWSP Area, and would include a total of 786 residential units comprised of single-family homes, town homes, condominiums, and senior housing units. The 786 residential units would include 715 base units and a 10 percent workforce housing incentive bonus. The Faria Preserve would include a community park, open space areas, and sites designated for a house of worship and an educational facility, along with various supporting infrastructure and public facilities, as further detailed in Section 3.3 below. The project area that would be encompassed by the Faria Preserve community is referred to throughout this document as the Faria Preserve Project Site.

The Project Sponsors for the Faria Preserve also own a significant amount of land immediately to the west of the Faria Preserve but outside of the NWSP Area. As an amenity of the Faria Preserve, and to advance the City's open space and resource conservation goals, 143.8 acres of this property, called the Adjacent Faria Offsite Preservation Area, is to be permanently preserved in its natural state through conservation easements. Distribution of property ownership throughout the NWSP Area is displayed in Figure 3-3.

[1] The Faria Preserve Vesting Tentative Map (Bellecci & Associates, Inc., April 2006) serves as the basis for this EIR analysis of the Faria Preserve. The Faria Preserve Development Application includes the Vesting Tentative Map, Development Plan and applications for Pre-Zoning and Architectural Review.

This chapter presents the location and environmental setting of the proposed NWSP Area and Faria Preserve Project Site. It describes the NWSP project characteristics, then does the same for the Faria Preserve, providing more specific, project-related information where applicable. Project Sponsors' objectives are presented, followed by the approvals required from local, state and federal authorities in order for the NWSP and the Faria Preserve development application to be implemented.

3.2 PROJECT LOCATION AND SETTING

The 354.1-acre NWSP Area includes both the 290-acre Faria Preserve (located east of Bollinger Canyon Road) and the 63.5-acre Western Plan Area (located west of Bollinger Canyon Road). The NWSP Area is located in southern Contra Costa County, west of Interstate 680, south of the Town of Danville, and adjacent to the City limits of the City of San Ramon (see Figure 3-1). It is situated outside of the City of San Ramon's current city limits, but within the City's Sphere of Influence and Planning Area Boundaries (see Figure 3-2).

The NWSP Area is currently undeveloped, with sporadic clusters of native trees (oak woodlands) located on the site. A prominent characteristic of the NWSP Area is the rugged topography, with a variety of slopes forming ridges and valleys (see Figure 3-3). Bollinger Creek runs in a north-south direction through the Western Plan Area and Adjacent Faria Offsite Preservation Area and does not affect the Faria Preserve Project Site. It eventually converges with San Catanio Creek just south of Crow Canyon Road to form San Ramon Creek, which flows northeast of the NWSP Area. San Ramon Creek runs along San Ramon Valley Boulevard. Two localized intermittent drainages within the Faria Preserve Project Site connect to the City's storm drain system and eventually discharge into San Ramon Creek. The Federal Emergency Management Agency (FEMA) 100-year floodplain surrounds the Bollinger Creek corridor within the Western Plan Area.

Major visual elements in the NWSP Area include ridgelines, hillsides, oak woodlands, the East Bay Municipal District (EBMUD) reservoir tank, and open space areas. Panoramic vistas of Central San Ramon, the Town of Danville, and the surrounding mountain ranges can be seen from the peaks of the ridgelines within the NWSP Area. Mt. Diablo, a regional landmark, can also be viewed to the east from these ridgelines.

As shown in an aerial view in Figure 3-4, surrounding land uses include single- and multi-family homes along the southerly edge of the NWSP Area and Faria Preserve Project Site, across Crow Canyon Road and along Deerwood Drive and Deerwood Road. The existing Mill Creek Hollow neighborhood park is located between the southern project boundary and Deerwood Road. Land uses adjacent to the easterly NWSP Area/Faria Preserve Project Site boundary include a self-storage use, office buildings and other light industrial uses taking access from Omega and Purdue Roads. A portion of the northerly NWSP Area/Faria Preserve Project Site boundary, east of Bollinger Canyon Road, adjoins the Town of Danville. Additional single-family homes exist northeast of the NWSP Area/Faria Preserve Project Site boundaries, within the Town of Danville, and remaining undeveloped lands extend to the north of the area.

Property ownerships within the NWSP Area include the Faria Preserve Project Site located east of Bollinger Canyon Road, and the Western Plan Area, located west of Bollinger Canyon Road, which includes the Chang property (61 acres), and the Panetta property (2.5 acres), the latter of which is located just north of Crow Canyon Road. Property boundaries within the NWSP are included in Figure 3-4.

Source: EDAW, Inc. 2006

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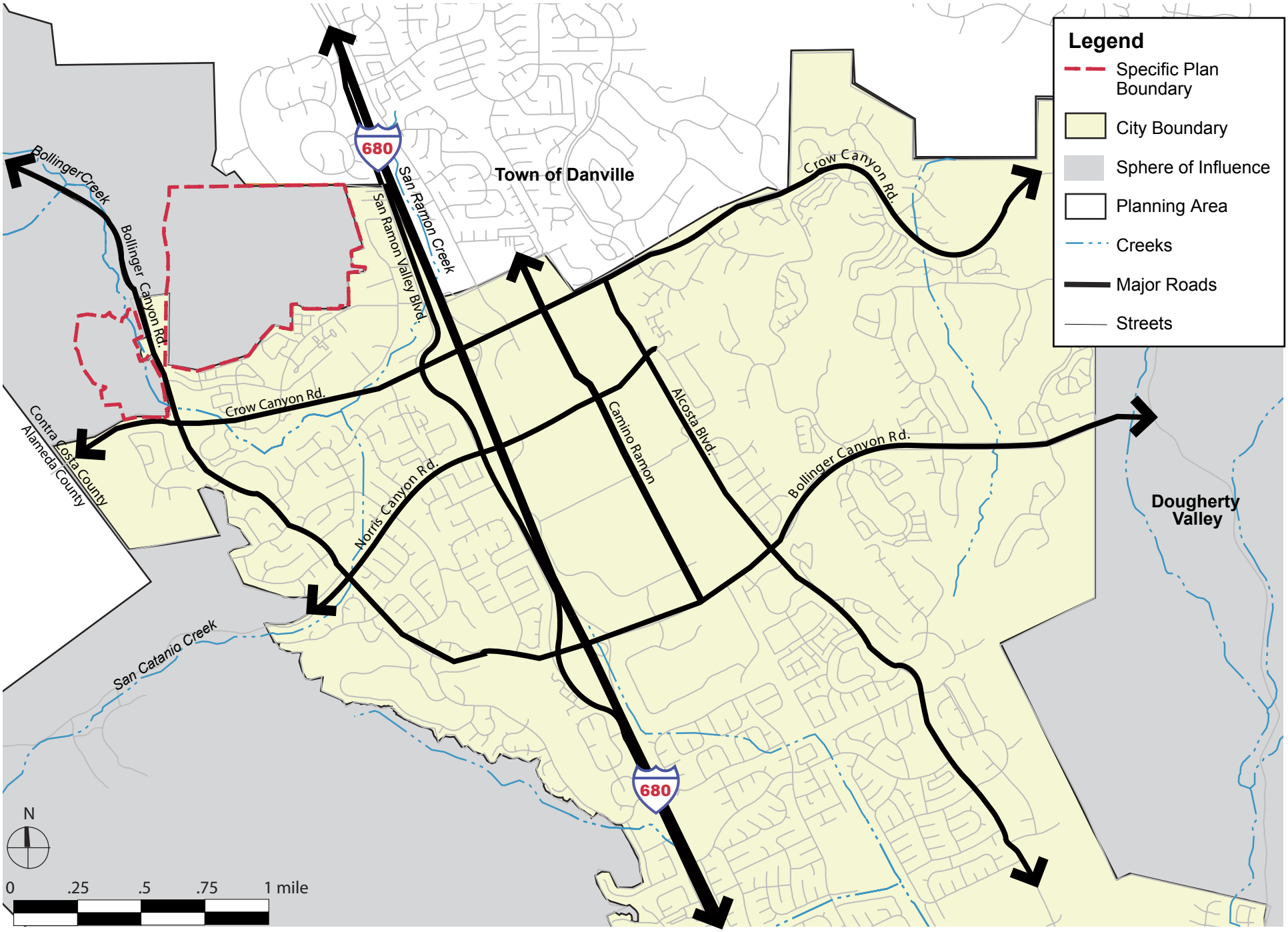

Source: EDAW, Inc. 2005

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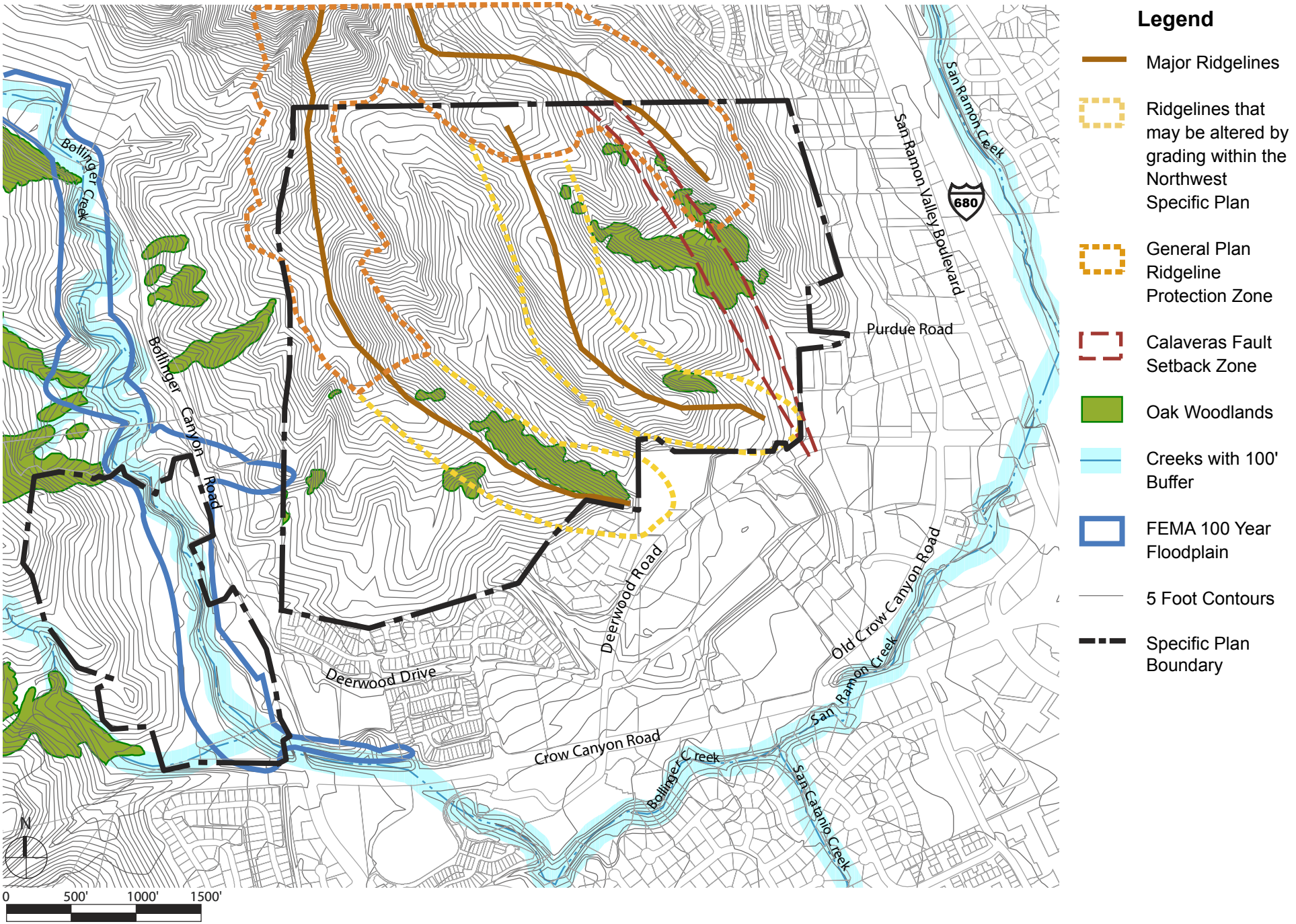

Source: EDAW, Inc. 2006

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Legend

- Specific Plan Boundary
- Creeks
- Property Boundary

Acreage Summary

	Acres
Faria Preserve	290.6
Western Plan Area	63.5
Total Plan Area	**354.1**
Adjacent Offsite Preservation Area	143.8

Source: E DAW, Inc. 2006

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3.3 PROJECT CHARACTERISTICS

The NWSP and the Faria Preserve are each described below. Since the Faria Preserve Project Site is located entirely within the NWSP Area, and many of the project characteristics of the NWSP Area would be the same as those of the Faria Preserve Project Site, the characteristics of the Faria Preserve will be presented in greater detail than those for the NWSP where appropriate.

3.3.1 Northwest Specific Plan

Proposed Land Uses

Residential Uses

The NWSP provides for a range of residential land uses, consistent with the Quantified Housing Objectives specifically identified in the voter-approved City of San Ramon 2020 General Plan, including the State-certified Housing Element. The NWSP would also be consistent with the General Plan Diagram, which identifies preliminary land use classifications based on net acres of developable land. Land uses proposed in the NWSP are shown in Figure 3-5.

The NWSP provides for a maximum of 830 new residential dwelling units within the 354.1-acre project boundaries. The distribution of these units by property ownership is shown in Table 3-1 below.

Table 3-1: Property Ownerships and Neighborhood Units

PROPERTY OWNERSHIP	ACRES	PROPOSED NEIGHBORHOOD UNITS					TOTAL HOUSING
		A	B	C	D	E	
Faria	290.0	200	200	300	86		786
Chang	61.0					43	43
Panetta	2.5					1	1
Total	353.5	200	200	300	86	44	830

Note: The total number of units includes a 10% housing supply bonus targeted specifically to meet local workforce needs, as defined in the General Plan Housing Element.

Source: EDAW, 2006

The NWSP Area would accommodate this overall housing supply within five distinct residential neighborhoods. Neighborhoods A, B, C, and D, which would include a total 786 units, would be located on the Faria Preserve, east of Bollinger Canyon Road. Neighborhood E would be located within the Western Plan Area, west of Bollinger Canyon Road. According to the General Plan, this neighborhood may consist of up to 44 residential lots, with an overall density of 2 dwelling units/acre, consistent with the General Plan land use designation of Hillside Residential. Up to twelve of the residences in Neighborhood E may contain second dwelling units depending on the design of the neighborhood, consistent with the affordable housing program for the NWSP.

Lots within Neighborhood E would average approximately ¼-acre to ½-acre in size and would receive access from a new street connecting to Bollinger Canyon Road, at a point directly opposite the Faria Preserve Project Site entry roadway. This internal roadway in Neighborhood E would include a bridge crossing of Bollinger Creek. A gated Emergency Vehicle Access (EVA) could provide emergency access and a pedestrian connection to Bollinger Canyon or Crow Canyon Road, located to the south of Neighborhood E. One of the 44 residential units permitted west of Bollinger Canyon Road has been reserved for the Panetta property pursuant to the NWSP, subject to required future land use entitlements.

Public and Community Facilities

The NWSP would provide several public and community serving facilities, as envisioned by the voter-approved General Plan. As shown in Figure 3-6, these facilities would include a community park and memorial rose garden, a house of worship, an educational facility, extensive open space areas and public trails. The proposed community park and trail facilities within the NWSP Area would be constructed and dedicated for public use, in conjunction with planned housing and related public facility development. A master park plan is included as a component of the NWSP, which identifies a variety of uses for the community park, including soccer and baseball facilities, a tot-lot, large grassy areas, an interpretive learning center, a community services/maintenance building, and parking facilities.

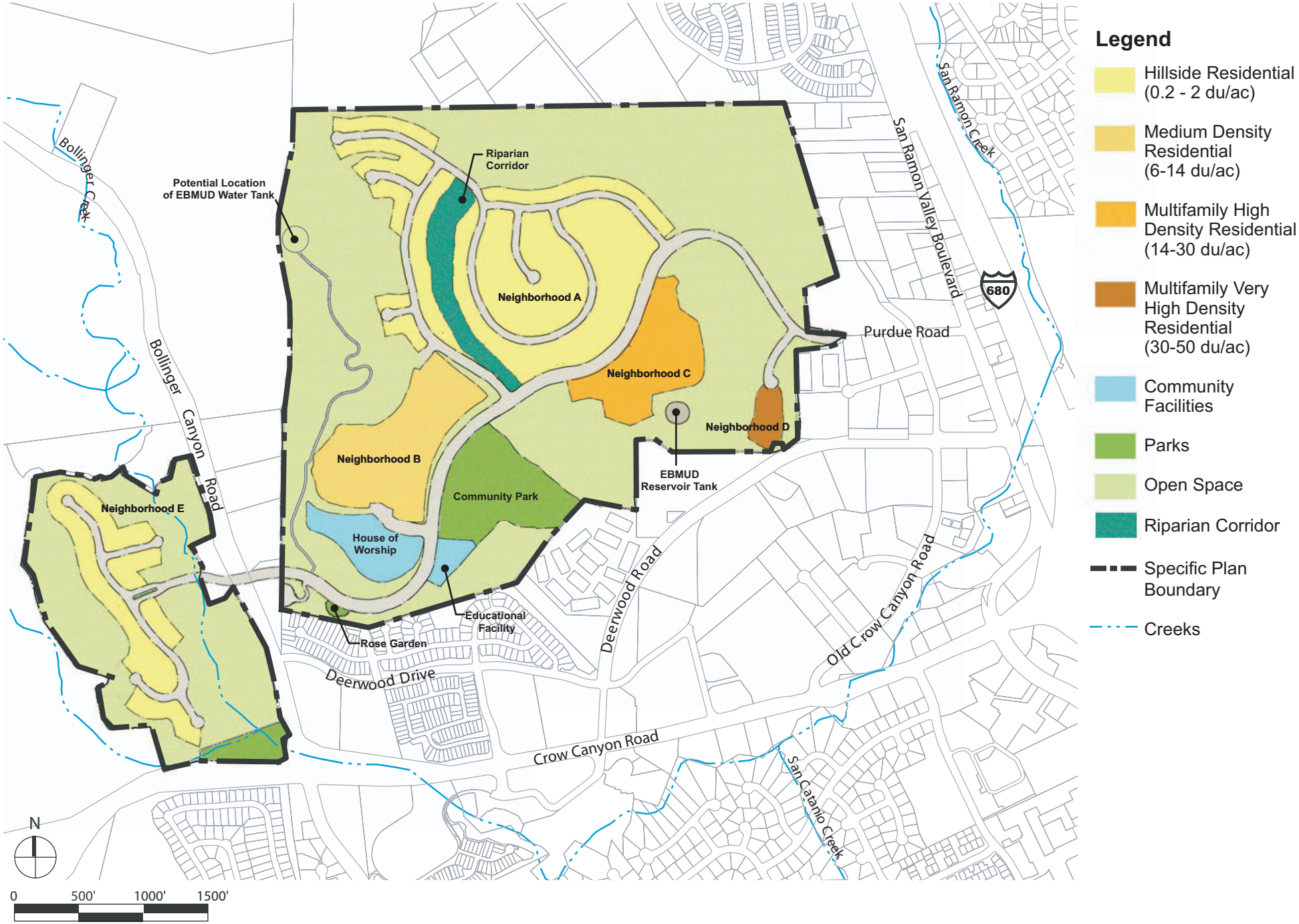
All public and community facilities would be located within the Faria Preserve Project Site and are therefore discussed in greater detail within the description of the Faria Preserve. Sponsors of the Faria Preserve also propose, as a project amenity and as a condition of approval, to dedicate as permanent, protected open space approximately 144 additional acres of land located immediately adjacent to the west of the NWSP Area to be referred to throughout this document as the "Adjacent Faria Offsite Preservation Area."

Infrastructure and Public Services

Water Supply

A complete water supply system would be developed in accordance with East Bay Municipal Utility District (EBMUD) standards, to serve all planned uses within the NWSP Area. The NWSP Area is located within EBMUD's Ultimate Service Boundary and would be served by EBMUD following annexation to the District. Residential Neighborhood E, located west of Bollinger Canyon Road would be served by an extension of the current water pressure zone facilities located within Bollinger Canyon Road.

The existing water supply infrastructure is part of the San Ramon Pressure Zone, which can provide water to a 450 to 650 ft elevation band. Development of housing and public facilities, as described in this Plan, would occur between elevations of 550 to 950 feet. Based on an initial analysis of servicing requirements by EBMUD, it has been determined that additional storage and distribution facilities would be required to support an additional water pressure zone to serve all parts of the NWSP Area. Potential visual impacts from the siting of the proposed reservoir are discussed in greater detail under the Faria Preserve Project Site.



Source: EDAW, Inc. 2006

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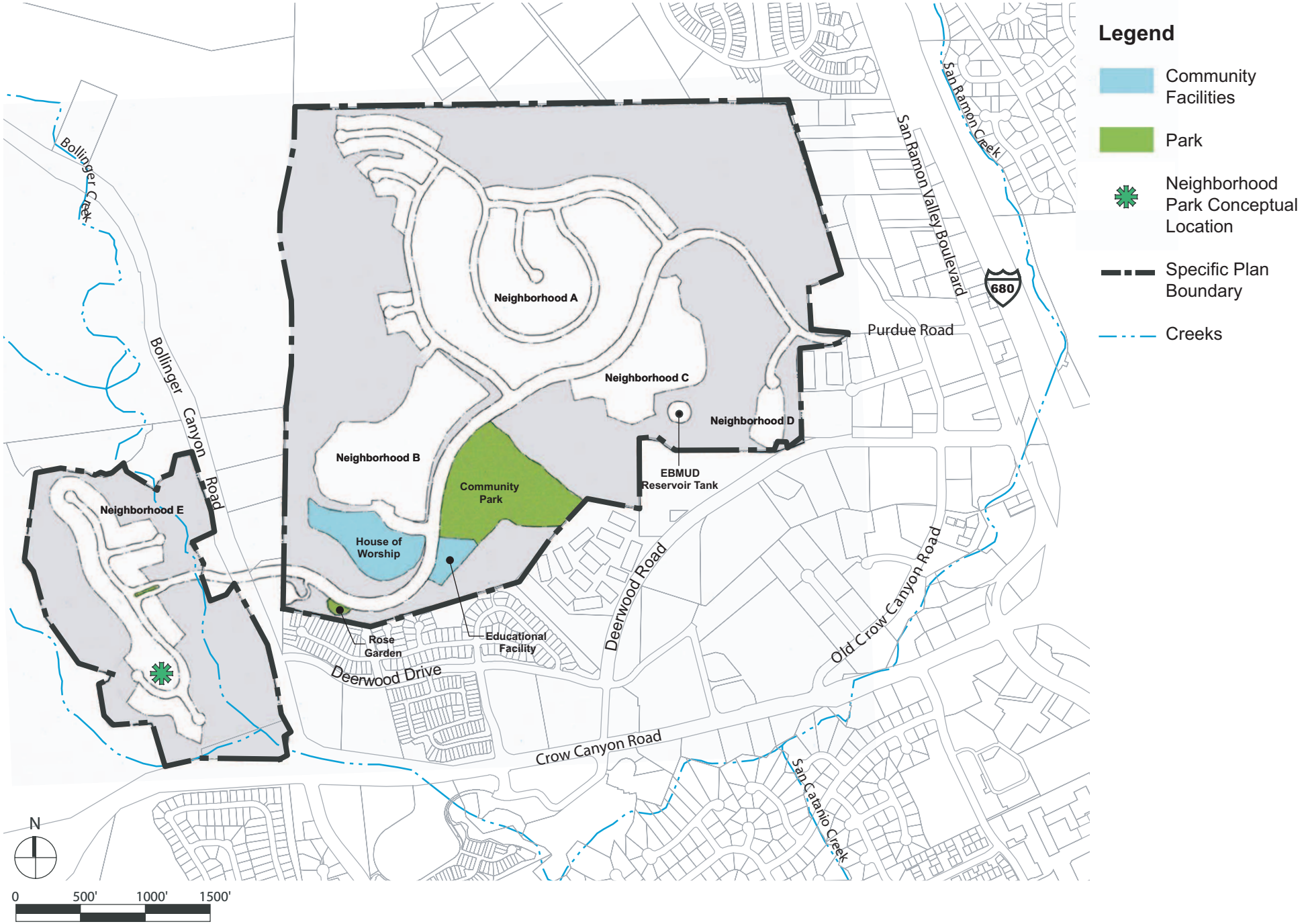

Source: EDAW, Inc. 2006

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Sanitary Sewer

Sanitary sewer collection and treatment services would be provided within the NWSP Area by Central Contra Costa Sanitary District (CCCSD), following annexation of the area into the District's boundaries. Currently, CCCSD has the available treatment capacity to accommodate the expected wastewater from the NWSP Area. However, studies by CCCSD indicate that capacity in the existing downstream piping system between the point of connection and the treatment plant (along San Ramon Valley Boulevard, between Crow Canyon Road and Ridgeland Drive) may need to be improved in the future, through system upgrades to be paid for by fees collected from projects on a system-wide basis. Actual off-site improvements would be constructed by CCCSD when deemed necessary to address the deficiency.

The sanitary sewer collection system for the NWSP Area would be a public system, constructed to CCCSD standards. The layout of the system would lie primarily within the development area and flow east to Purdue Road, where it would connect to the existing sewer main. Collectors within the main access loop road located east of Bollinger Canyon Road would be 8-inch minimum diameter pipe. Sewer mains of 10 to 12-inch diameter would convey wastewater from future development within the NWSP Area to the existing collection system as stated above.

The sanitary sewer system for the Western Plan Area (NWSP Neighborhood E, located west of Bollinger Canyon Road) would be finalized during the final design of the neighborhood, which would be determined through the development application process. The sewer system may require pump facilities and, because the proposed bridge crossing over Bollinger Creek may not be able to house a sewer line, the sewer would have to cross under the creek. Further design and environmental analysis may be required for the sewer infrastructure serving the Western Plan Area. The sanitary sewer system for Neighborhoods A-D, located within the Faria Preserve, is discussed in greater detail in Section 3.3.2 under Faria Preserve.

Storm Water

NWSP Area development would be served by a system of storm water filtration, collection and detention facilities located on site. These facilities would be designed to satisfy all applicable requirements of the San Francisco Bay Regional Water Quality Control Board (RWQCB), and would also meet City engineering standards (discussed further in Chapter 4-7: Hydrology/Water Quality). This system would be integrated into the open space and park system designs, as well as designs for enhancement of the riparian area along the westerly drainage channel on the Faria Preserve Project Site. (See the discussion of open space and resource conservation within the Faria Preserve for further discussion of the Biological Mitigation/Enhancement and Monitoring Plan.) The system would include a series of bio swales, open riparian corridors, retention ponds, street filter strips, off-line bioretention, and detention basins. The completed facilities would reduce peak storm water discharge from the developed site to less than that experienced under current pre-development conditions.

Storm runoff generated from the Faria Preserve would flow through bio swales and be conveyed through drainage channels and piped storm drain systems to three detention basins. These basins would include an existing pond north of the community park and two ponds upstream of an existing intermittent drainage swale located near Purdue Road. Storm discharge generated from the Western

NWSP Area would be conveyed through a piped storm drain system, through appropriately sized detention and water quality facilities and outfall to Bollinger Creek.

It is assumed that the additional constraints posed by the Contra Costa Clean Water Program would result in the requirement that runoff from the Western Plan Area be detained prior to discharge to the creek. Specific sizes and locations of detention and water quality facilities (which may be combined facilities) would be determined through the development application process.

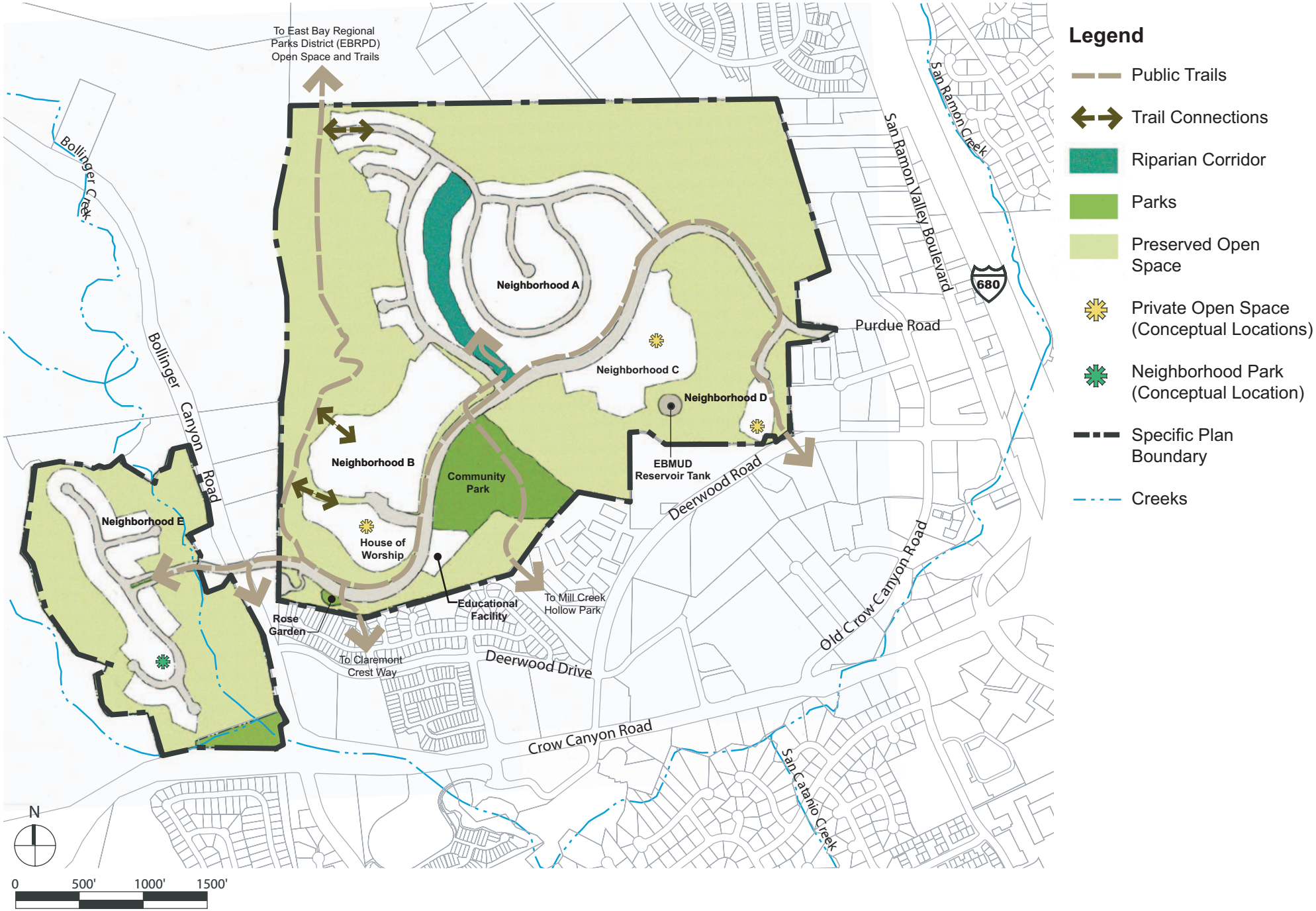
Open Space and Resource Conservation

A substantial portion of the NWSP Area (approximately 210 of the 354.1 acres) would be retained for open space and park land. Proposed development of up to 44 homes and local street improvements on the Western Plan Area would provide for the permanent preservation of at least 75 percent of the 63.5 acres west of Bollinger Canyon Road for open space related uses. Similarly, 75 percent or approximately 217.6 acres, on the Faria Preserve Project Site, would be allocated to open space, park and public facility or community uses, with housing uses limited to the remaining 25 percent of the site. The location and mix of these public and private open space uses are shown in Figure 3-7.

The General Plan Open Space and Conservation Element, along with the City's Resource Conservation Overlay District (RCOD), contains policies and ordinance standards for the protection of Major and Minor Ridgelines, and limit where grading and development may take place within the planning area. According to the City's voter-approved General Plan, the entirety of the NWSP Area is located within the RCOD, requiring the protection of ridgelines through the limiting of grading and development within 100 vertical feet of major ridgelines and 50 feet of a minor ridge. There are three identified major ridgelines located within the NWSP Area. However, as specified in the General Plan, two of the major ridgelines may be altered by grading within the NWSP Area (see Figure 3-3). The proposed Faria Preserve is consistent with these policies.

Further, the voter-approved General Plan and RCOD cover a greater area in the City, including all land that is above 500' in elevation. The purpose of the RCOD is to permit residential development and growth in the hill areas of the San Ramon planning area, while preserving and protecting natural amenities. The RCOD restricts development adjacent to ridgelines, on steep slopes, and along creek corridors, and it is designed to maintain an environmental balance consistent with the existing vegetation, soils, geology, slopes, and drainage patterns. The proposed Faria Preserve adheres to these policies.

As part of its Biological Mitigation/Enhancement and Monitoring Plan, the NWSP would also provide for the creation of a riparian and wildlife corridor of approximately 8.9 acres. This would be located within Neighborhood A, and is described in greater detail in the discussion of the Faria Preserve in Section 3.3.2 of this Project Description.



Source: EDAW, Inc. 2006

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Circulation

There are two primary access points to the NWSP Area, one on Bollinger Canyon Road and one on Purdue Road. Vehicular access would occur through Bollinger Canyon Road from Crow Canyon Road, with a main internal roadway extending west from Bollinger Canyon Road into Neighborhood E, and east providing access to Neighborhoods A, B, C and D. The access for Neighborhood E would consist of a new street with a bridge crossing at Bollinger Creek, providing both pedestrian access and allowing for wildlife movement. The access for Neighborhoods A through D are also configured with a new internal roadway and neighborhood streets branching off into each neighborhood. Details regarding the proposed internal circulation system are included in the Traffic and Circulation section of this EIR document.

Vehicular access would also occur from Purdue Road, which connects to San Ramon Valley Boulevard, a major thoroughfare for the City of San Ramon. Purdue Road also provides access to Old Crow Canyon Road and Deerwood Road.

Emergency access to the NWSP Area would be provided by both public streets and gated Emergency Vehicle Access (EVA) points. Emergency access to the Faria Preserve by public streets would be via Bollinger Canyon and Purdue Roads at the western and eastern gateways, respectively, to the Preserve. EVA only would be provided from two points, from Claremont Crest Way connecting to the spine collector near the west entry and from Deerwood Road connecting to Neighborhood D near the east entry. No public vehicular access would be permitted through EVA points.

The future developer(s) of Neighborhood E (located in the Western Plan Area) would be required to provide at least one public street emergency access point. If the Western Plan Area is developed with only a single public street entry, one EVA point of access would also be required. EVA to the Western Plan Area could be from either Bollinger Canyon Road or Crow Canyon Road.

The proposed circulation system includes bicycle and pedestrian facilities. Within the NWSP Area, bicyclists would be able to share streets with automobiles. Public streets would provide a minimum of a 12-foot-wide travel lane, an 8-foot-wide parking area, and a 4-foot-wide bike lane.

The pedestrian facilities within the NWSP Area would consist of sidewalks on public streets, off-street paths, and links to regional trails, integrated to provide a continuous walking system throughout a majority of the NWSP Area, connecting to existing commercial, retail, school and park facilities. The off-street paths would be primarily aligned with Faria Preserve Parkway, which traverses the NWSP Area from the intersection with Purdue Road in the east to the entrance to the Western Plan Area. Trails would spur off of the main pedestrian path at the following locations: from the intersection of the Parkway and Purdue Road, traveling south along Chianti Court, then east along Neighborhood D en route to Deerwood Road; north into Neighborhood A from a location along the Parkway just east of Via Saccone; south from the Parkway just west of Via Saccone, through the proposed community park and connecting to Mill Creek Hollow Park; south off of the Parkway, just east of the proposed Rose Garden, connecting to Claremont Crest Way; north, along the western edge of the Faria Preserve, connecting to the East Bay Regional Park District (EBRPD) open space and trails; and, just outside of the Faria Preserve, south along Bollinger Canyon Road.

3.3.2 Faria Preserve

The Faria Preserve is proposed on 290 acres within the NWSP Area located east of Bollinger Canyon Road, referred to as the Faria Preserve Project Site. The Faria Preserve Project Site boundaries are coterminous with the City's voter-approved Urban Growth Boundary ("UGB") to the west and north, which project site was designated by San Ramon voters for future development. Project applications, including a Vesting Tentative Map, have been filed with the City of San Ramon. The following sections provide details related to land uses, public and community facilities, infrastructure and public services, open space and resource conservation, circulation, and grading and construction, all proposed by the Faria Preserve. These details are presented at the project level and are therefore more specific than the details provided at the plan level in Section 3.3.1. Unless otherwise stated, refer to Figure 3-8: Faria Preserve Vesting Tentative Map.

Proposed Land Uses

Residential Uses

The proposed Faria Preserve includes residential uses within Neighborhoods A, B, C, and D of the NWSP Area. A total of 786 new residential dwelling units are proposed, as described below:

Neighborhood A. Located within the northerly 159 gross acres of the Faria Preserve Project Site, Neighborhood A would consist of 200 single-family detached, two-story homes varying between approximately 2,400 square feet (sq. ft.) to over 3,500 sq. ft. in size, as detailed in the preliminary architectural plans, and on lots averaging 6,863 sq. ft. in size. Developed on a net site area of approximately 42 acres, the project's architectural products would be as detailed in the preliminary plans as reviewed by the City's Architectural Review Board and approved by the Planning Commission. This neighborhood would have a density of approximately 1.3 units per gross acre. It would also allow a minimum of 28 and an estimated maximum of 50 second units, as set forth in the Affordable Housing Plan.

Neighborhood B. Neighborhood B would occupy approximately 20 acres within the central portion of the Faria Preserve Project Site, south of Neighborhood A. It would include 200 single-family detached, three-story homes, varying from approximately 2,100 sq. ft. to over 2,200 sq. ft. in size on lots averaging 2,195 sq. ft. in size, as detailed in the architectural exhibits and the Faria Preserve Design Guidelines. The proposed exterior materials would be similar to those proposed for Neighborhood A. These homes would face a pedestrian scale private street and have alley-loaded rear entry garages. This neighborhood would have a density of approximately 11 units per gross acre.

Neighborhood C. Neighborhood C would include 216 rental condominium/apartments and 84 single-family attached townhouse units in two- and three-story buildings Neighborhood C is located on a combined 11.9 acre site (approximately 25 units per acre) northwest of the existing EBMUD water tank. The town home style units would vary in size between approximately 1,700 sq. ft. and 1,900 sq. ft. in buildings containing two to six units. The condominium/apartment buildings would include one- to three-bedroom units ranging from approximately 856 sq. ft. to 1,385 sq. ft. in size.

REVISIONS:

1. JANUARY 18, 2005. ADDED: FAULT LINE, RIDGE TRAIL GRADING ALTERNATES (SHEET 2B). MODIFIED: TRAIL CONFIGURATION, NEIGHBORHOOD D LAYOUT, TRANSFER MAIN LAYOUT. AFFECTS SHEETS 1, 2, 2A, 2B, 3–8, 10, 11.

2. JULY 8, 2005. ADDED: MEDIAN BREAK TO FACILITATE ACCESS TO MAIN ENTRIES, NEIGHBORHOOD C, SHEETS 8–9. OPTIONAL PUMP STATION, SHEET 11.

3. DECEMBER 5, 2005. MODIFICATIONS TO PLAN PER FAULT DATA PROVIDED BY EARTH SYSTEM CONSULTANTS, OCTOBER 2005. DETENTION BASIN 3 GRADING MODIFIED. GRADING AND DITCHES MODIFIED. AFFECTS SHEETS 1–2A, 3–5, 10–11. SPLIT PARCEL L INTO L AND S. MODIFIED PARCEL SCHEDULE.

THE FARIA PRESERVE

SUBDIVISION 8891

VESTING TENTATIVE MAP & PRELIMINARY GRADING PLAN

PARCEL A AS SHOWN ON THE PARCEL MAP FILED OCTOBER 27, 1970, BOOK 14 OF PARCEL MAPS, PAGE 34, CONTRA COSTA COUNTY RECORDS & A PORTION OF SECTION 8 T.2S., R.1W., M.D.B.& M.

CITY OF SAN RAMON
CONTRA COSTA COUNTY, CALIFORNIA

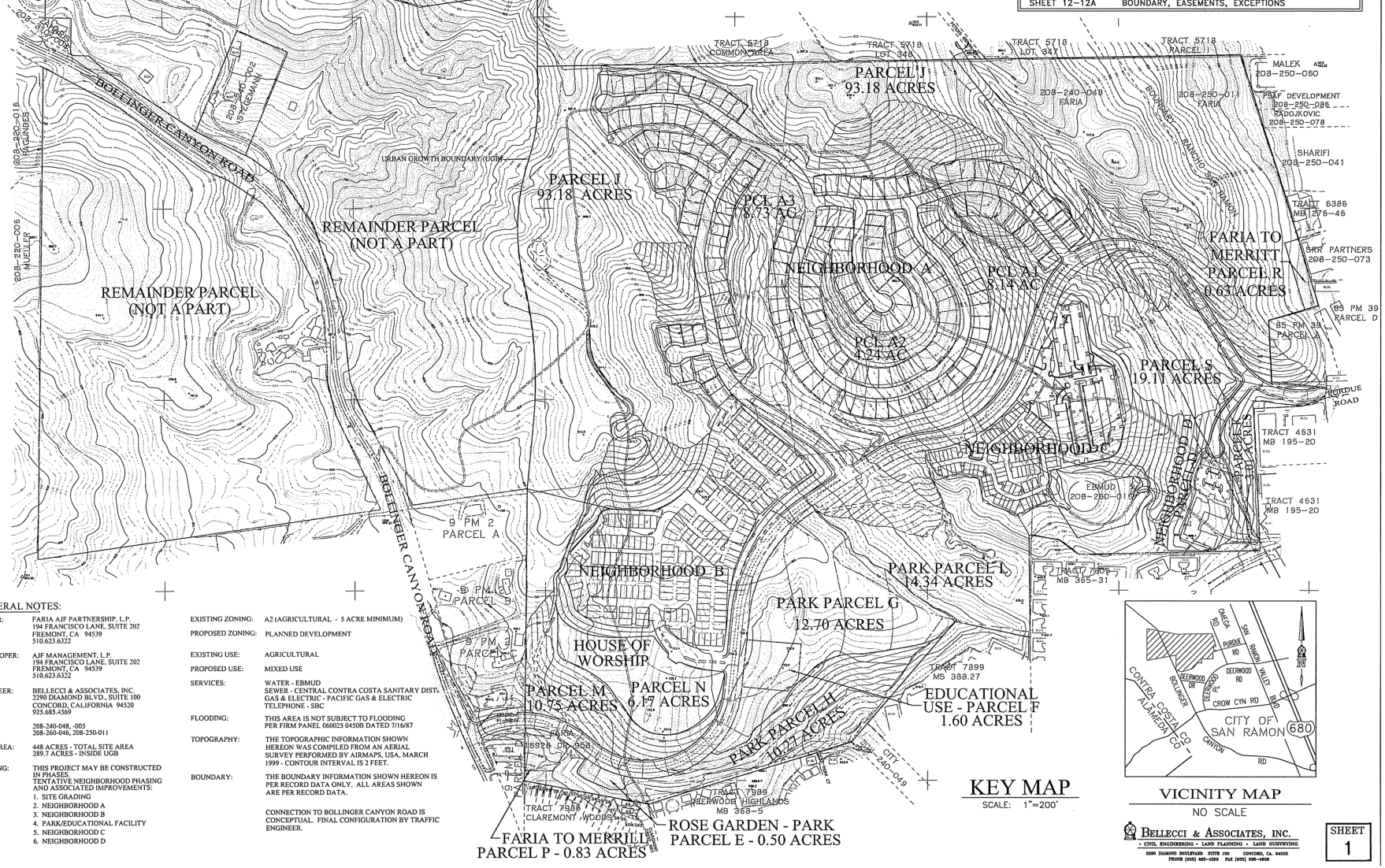
OCTOBER 2004 SCALE: 1" = 200'

REVISIONS: DECEMBER 29, 2004
FEBRUARY 10, 2005
DECEMBER 5, 2005

200 100 0 200 400 600
SCALE IN FEET

COMMON AREA PARCEL SCHEDULE		
PARCEL #	OWNERSHIP	OWNED/MAINTAINED
A1, A2, A3, B21, J, K, M, S	GHAD	TO BE DEEDED TO GHAD AND MAINTAINED BY SAME
E, G	CITY PARKS	TO BE DEDICATED TO CITY AND MAINTAINED BY SAME
B1–B20, C2–C8	COMMON AREA	HOMEOWNERS ASSOCIATION
C1	HOA OR PRIVATE	CONDOMINIUMS TO BE MAINTAINED BY HOA OR PRIVATE OWNERSHIP
O, F, N	PRIVATE	PRIVATE OWNERSHIP
P	PRIVATE	EXCHANGE PROPERTY TO MERRILL
R	PRIVATE	EXCHANGE PROPERTY TO MERRITT
L, H	CITY PARKS	TO BE DEDICATED TO CITY AND MAINTAINED BY GHAD

INDEX OF DRAWINGS	
SHEET 1	COVER SHEET, KEY MAP
SHEET 2	COMPOSITE MASTER GRADING PLAN
SHEET 2A	COMPOSITE SITE EROSION CONTROL PLAN
SHEET 2B	MASTER GRADING PLAN, TANK SITE ALTERNATIVES
SHEET 3	COMPOSITE SITE UTILITY PLAN
SHEET 4	NEIGHBORHOOD A, VESTING TENTATIVE MAP
SHEET 5	NEIGHBORHOOD A, PRELIMINARY GRADING PLAN
SHEET 6	NEIGHBORHOOD B, VESTING TENTATIVE MAP
SHEET 7	NEIGHBORHOOD B, PRELIMINARY GRADING PLAN
SHEET 8	NEIGHBORHOOD C, VESTING TENTATIVE MAP
SHEET 9	NEIGHBORHOOD C, PRELIMINARY GRADING PLAN
SHEET 10	NEIGHBORHOOD D, VESTING TENTATIVE MAP
SHEET 11	NEIGHBORHOOD D, PRELIMINARY GRADING PLAN
SHEET 12–12A	BOUNDARY, EASEMENTS, EXCEPTIONS



GENERAL NOTES:

OWNER: FARIA AJF PARTNERSHIP, L.P.
194 FRANCISCO LANE, SUITE 202
FREMONT, CA 94539
510.623.6322

DEVELOPER: AJF MANAGEMENT, L.P.
194 FRANCISCO LANE, SUITE 202
FREMONT, CA 94539
510.623.6322

ENGINEER: BELLECCI & ASSOCIATES, INC.
2290 DIAMOND BLVD., SUITE 100
CONCORD, CALIFORNIA 94520
925.685.4569

A.P.N.: 208-240-048, -005
208-260-046, 208-250-011

SITE AREA: 448 ACRES - TOTAL SITE AREA
289.7 ACRES - INSIDE UGB

PHASING: THIS PROJECT MAY BE CONSTRUCTED IN PHASES.
TENTATIVE NEIGHBORHOOD PHASING AND ASSOCIATED IMPROVEMENTS:
1. SITE GRADING
2. NEIGHBORHOOD A
3. NEIGHBORHOOD B
4. PARK/EDUCATIONAL FACILITY
5. NEIGHBORHOOD C
6. NEIGHBORHOOD D

EXISTING ZONING: A2 (AGRICULTURAL - 5 ACRE MINIMUM)

PROPOSED ZONING: PLANNED DEVELOPMENT

EXISTING USE: AGRICULTURAL

PROPOSED USE: MIXED USE

SERVICES: WATER - EBMUD
SEWER - CENTRAL CONTRA COSTA SANITARY DIST.
GAS & ELECTRIC - PACIFIC GAS & ELECTRIC
TELEPHONE - SBC

FLOODING: THIS AREA IS NOT SUBJECT TO FLOODING PER FIRM PANEL 060025 0450B DATED 7/16/87

TOPOGRAPHY: THE TOPOGRAPHIC INFORMATION SHOWN HEREON WAS COMPILED FROM AN AERIAL SURVEY PERFORMED BY AIRMAPS, USA, MARCH 1999 - CONTOUR INTERVAL IS 2 FEET.

BOUNDARY: THE BOUNDARY INFORMATION SHOWN HEREON IS PER RECORD DATA ONLY. ALL AREAS SHOWN ARE PER RECORD DATA.

CONNECTION TO BOLLINGER CANYON ROAD IS CONCEPTUAL. FINAL CONFIGURATION BY TRAFFIC ENGINEER.

KEY MAP
SCALE: 1"=200'

VICINITY MAP
NO SCALE

BELLECCI & ASSOCIATES, INC.
• CIVIL ENGINEERING • LAND PLANNING • LAND SURVEYING
2290 DIAMOND BOULEVARD SUITE 100 CONCORD, CA. 94520
PHONE (925) 685-4569 FAX (925) 685-4858

SHEET 1

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The design styles and exterior building materials/colors would be consistent with those proposed within the single-family neighborhoods and include both flat and peaked roofs. Neighborhood C would include a swimming pool, clubhouse and picnic area.

Neighborhood D. Neighborhood D would be situated at the southeasterly corner of the NWSP Area, immediately to the north of Deerwood Road and existing apartment and office uses. This neighborhood would provide 86 senior housing units in a three-story, 83,550 sq. ft. apartment building on a 2.1-acre site (approximately 40 units per acre). The one- and two-bedroom units would vary in size from approximately 550 sq. ft. to 800 sq. ft. Proposed exterior materials include s-tile roof, stucco exterior, window foam and wood trim detailing and wrought iron balcony enhancements with both flat and peaked roofs. Various refinements to the architectural plans as submitted for this and the other Faria Preserve neighborhoods and community facilities may be considered by the City as part of the Design Review process. Access to Neighborhood D would be from a short local public street which would connect to the main internal roadway, near the Purdue Road entry. Neighborhood D would also be served by public transit.

Typical landscape plans proposed for all of the single-family neighborhoods include front yards with a tree, lawn area and paved decorative entry. Proposed landscape plans for Neighborhood B also include front yard and rear/alley decorative landscaping. The open space and parkway areas adjoining these homes would have additional landscaping with native vegetation such as oak trees and evergreens near pedestrian walkways and outdoor gathering areas containing shade trees and decorative shrubs.

Public and Community Facilities

Proposed public and community facilities within the Faria Preserve include a community park, educational facility, house of worship and memorial rose garden (see Figure 3-8; also, for Plan-level detail, see Figure 3-6). The 12.7-acre community park (Parcel G) and 0.5-acre memorial rose garden (Parcel E) proposed for the Faria Preserve Project Site would comprise 13.2 acres of park area, and would accommodate a range of active and passive recreational uses. As previously described, the master park plan included in the NWSP would allow for soccer and baseball facilities, large grassy areas, an interpretive learning center, a community services/maintenance building, parking facilities, and related improvements as described in the Faria Preserve Design Guidelines and as further described in the NWSP. Proposed parking facilities would meet the peak demand needs of park users, while concurrently providing for shared off-peak use of certain activities on the adjoining house of worship and church sites.

The community park facility would directly adjoin approximately 25 acres of passive open space amenities to the south, east and north, and would be connected to the existing Mill Creek Hollow Neighborhood Park, located south of the Faria Preserve, via a new public trail. The planned community park would be centrally located and easily accessible from each of the residential neighborhoods within the project area by way of a public trail system, as shown in Figure 3-8 (also see Figure 3-7). A public trail or sidewalk would pass through the park, extending from Purdue Road on the east to Bollinger Canyon Road on the west, with connections to existing residential neighborhoods to the south (via the EVAs at Claremont Crest Way and Deerwood Road). The trail system would include the final link to the existing East Bay Regional Park District (EBRPD) trail on

Bollinger Canyon Road. This final link would extend north through the Faria Preserve, along the alignment of the major westerly ridgeline, to the north boundary of the NWSP Area. Improvement of the trail link within the NWSP Area would facilitate a future connection to the nearby Las Trampas Ridge Trail, which is owned and operated by EBRPD. The Las Trampas Ridge Trail currently extends in a northwesterly direction through the adjacent Las Trampas Regional Wilderness.

Immediately southwest of the proposed community park is a 1.6-acre site (Parcel F), which would accommodate a future educational use, such as a museum, educational outreach and/or institute use or similar facility. No detailed plans for the educational use were submitted with the project applications. However, it is assumed that development on this site would be a two-story facility of up to 25,000 sq. ft. (based on a floor area ratio (FAR) of 0.35), together with supporting parking and landscape improvements integrated with the adjoining community park uses. As detailed in the NWSP Public Facilities Plan, while each facility would include parking sufficient to accommodate its own peak demand, a shared parking arrangement could be established for the educational use, the house of worship, and the community park, in order to maximize flexibility (e.g., for special events) and accommodate community needs. Additional on-street parking would be available along both sides of the roadway adjoining these uses. A well-defined pedestrian crossing would be provided to the west of the education facility to connect the site to the nearby residential uses and the house of worship. A development plan and use permit application for the educational facility would be required at the time such a facility is proposed.

A 6.1-acre site would accommodate a house of worship (Parcel N), which would be positioned near the Bollinger Canyon Road entrance, north of the access roadway. The southerly boundary of this site would be approximately 600 feet north of the nearest existing residences to the south. The house of worship could include facilities such as a religious assembly facility, an affiliated child day care use, a pool and gymnasium, and related community amenities. No detailed plans for the future house of worship were submitted with the project applications; however, conceptual plans and design guidelines are included in the preliminary architectural exhibits and the Faria Preserve Design Guidelines. It is assumed that these facilities would be developed based on a maximum FAR of 0.35 (up to approximately 93,000 square feet), and would be served by parking provided through a combination of surface, below-grade and/or structured parking to meet maximum daily use requirements, together with shared off-site parking. On-site parking at each facility would be sufficient to accommodate its own peak daily use requirements, and a joint use arrangement with the nearby community park and educational uses would assure ample supply to maximize flexibility. The house of worship structure(s) would have a maximum building height of 32 feet (not including a steeple or similar architectural projection). A development plan and use permit application for the house of worship would be required at the time such a facility is proposed.

The relationships between the house of worship, community park, educational use site, and adjoining residential uses to the south are shown in Figure 3-8 (also see Figure 3-6). A memorial rose garden would be situated along the south side of the entry roadway, immediately west of a pedestrian link and gated EVA which would extend south to Claremont Crest Way. The entry roadway would be separated from the existing residential neighborhoods by a landscaped visual and noise buffer, which would provide a minimum separation of approximately 150 feet from the nearest existing residence to the planned roadway travel lanes and include a re-vegetated oak woodland. The roadway

alignment would be at the base of a hill, below the house of worship site and substantially screened from the adjoining residences by a proposed earthen berm, trees, and landscaping. The south boundary of the house of worship site would be separated from the existing nearest homes by over 300 feet, with the access roadway position and elevation providing visual and noise buffers from the adjoining homes.

Infrastructure and Public Services

As previously described, a complete water supply system would be developed in accordance with EBMUD standards, to serve all proposed uses within the Faria Preserve Project Site. This system would be served from a new pressure zone with its own water supply reservoir – which would be located just inside the western boundary of the Faria Preserve Project Site (Parcel J). The proposed reservoir would consist of two adjacent, roughly 70-foot diameter water tanks located on the westernmost ridge within the Faria Preserve Project Site. Several alternatives configurations and locations for the water tanks within a 3.25 acre envelope have been studied in cooperation with EBMUD. While this EIR assumes that the tanks would be above-ground steel tanks for purposes of evaluating potential visual impacts, EBMUD has indicated that it prefers an alternative calling for the tanks to be constructed of concrete and to be partially buried, with that portion remaining above grade protected from view by a berm. The water tank envelope and the alternative configurations and precise locations are described more fully in Chapter 7, Alternatives.

The new water pressure zone would be served by a new pump station and water transmission facilities connected to the existing on-site water tank. EBMUD's preferred site for the new pump station, which would be partially buried, is near the valve pit structure near the existing EBMUD water tank in the southeast portion of the Faria Preserve site. A new access road connecting the existing on-site reservoir to Purdue Road is also proposed, as is a realignment of the existing pipeline from San Ramon Reservoir to Deerwood Road. Potential impacts of these components of the water infrastructure program are considered along with the remainder of the water delivery system throughout this EIR.

All planned uses described above are included in the Faria Preserve Vesting Tentative Map. The Faria Preserve Project Site is located within EBMUD's Ultimate Service Boundary and would be served by EBMUD following the NWSP Area's annexation to the District. Similarly, the Faria Preserve Project Site would receive sanitary sewer collection and treatment service from CCCSD (the site is currently within acceptable limits to be serviced by CCCSD; however, annexation of this parcel to CCCSD would be required before service could be provided). Designed to operate exclusively on gravity flow, Residential Neighborhoods A, B, C and D, together with the community park, house of worship, and educational use facility would be served by a trunk line which would connect to existing facilities in Purdue Road; service to the house of worship would be extended from district facilities in Bollinger Canyon Road.

As previously noted in Section 3.3.1, CCCSD currently has the available treatment capacity to accommodate the expected wastewater from the NWSP Area, including the Faria Preserve. However, capacity in the existing downstream piping system between the point of connection and the treatment plant (along San Ramon Valley Boulevard, between Crow Canyon Road and Ridgeland Drive) may need to be improved in the future, through system upgrades to be paid for by fees

collected from projects on a system-wide basis. Actual off-site improvements would be constructed by CCCSD when deemed necessary to address the deficiency.

The system of storm water detention facilities described previously in the discussion of the NWSP Area would exist entirely within the Faria Preserve Project Site. The largest of three detention basins would be an existing facility located to the east of planned recreational facilities adjoining the proposed community park. This basin would collect and meter project peak flows entering from part of the community park, all of Neighborhood B, the westerly portion of Neighborhood A, and adjoining streets and slopes. A second retention/detention basin would be created immediately to the east of Neighborhood A and north of the internal collector street, within the alignment of the existing drainage swale, and would connect to a new third basin located north of Neighborhood D. These two smaller basins would serve the easterly portion of Neighborhood A, all of Neighborhoods B and C, and the adjoining roadways and slopes. Other uses within the NWSP Area drain to the west.

Open Space and Resource Conservation

As part of the development of the Faria Preserve, the owners of the Faria Preserve would record permanent conservation easements over the Adjacent Faria Offsite Preservation Area -- 143.8 acres of open space contiguous to the NWSP Area and located immediately to the west of it, but within the City's Planning Area Boundary. As outlined in the General Plan Open Space Preservation Action Plan, this additional protected open space would be dedicated on a 2:1 basis (two acres off-site open space = one acre on-site open space). This would increase the ratio of open space to residential uses within the Faria Preserve to a minimum of 80 percent. The combined overall 80 percent open space ratio would serve to further the objectives of policies embodied in Open Space and Conservation Element of the General Plan. The protected off-site open space areas are located within ½ mile of the proposed on-site residential development and would provide an open space corridor between urban development within the NWSP Area and the rural conservation uses further to the northwest within Bollinger Canyon.

A riparian corridor of approximately 8.9 acres, located along the existing westerly drainage swale, would meander through Neighborhood A in the Faria Preserve. The riparian corridor would include a riparian drainage swale and a series of small wetland habitat areas and connecting ponds. These proposed facilities would be improved and maintained in accordance with a Biological Mitigation/Enhancement and Monitoring Plan to be approved by the U.S. Army Corps of Engineers. The Biological Mitigation/Enhancement and Monitoring Plan, as currently proposed, would provide for the creation and maintenance of wetland features and ponds having a combined surface area of over approximately 1.15 acres, which would replace the approximate 0.40 acres of impacted wetlands on a three to one basis. The ponds are intended to help support adjoining wetland areas, provide for wildlife movement, and enhance the proposed storm water filtration system. The corridor would connect major on and off-site open space areas to the north of Neighborhood A with the community park and additional open space to the south, as well as existing Mill Creek Hollow Park further to the south. A mix of riparian vegetation, including California bays, willows and oak trees and associated shrubs and groundcover would be planted throughout the corridor, and the enhanced drainage course would be designed to support wetland features while eliminating the presently occurring erosion.

Circulation

The circulation system proposed for the Faria Preserve Project Site is a subset of that described for the NWSP Area. The Faria Preserve Parkway and all streets in Neighborhood A would be public. In Neighborhood B, the following streets would be public: Via Capri, Via Modena, Via Novara, Via Erona, and Via Vicenza. All other streets would be private. All Neighborhood C streets would be private. Neighborhood D would be accessed by Chianti Court, which would be a public street. A sidewalk would be provided on all public streets.

Pedestrian and bicycle facilities included in the VTM include the meandering pathway along Faria Preserve Parkway, which traverses the NWSP Area from the intersection with Purdue Road in the east to the entrance to the western portion of the NWSP Area, and the ridge trail, which travels north along the western edge of the Faria Preserve Project Site, connecting to the East Bay Regional Park District open space and trails.

Grading and Construction Schedule

The proposed project would require grading on the site. Figure 3-3 and Figure 3-8 display the natural setting of the NWSP Area and Faria Preserve Project Site, and identify ridgelines that may be altered by grading. Figure 3-3 also identifies the General Plan Ridgeline Protective Zone. As previously discussed, grading work necessary to support the neighborhoods and major public and community facilities within the Faria Preserve Project Site would take place in a manner consistent with General Plan policies, and those major ridgelines identified for protection in the General Plan Open Space and Conservation Element would be protected from mass grading, as required by the General Plan. Earthwork within the Faria Preserve Project Site would involve approximately 5.1 million cubic yards of balanced cut and fill, with maximum fill depths approaching 110 feet. This would create the necessary building pad sites for both residential and public facility uses, repair and stabilize nearby existing landslides, and provide for contoured transition slopes on adjoining open space areas.

The project is expected to be constructed in phases over 44 months as follows:

Phase 1 - Site Grading, months 1-24 (grading would not occur during the winter wet season)

Phase 2 - Neighborhood A, months 24-60

Phase 3 - Neighborhoods B, months 24-60

Phase 4 - Park/Educational Facility, months 24-36

Phase 5 - Neighborhood C, months 36-60

Phase 6 - Neighborhood D, months 36-60

3.4 STATEMENT OF OBJECTIVES

Northwest Specific Plan

The NWSP is implemented by Policy 4.7-I-1 in the General Plan, which states: "Prepare a Northwest Specific Plan for the area delineated on the General Plan Diagram to guide the future development of these lands as compact urban neighborhoods offering a mix of housing types, including workforce housing, public and semipublic uses, and significant park and open space areas."

The General Plan provides that the NWSP shall address the following:

- A land use program providing for development in Area A east of Bollinger Canyon Road of up to 715 housing units, 15-20 acres of land for a school site (to revert to parkland or permanent open space if a school is not provided), community facilities, a site for a house of worship and, in the Area B west of Bollinger Canyon Road, development of up to 40 units;
- A workforce housing program providing that at least 25 percent of all units within the NWSP Area are affordable to Very Low, Low, and Moderate income households and determining the timing for workforce housing relative to the City's employment growth, the most appropriate income split, rental-to-ownership ratio, deed restrictions, and phasing requirements (As an additional incentive for workforce housing the development limit set in the land use program may be exceeded by up to 10 percent in order to accommodate an additional housing unit for each additional affordable unit provided in excess of the minimum requirement);
- Development standards and design guidelines for building height, location massing, parking landscaping, signs, buffering and transition requirements between uses, compatibility with existing neighborhoods, undergrounding of utilities, etc.;
- Vehicular connections to Bollinger Canyon Road in the west and an improved Purdue Road in the east, as well as pedestrian connections with existing neighborhoods along Deerwood Road;
- An infrastructure program, including roadway, sewer, water, electricity, and drainage access, design, and capacity;
- An open space protection and trails program, including designation of at least 75 percent of the site for schools, parks, common and public open space uses, ownership and maintenance of public and private open space, and design of open space amenities, such as staging areas (if applicable), trails and connections, etc.;
- A hazards program, including standards and guidelines to address unstable slopes, soils, Alquist-Priolo zone, etc.;
- Exemptions required from Ordinance 197, which would need voter approval; and
- Implementation financing and maintenance program, including cost of and responsibility for necessary capital and other improvements, phasing of development, financing measures, plan administration and enforcement, etc.

Faria Preserve

The Project Sponsor's stated objectives for the project are as follows:

- Provide a range of housing available to mixed incomes within the Northwest Specific Plan (NWSP) area, including 25 percent affordable housing, that maximizes the City's ability to meet its quantified housing objectives and meets the new inclusionary requirements set forth in the City's General Plan and recently adopted Certified Housing Element of 2004. [Housing Element, Quantified Objectives – p. 11-70, Table 11.7-1; General Plan Growth Management (GM) policy 3.1-I-3.]
- Prevent urban sprawl by developing within the City's Urban Growth Boundary and by carefully crafting a development design to maximize permitted densities in the Land Use element of the General Plan in a manner that creates incentives for clustering allowable residential development. [General Plan Land Use (LU) policies 4.6-I-1, I-15; Open Space (OS) policies 8.4-I-6, 8.4-I-13.]
- Provide community facilities, including a community park, a public trail system, an educational facility, and a house of worship, consistent with the Land Use policies in the City's General Plan to provide high quality public facilities, services and other amenities within close proximity to residents. [GM 3.1-I-7; LU 4.6-I-13, I-23.]
- Provide a circulation system that connects the project internally, as well as with the surrounding community, and which provides a safe, reliable infrastructure framework to meet the utility needs of future residents in the NWSP area such as water deliveries for fire-fighting flows. [GM Performance Standards – p.3-5; GM 3.1-I-7; LU 4.6-I-13; Traffic and Circulation (T&C) policies 5.1-G-1.]
- Restore, enhance and maintain riparian corridors and oak woodland areas to ensure permanent protection of valuable habitat consistent with the open space and resource management policies stated in the City's General Plan. [OS & Resource Management (RM) policies: 8.3-I-1, I-2, I-3, I-4; 8.4-I-8.]
- Provide permanent protection of 75 percent of the on-site Faria Preserve Protection Area as open space, public uses and community facilities, together with an additional 143.8 acres of adjoining off-site open space (80 percent/20 percent overall open space ratio) subject to recordation of a conservation easement, consistent with the requirements of the City's Resource Conservation Overlay District and the open space policies in the City's General Plan. [GM 3.1-I-2; OS 8.3 I-4, I-6.]
- Design a development plan that would provide geologic stability and balance onsite grading to mitigate for underlying landslide activity, prevent further erosion of displaced soils, degradation of water quality and wetland/riparian habitats and risks to proposed and existing downstream improvements, and to avoid environmental impacts from the off-hauling of materials. [GM 3.1-I-7; Safety 9.1-G-1, 9.1-I-1, I-10, 9.3-G-1, 9.3-I-1, I-2, 9.4-G-1.]

3.5 IMPLEMENTATION

Northwest Specific Plan

Implementation of the NWSP would require a number of approvals from local, State and Federal authorities. Following is a summary of proposed and anticipated project entitlements.

City of San Ramon

Based on future development of residential and public or community facility uses on the 354.1-acre NWSP Area, the following actions and entitlements are anticipated from the City of San Ramon:

1. Certification of a project Environmental Impact Report.

2. Prezoning from current Agriculture & Resource Conservation Overlay District and Rural Residential / Resource Conservation Overlay District (RCOD) to a Planned Development District to provide for development of the site in accordance with the NWSP.

Other Responsible Local, State and Federal Agencies

The following additional actions would be required in order to implement the NWSP:

- California Department of Fish and Game (CDFG) plan review and possible Section 1602 Streambed Alteration Agreement.
- U.S. Army Corps of Engineers (USACE) verification of wetland delineation and issuance of Section 404 permit(s) pursuant to federal Clean Water Act.
- U.S. Fish and Wildlife Service (FWS) review of plans and consultation under provisions of Clean Water Act and Endangered Species Act.
- Contra Costa County Flood Control and Water Conservation District (approval of storm drainage design and mitigation).
- East Bay Municipal Utility District (EBMUD) annexation (project is currently within EBMUD Ultimate Service Area) and permits to connect to current District facilities.
- Central Contra Costa Sanitary District (CCCSD) annexation (project is currently within the District's Ultimate Service Boundary) and permits to connect to current District facilities for discharge of wastewater effluent.
- California Regional Water Quality Control Board (RWQCB) National Pollutant Discharge Elimination System stormwater discharge permit approval, and Section 401 Water Quality Certification.
- California Department of Transportation (Caltrans) review of plans and possible permits and related actions associated with improvements at Interstate 680.
- East Bay Regional Park District (EBRPD) acceptance of easement alignment and improvements for Calaveras trail linkage.

- Contra Costa Local Agency Formation Commission (LAFCO) approval of boundary reorganization, involving annexation to the City of San Ramon, EBMUD and CCCSD.

Faria Preserve

The Faria Preserve Master Planned Development Application includes the Vesting Tentative Map, Development Plan and applications for Pre-Zoning and Architectural Review. Plans include an Affordable Housing Plan, Design Guidelines and preliminary architectural drawings. Implementation of the Faria Preserve would require first the adoption of the NWSP and the previously listed actions and entitlements from local, State and Federal authorities. Subsequently, the following local actions and entitlements would be required:

1. Architectural review approval for all new construction.
2. Tentative Subdivision Map approvals for division of the 290-acre site into separate parcels, leasehold interests and air space interests, to facilitate construction of a total of 786 dwelling units.
3. Recordation of a conservation easement to provide for permanent protection of 143.8 acres of adjoining lands located outside the Specific Plan boundaries.
4. Related City approvals, including encroachment permits, and construction permits.
5. Park Plan Approval.
6. Final Subdivision Map.
7. Master Sign Program Approval.
8. Development Plan for House of Worship and Educational Facility.
9. Use Permit for House of Worship and Educational Facility.
10. Creation of a Geologic Hazard Abatement District.
11. Formation of a Community Facilities District.
12. Formation of and/or annexation to Landscaping and Lighting District.

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4. ENVIRONMENTAL EVALUATION

This chapter consists of eleven sub-chapters that evaluate the environmental impacts associated with the implementation of the proposed Northwest Specific Plan (NWSP) and the Faria Preserve. The topical sections include: aesthetics, air quality, biological resources, cultural resources, geology/soils, hazards & hazardous materials, hydrology/water quality, land use/planning, noise, transportation/traffic, and utilities/service systems. Each sub-chapter follows the same format, and consists of the following subsections:

1. The **Existing Setting** section describes current conditions with regard to the environmental factor reviewed.

2. The **Thresholds of Significance** provide guidance on how an impact is judged to be significant in this EIR. These thresholds are based on the CEQA Guidelines (Appendix G, Environmental Checklist Form) and other applicable City of San Ramon regulations and agency standards (e.g., Bay Area Air Quality Management District).

3. The **Environmental Evaluation** provides an assessment of the potential impacts of the proposed NWSP and Faria Preserve, and tells why impacts were found to be significant or less than significant. Environmental impact conclusions are summarized at the end of each topical section, as indicated by a left-justified box. The level of significance for each impact is clearly presented at the end of each impact statement and the entity to which the impact is attributed (NWSP Area, Faria Preserve, or both; some impacts also refer to the entire NWSP Area at the Plan Level) is indicated parenthetically along with the level of significance. Mitigation measures are numbered to correspond with the impacts and the level of the impact's significance after mitigation is described at the end of each mitigation measure.

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4.1 AESTHETICS

This chapter describes the existing environment in the Northwest Specific Plan Area (NWSP Area), the regulations that relate to visual resources and aesthetics, and the potential visual and aesthetic effects from implementation of the NWSP and the Faria Preserve. Much of the information on the existing visual characteristics of the NWSP Area is based on information in the City of San Ramon 2020 General Plan (General Plan) (City of San Ramon, 2002), as well as the City of San Ramon 2020 General Plan Environmental Impact Report (General Plan EIR) (City of San Ramon, 2001), incorporated here by reference. While the analysis for the NWSP Area is conceptual and qualitative, the analysis of the Faria Preserve is more precise, given that it is based on visual simulations. This section also recommends mitigation measures, as necessary, to reduce significant aesthetic impacts.

In order to provide clarity with regard to impacts and responsibility for implementing mitigation measures, this section refers to three distinct geographic areas:

- The Northwest Specific Plan Area, which includes all of the lands analyzed as part of this Plan- and Project-related EIR, shall be referred to as the "NWSP Area."
- The Faria Preserve Project Site is the portion of the NWSP Area for which a Development Application has been filed, and is located to the east of Bollinger Canyon Road. It shall be referred to in this section as the "Faria Preserve Project Site."
- The portion of the NWSP Area that is located west of Bollinger Canyon Road shall be referred to as the "Western Plan Area." Aside from being part of the NWSP Area, the Western Plan Area is not associated with the Faria Preserve Project Site.

4.1.1 Existing Visual Conditions

This section describes existing conditions in the NWSP Area in terms of its regulatory background, visual character, visual resources, and views of and from the surrounding community. The Faria Preserve Project Site is located entirely within the eastern portion of the NWSP Area. Therefore, the existing visual conditions of both the NWSP Area and the Faria Preserve Project Site are covered in this section. The environmental analysis in Section 4.1.3 distinguishes between the Western Plan Area (program-level) and Faria Preserve (project-level) separately.

Visual Overview of the Northwest Specific Plan Area

Visual Character

The NWSP Area is located in the San Ramon Valley, at the northwestern edge of the City of San Ramon. Hills and ridges, including Las Trampas Ridge, Mt. Diablo and the Black Hills lie to the north and northeast of San Ramon, while a series of hills and ridgelines that rise to approximately 1,400 feet above the valley floor lie to the west. The San Ramon Valley, which is oriented north-south, is defined by these natural features to the east and west. The NWSP Area lies along the valley's western slopes and at the base of the hills at elevations ranging from approximately 500 to 1,000 feet.

The I-680 corridor, a designated scenic highway, forms a dominant landscape element along the length of the valley floor, following the valley's north-south orientation. Existing urban development within the San Ramon Valley is concentrated along this corridor. This existing development pattern, including single and multi-family residences, office and commercial buildings, and noise barriers can be seen in typical foreground views along both sides of the highway. Motorists traveling either north or northbound along I-680 within San Ramon and other valley communities can enjoy intermittent distant views of the open, grass- and woodland-covered hills and ridgelines.

The NWSP Area is underlain by sandstone bedrock at upper elevations and more colluvium-filled soils at lower elevations, creating a landscape that is rockier with crags and outcroppings along the ridgeline and more supportive of seasonal grass, woodland and riparian vegetation in the lower slopes and valleys. The visual character of the NWSP Area is defined predominantly by four northwest-trending major ridges and steep sloping hillsides. The hills are mainly covered by grassland with the valleys and drainages between them characterized by oak woodlands, cottonwood, willow trees and other riparian vegetation. Bollinger Creek, located immediately west of Bollinger Canyon Road, bisects the NWSP Area and is the largest body of water in the vicinity. The color and texture of the NWSP Area's appearance varies by season. In summer months, or times of little rainfall, the landscape is generally tan or light brown and dry in appearance. In the winter, or during months of higher rainfall, the landscape is predominantly dark green and more lush in appearance, as a greater amount of vegetation is present in the area.

The NWSP Area appears to be in a generally natural state but has been significantly degraded by erosion and by prevalent past and present cattle grazing. The western portion of the area contains dirt roads, a wooden barn and supporting structures, corrals and livestock fences. On the eastern portion of the NWSP Area, east of Bollinger Canyon Road, a 5.1 million gallon circular metal water tank reservoir, owned by East Bay Municipal Utility District (EBMUD), is located near the southeast corner of the NWSP Area, and is accessed by a paved road leading from Deerwood Road. It is the only man-made structure on the eastern portion of the NWSP Area. Figures 4.1-1 – 4.1-6 contain images representative of the general landscape visible within the NWSP Area.

Surrounding Visual Context

Views from the NWSP Area vary in each direction, as do views of the NWSP Area from the surrounding area. The description of views of and from the NWSP Area constitute the surrounding visual context.

North of the NWSP Area

The elevation increases to the north of the NWSP Area, and the view is dominated by major ridgelines. The hills to the north are visually similar to those within the NWSP Area in that they are comprised mainly of major ridgelines, the slopes of which contain open grassland and minor, intermittent patches of oak woodland vegetation primarily located in the valley drainage areas. There are no public recreation areas or residences to the north, where views of the NWSP Area would be attainable (though one home in Danville would have a partial view of the eastern portion of the NWSP Area). Northeast of the NWSP Area is Mt. Diablo, which is clearly visible from most of the area, except from the valley drainages.

Figure 4.1-1: Ridgeline on the Faria Preserve

Figure 4.1-2: Drainage on the Faria Preserve

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Figure 4.1-3: Oak woodland within a drainage on the Faria Preserve

Figure 4.1-4: View of Bollinger Canyon Road, just east of Bollinger Creek

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Figure 4.1-5: View looking southeast from within the Western Plan Area

Figure 4.1-6: Open grasslands on the Faria Preserve

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South of the NWSP Area

Development to the south of the NWSP Area contains mostly residential land uses, ranging from apartments and condominiums to single-family homes. Immediately south of the westernmost portion of the NWSP Area is the highly visible and recently completed Thomas Ranch residential subdivision. The elevation decreases to the south of the NWSP Area, allowing for clear views of NWSP Area hillsides from points at lower elevations not obstructed by existing buildings/residences. A large commercial development just north of Crow Canyon Road partially screens views of the eastern portion of the NWSP Area for viewers on nearby roadways.

East of the NWSP Area

Views to the east of the NWSP Area contain both low-rise industrial facilities and I-680 in the immediate foreground. The ridge on the eastern portion of the NWSP Area is located at a much higher elevation than that of the surrounding valley to the east, which allows for distant views of the Area's edge in the valley. The San Ramon Valley contains a considerable amount of residential development that could view the eastern edge of the NWSP Area in foreground to middleground viewing distances. Along with residences, other land uses in the valley would also have a clear view of the NWSP Area. The majority of land uses visible to the east of the project site beyond I-680 are residential, along with small portions of agricultural, industrial (office), and commercial. Views to the east are expansive and distant, and are restricted only by Mt. Diablo and the Black Hills mountain range which extends to the southeast.

West of the NWSP Area

The views to the west of the NWSP Area differ between the western portion's lower elevation and higher elevation. Views from the lower elevation are completely restricted by the minor ridgeline on the west side of the NWSP Area. The restricted lower elevation foreground view is mostly limited to the grass covered hillside. The higher elevation of the western portion allows for more distant views in which a major ridgeline in the distance is visible. Oak woodlands are also visible to the west, located mainly in drainages. There is no visible development to the west.

Scenic Views of the Site

The Faria Preserve Project Site may be viewed from the lower elevations to the southwest, south, and east. The largest numbers of viewers of the Faria Preserve Project Site are those traveling northbound on I-680, which is located to the south/southeast of the NWSP Area. I-680 presents intermittent scenic views of portions of the NWSP Area in the vicinity of the Crow Canyon Road overpass. Other locations that provide scenic views of the Faria Preserve Project Site for motorists include Crow Canyon Road near its intersection with San Ramon Valley Boulevard, traveling east on Crow Canyon Road (just northwest of the Thomas Ranch residential subdivision and near the intersection with Bollinger Canyon Road), and from points along Deerwood Road and San Ramon Valley Boulevard (to the south and east) where existing commercial and industrial development does not screen the view. The majority of the Faria Preserve Project Site, particularly those areas where the majority of the development is proposed, is shielded from view throughout San Ramon by those portions of the of the major ridgelines within the NWSP Area that are required to be protected pursuant to the General Plan. Pursuant to the General Plan, the Faria Preserve Project Site is

confined within the Urban Growth Boundary (UGB), and as proposed conforms to the 75% / 25% required ratio between community facilities and open space / residential uses.

Regulatory Background

This section describes the existing policies and regulations that apply to the protection of visual resources and the visual character of the NWSP Area and the Faria Preserve Project Site contained within. In general, the assessment of visual impacts is highly subjective. Therefore, visual impact assessments depend on City policies and regulations, in addition to the thresholds established by CEQA, to provide consistent standards and a basic framework for the evaluation. The following paragraphs identify and explain the applicable policies and regulations as they relate to future development in the NWSP Area.

City of San Ramon 2020 General Plan

The General Plan contains policies and standards that are intended to ensure high quality development and protect the City's unique visual resources and character. The following General Plan policies are important in consideration of the proposed NWSP and Faria Preserve:

4.8-I-1 Prepare a Community Design Handbook that provides guidelines for streetscape beautification, creek corridors, signs, public art, and entries in San Ramon.

4.8-I-2: Ensure that the design, location and size of new development blends with the environment and a site's natural features.

4.8-I-3: Establish citywide lighting standards to ensure appropriate illumination levels for residential, commercial, and industrial land uses, and that lighting is of a consistent character and quality while reducing light pollution.

4.8-I-5: Encourage the linkage and integration of new development with existing neighborhoods by means of open space areas, parks, and pathways as a means of enhancing pedestrian connections.

4.8-I-8: Use the development review process to ensure that new development preserves and/or enhances significant views of the natural landscape. The City's most prominent visual resources are the hills to the west and Mt. Diablo and its foothills.

4.8-I-9: Continue to implement landscaping guidelines for public roadways that improve their visual character. The City's "Beautification Plan" and "Streetscape Beautification Guidelines" outline landscaping concepts for many of the arterials, gateways and key intersections.

4.8-I-10: Continue to implement gateway treatments for City entries that help residents and visitors know they have arrived in San Ramon.

4.8-I-13: Require appropriate landscape treatment for public rights-of-way in all new residential, office, and commercial development.

4.8-I-15: Maintain attractive and distinctive street identification signs for all areas of the City.

4.8-I-16: Maintain a predominant low building form throughout the City.

4.8-I-20: Continue to provide park resources that combine well-designed buildings, recreational equipment and playing fields, and complementary landscaping at key locations throughout the City.

4.8-I-21: Require all walls and fences to be designed to minimize visual monotony.

NWSP Area Policies (General Plan – pg. 4-24)

The NWSP Area is specifically described in the General Plan as an area for future development. The NWSP shall respond to the Smart Growth mandate of the General Plan and include the following visual element:

- Development standards and design guidelines for building height, location, massing, parking, landscaping, signs, buffering and transition requirements between uses, compatibility with existing neighborhoods, undergrounding of utilities, etc.

City of San Ramon 2020 General Plan EIR

In the General Plan EIR the following impacts related to aesthetics are identified:

Impact 4.1-b New policies in the General Plan encourage or provide incentives for development that may alter the scale and character of the City.

Impact 4.1-c Development under the General Plan could potentially alter the views of the City.

Both of these potential impacts were determined to be less than significant after mitigation by implementation of policies proposed in the General Plan. Specifically, Impact 4.1-b, which identified the preparation of a NWSP as one of the new policies that may have potential impacts on the visual character, street systems, land uses, and building form of San Ramon, was determined to be mitigated by the combination of the City's Growth Management Performance Standards (as presented in Section 3.2 of the General Plan) and the following General Plan policies:

4.6-I-7: Require clustering of residential development of four or more units in rural conservation areas subject to appropriate standards, including: habitat, ridgeline and viewshed protection; size and spacing criteria; and provision of adequate rural services. Allow exemptions from clustering requirements at lower elevations on sites screened from view from the road where larger lot development would not adversely affect sensitive habitat. (*Additional standards for cluster development are listed.*)

4.6-I-8: Create a San Ramon Habitat Protection Program and require the preparation of Natural Communities Conservation Plans (NCCP) to be implemented in a timely fashion where rural development could potentially affect sensitive habitat areas, sensitive species habitats, migratory patterns, and riparian corridors identified in the General Plan.

4.6-I-16: Establish development and design standards related to residential development in hillside areas that address:

- Location of hillside residential units, including maximum elevation limits based on water pressure zones and hillside viewshed analysis;
- Clustering provisions and limitations on cluster size to preserve open character;
- Building development and design in a clustered format, including standards for building envelope (height and massing);
- Bonus provisions for clustered development, including amount of bonus, alternate development forms, common recreational facilities, phasing, etc.; and
- Requirements for deeding of natural areas as conservation lots with ownership and maintenance by homeowners association, non-profit land trusts, or a public agency (the City or EBRPD).

4.6-I-22: Establish design standards for mixed use development that will result in a high quality pedestrian-scaled environment, with one-to-four story buildings, side or rear parking areas, streetfront windows and entries, and public and private open space.

4.8-I-5: *Described above.*

4.8-I-8: *Described above.*

4.8-I-16: *Described above.*

4.8-I-17: Establish urban design standards in the Zoning Ordinance for large-scale office development, including limitations on maximum building height (five stories), maximum vertical wall dimensions without a minimum upper-story stepback or setback (55 feet), required upper-story setbacks above 55 feet (1:1), limitations on blank walls visible from public streets, and sun access planes adjacent to public parks (1:3.5) to prevent substantial shadow impacts.

4.8-I-18: Allow encroachments into the sun access plane to provide architectural flexibility. This may be done by allowing, for example, a 15-foot vertical projection above the sun access plane for up to 25 percent of the length of the lot line opposite the public park.

4.8-I-20: *Described above.*

5.1-I-6: Implement the following transportation programs: the Commute Alternative Program, the Traffic Engineering and Traffic Safety Program, the Residential Traffic Calming Program, and the Safe Routes to School Program.

6.5-I-1: Establish and maintain a standard of 6.5 acres of public parks per 1,000 residents, with public facilities to be within one-half mile of all homes with only usable acreage considered in meeting this standard.

8.3-I-3: Reserve as open space significant creek, trail and viewshed corridors, areas of riparian and wildlife habitat, and prominent topographic features.

8.4-I-5: Establish priorities for open space preservation and acquisition based on an evaluation of:

- Significant natural areas that are historically, ecologically, or scientifically unique or outstanding, important or threatened.
- Ridgelines and viewsheds above 650 feet elevation, as well as scenic vistas.
- Wildlife habitats and fragile ecosystems in need of protection.
- Creek environments.
- Lands suitable for recreation such as hiking, photography, nature study, bicycling, horseback riding and fishing.
- Land suitable for agricultural production.

8.4-I-6: Use urban growth boundaries, specific plans, subdivision review procedures, and zoning performance standards to shape the development of the City, protecting and buffering important open space, preventing urban sprawl and promoting infill development within the urban growth boundaries.

Impact 4.1-c was identified in response to the proposed development in areas of ridgelines and hillsides in the General Plan. The General Plan EIR determined that, in concert with the City's ridgeline protection ordinance (Ordinance 197), which incorporates portions of the City's Resource Conservation Overlay District (Ordinance 129), the following General Plan policies would reduce Impact 4.1-c to less-than-significant levels:

4.6-I-9: Work with the County on a Memorandum of Understanding in which the County will commit to participating with the City in developing and implementing the San Ramon Habitat Protection Program and requiring that development applications for projects within the City's Sphere of Influence conform to the standards of Ordinance 197, where applicable, and will notify the City of development applications and allow the City up to 180 days, or until environmental review is completed, whichever occurs later, to negotiate the purchase or protection of land outside the City limits designed as priority open space.

8.4-G-1: Expand the ridgeline and hillside open space system in the City's Planning Area by joint efforts with the East Bay Regional Parks District, Contra Costa County and non-profit trustee agencies.

8.4-I-1: Coordinate with the East Bay Regional Parks District, Contra Costa County and non-profit trustee agencies in the creation of an institutional framework and financing mechanisms necessary to acquire additional ridgeline areas and agricultural lands and preserve, restore, and manage important open space.

8.4-I-5: *Described above.*

8.4-I-13: Provide incentives for clustering of allowable residential use on infill sites to avoid unnecessary grading and site development inconsistent with Plan policies for open space and resource conservation.

8.4-I-14: New development shall cooperate with Contra Costa County, East Bay Regional Park District, and neighboring jurisdictions to create a connecting region-wide open space system.

8.4-I-15: With voter approval, allow exemptions from the provisions of Ordinance 197, specifically, the prohibitions of development on or adjacent to Major and Minor ridgelines, only where:

- The area to be preserved as permanent open space includes upper ridges and visible hillsides with a total area that is at least four times the area to be developed. A portion of this 80 percent open space commitment, not to exceed five percent of the total site area, may be provided by dedication of permanent open space off-site on a 2:1 basis (two acres of off-site open space = one acre of on-site open space). Only land that is within one-half mile of the area for which the exemption is sought, is designated as a Ridgeline Protection Zone by Ordinance 197, or is on a hillside visible from Central Park would meet the City's standards for a Specialized Recreation Area and quality as off-site open space under this provision;
- The area to be developed is within the City's UGB;
- Trail connections to existing and planned trails are provided;
- Habitat protection for sensitive species is assured; and
- The development includes enforceable commitments to increase the City's stock of affordable housing, consistent with the General Plan.

California State Scenic Highways Program

Many state highways are located in areas of outstanding natural beauty. California's Scenic Highway Program was created by the Legislature in 1963. Its purpose is to preserve and protect scenic highway corridors from change which would diminish the aesthetic value of lands adjacent to highways. The state laws governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq.

A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view.

A scenic corridor is the land generally adjacent to and visible from the highway. A scenic corridor is identified using a motorist's line of vision. A reasonable boundary is selected when the view extends to the distant horizon. Jurisdictional boundaries of cities and counties are also considered.

Along with Highways, County roads are also eligible for the State Scenic Highway System. A County must follow the same steps for nominating a County road, as they would for nominating a Highway within the county.

When a roadway is designated as officially scenic, specific regulations accompany this designation which are determined by a city, based on Caltrans standards.

Interstate 680, to the east of the NWSP Area, is the only officially designated State scenic roadway in the project vicinity. There are no other highways or county roads in the area that are classified as eligible for scenic designation.

As described in the *San Ramon Beautification Plan*, "views from I-680 are a critical component of San Ramon's image." The specific guidelines for visual protection along I-680 in the San Ramon Beautification Plan include the following recommendations:

- Screen views to service areas, property line fences and walls; plant gaps along freeway corridor to achieve a consistent landscape edge.
- Screen views to the freeway from San Ramon Valley Boulevard; create a strong "visual screen" along frontage road.
- Provide visual breaks or "windows" for pleasing views across Valley.

4.1.2 Thresholds of Significance

The proposed NWSP and the Faria Preserve would have a significant aesthetic impact if it would:

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

In order to clarify these criteria, the following definitions shall apply in the following discussion of potential aesthetic impacts: **scenic resources** include those natural and cultural features of the environment that can be potentially viewed; a **scenic vista** is a visibly prominent landscape containing scenic resources (in this analysis, the NWSP Area, which includes scenic resources as well as protected ridgelines and which can be viewed from many vantage points within the City of San Ramon, shall be referred to as the scenic vista); and **existing visual character** refers to the patterns (form, line, color and/or texture) that compose a visual landscape.

4.1.3 Environmental Evaluation

This section identifies significant visual impacts and mitigation measures applicable first to the entire NWSP Area and then, more specifically, to the Faria Preserve Project Site.

Northwest Specific Plan

IMPACT AESTHETIC -1

Impact Aesthetic-1: Scenic Vista and Existing Visual Character. Implementation of the Northwest Specific Plan could have a substantial adverse effect on a scenic vista and could substantially degrade the existing visual character or quality of the site and its surroundings. However, as established in the General Plan EIR, implementation of General Plan policies would reduce the significance of any impacts. The Northwest Specific Plan is consistent with the General Plan.

This would be a *less-than-significant* impact (NWSP Area).

The General Plan EIR referred to several General Plan policies and programs intended to minimize negative aesthetic impacts, specifically those addressed in General Plan EIR Impact 4.1-b (regarding effects on the scale and character of the City) and in General Plan EIR Impact 4.1-c (regarding views of the City). These policies are listed and described in the Regulatory Background section in this chapter.

As discussed in the General Plan EIR, these policies are new tools for the City to reinforce, strengthen and establish design, land use, and development intensity guidelines for various uses. The policies relevant to scale and character of the City are designed to maintain a high degree of harmony with the environmental setting of the City and the scale and character of existing development. They also establish new land use classifications, such as Hillside Residential, which provides for single-family housing in serviced areas while maintaining open space and preserving views. The new policies also specifically create incentives for clustered hillside development to protect open space areas (Policy 4.6-I-7), reserve as open space viewshed corridors (Policy 8.3-I-3), establish priorities for open space preservation and acquisition based on an evaluation of (among other things) ridgelines and viewsheds above 650 feet elevation as well as scenic vistas (Policy 8.4-I-5). Although many of these policies relate to land use, open space and community character, they also serve to mitigate visual and aesthetic impacts that could result from development.

The policies relevant to views of the City are intended to be used in concert with the City's Ordinance 197, which incorporates parts of the City's Resource Conservation Overlay District (RCOD), to preserve views of hillsides and ridgelines.

The General Plan EIR concluded that implementation of the General Plan policies would reduce both impacts to less-than-significant levels.

Similarly, the NWSP includes the policies that are intended to minimize negative aesthetic impacts in a manner that is consistent with the General Plan policies presented above. They are as follows:

- Parks and Open Space Goal 1 includes objectives related to preservation of natural resources and the balance of development and open space. Among the policies presented by these objectives are those that prevent the development or grading for development within major ridgeline protection zones (unless excepted by the General Plan), as well as those that protect oak woodlands outside of planned development areas and preserve and maintain open space. Specifically, they ensure that at least 75 percent of the NWSP Area is designated for non-residential development or open space. This is consistent with General Plan policies 4.6-I-7, 8.3-I-3, and 8.4-I-5.

- Land Use Goal 1 includes objectives related to cohesive community design and compatibility with natural resources. Policies accompanying these objectives ensure that development applications within the NWSP Area would be required to promote a conservation-based community design that incorporates high quality neighborhood character, integrated with open space and public uses. As in Parks and Open Space Goal 1, development or grading for development shall not occur within major ridgeline protections zones. Bollinger Creek would be protected and the western drainage on the (Faria Preserve Project Site) would be

improved and maintained as a riparian and wildlife corridor. This is consistent with General Plan policies 8.3-I-3 and 8.4-I-5.

The NWSP goals and subsequent objectives and policies would ensure that the scale and visual character of any development within the NWSP Area would maintain a high degree of harmony with the City's existing scale and visual character, as well as the surrounding natural environment. Development would be clustered within 25 percent of the NWSP Area and would not be allowed along protected ridgelines or any other areas protected by the Resource Conservation Overlay District, which would partially preserve views of the scenic vista from lower elevations in the City.

Implementation of the NWSP's goals, objectives and policies described above would therefore reduce potential impacts on a scenic vista and visual character to a less-than-significant level.

IMPACT AESTHETIC-2

Impact Aesthetic-2: Scenic Resources. While the majority of NWSP development would be entirely screened from view from Interstate 680, a State Scenic Highway, a small portion of the proposed development would be visible. Implementation of the Plan would alter the natural appearance of the site; however, it would preserve major ridgelines and prominent portions of the NWSP Area in a natural state.

This would be a *less than significant* impact (NWSP Area).

Development of the NWSP Area is envisioned by the City, as articulated in the General Plan. Further, as described in Impact Aesthetic-1, Goal 1 of the NWSP Parks and Open Space element is to create an open space and park system that is compatible with and sensitive to the natural environment and surrounding resources, provides active and passive recreational facilities, functions as a prominent aesthetic resource, provides links to a greater regional park and open space network, where frequent use is encouraged through location, accessibility and amenities. This goal is implemented by the following objectives and policies of the NWSP.

Objective A, which would orient land uses around sensitive resource areas, ensuring preservation of vegetation, open space, natural resources, and significant topographic features, would include the following policies:

1. No development or grading for development shall occur within major ridgeline protection zones, unless as demonstrated as an exception in the General Plan (General Plan Figure 8-3).
2. Protect existing oak woodlands outside of identified development areas, and provide for replacement of affected oak woodland habitat.
3. Preserve Bollinger Creek and the surrounding riparian corridor. Development shall not occur within 100' of the centerline of Bollinger Creek.
4. Require a maintenance program, such as a Geologic Hazard Abatement District (GHAD), for protected open space areas, including ridges, riparian corridors, Bollinger Creek, and other natural resources.
5. The enhanced riparian and wildlife corridor located within the portion of the NWSP Area east of Bollinger Road shall be improved and maintained as a passive open space amenity,

with an average overall width of not less than 200 feet, as conceptually shown in Figure 5-1 and detailed in Figure 10 of the Biological Mitigation/Enhancement and Monitoring Plan (included as Appendix B).

Objective B, which would maintain a balance of residential development, non-residential development, and passive and active open space within the NWSP Area., would include the following policy:

1. Ensure that at least 75 percent of the NWSP Area is designated for non-residential development or open space, as per the requirements in the City of San Ramon General Plan.

Implementation of the Plan would result in the loss of natural landscape of portions of the site, primarily through the mass grading required for development. Many scenic resources would be removed from the lower elevations within the NWSP Area, and would no longer be visible from lower elevations outside the NWSP Area and segments of I-680.

However, development of the NWSP Area has been anticipated by the City since at least the approval of its new General Plan adopted in 2002. Further, the NWSP includes goals, objectives and policies, discussed above, which are intended to protect major ridgelines and existing oak woodlands outside of the identified development area, preserve Bollinger Creek, and protect upper ridgelines. Collectively, implementation of these policies would ensure that the NWSP Area, once developed, would maintain scenic resources in the most widely visible areas in upper elevations and ridgelines, concentrating development in the lower elevations of the NWSP Area. The scenic resources in the upper elevations of the NWSP Area are those that would be most prominently visible in medium- to long-distance views from Interstate 680, which is a designated State Scenic Highway. In maintaining consistency with the NWSP, the Faria Preserve also implements the above policies (discussed in greater detail in Impact Aesthetic-4).

For these reasons, this would be considered a less-than-significant impact.

IMPACT AESTHETIC -3

Impact Aesthetic-3: Increased Light and Glare. Implementation of the Northwest Specific Plan would create new sources of, and opportunities for, light and glare in the NWSP Area. However, light and glare would be minor and consistent with the appearance of areas to the south and east of the NWSP Area.

This would be a *less-than-significant* impact (NWSP Area).

The development of residential uses and streetlights are not anticipated to generate significant glare within the project area or on the adjacent environment. Light and glare associated with the residential uses would be similar to that already found in surrounding neighborhoods. In addition, standards contained in the NWSP would require that all high intensity outdoor lighting associated with athletic fields and facilities at the community park (including parking areas) be directed downwards, away from adjacent residences and otherwise designed such that light levels at the affected residential property lines remain less than 1 lux in any plane (one lux is the illumination on a surface one meter from and perpendicular to a uniform point source of one candela, which is a measure of luminous intensity). The NWSP would also require that exterior lighting at the

educational facility and house of worship be directed downward, away from adjacent residential uses. For these reasons, this impact would be considered less than significant.

Faria Preserve

Potential impacts to scenic vistas, scenic resources and existing visual character were evaluated in part through the use of visual simulations prepared by Environmental Vision (2005). Existing and simulated (with project) views are provided from six separate viewpoints. In order to evaluate the maximum potential impact upon visual resources, the simulations and the analysis of potential impacts in this section assume two above-ground water tanks proposed along the ridgeline. The maximum height of these tanks would be 30 feet. Viewpoints 2 and 5 are locations from which proposed water tanks, could be visible. Alternative possible configurations and positions of the tanks within a selected tank location envelope, including the configuration preferred by EBMUD, which provides for buried and bermed concrete tanks, are discussed in Chapter 7, Alternatives. A map showing the six viewpoint locations is provided in Figure 4.1-7, followed by the existing site photos and simulations (Figures 4.1-8 through 4.1-13).

IMPACT AESTHETIC -4

Impact Aesthetic-4: Scenic Vista, Scenic Resources, Existing Visual Character. Implementation of the Faria Preserve would result in the conversion of a currently naturalistic landscape that has been used for grazing purposes into one that would be graded, and developed in certain areas with new residential and other uses, and containing new infrastructure such as roads, water tanks and buildings, which would affect scenic resources and modify the visual character of the site. The visual effects would be similar to those of other comparable developments in the vicinity. However, implementation of the Faria Preserve would be consistent with policies articulated in the Northwest Specific Plan. The NWSP, in turn, has been determined to be consistent with General Plan policies that would reduce previously identified potential aesthetic impacts related to scenic vista and existing visual character to less-than-significant levels (See Impact Aesthetic-1). Further, implementation of the NWSP was determined to be less-than-significant because, while implementation of the Plan would alter the natural appearance of the site, it would preserve major ridgelines and prominent portions of the NWSP Area in a natural state (see Impact Aesthetic-2).

Therefore, this would be a *less than significant* impact (Faria Preserve).

Mass grading of the site would alter the existing natural landform of the site when viewed from local roads, as well as affect scenic resources. The construction of homes and other structures would also affect the views experienced by people in the nearby vicinity, from roadways, sidewalks and from the hiking trail proposed to connect to the East Bay Regional Park District (EBRPD) trail on Bollinger Canyon Road. With the location and configuration of EBMUD's water tanks assumed to be above-ground on the western (Bollinger Canyon-facing) slope of the ridgeline on the western edge of the Faria Preserve Project Site, there would be some degradation of the existing visual character or

quality of the site and its immediate surroundings, although the tanks would interrupt existing horizons no more than an existing home in the foreground. Each of these impacts is discussed in greater detail below.

Figure 4.1-8 presents the view from Viewpoint 1, located on San Ramon Valley Boulevard at Crow Canyon Road. When seen from this perspective, the proposed project would introduce new hillside development that would appear beyond the existing development and vegetation currently seen in the foreground. Portions of new Neighborhood A and C residences would be visible on the site's hillsides that appear toward the left and center of the view, respectively. Some of the Neighborhood A homes would appear along the skyline, but most of the proposed development would be blocked in views from this vantage point by mature eucalyptus trees located to the northwest of the intersection of San Ramon Valley Boulevard and Crow Canyon Road.

In addition, proposed grading would visibly alter the site's topography, and a portion of hillside landform (seen immediately to the left of the double-luminere light standard) would be eliminated. The proposed water tanks would not be visible due to screening provided by existing eucalyptus trees, seen toward the left side of the view. The comparison of the project simulation with existing visual conditions indicates that, although visible changes would occur to the view, the project would not substantially alter the overall visual character of the landscape as seen from San Ramon Valley Boulevard at Crow Canyon Road because much of the development would be screened by intervening buildings and eucalyptus trees.

Changes to the natural landform, including scenic resources, that would result from the mass grading would be readily apparent from Viewpoint 2 (Figure 4.1-9), located at Bollinger Canyon Road, immediately south of Crow Canyon Road. From this vantage point, the new house of worship, located near proposed Neighborhood B, would appear along the skyline beyond existing residential development seen in the foreground (behind closest traffic signal). In terms of its overall scale and architectural character, the new development would generally appear compatible with the existing development seen in the surrounding area. Proposed grading at this location would alter a portion of the site's hill form, but would not alter the adjoining protected ridgeline. Over time, as groundcover and landscaping are established, the alterations would eventually appear as a continuation of existing development in the immediate area. On the left-center side of the view above the dense vegetation in foreground, a portion of the proposed water tanks would appear along the skyline to the left of an existing residence. While the project would modify existing visual conditions as seen from Bollinger Canyon Road at Crow Canyon Road, these changes would not substantially affect the overall character and composition of the view.

Along with apparent grading, the simulation presented in Viewpoint 2 also displays a view of the proposed EBMUD water tanks. The tanks would extend approximately 30 feet above grade in this simulation. Although the tanks would be located along a minor ridgeline, they would appear, from this viewpoint, to interrupt the existing horizon no more than the existing home in the foreground, and would thus not substantially disrupt the existing scenic vista. In addition, the presence of these tanks within any viewshed would be limited to vantage points where views are not partially or fully obstructed by other minor ridgelines located in the foreground (as viewers travel north on Bollinger Canyon Road) or by existing residential developments (along Crow Canyon and Bollinger Canyon Roads).

0 1000 2000 feet

Source: Environmental Vision, 2005

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Existing view from San Ramon Valley Boulevard at Crow Canyon Road

Visual simulation of proposed project

Source: Environmental Vision, 2005

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Existing view from Bollinger Canyon Road at Crow Canyon Road

Visual simulation of proposed project

Source: Environmental Vision, 2005

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Viewpoint 3 (Figure 4.1-10), from Deerwood Road at Deerwood Drive, further demonstrates the degree to which the Faria Preserve Project Site is proposed to be graded. From this location, a portion of the site's hillform, which currently appears along the center of the view, would be removed. This hillform is well below and separated from the major protected ridgeline further to the north (which constitutes the primary scenic vista in the Project Area and which is not visible in this view). As shown in the simulation, proposed street trees would appear in this area. Although partially screened by an intervening tree canopy, a portion of the educational facility would be visible to the left of these new street trees. Because these changes would be seen within the context of existing residential development and hillside landscaping in the foreground, they would not be highly noticeable. A comparison of the Figure 4.1-10 before and after views indicates that the project would not substantially affect the overall character and composition of this landscape setting.

Viewpoint 4 (Figure 4.1-11) presents an existing view and visual simulation of the project from I-680, a heavily traveled designated State Scenic Highway. The photograph, taken from northbound I-680, immediately south of Crow Canyon Road, includes the Faria Preserve Project Site, although it appears to the left side and outside of motorists' primary cone of vision. From this vantage point, the existing water tank appears along the hillside, at the left side of the photo. As demonstrated by the simulation, portions of the new Neighborhood C and A residential development would be visible from this perspective. Some of the new homes would appear along the skyline. Because proposed grading would alter the site's topography, a portion of landform inside of the protected ridgelines within the center of the Faria Preserve Project Site (currently seen toward the center of the photo) would be eliminated. The introduction of new residential development would be noticeable from this vantage point, thus modifying the existing visual character of the landscape setting. A considerable amount of open undeveloped hillside and ridgeline would continue to be visible from this location. However, given the brief duration of this view and the fact that the proposed development is outside motorists' primary cone of vision, the visual effect would be considered less than significant.

Viewpoint 5 (Figure 4.1-12) is from Norris Canyon Road near Bollinger Canyon Road, and shows the Faria Preserve Project Site from about one mile away. When seen from this location, portions of the residences proposed in Neighborhoods A, B and C would be visible. The new house of worship also appears along the hillside at the left side of the view with Neighborhood B to its right. New development would be seen primarily with a scenic vista as backdrop. Also visible near the center of the view, along the ridgeline and above the new homes are the proposed new tanks. Portions of Neighborhood C and A homes appear on the hillside to the left of the existing water tank, on the right side of this view. As shown in the simulation, in this area some of the residential development would appear along the skyline. In terms of its overall scale and architectural character, the new development would generally appear compatible with the existing development seen in the surrounding area. As seen from this viewpoint, the project's overall visual effect would not be substantial.

Viewpoint 6 (Figure 4.1-13) presents a close range "before" and an "after" view of the proposed development as seen from San Ramon Valley Boulevard near Purdue Road. From this perspective, proposed grading would remove a portion of the existing landform which currently appears on the right side of the view. In the center of this view, new Neighborhood C residential buildings would appear along the skyline. In addition, portions of Neighborhood A homes would be visible on the

skyline on the right. As shown in the simulation, clusters of trees are proposed on the hillside. It is anticipated that, over time these trees would partially screen the residential buildings. A comparison of before and after visual conditions indicates that the proposed introduction of new buildings along the hillform to the right of the existing water storage tank would noticeably alter the landscape character as seen from this San Ramon Valley Boulevard location. The level of visual impact would decrease over time however, as hillside trees mature and provide additional screening.

This vantage point would include two other features of the proposed Faria Preserve: a proposed pump station and a newly graded access road for the existing water tank. The preferred location for the new pump station is at the existing valve pit structure adjacent to the existing San Ramon Reservoir. Alternatively, the partially buried pump station could be located along Purdue Road near the easterly entrance to the Faria Preserve site. In either location, the profile of the partially buried pump station would be lower than that of the surrounding residential neighborhoods and would be designed with exterior finishes consistent with the architecture of the surrounding community. The proposed new access road would cut across the slope beneath the existing water tank, ascending from north to south, and then cutting back north to loop in front of the water tank.

Finally, it should also be noted that the water tanks, assumed for purposes of these visual simulations to be above-ground steel tanks, would extend approximately 30 feet above grade, to an elevation of approximately 980 feet. As hikers using the trail that would connect to the EBRPD trail ascend the Faria Preserve's westerly ridgeline, the tanks would dominate the foreground of views to the northwest until they reached the point approximately one-third of the way from the trail/access road split and the ridgeline's peak. At that point, proposed grading to the east of the tanks would begin to obstruct views of the tanks from the trail. Once hikers reached the peak, the tanks would be visible in views to the southwest (toward the western portion of the NWSP Area). However, from the ridgeline's peak, which is just below 1000 feet, the tanks would be mostly obstructed by grading along the slope and, where visible, would be in the lower portions of viewers' lines of site.

The City of San Ramon has a number of design-related General Plan policies and guidelines, many of which were presented in the Regulatory Background. Among the most pertinent policies are the following:

4.8-I-1 Prepare a Community Design Handbook that provides guidelines for streetscape beautification, creek corridors, signs, public art, and entries in San Ramon.

4.8-I-2: Ensure that the design, location and size of new development blends with the environment and a site's natural features.

4.8-I-8: Use the development review process to ensure that new development preserves and/or enhances significant views of the natural landscape. The City's most prominent visual resources are the hills to the west and Mt. Diablo and its foothills.

These policies inform NWSP goals, objectives and policies, such as Goal 1 of the Parks and Open Space element, which is to create an open space and park system that is compatible with and sensitive to the natural environment and surrounding resources, provides active and passive

Existing view from Deerwood Road at Deerwood Drive

Visual simulation of proposed project

Source: Environmental Vision, 2005

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Existing view from Interstate 680 near Crow Canyon Road

Visual simulation of proposed project

Source: Environmental Vision, 2005

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Existing view from Norris Canyon Road near Bollinger Canyon Road

Visual simulation of proposed project

Source: Environmental Vision, 2005

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Existing view from San Ramon Valley Boulevard near Purdue Road

Visual simulation of proposed project

Source: Environmental Vision, 2005

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recreational facilities, functions as a prominent aesthetic resource, provides links to a greater regional park and open space network, where frequent use is encouraged through location, accessibility and amenities.

Other General Plan and NWSP policies would prevent development from sensitive open space and protected ridgelines, which are the most prominent visual resources within the NWSP Area.

In establishing consistency with the NWSP, the proposed Faria Preserve implements the policies discussed above in a number of ways. Primarily, the development would be concentrated so that approximately 75 percent of the Faria Preserve would remain open space, and development would not encroach on any protected ridgelines. In addition, adherence to design guidelines would ensure consistency with existing urban form and encourage the planting of vegetation around the site of the proposed pump station, as well as along the new access road to the water tank to reduce the visual contrast of each by screening them from nearby vantage points.

Light and Glare. Impacts related to increased light and glare would be less than significant since policies in the NWSP require exterior lighting at all community facilities be directed downward, away from adjacent residential uses (see Impact Aesthestic-3).

References

City of San Ramon, 2001. City of San Ramon 2020 General Plan Draft Environmental Impact Report. EIR Certified November 13, 2001.

City of San Ramon, 2002. City of San Ramon 2020 General Plan. Approved by Voters of the City of San Ramon on March 5, 2002.

Environmental Vision, 2005. *Visual Simulation Analysis of Faria Preserve.*

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4.2 AIR QUALITY

This section includes a summary of applicable regulations, existing air quality conditions, and an analysis of potential short-term and long-term air quality impacts from implementation of the Northwest Specific Plan (NWSP) (at the program level) and the Faria Preserve (at the project level). The method of analysis for short-term construction, long-term regional (operational), local mobile source, toxic and odorous air emissions is consistent with the recommendations of the Bay Area Air Quality Management District (BAAQMD), as presented in the BAAQMD CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans (BAAQMD, 1999). In addition, mitigation measures are recommended, as necessary, to reduce potentially significant adverse air quality impacts. Modeling results are included in Appendix C.

4.2.1 Existing Setting

The Northwest Specific Plan area (NWSP Area) is located in Contra Costa County, which is under the local jurisdiction of the BAAQMD. Contra Costa County is within the San Francisco Bay Area Air Basin (Basin), which also comprises all of Alameda, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, and the southern half of Sonoma County, and the southwestern portion of Solano County. The unifying feature of the Basin is San Francisco Bay, which is oriented north-south and covers about 400 square miles of the area's total 5,545 square miles. About 20 percent of California's population resides in the Bay Area and pollution sources in the region account for approximately 16 percent of the total statewide criteria pollutant emissions. Applicable air quality regulations and influential factors of air quality conditions applicable to the project area are discussed in detail below.

Climate, Topography, and Air Pollution Potential

Air quality in a region is determined by such natural factors as climate and topography, in addition to the presence of existing air pollution sources and ambient conditions. Climatological and topographic information for the Bay Area, and how such natural factors influence pollution potential in the San Ramon Valley are discussed below.

Bay Area Climate and Topography

The Basin is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Range splits resulting in a western coast gap, Golden Gate, and an eastern coast gap, Carquinez Strait, which allow air to flow in and out of the Basin and the Central Valley.

The climate is dominated by the strength and location of a semi-permanent, subtropical high-pressure cell. During the summer, the Pacific high pressure cell is centered over the northeastern Pacific Ocean resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below to the surface due to the northwesterly flow produces a band of cold water off the California coast. Thus, the cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold water band resulting in condensation and the presence of fog and stratus clouds along the Northern California coast.

In the winter, the Pacific high-pressure cell weakens and shifts southward resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Weak inversions coupled with moderate winds result in a low air pollution potential.

Climate is also affected by the moderating effects of the adjacent oceanic heat reservoir. Mild summers and winters, moderate rainfall, daytime onshore breezes, and moderate humidity characterize regional climatic conditions. In summer when the high pressure cell is strongest and farthest north, fog forms in the morning and temperatures are mild. In winter, when the high pressure cell is weakest and farthest south, conditions are characterized by occasional rain storms.

San Ramon Valley Climate and Topography

The NWSP Area lies east of the Coast Range in the San Ramon Valley, a climatological subregion of the Basin. The San Ramon Valley has a northwest to southeast orientation and is bordered to the north by the Diablo Valley. The San Ramon Valley is long and narrow and extends south from Walnut Creek to Dublin. At its southern end it opens into the Amador Valley.

The mountains on the west side of the San Ramon Valley block much of the marine air from reaching the NWSP Area. During the daytime, there are two predominant flow patterns: an upvalley flow from the north and a westerly flow (wind from the west) across the lower elevations of the Coast Range. On clear nights, surface inversions separate the flow of air into two layers: the surface flow and the upper layer flow. When this happens, there are often drainage surface winds which flow downvalley toward the Carquinez Strait.

Wind speeds in the San Ramon Valley generally are low. Monitoring stations in Concord and Danville report annual average wind speeds of 5 mph. However, winds can increase in the afternoon near San Ramon because it is located at the eastern edge of the Crow Canyon gap. Through this gap, polluted air from cities near the bay travels to the valley in the summer months.

Air temperatures in the San Ramon Valley are cooler in the winter and warmer in the summer than are temperatures further west, because the San Ramon Valley is far from the moderating effect of the Bay and ocean. Mean summer maximum temperatures are in the low- to mid-80's. Mean winter minimum temperatures are in the high-30's to low-40's.

Air Pollution Potential

Air pollution potential is influenced by wind circulation, inversions, stability, solar radiation, and sheltered terrain. For instance, low wind speeds result in restricted movement of air pollution, thus leading to potentially unhealthy levels of air pollution concentrations. Low wind speeds occur most frequently in the fall, winter, early morning, and at night.

An inversion is a layer of warmer air over a layer of cooler air. Inversions influence the mixing depth of the atmosphere, which is the vertical depth available for diluting air pollution near the ground, thus significantly affecting air quality conditions. The Basin experiences two types of inversions. Summer and fall inversions are a result of subsiding air from the subtropical high-pressure zone and from the cool marine layer that is drawn into the area by the heated low-pressure zone in the Central Valley. Winter inversions, also termed radiation inversions, are formed as heat quickly radiates from the earth's surface after sunset cooling the surrounding air. Radiation inversions are strongest on

clear, low-wind, cold winter nights, which allow the build-up of carbon monoxide (CO) and particulate matter.

Stability describes the resistance of the atmosphere to vertical motions. The stability of the atmosphere is dependent upon the vertical distribution of temperature with height. When the temperature decreases vertically at 10 degrees Celsius (C) per 1000 meters, the atmosphere is "neutral". When the lapse rate is greater than 10 degrees C per 1000 meters, the atmosphere is "unstable". When the lapse rate is less than 10 degrees C per 1000 meters, the atmosphere is "stable". Stability categories range from "Extremely Unstable" (Class A), through Neutral (Class D), to "Stable" (Class F). Unstable conditions occur during daytime hours when solar heating warms the lower atmospheric layers sufficiently. Under Class A stability conditions, large fluctuations in horizontal wind direction occur coupled with large vertical mixing depths. Under Class B stability conditions, wind direction fluctuations and the vertical mixing depth are less pronounced due to a decrease in the amount of solar heating. Under Class C stability conditions, solar heating is weak, along with horizontal and vertical fluctuations due to a combination of thermal and mechanical turbulence. Under Class D stability conditions, vertical motions are primarily generated by mechanical turbulence. Under Class E and Class F stability conditions, air pollution emitted into the atmosphere will travel downwind with poor dispersion.

The frequency of hot, sunny days during the summer months in the area is another important factor that affects air pollution potential. In the presence of solar radiation, reactive organic gases (ROG) and oxides of nitrogen form to produce ozone.

Pollution potential is relatively high in the San Ramon Valley. On winter evenings, light winds combined with surface-based inversions and terrain that restricts air flow can cause pollutant levels to build up. San Ramon Valley can experience high pollution concentrations due to motor vehicle emissions and emissions from fireplaces and wood stoves. In the summer months, ozone and ozone precursors are often transported into the project area from both the central Bay Area and the Central Valley.

Existing Ambient Air Quality

The California Air Resources Board (ARB) and the U.S. Environmental Protection Agency (U.S. EPA) currently focus on the following air pollutants as indicators of ambient air quality: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM), and lead. Because these are the most prevalent air pollutants known to be deleterious to human health and extensive health-effects criteria documents are available, they are commonly referred to as "criteria air pollutants."

The U.S. EPA has established primary and secondary national ambient air quality standards (NAAQS) for the following criteria air pollutants: ozone, CO, NO_2, SO_2, respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead. The primary standards are designed to establish limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly; the secondary standards set limits to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. In addition to the NAAQS, ARB has established California ambient air quality standards (CAAQS) for the criteria air pollutants, sulfates, hydrogen sulfide, vinyl chloride, and visibility-

reducing particulate matter. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals. The NAAQS and CAAQS as discussed above are listed in Table 4.2-1.

Both the ARB and the U.S. EPA use monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of the designations is to identify those areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Unclassified is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California (state) designations include a subcategory of the nonattainment designation, called nonattainment-transitional. The nonattainment-transitional designation is given to nonattainment areas that are progressing and nearing attainment. Attainment designations with respect to each criteria air pollutant are shown in Table 4.2-1 below. The Basin is in either attainment or unclassified for sulfates, hydrogen sulfide, and visibility reducing particles.

Criteria air pollutant concentrations are measured at several monitoring stations in the Basin. The Livermore (793 Rincon Avenue) station, located approximately 12 miles southeast of San Ramon, is the closest in proximity to the NWSP Area with recent data for ozone, CO, NO_2, PM_{10}, and $PM_{2.5}$. In general, the ambient air quality measurements from this station are representative of the air quality in the vicinity of the NWSP Area. Table 4.2-2 summarizes the air quality data from the most recent three years (2002-2004). Ambient air quality conditions with respect to each separate criteria pollutant are described below.

Ozone

Ozone is a photochemical oxidant, a substance whose oxygen combines chemically with another substance in the presence of sunlight, and the primary component of smog. Ozone is not directly emitted into the air, but is formed through complex chemical reactions between precursor emissions of ROG and NO_X in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that results from the combustion of fuels.

Ozone located in the upper atmosphere (stratosphere) acts in a beneficial manner by shielding the earth from harmful ultraviolet radiation that is emitted by the sun. However, ozone located in the lower atmosphere (troposphere) is a major health and environmental concern. Because sunlight and heat serve as catalysts for the reactions between ozone precursors, peak ozone concentrations typically occur during the summer in the Northern Hemisphere (U.S. Environmental Protection Agency, 2004). In general, ozone concentrations over or near urban and rural areas reflect an interplay of emissions of ozone precursors, transport, meteorology, and atmospheric chemistry (Godish, 1991).

Table 4.2-1: Ambient Air Quality Standards and Designations

POLLUTANT	AVERAGING TIME	CALIFORNIA		NATIONAL STANDARDS[2]		
		STANDARDS[1, 3]	ATTAINMENT STATUS[8]	PRIMARY[3,4]	SECONDARY[3,5]	ATTAINMENT STATUS[9]
Ozone	1-hour	0.09 ppm (180 µg/m^3)	N (Serious)	–[6]	Same as Primary Standard	–[6]
	8-hour	0.070 ppm	–	0.08 ppm (157 µg/m^3)[6]		N (Marginal)
Carbon Monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	A	35 ppm (40 mg/m^3)	–	U/A
	8-hour	9 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	–	-	0.053 ppm (100 µg/m^3)	Same as Primary Standard	U/A
	1-hour	0.25 ppm (470 µg/m^3)	A	–		–
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	–	-	0.030 ppm (80 µg/m^3)	–	A
	24-hour	0.04 ppm (105 µg/m^3)	A	0.14 ppm (365 µg/m^3)	–	
	3-hour	–	-	–	0.5 ppm (1300 µg/m^3)	
	1-hour	0.25 ppm (655 µg/m^3)	A	–	–	–
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3 *	N	50 µg/m^3	Same as Primary Standard	U
	24-hour	50 µg/m^3		150 µg/m^3		
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	N	15 µg/m^3	Same as Primary Standard	U
	24-hour	–	–	65 µg/m^3		
Lead[7]	30-day Average	1.5 µg/m^3	A	–	–	–
	Calendar Quarter	–	–	1.5 µg/m^3	Same as Primary Standard	A
Sulfates	24-hour	25 µg/m^3	A	**No National Standards**		
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m^3)	U			
Vinyl Chloride[7]	24-hour	0.01 ppm (26 µg/m^3)	U/A			
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient of 0.23 per kilometer — visibility of 10 miles or more (0.07—30 miles or more for Lake Tahoe) because of particles when the relative humidity is less than 70%.	U			

Table 4.2-1: Ambient Air Quality Standards and Designations (Continued)

* On June 20, 2002, ARB approved staff recommendation to revise the PM_{10} annual average standard to 20 μg/m³ and to establish an annual average standard for $PM_{2.5}$ of 12 μg/m³. These standards took effect on July 5, 2003. Information regarding these revisions can be found at http://www.arb.ca.gov/research/aaqs/std-rs.htm.

1 California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, particulate matter (PM_{10} and $PM_{2.5}$), 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 averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when 99% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. The $PM_{2.5}$ 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current federal 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 degrees Celsius and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25 degrees Celsius 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 National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

5 National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

6 New national 8-hour ozone and fine particulate matter standards were promulgated by the U.S. EPA on July 18, 1997. The 1-hour ozone NAAQS was revoked on June 15, 2005. Contact the U.S. EPA for further clarification and current federal policies.

7 ARB has identified lead and vinyl chloride as toxic air contaminants with no threshold 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.

8 Unclassified (**U**): a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.

Attainment (**A**): a pollutant is designated attainment if the state standard for that pollutant was not violated at any site in the area during a 3-year period.

Nonattainment (**N**): a pollutant is designated nonattainment if there was a least one violation of a state standard for that pollutant in the area.

Nonattainment/Transitional (**NT**): is a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the standard for that pollutant.

Nonattainment (**N**): any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.

Attainment (**A**): any area that meets the national primary or secondary ambient air quality standard for the pollutant.

Unclassifiable (**U**): any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

Sources: California Air Resources Board, 2005a; California Air Resources Board, 2005b; California Air Resources Board, 2005c; U.S. Environmental Protection Agency, 2005; California Air Resources Board, 2006

The adverse health effects associated with exposure to ozone pertain primarily to the respiratory system. Scientific evidence indicates that ambient levels of ozone affect not only sensitive receptors, such as asthmatics and children, but healthy adults as well. Exposure to ambient levels of ozone ranging from 0.10 to 0.40 ppm for 1 to 2 hours has been found to significantly alter lung functions by increasing respiratory rates and pulmonary resistance, decreasing tidal volumes, and impairing respiratory mechanics. Ambient levels of ozone above 0.12 ppm are linked to symptomatic responses that include such symptoms as throat dryness, chest tightness, headache, and nausea. In addition to the above adverse health effects, evidence also exists relating ozone exposure to an increase in the permeability of respiratory epithelia; such increased permeability leads to an increase in responsiveness of the respiratory system to challenges, and the interference or inhibition of the immune system's ability to defend against infection (Godish, 1991).

Table 4.2-2: Summary of Annual Ambient Air Quality Data (2002-2004) for the Livermore (793 Rincon Avenue) Air Quality Monitoring Station

	2002	2003	2004
OZONE State Standard (1-hr. avg., 0.09 ppm) National Standard (1-hr./8-hr. avg., 0.12/0.08 ppm)			
Maximum Concentration (1-hr./8-hr. avg., ppm)	0.160/ 0.106	0.128/ 0.094	0.101/ 0.077
Number of Days State Standard Exceeded	10	10	1
Number of Days National 1-hr./8-hr. Standard Exceeded	2/6	1/3	0/0
CARBON MONOXIDE (CO) State Standard (1-hr./8-hr. avg., 20/9.1 ppm) National Standard (1-hr./8-hr. avg., 35/9.5 ppm)			
Maximum Concentration (1-hr./8-hr. avg., ppm)	4.8/2.5	3.7/1.94	3.5/1.81
Number of Days State Standard Exceeded	0	0	0
Number of Days National 1-hr./8-hr. Standard Exceeded	0/0	0/0	0/0
NITROGEN DIOXIDE (NO_2) State Standard (1-hr. avg., 0.25 ppm) National Standard (annual, 0.053 ppm)			
Maximum Concentration (1-hr. avg., ppm)	0.079	0.065	0.052
Number of Days State Standard Exceeded	0	0	0
Annual Average (ppm)	0.017	0.016	NA
RESPIRABLE PARTICULATE MATTER (PM_{10}) State Standard (24-hr. avg., 50 $\mu g/m^3$) National Standard (24-hr. av., 150 $\mu g/m^3$)			
Maximum Concentration ($\mu g/m^3$)	65.9	32.7	29.3
Number of Days State Standard Exceeded (Measured[2]/Calculated[1])	2/NA	0/0	0/NA
Number of Days National Standard Exceeded (Measured/Calculated[1])	0/0	0/0	0/NA
FINE PARTICULATE MATTER ($PM_{2.5}$) No Separate State Standard National Standard (24-hr avg., 65 $\mu g/m^3$)			
Maximum Concentration ($\mu g/m^3$)	61.6	42.0	35.3
Number of Days National Standard Exceeded (Measured[2])	0	0	0

Notes:

All monitoring data was collected at the air quality monitoring station at 793 Rincon Avenue in Livermore, CA.

NA = not available

[1] Measured days are those days that an actual measurement was greater than the level of the state daily standard or the national daily standard. Measurements are typically collected every 6 days. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

[2] The number of days a measurement was greater than the level of the national daily standard. Measurements are collected every day, every 3 days, or every 6 days, depending on the time of year and the site's monitoring schedule. The number of days above the standards is not directly related to the number of violations of the standard for the year.

Sources: California Air Resources Board, 2004; U.S. Environmental Protection Agency, 2004

With respect to the NAAQS, Contra Costa County is currently designated as a non-attainment area for 8-hour ozone standard, as shown in Table 4.2-2 (California Air Resources Board 2005b). In addition, Contra Costa County is currently designated as a serious non-attainment area for the state 1-hour ozone standard (California Air Resources Board, 2005b).

As shown in Table 4.2-2, the state standard was exceeded 21 times from 2002 to 2004. During this same 3-year period, the national one-hour ozone standard was exceeded five times and the national 8-hour standard was exceeded nine times.

According to *The California Almanac of Emissions and Air Quality* (California Air Resources Board, 2005c), emissions of ozone precursors (ROG and NO_X) have decreased in the Basin since 1975 and are projected to continue declining through 2010. The Basin has a significant motor vehicle population, and the implementation of stricter motor vehicle controls has resulted in significant emissions reductions for NO_X and ROG. Stationary source emissions of ROG have declined over the past 20 years due to new controls for oil refinery fugitive emissions and new rules for control of ROG from various industrial coatings and solvent operations.

With respect to ozone air quality trends according to the almanac, peak ozone values in the Basin have declined approximately 12 percent from 1981 to 2000. Although this trend has not been consistently downward, the ambient concentrations generally declined from 1981 to 1994. Since 1994, the peak indicator values have been somewhat higher. However, it is not clear whether these data represent a significant change in the overall trend. Data from 1999 and 2000 are slightly lower than values during the prior few years.

The number of days above the state and national 1-hour ozone standards shows a similar trend. The number of exceedance days generally decreased until the mid-1990s and then increased during the period from 1995 to 1998. The one exception is 1997, when there was a sharp decline in the number of exceedance days. However, meteorological conditions during 1997 were favorable for low ozone concentrations. Given this, the low values during that year are not unexpected. During 1999 and 2000, the number of exceedance days again declined. However, data from more years are needed to determine whether the improvement will continue.

Carbon Monoxide (CO)

CO is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels, primarily from mobile (transportation) sources of pollution. In fact, 77 percent of the nationwide CO emissions are from mobile sources. The other 23 percent consists of CO emissions from wood-burning stoves, incinerators, and industrial sources. Peak CO levels are localized near areas with high concentrations of mobile (transportation) sources and occur typically during winter months when calm conditions are common.

CO enters the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include such symptoms as dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (U.S. Environmental Protection Agency, 2005).

Contra Costa County is currently designated as an attainment and unclassified/attainment area for the state and national CO standards, respectively (Table 4.2-2) (California Air Resources Board, 2005b).

As shown in Table 4.2-2, neither the state nor the national CO standards were exceeded from 2002 to 2004.

According to *The California Almanac of Emissions and Air Quality* (California Air Resources Board 2005c), emissions of CO have been declining in the Basin over the last 25 years. Motor vehicles and other mobile sources are the largest sources of CO emissions in the Basin. Emissions from motor vehicles have been declining, with the introduction of new automotive emission controls, despite increases in vehicle miles traveled (VMT). Oil refineries, manufacturing, and electric generation contribute a significant portion of the stationary source CO emissions. Area-wide CO emissions are primarily from residential fuel combustion (including wood), waste burning, and fires.

With respect to CO air quality trends according to the almanac, the peak CO indicator value during 2000 was less than half what it was during 1987 and is now well below the standards. In fact, neither the state nor national standards have been exceeded in the area since 1991. Based on emission projections, the area is expected to maintain an attainment status in the coming years.

Nitrogen Dioxide (NO_2)

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2 (U.S. Environmental Protection Agency 2005). The combined emissions of NO and NO_2 are referred to as NO_X, which are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local NO_X emission sources.

Inhalation is the most common route of exposure to NO_2. Because NO_2 has relatively low solubility in water, the principal site of toxicity is in the lower respiratory tract. The severity of the adverse health effects depends primarily on the concentration inhaled rather than the duration of exposure. An individual may experience a variety of acute symptoms, including coughing, difficulty with breathing, vomiting, headache, and eye irritation during or shortly after exposure. After a period of approximately 4 to 12 hours, an exposed individual may experience chemical pneumonitis or pulmonary edema with breathing abnormalities, cough, hemoptysis, cyanosis, chest pain, and rapid heartbeat. Severe, symptomatic NO_2 intoxication after acute exposure has been linked on occasion with prolonged respiratory impairment with such symptoms as chronic bronchitis and decreased lung functions.

Contra Costa County is currently designated as an attainment or unclassified/attainment area for the state and national NO_2 standards, respectively (Table 4.2-2) (California Air Resources Board, 2005b).

As shown in Table 4.2-2, neither the state nor the national NO_2 standards were exceeded from 2002 to 2004.

Sulfur Dioxide (SO_2)

SO_2 is produced by such stationary sources as coal and oil combustion, steel mills, refineries, pulp and paper mills, and nonferrous smelters. The major adverse health effects associated with SO_2 exposure pertain to the upper respiratory tract. SO_2 is a respiratory irritant with bronchoconstriction occurring with inhalation of SO_2 at 5 ppm or more. On contact with the moist mucous membranes, SO_2 produces sulfurous acid, which is a direct irritant. Concentration rather than duration of the exposure is an important determinant of respiratory effects. Exposure to high SO_2 concentrations may result in edema of the lungs or glottis and respiratory paralysis.

The Basin is currently designated as an attainment or unclassified/attainment area for the state and national SO_2 standards (California Air Resources Board, 2005b).

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by condensation and/or transformation of SO_2 and reactive organic gases (U.S. Environmental Protection Agency, 2005). $PM_{2.5}$ includes a subgroup of finer particles that have an aerodynamic diameter of 2.5 micrometers or less (California Air Resources Board, 2005c).

The adverse health effects associated with PM_{10} depend on the specific composition of the particulate matter. For example, health effects may be associated with metals, polycyclic aromatic hydrocarbons, and other toxic substances adsorbed onto fine particulate matter, which is referred to as the piggybacking effect, or with fine dust particles of silica or asbestos. Generally, adverse health effects associated with PM_{10} may result from both short-term and long-term exposure to elevated PM_{10} concentrations and may include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, alterations to the immune system, carcinogenesis, and premature death (U.S. Environmental Protection Agency 2005). $PM_{2.5}$ poses an increased health risk because the particles can deposit deep in the lungs and contain substances that are particularly harmful to human health.

According to *The California Almanac of Emissions and Air Quality* (California Air Resources Board, 2005c), direct emissions of PM_{10} are forecasted to increase slightly in the Basin between 1975 and 2010. This increase is due to growth in emissions from area-wide sources, primarily fugitive dust sources. Emissions of directly emitted PM_{10} from diesel motor vehicles have decreasing since 1990 even though population and VMT are growing, due to adoption of more stringent emission standards.

Contra Costa County is currently designated as a non-attainment area for the state PM_{10} standard and as an unclassified area for the national standard (Table 4.2-2) (California Air Resources Board, 2005b). With respect to $PM_{2.5}$, Contra Costa County is designated as a non-attainment area for the state standard and unclassified for the national standard.

As shown in Table 4.2-2, the national PM_{10} standard was not exceeded from 2002 to 2004; however, the state standard was exceeded a total of two times during this period.

Lead

Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. As a result of the phase-out of leaded gasoline, as discussed in detail below, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the U.S. EPA set national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The U.S. EPA banned the use of leaded gasoline in highway vehicles in December 1995 (U.S. Environmental Protection Agency, 2005).

As a result of the U.S. EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector have declined dramatically (95 percent between 1980 and 1999), and levels of lead in the air decreased by 94 percent between 1980 and 1999. Transportation sources, primarily airplanes, now contribute only 13 percent of lead emissions. A recent National Health and Nutrition Examination Survey reported a 78 percent decrease in the levels of lead in people's blood between 1976 and 1991. This dramatic decline can be attributed to the move from leaded to unleaded gasoline (as well as the removal of lead from soldered cans) (U.S. Environmental Protection Agency, 2005).

The decrease in lead emissions and ambient lead concentrations over the past 25 years is California's most dramatic success story. As stated above, the rapid decrease in lead concentrations can be attributed primarily to phasing out the lead in gasoline. This phase-out began during the 1970s, and subsequent ARB regulations have virtually eliminated all lead from gasoline now sold in California. All areas of the state are currently designated as attainment for the state lead standard (the U.S. EPA does not designate areas for the national lead standard). Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. As a result, ARB identified lead as a toxic air contaminant (California Air Resources Board, 2005c).

Regulatory Background

This section describes the existing policies and regulations that apply to the protection of air quality within the NWSP Area. Assessments of air quality depend on a variety of federal, state, and local regulations and policies, in addition to the thresholds established by CEQA, to provide consistent standards and a basic framework for evaluation. The following paragraphs identify and explain the applicable policies and regulations as they relate to future development in the NWSP Area.

City of San Ramon 2020 General Plan

The City of San Ramon 2020 General Plan (General Plan) (City of San Ramon, 2002) contains policies and standards that are intended to ensure high quality development and protect the City's air quality. The following General Plan policies are important in consideration of the proposed NWSP and the Faria Preserve:

8.6-I-1 Cooperate with other local, regional, and State agencies to achieve and maintain air quality standards.

8.6-I-2 Work with the Bay Area Air Quality Management District, the Metropolitan Transportation Commission, and transit providers to implement the regional Clean Air Plan.

8.6-I-3 Use the City's environmental review process to impose appropriate mitigation measures on new development to reduce impacts on air quality.

8.6-I-4 Provide information to encourage the use of transportation modes that minimize motor vehicle use and resulting contaminant emissions.

8.6-I-5 Evaluate new commercial and industrial development for potential handling, storage, and transport of hazardous materials to minimize public exposure to toxic air contaminants.

8.6-I-6 Require businesses to comply with City ordinances that regulate the use of ozone-depleting compounds.

8.6-I-7 Support measures to reduce exhaust and particulate emissions from construction and grading activities.

8.6-I-8 Require all new wood-burning stoves and fireplaces to comply with U.S. EPA and BAAQMD approved standards and prepare homeowner information handouts outlining low-emission alternatives to wood-burning fireplaces.

8.6-I-9 Encourage the development of state-of-the-art telecommunications infrastructure within the City, including satellite and neighborhood work centers for telecommuting.

City of San Ramon 2020 General Plan EIR

In the City of San Ramon 2020 General Plan Draft Environmental Impact Report (General Plan EIR) (City of San Ramon, 2001), the following impacts related to air quality are identified:

Impact 4.7-a: The population projections used in the proposed General Plan are inconsistent with those of the 2000 Clean Air Plan.

Impact 4.7-b: Development under the General Plan could lead to increased emissions of carbon monoxide, ozone precursors, and particulate matter in San Ramon, and degradation of local air quality.

Impact 4.7-c: Construction, grading, and excavation associated with new development could generate dust.

Impact 4.7-a was determined to be significant and unavoidable, because population growth and annual rates of increase in VMT exceed assumptions contained in the Clean Air Plan (CAP).

Although the General Plan EIR identified General Plan policy 8.6-I-2 (described above) to reduce the air quality impact resulting from the inconsistency of population projections with the CAP, no additional mitigation measures were identified because approved development would cause the CAP's population assumptions to be exceeded.

Impacts 4.7-b and 4.7-c were both determined to be less than significant after mitigation by implementation of policies proposed in the General Plan. In particular, Impact 4.7-b was determined to be mitigated by implementation of the following General Plan policies:

8.6-I-3: *Described above.*

8.6-I-8: *Described above.*

The General Plan EIR also determined that, in conjunction with policies and requirements in the San Ramon Municipal Code, the following General Plan policy would reduce impact 4.7-c to a less than significant level:

8.6-I-7: *Described above.*

Regulatory Setting

Air quality with respect to criteria and toxic air pollutants/contaminants within the Basin are regulated by such agencies as the BAAQMD, ARB, and the U.S. EPA. Each of these agencies develops rules, regulations, policies, and/or goals to attain the goals or directives imposed through legislation. Although the U.S. EPA regulations may not be superseded, both state and local regulations may be more stringent.

Criteria Air Pollutants

Federal Air Quality Regulations

U.S. Environmental Protection Agency. At the federal level, the U.S. EPA has been charged with implementing national air quality programs. The U.S. EPA's air quality mandates are drawn primarily from the Federal Clean Air Act (CAA), which was enacted in 1963. The CAA was amended in 1970, 1977, and 1990.

The CAA required the U.S. EPA to establish primary and secondary NAAQS, as previously discussed (Table 4.2-1). The FCAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The Federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. The U.S. EPA has responsibility to review all state SIPs to determine conformation to the mandates of the CAAA and determine if implementation will achieve air quality goals. If the U.S. EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area that imposes additional control measures. Failure to submit an approvable SIP or to implement the plan within the mandated timeframe may result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

State Air Quality Regulations

California Air Resources Board. The ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA), which was adopted in 1988. The CCAA requires that all air districts in the state endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources, and provides districts with the authority to regulate indirect sources.

The ARB is primarily responsible for developing and implementing air pollution control plans in order to achieve and maintain the NAAQS. ARB is primarily responsibility for statewide pollution sources and produces a major part of the SIP. However, local air districts are still relied upon to provide additional strategies for sources under their jurisdiction. ARB combines this data and submits the completed SIP to the U.S. EPA.

Other ARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control and air quality management districts), establishing CAAQS (which in many cases are more stringent than the NAAQS), determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, and off-road vehicles.

Local Air Quality Regulations

Bay Area Air Quality Management District. The BAAQMD attains and maintains air quality conditions in Contra Costa County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of the BAAQMD includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. The BAAQMD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the CAA, CAAA, and the CCAA.

In 1999, the BAAQMD released the BAAQMD CEQA Guidelines (BAAQMD, 1999). This is an advisory document that provides lead agencies, consultants, and project applicants with uniform procedures for addressing air quality in environmental documents. The handbook contains the following applicable components:

- Criteria and thresholds for determining whether a project may have a significant adverse air quality impact;
- Specific procedures and modeling protocols for quantifying and analyzing air quality impacts;
- Methods available to mitigate air quality impacts;
- Information for use in air quality assessments and environmental documents that will be updated more frequently such as air quality data, regulatory setting, climate, and topography.

Air Quality Plans. As stated above, the BAAQMD prepares plans to attain ambient air quality standards in the Basin. The BAAQMD prepares ozone attainment plans (OAP) for the national ozone standard and CAPs for the California standard both in coordination with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG). Past plans include the 2001 OAP and the 2000 CAP. The 2001 OAP is a revision to the Bay Area part of the SIP and was prepared in response to the U.S. EPA's partial disapproval of the 1999 OAP. The 2001 OAP for the national 1-hour ozone standard includes two commitments for further planning: (1) conduct a mid-course review of progress toward attaining the national 1-hour ozone standard by December 2003; and (2) provide a revised ozone attainment strategy to the U.S. EPA by April 2004.

The 2000 CAP was adopted by the BAAQMD on December 20th, 2000, and was then submitted to ARB. The CCAA requires the BAAQMD to update the CAP for attaining the state 1-hour ozone standard every three years. The 2000 CAP is the third triennial update of the BAAQMD's original 1991 CAP. The 2000 CAP includes a control strategy review to ensure that the CAP includes all feasible measures to reduce ozone, updates to the emissions inventory, estimates of emission reductions, and assessments of air quality trends.

In July 2003, the U.S. EPA proposed an interim final determination that the 2001 OAP corrected the deficiencies of the 1999 Plan and proposed approval of the 2001 OAP. Following three years of low ozone levels (2001, 2002 and 2003), in October 2003, the U.S. EPA proposed a finding that the Basin had attained the national 1-hour standard and that certain elements of the 2001 OAP (attainment demonstration, contingency measures and reasonable further progress) were no longer required. In April 2004, the U.S. EPA made final the finding that the Basin had attained the 1-hour standard and approved the remaining applicable elements of the 2001 Plan: emission inventory; control measure commitments; motor vehicle emission budgets; reasonably available control measures; and commitments to further study measures. However, as part of a transition from the national 1-hour standard to an 8-hour standard, the one-hour standard was revoked on June 15, 2005 and is no longer applicable (BAAQMD, 2006a).

The 8-hour standard took effect in June 2004. In April 2004, the U.S. EPA designated regions for the new national 8-hour standard and these designations took effect on June 15, 2004. The U.S. EPA formally designated the Basin as a nonattainment area for the national 8-hour ozone standard, and classified the region as "marginal" according to five classes of nonattainment areas for ozone, which range from marginal to extreme. Compliance with the standard is determined at each monitoring station using an average of the 4th highest ozone reading for three years. A violation at any monitoring station results in a nonattainment designation for the entire region because ozone is a regional pollutant. Monitoring data for the San Martin station for the years 2001, 2002 and 2003 show an average of the 4th highest ozone values of 86 parts per billion (one part per billion above the standard), hence the Bay Area's "marginal" nonattainment classification. Marginal, nonattainment areas must attain the national 8-hour ozone standard by June 15, 2007.

While certain elements of Phase 1 of the 8-hour implementation rule are still undergoing legal challenge, the U.S. EPA signed Phase 2 of the 8-hour implementation rule on November 9, 2005. It is not currently anticipated that marginal areas will be required to prepare attainment demonstrations for the 8-hour standard. (BAAQMD, 2006a).

However, there is still a need for continued improvement to meet the state 1-hour ozone standard. Accordingly, the BAAQMD prepared the Bay Area 2005 Ozone Strategy, which is a roadmap showing how the Basin will achieve compliance with the state 1-hour air quality standard for ozone as expeditiously as practicable and how the region will reduce transport of ozone and ozone precursors to neighboring air basins. The 2005 Ozone Strategy, which was adopted by BAAQMD's Board of Directors Janurary 4, 2006, describes how the Basin will fulfill the CCAA planning requirements for the state 1-hour ozone standard and transport mitigation requirements through the proposed control strategy. The control strategy includes stationary source control measures to be implemented through BAAQMD regulations; mobile source control measures to be implemented through incentive programs and other activities; and transportation control measures to be implemented through transportation programs in cooperation with MTC, local governments, transit agencies and others. The BAAQMD will continue to adopt regulations, implement programs and work cooperatively with other agencies, organizations and the public on a wide variety of strategies to improve air quality in the region and reduce transport to neighboring air basins.

The 2005 Ozone Strategy explains how the Basin plans to achieve these goals with regard to ozone, and also discusses related air quality issues of interest including our public involvement process, climate change, fine particulate matter, the BAAQMD's Community Air Risk Evaluation (CARE) program, local benefits of ozone control measures, the environmental review process, national ozone standards and photochemical modeling.

Overall, the 2005 Ozone Strategy is a comprehensive document that describes the Basin's strategy for compliance with state 1-hour ozone standard planning requirements, and is a significant component of our region's commitment to achieving clean air to protect the public's health and the environment (BAAQMD, 2006b).

Toxic Air Contaminants

A toxic air contaminant (TAC), or in federal parlance a hazardous air pollutant (HAP), is defined as an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts may not be expected to occur. This contrasts with the criteria air pollutants for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 4.2-1).

It is important to understand that TACs are not considered criteria air pollutants and thus are not specifically addressed through the setting of ambient air quality standards. Instead, the U.S. EPA and ARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology for toxics (T-MACT and T-BACT) to limit emissions. These in conjunction with additional rules set forth by the BAAQMD establish the regulatory framework for TACs.

Federal Hazardous Air Pollutant Program

Title III of the CAA requires the U.S. EPA to promulgate national emissions standards for HAPs (NESHAP). The NESHAP may differ for major sources than for area sources of HAPs. (Major sources are defined as stationary sources with potential to emit more than 10 tons per year [TPY] of any HAP or more than 25 TPY of any combination of HAPs; all other sources are considered area sources.) The emissions standards are to be promulgated in two phases. In the first phase (1992–2000), the U.S. EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring MACT. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), the U.S. EPA is required to promulgate health risk–based emissions standards where deemed necessary to address risks remaining after implementation of the technology-based NESHAP standards.

The CAAA required the U.S. EPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, Section 219 required the use of reformulated gasoline in selected U.S. cities (those with the most severe ozone nonattainment conditions) to further reduce mobile-source emissions.

State and Local Toxic Air Contaminant Programs

California regulates TACs primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB can designate a substance as a TAC. To date, ARB has identified over 21 TACs, and adopted the U.S. EPA's list of HAPs as TACs. Most recently, diesel exhaust particulate was added to the ARB list of TACs.

Once a TAC is identified, ARB's then adopts an Airborne Toxics Control Measure (ACTM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate T-BACT to minimize emissions.

The Hot Spots Act requires that existing facilities that emit toxic substances above the specified level do the following:

- Prepare a toxic emission inventory;
- Prepare a risk assessment if emissions are significant;
- Notify the public of significant risk levels;
- Prepare and implement risk reduction measure.

The ARB identified particulate emissions from diesel-fueled engines (diesel PM) as a TAC in August 1998. ARB has since developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (California Air Resources Board, 2000b) and the *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines* (California Air Resources Board, 2000a). Both of these documents were approved by ARB on September 28, 2000.

The ARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). In February 2000, the ARB adopted a new public transit bus fleet rule and emission standards for new urban buses. These new rules and standards provide for 1) more stringent emission standards for some new urban bus engines beginning with 2002 model year engines; 2) zero-emission bus demonstration and purchase requirements applicable to transit agencies; and 3) reporting requirements with which transit agencies must demonstrate compliance with the urban transit bus fleet rule. Upcoming milestones include the low sulfur diesel fuel requirement, and tighter emission standards for heavy-duty diesel trucks (2007) and off-road diesel equipment (2011) nationwide.

The ARB recently approved new guidance concerning land use compatibility with TAC sources called the *Air Quality and Land Use Handbook: A Community Health Perspective* (California Air Resources Board, 2005d). It offers advisory recommendations for the siting of sensitive receptors in near uses associated with TACs such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries dry cleaners, gasoline stations, and industrial facilities. While the handbook is advisory and not regulatory, it offers the following recommendations that may be pertinent to the proposed project:

- Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads carrying 100,000 vehicles per day, or rural roads carrying 50,000 vehicles per day.
- Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard.
- Avoid siting new sensitive land uses within 300 feet of a large gasoline station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gasoline dispensing facilities.
- Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation using perchloroethylene (Perc). For operations with two or more machines, provide 500 feet. For operations with three or more machines, consult the local air district. Do not site new sensitive land uses in the same building with dry cleaning operations that use perc.

At the local level, air pollution control or management districts may adopt and enforce ARB's control measures. Under BAAQMD Rule 2-1 (General Permit Requirements) and Rule 2-2 (New Source Review), all sources that possess the potential to emit TACs are required to obtain permits from the district. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. The BAAQMD limits emissions and public exposure to TACs through a number of programs. The BAAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors.

Odors

Typically odors are generally regarded as an annoyance rather than a health hazed. However, manifestations of a person's reaction to foul odors can range from the psychological (e.g., irritation, anger, or anxiety) to the physiological, including circulatory and respiratory effects, nausea, vomiting, and headache.

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor and in fact an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is due to the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Neither the state nor the federal governments have adopted any rules or regulations for the control of odors sources. However, the BAAQMD has adopted Rule 7 (Odorous Substances) that specifically addresses citizen complaints.

Sensitive Receptors

Commonly identified sensitive population groups are children, the elderly, the acutely ill, and the chronically ill. Commonly identified sensitive land uses are residences, schools, playgrounds, childcare centers, retirement homes or convalescent homes, hospitals, and medical clinics. Nearby sensitive receptors include single-family homes and multi-family development south of the NWSP Area. Single-family homes within the Town of Danville border the NWSP Area to the northeast. Further residential development is located in the parcels between the eastern and western portions of the NWSP Area, along Bollinger Canyon Road. Several of these parcels are developed, including Merrill Gardens, a senior housing development, a private school (Hidden Canyon School), and several residential properties. The land northwest of the planning are is primarily undeveloped but contains approximately 120 large-lot homes. Two worship centers are located east of the NWSP Area, at 2120 Omega Road (Mto Shahmaghsoudi) and 1901 San Ramon Valley Boulevard (San Ramon Valley Bible Church).

4.2.2 Thresholds of Significance

Thresholds of significance for environmental impacts related to air quality are dictated by the State CEQA Guidelines (Appendix G) and are different for plan- and project-level analyses, as detailed below.

Northwest Specific Plan

State CEQA Guidelines have been used to determine whether implementation of the NWSP would result in a significant air quality impact at a programmatic level. A significant impact would occur with full implementation of the proposed NWSP if it would:

- Conflict with or obstruct implementation of the applicable air quality plan,
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation,
- Result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is nonattainment under any applicable federal or state ambient air quality standards (including releasing emissions which exceed quantitative thresholds for ozone precursors),
- Expose sensitive receptors to substantial pollutant concentrations, or
- Create objectionable odors affecting a substantial number or people.

Faria Preserve

As stated in Appendix G, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. Thus, for the purpose of the project-level analysis of the Faria Preserve, the following applicable thresholds of significance, as identified by the BAAQMD CEQA Guidelines (BAAQMD, 1999) and by the State CEQA Guidelines (Appendix G), as listed above, have been used to determine whether implementing the proposed project would result in a significant air quality impact.

- *Short-Term Construction Impacts*. Construction impacts associated with the proposed project would be considered significant if the applicable control measures as listed in the BAAQMD CEQA Guidelines are not implemented.
- *Long-Term Regional (Operational) Impacts*. Regional impacts associated with the proposed project would be considered significant if the project generates emissions of ROG, NOX, or PM10 that exceed 80 pounds per day or 15 tons per year.
- *Local Mobile Source Carbon Monoxide Impacts*. Local impacts associated with the proposed project would be considered significant if the project contributes to CO concentrations that exceed the California 1-hour ambient air quality standard of 20 ppm or the 8-hour standard of 9 ppm.
- *Toxic Air Contaminant Impacts*. Toxic air contaminant impacts associated with the proposed project would be considered significant if the project results in the exposure of sensitive receptors to toxic air contaminant emissions that exceed 10 in 1 million for the Maximally Exposed Individual (MEI) to contact cancer and/or a Hazard Index of 1 for the MEI.
- *Odor Impacts*. Odor impacts associated with the proposed project would be considered significant if project implementation results in excessive nuisance odors or locates new sensitive receptors near existing odor sources.

4.2.3 Environmental Evaluation

This section presents air quality impacts that could result from implementation of the NWSP (Plan-level impacts), including the development of the portion of the NWSP Area located west of Bollinger Canyon Road (Western Plan Area), and impacts that could result from the development of the Faria Preserve Project Site (project-level impacts).

IMPACT
AIR QUALITY - 1

Impact Air Quality-1: Short-Term Construction Emissions. Construction, grading, and excavation associated with new development under the Northwest Specific Plan could generate substantial amounts of fine particulate matter (PM_{10}).

This would be a *significant* impact (Faria Preserve and Western Plan Area).

Construction-related emissions are generally short-term in duration, but may still cause adverse air quality impacts. Fine particulate matter (PM_{10}) is the pollutant of greatest concern with respect to construction activities. PM_{10} emissions can result from a variety of construction activities, including excavation, grading, demolition, vehicle travel on paved and unpaved surfaces, and vehicle and equipment exhaust. Construction-related emissions can cause substantial increases in localized concentrations of PM_{10}. This is particularly the case with the NWSP because large portions of the NWSP Area could undergo construction at one time and development of the NWSP Area would require substantial earthwork and grading. Development of the Faria Preserve would involve upwards of 5.1 million cubic yards of balanced cut and fill, with maximum cut and fill depths approaching 110 feet. Particulate emissions from construction activities can lead to adverse health effects as well as nuisance concerns such as reduced visibility and soiling of exposed surfaces.

Construction emissions of PM_{10} can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions and other factors. Despite this variability in emissions, experience has shown that there are a number of feasible control measures that can be reasonably implemented to significantly reduce PM_{10} emissions from construction. The BAAQMD's approach to CEQA analyses of construction impacts is to emphasize implementation of effective and comprehensive control measures rather than detailed quantification of emissions. Therefore, without appropriate dust control measures, PM_{10} emissions from construction performed under the NWSP, including within the Faria Preserve, would be considered a significant impact.

Mitigation Measure Air Quality-1 (Faria Preserve and Western Plan Area): The BAAQMD has identified a set of feasible PM_{10} control measures for construction activities. These measures are divided into three separate tiers: Basic Control Measures, Enhanced Measures, and Optional Measures.

The following Basic Control Measures shall be implemented at all construction sites in the Faria Preserve and Western Plan Area, regardless of size:

- Water all active construction areas at least twice daily, and more often during times of high wind.

- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.
- Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.

The following Enhanced Measures shall be implemented at construction sites larger than four acres:

- Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).
- Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.)
- To the extent practicable, limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.
- Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site.

These additional "Optional Measures" shall be implemented if further emission reductions are deemed necessary by the City and/or the BAAQMD:

- Install wind breaks, or plant trees/vegetative wind breaks at windward side(s) of construction areas.
- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph.
- Limit the area subject to excavation, grading and other construction activity at any one time.

The BAAQMD requirements could change between the time that this EIR is certified and the time when construction of the proposed project begins. Therefore, the City shall require its contractors to consult with the BAAQMD to develop a list of appropriate dust abatement measures prior to beginning any construction project. The BAAQMD may require that developers implement its "Basic", "Enhanced", and additional "Optional" measures, as listed above. All three levels of dust control measures may be required due to the size of the Faria Preserve Project Site and the considerable amount of cut and fill involved. The BAAQMD may develop and require additional mitigation measures before full buildout of either the Faria Preserve or the Western Plan Area is complete. The BAAQMD's approach to CEQA analyses of construction impacts is to emphasize implementation of effective and comprehensive control measures rather than detailed quantification of emissions.

Level of Significance after Mitigation: *Less-than-significant* (Faria Preserve and Western Plan Area).

IMPACT
AIR QUALITY - 2

Impact Air Quality-2: Consistency with the 2005 Ozone Strategy. The population and VMT projections used in the proposed Northwest Specific Plan are inconsistent with those of the 2005 Ozone Strategy.

This would be a *significant and unavoidable* impact *(Faria Preserve and Western Plan Area).*

As stated above, the BAAQMD prepares ozone attainment plans (OAPs) for the national ozone standard and clean air plans (CAPs) for the California standard both in coordination with the Metropolitan Transportation Commission and the Association of Bay Area Governments.

With respect to the national standards, the 2001 OAP is a revision to the Bay Area part of the SIP and was prepared in response to the U.S. EPA's partial disapproval of the 1999 OAP. In July 2003, the U.S. EPA proposed an interim final determination that the 2001 OAP corrected the deficiencies of the 1999 Plan and proposed approval of the 2001 OAP. Following three years of low ozone levels (2001, 2002 and 2003), in October 2003, the U.S. EPA proposed a finding that the Basin had attained the national 1-hour standard and that certain elements of the 2001 OAP (attainment demonstration, contingency measures and reasonable further progress) were no longer required. In April 2004, the made final the finding that the Basin had attained the 1-hour standard and approved the remaining applicable elements of the 2001 OAP: emission inventory; control measure commitments; motor vehicle emission budgets; reasonably available control measures; and commitments to further study measures. However, as part of a transition from the national 1-hour standard to an 8-hour standard, the one-hour standard was revoked on June 15, 2005 and is no longer applicable (BAAQMD 2006a).

The 8-hour standard took effect in June 2004. In April 2004, the U.S. EPA designated regions for the new national 8-hour standard and these designations took effect on June 15, 2004. The formally designated the Basin as a nonattainment area for the national 8-hour ozone standard, and classified the region as "marginal" according to five classes of nonattainment areas for ozone, which range from marginal to extreme. Monitoring data for the San Martin station for the years 2001, 2002 and 2003 show an average of the 4th highest ozone values of 86 ppb, hence the Bay Area's "marginal" nonattainment classification. Marginal, nonattainment areas must attain the national 8-hour ozone standard by June 15, 2007.

While certain elements of Phase 1 of the 8-hour implementation rule are still undergoing legal challenge, the U.S. EPA signed Phase 2 of the 8-hour implementation rule on November 9, 2005. It is not currently anticipated that marginal areas will be required to prepare attainment demonstrations for the 8-hour standard. (BAAQMD 2006a). As a result, by the time the development of the NWSP Area occurs and begins to result in traffic and air pollution effects, it is anticipated that the Basin will be in attainment of the applicable national ozone standard and that reasonable further progress and other planning demonstrations under the CAA will no longer be needed. Accordingly, it is not anticipated that the NWSP would conflict with or obstruct implementation of the applicable OAP.

With respect to the state standards, the 2005 Ozone Strategy, which was adopted on January 4, 2006 supersedes the 2000 Clean Air Plan and is currently the most recently adopted clean air plan.

However, General Plan EIR analysis described below relied on the 2000 CAP because it was completed prior to implementation of the 2005 Ozone Strategy.

For a local plan to be consistent with the regional air quality plan it must be consistent with the most recently adopted CAP. According to the BAAQMD, a specific area plan is determined to be consistent with the CAP if it meets the following criteria:

- Population and VMT assumptions of the specific area plan are consistent with those used in developing the CAP;
- The specific area plan (or the General Plan of which it is a part) implements the Transportation Control Measures (TCMs) identified for implementation by local agencies in the CAP; and
- The specific area plan provides for buffer zones to avoid impacts related to odors and toxics.

As the General Plan was inconsistent with the 2000 CAP only in terms of the first criterion, the NWSP is inconsistent with the first criterion in the 2005 Ozone Strategy. The NWSP (like the General Plan) meets the other two criteria (City of San Ramon, 2001).

Since the existing population and projected population for San Ramon are both greater than those used for the 2000 CAP, which were based on 1998 ABAG projections, the General Plan is inconsistent with the CAP (City of San Ramon 2001). Because the growth rate assumed in the 2020 General Plan is greater than that assumed in the CAP emission inventory, population-based emissions will be higher than those assumed in the CAP. The NWSP Area is considered a new unit of the city in the General Plan and is a major component of future population growth in San Ramon. Thus, emissions generated by development of the NWSP would not be consistent with projected emissions in the CAP. With respect to the 2005 Ozone Strategy, the same is true as the projected population [e.g. 96,020 (City of San Ramon 2001)] is greater than that used for the 2005 Ozone Strategy, which was based on an ABAG population projection of 78,800 for 2020 conditions. This would not conform to the first criterion.

The 2005 Ozone Strategy states that growth rates of both the number of vehicles and VMT have outpaced the population growth rate in the Bay Area, and are projected to continue in the future. In the case of San Ramon, however, VMT is increasing at a slower rate than its population. While San Ramon's population is growing at an annual rate of about 3.3 percent per year, VMT will grow at about 2.0 percent per year, and total vehicle emissions will decline significantly in future years, due to new control technologies, cleaner fuels, and fleet turnover (City of San Ramon, 2001). Nonetheless, average peak hour VMT growth in San Ramon, with an annual increase of about 2.0 percent, is greater than the 1.4 percent annual growth rate assumed for the entire Bay Area by the Clean Air Plan and the 2005 Ozone Strategy (City of San Ramon 2001). Thus, vehicle emissions resulting from development under the NWSP would be inconsistent with vehicle emissions projected by the 2005 Ozone Strategy. This also would not conform to the first criterion.

Transportation Control Measures (TCMs) are identified by the California Health & Safety Code as "any strategy to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing motor vehicle emissions" (H&S Code Section 40717[g]). The 2005 Ozone Strategyidentifies TCMs for implementation by local agencies, including cities. These

include assistance to regional and local ridesharing organizations, improvement of bicycle access and facilities, improvement of arterial traffic management, expansion of transit use incentives, and incorporation of air quality beneficial policies and programs into local planning and development activities. The Transportation Element of the General Plan and, therefore, the NWSP, is consistent with the 2005 Ozone Strategywith regard to TCMs, because it includes implementation of applicable TCMs (City of San Ramon 2001). Furthermore, the NWSP includes additional policies that are more specific to the NWSP Area, such as pedestrian and bicycle friendly design standards for the NWSP Area's circulation system (Policies 1-5 of Goals 2 and 3, Policy 2 of Objective A), incorporation of public transit (Objective E), and transportation system improvements (Objective F). Therefore, the NWSP would not conform to the second criterion.

Consistent with the third 2005 Ozone Strategy criterion, the General Plan includes policies designed to avoid impacts related to odors and toxics by separating incompatible uses, limiting industrial uses that could emit hazardous pollutants and calling for buffers between potentially incompatible uses. The NWSP does not propose any new industrial uses or stationary sources of hazardous pollutants. Furthermore, it designates a buffer of open space between Neighborhood D, which is the proposed residential area that would be closest to existing off-site industrial facilities in the Crow Canyon Industrial Area just east of the NWSP Area (see Figure 2-1 of the NWSP). Therefore, the third criterion is not breached.

No additional feasible mitigation measures have been identified because development of the NWSP Area would contribute to the exceedance of the population assumptions of the 2005 Ozone Strategy. The annual rate of increase in population growth and VMT increase would exceed the assumptions of this most recent Clean Air Plan.

Level of Significance after Mitigation: This impact would remain *significant and unavoidable.* (Faria Preserve and Western Plan Area).

IMPACT
AIR QUALITY - 3

Impact Air Quality-3: Long-Term Emissions of Criteria Air Pollutants. Development under the Northwest Specific Plan would result in increased emissions of criteria air pollutants. Operational emissions of ROG and NO_X would exceed the BAAQMD threshold of 80 pounds per day.

This would be considered a *significant and unavoidable* impact *(Faria Preserve and Western Plan Area).*

Operational (mobile- and area-source) emissions of ROG, NO_X, and PM_{10} from full buildout of the NWSP Area, including development of the Faria Preserve were estimated based on guidance in the BAAQMD CEQA Guidelines (BAAQMD, 1999) using the URBEMIS 2002, Version 8.7.0 computer model. The URBEMIS model is designed to model emissions for land use development projects, allowing land use selections that include project location specifics and trip generation rates.

These estimates are based on the land uses proposed under the NWSP and parameters recommended by the BAAQMD, including the number of additional vehicle trips, average trip length, and emission factors based on the ARB-approved EMFAC2002 computer program. The estimations are largely a function of the future year for which emissions are estimated. This is

because improved engine efficiency among future vehicle fleets is expected to continue to yield lower emission rates. Thus, emissions were estimated for the soonest possible year when full buildout of the Plan could occur. Given that construction of the Faria Preserve development alone would last approximately 60 months, the earliest year when full buildout of the Plan would be reached is 2012. This analysis also assumes that the 44 single-family homes proposed on the Western Plan Area would also be constructed and operating by the year 2012.

Following guidance established by the BAAQMD, full buildout of the NWSP in the year 2012 would generate maximum daily emissions of 101.27 pounds/day of ROG, 91.73 pounds/day of NO_X, and 79.88 pounds/day of PM_{10} (see Appendix C for detailed modeling input parameters and results). Because the levels of ROG and NO_X emissions would exceed the BAAQMD threshold of 80 pounds per day, this is considered a significant impact at the Plan-level.

The Faria Preserve would account for the majority of these long-term emissions. As summarized in Table 4.2-3, development of the Faria Preserve would result in a maximum net increase of approximately 95.99 pounds per day of ROG, 86.65 pounds per day of NO_X, and 75.48 pounds per day of PM_{10} in long-term regional emissions, as summarized in Table 4.2-3. Because the level of ROG and NO_X emissions would exceed the BAAQMD threshold of 80 pounds per day and could pontentially conflict with air quality planning efforts, this would be considered a significant impact at the Project-level.

Table 4.2-3: Regional Emissions Associated with Buildout of the Faria Preserve

OPERATIONAL SOURCES	EMISSIONS GENERATED (POUNDS PER DAY)		
	ROG	NO_X	PM_{10}
Winter Months			
Mobile Source Vehicle Emissions	51.64	76.57	75.41
Area Source Emissions	43.34	10.08	0.02
Total Winter Emissions	94.98	86.65	75.43
Summer Months			
Mobile Source Vehicle Emissions	50.40	50.74	75.41
Area Source Emissions	45.59	10.36	0.07
Total Summer Emissions	95.99	61.10	75.48
BAAQMD Thresholds (pounds per day)	80	80	80

Note: Long-term regional mobile-source emissions were calculated using URBEMIS 2002 Version 8.7.0, based on the net increase in vehicle trips as shown in the traffic report and the default model assumptions for the year 2010. Calculations were then reduced accordingly to reflect reductions in mobile-source emissions under project buildout 2012 conditions based on EMFAC2002 emission factor comparisons as URBEMIS only allows selection of mobile source model years in five year increments after 2010. Area sources include emissions due to the use of natural gas, consumer products, and landscape maintenance equipment and are based on default model setting for 2012 conditions.

Emissions based on default model settings for 2012 conditions in the Basin and the assumption of the operation of 444 single-family homes including 132 second units, 300 dwelling units of multi-family housing, 86 senior housing units, a 133,000-square-foot worship center, 25,000-square-foot children's museum, and 13.2-acres of community park use.

See Appendix C for air modeling results.

Source: Modeling output provided by EDAW in 2005.

Operation of the Faria Preserve would also result in emissions of CO. However, because CO disperses rapidly with increased distance from the source, emissions of CO are considered localized pollutants of concern rather than of regional concern. Refer to Impact Air Quality-4 below for analysis of localized CO concentrations.

Mitigation Measure Air Quality-3 (Faria Preserve and Western Plan Area): During project review, the City shall consult with the BAAQMD for determination of applicable mitigation measures to be incorporated for future projects associated with implementation of the NWSP, including the Faria Preserve. Such measures may include, but are not limited to, the following measures recommended by the BAAQMD, which were obtained from the most current BAAQMD CEQA Guidelines (BAAQMD, 1999). It should be noted that many of these measures are already included in the NWSP (as indicated in parenthetical notes below); however, they are repeated here to allow a complete listing of applicable BAAQMD recommendations.

- Implement carpool/vanpool program e.g., carpool ride-matching for residents, assistance with vanpool formation, provision of vanpool vehicles, etc.
- Provide park and ride lots at nearby transit stops.
- Construct transit facilities such as bus turnouts/bus bulbs, benches, shelters, etc.
- Design and locate buildings to facilitate transit access e.g., locate building entrances near transit stops, eliminate building setbacks, etc.
- Provide secure, weather-protected bicycle parking for employees and visitors.
- Provide showers and lockers for employees bicycling or walking to work.
- Provide safe, direct access for bicyclists (i.e., bicycle lanes and/or paths) to community-wide network (already incorporated into project design).
- Provide direct, safe, attractive pedestrian access from project to adjacent land uses, transit stops, and/or community-wide network (already incorporated into project design).
- Implement home-based telecommuting program.
- Provide neighborhood-serving shops and services within or adjacent to (¼–½ mile) residential project.
- Provide interconnected street network, with a regular grid or similar interconnected street pattern.
- When the utility infrastructure is planned, the utility network shall include conduit for the installation of a fiber optic cable network that provides broadband internet access to proposed residences and thereby supports home-based telecommuting.
- Orient buildings in the north/south direction.
- Use electric landscape maintenance equipment.
- Implement solar and/or central water heaters into building design.
- Increase building insulation beyond Title 24 requirements.

Though these policies would help to reduce emissions, their implementation would not reduce long-term emissions to a less-than-significant level. Due to the peripheral location of the NWSP Area,

neither the proposed NWSP nor the Faria Preserve could be feasibly implemented without an increase in air emissions, particularly from mobile-sources, that exceeds the significance thresholds of 80 pounds per day for ROG and NO_X.

Level of Significance after Mitigation: This impact would remain *significant and undavoidable* (Faria Preserve and Western Plan Area).

IMPACT AIR QUALITY - 4

Impact Air Quality-4: Local Mobile Source CO Concentrations. Development under the Northwest Specific Plan would create additional vehicular traffic on local roads which, in turn, would increase carbon monoxide emissions in this area.

This would be a *less than significant* impact (Faria Preserve and Western Plan Area).

The primary mobile-source pollutant of localized concern is CO. Local mobile-source CO emissions near roadway intersections are a direct function of traffic volume, speed, and delay. Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. Under specific meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels with respect to local sensitive land uses, such as residential units, hospitals, schools, and childcare facilities. Modeling of CO concentrations is typically recommended for areas located near signalized roadway intersections that are projected to operate at an unacceptable LOS (i.e., LOS E or F) during p.m. peak hours (Garza et al. 1997).

Based on the traffic analysis prepared for the NWSP, three unsignalized intersections are projected to operate at LOS E or F under Existing-plus-Project conditions during the peak commute hour. These include the intersections of San Ramon Valley Boulevard and Hooper Drive (during the p.m. peak hour), San Ramon Valley Boulevard and Purdue Road (during the a.m. and p.m. peak hours), and Bollinger Canyon Road and Norris Canyon Road (during the a.m. peak hour). All remaining intersections in the vicinity of the NWSP Area are projected to operate at acceptable levels of service (i.e., LOS D, or better), under Existing-plus-Project peak-hour conditions.

A high concentration of CO emissions at these intersections is not a concern, however, because they are unsignalized intersections that do not experience large volumes of idling traffic. Furthermore, the traffic study prepared for the Plan (Section 4.10) recommends that each of these intersections be signalized at such time that signal warrants are met (Mitigation Measures Traffic 3a through 3c) and determines that installation of a traffic signal at each intersection would result in an LOS of D or better.

Therefore, this impact is considered to be less than significant.

IMPACT
AIR QUALITY - 5

Impact Air Quality-5: Exposure to Emissions of Toxic Air Contaminants. Construction equipment (short-term), stationary sources, and on- and offsite mobile sources may expose sensitive receptors near the Faria Preserve Project Site to toxic air emissions.

This would be considered a *less than significant* impact (Faria Preserve).

The exposure of sensitive receptors to toxic air emissions from short-term construction equipment, stationary sources, and on- and offsite mobile sources are discussed separately below.

Short-Term Construction Mobile Sources. Construction of the project would result in diesel exhaust emissions from onsite heavy duty equipment. Particulate exhaust emissions from diesel-fueled engines (diesel PM) were identified as a toxic air contaminant by ARB in 1998. Construction of the project would result in the generation of diesel PM emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities. The dose to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that a person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (Salinas, pers. comm. 2004). Thus, based on the schedule proposed by the Project Sponsor, the duration of the proposed construction activities would only constitute approximately seven percent of the total exposure period. Because the use of mobilized equipment would be temporary, diesel PM from construction activities would not be anticipated to result in the exposure of sensitive receptors to levels that exceed the BAAQMD's standard.

Stationary Sources. Development of the Faria Preserve would not include the installation of any stationary sources of toxics and no major stationary sources of toxics have been identified in the project area. Nonetheless, it is important to note that under BAAQMD General Permit Requirements (Regulation 2, Rule 1) and Major Facility Review (Regulation 2, Rule 6), all stationary sources that have the potential to emit TACs are required to obtain permits from the BAAQMD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including New Source Review (Regulation 2, Rule 2). Given that compliance with applicable standards are required for the construction and operation of land uses that may result in the emissions of TACs, toxic air emissions from stationary sources and adjacent to the project area, would be anticipated to be within established standards.

A records search was conducted for off-site stationary sources of TACs monitored by the BAAQMD that are located in close proximity to the Faria Preserve Project Site. Sources of TACs recorded by the BAAQMD within the vicinity of the Faria Preserve Project Site consisted of four auto shops in the Crow Canyon Industrial Area. Three of these auto shops are located on Beta Road, which is approximately 500 feet east of the southeast corner of the Faria Preserve Project Site; the fourth auto

shop is also located east of the Faria Preserve Project Site on Hooper Road. TACs in use at these facilities include xylems, benzene, ethyl benzene, toluene, and Ethylene glycol monobutyl ether. Storage and use of these TACs is currently permitted by BAAQMD; and, as such, individual toxic emission releases associated with these sources are not considered to result in a significant health risk, as defined by BAAQMD.

Long-Term Operational Onsite and Offsite Mobile Sources. The proposed Faria Preserve does not include proposed and/or existing land uses that involve the long-term use of diesel equipment and heavy-duty trucks, such as commercial facilities that frequently use loading docks, or schools serviced by school buses. No major mobile sources of toxics have been identified in the project area. The eastern edge of the Faria Preserve Project Site is located more than 1,000 feet from Interstate 680 and is also generally upwind of the offsite mobile sources. At this distance, the Faria Preserve would be located outside the buffer distance of 500 feet recommended by ARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (California Air Resources Board 2005a).

Summary of Exposure to Emissions of Toxic Air Contaminants. The level of TACs generated by the operation of construction equipment associated with development of the Faria Preserve, nearby stationary sources, and mobile sources operating on or near the Faria Preserve Project Site is not expected to exceed 10 in 1 million for the Maximally Exposed Individual (MEI) to contract cancer and/or a Hazard Index of 1 for the MEI.

This impact is considered less than significant.

IMPACT
AIR QUALITY - 6

Impact Air Quality-6: Odor Impacts. Nearby sensitive receptors may be exposed to odors that would result from of operation of land uses within the Faria Preserve.

There would be *no impact* from odors.

Development of the Faria Preserve would primarily consist of residential and community land uses and would not introduce a new odor source to the area. Furthermore, no existing odor sources are located in close proximity to or upwind of the proposed Faria Preserve Project Site. Therefore, because implementation of the project would not result in the frequent exposure to members of the public to objectionable odors, there is no impact with respect to odors.

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4.3 BIOLOGICAL RESOURCES

This section includes a summary of the Huffman-Broadway Group, Inc. (HBG) document, *Biological Assessment, Faria Ranch Project, San Ramon, Contra Costa County, California* for the Faria Preserve (December 2005, updated from November 2005, November 2004, and March 2003), relevant portions of the City of San Ramon 2020 General Plan Draft Environmental Impact Report (General Plan EIR) (City of San Ramon, 2001), and EDAW, Inc.'s (EDAW's) assessment of the biological resources in the Western Plan Area (May 2004). A field verification of the resources by HBG as of March 2003, was conducted by EDAW in August 2004 on behalf of the City of San Ramon. New or updated information is included below where appropriate.

4.3.1 Existing Setting

The NWSP Area consists of two portions that are near to each other but not contiguous: the eastern portion, east of Bollinger Canyon Road, is referred to as the Faria Preserve Project Site; and the western portion, located west of Bollinger Canyon Road, which is referred to as the Western Plan Area. The NWSP Area is contiguous to and located north of an existing urbanized residential area of the City of San Ramon. The NWSP Area is primarily composed of annual (non-native) grassland, with limited acreage of valley foothill hardwood (oak) woodland and valley foothill riparian corridors along ephemeral drainages. Elevations range from approximately 530 to 999 feet mean sea level (msl).

A review of the Soil Conservation Service (SCS) Soil Survey map for Contra Costa County (USDA, 1977) indicates that soils in the NWSP Area are almost entirely Los Osos clay loam (15 to 30 percent slopes, 30 to 50 percent slopes and 50 to 75 percent slopes). This soil series consists of well-drained soils underlain by soft fine-grained sandstone and shale. Its permeability is slow. The entire Western Plan Area consists of Los Osos clay loam, whereas soils in small areas at the eastern edge of the Faria Preserve Project Site are Cropley clay (2 to 5 percent slopes), Botella clay loam (2 to 9 percent slopes) and Diablo clay (9 to 15 percent slopes). Field investigations in the NWSP Area confirmed that the NRCS soils mapping is accurate throughout the NWSP Area (HBG 2005; EDAW 2005).

In this description of the existing biological setting, distinctions are made between the Western Plan Area and the Faria Preserve Project Site. In the Vegetation Communities and Animal Populations sub-sections, each portion of the NWSP Area is presented separately in summary table columns. In the Wetland Delineation and Special Status Plant Species sub-sections, specific information pertinent to each portion of the NWSP Area is discussed under a separate sub-heading. In the Special Status Animal Species sub-sections, specific information is provided for each portion of the NWSP Area by species, where appropriate. Cattle grazing and ranching operations are present in the Faria Preserve.

Vegetation Communities

HBG biologists conducted biological field surveys of the Faria Preserve Project Site in October 2002[1,2], November 2002, March 2003[3], June 2004, and August 2005. EDAW biologists conducted a

[1] Dr. Terry Huffman and Gary Deghi

field survey of the Western Plan Area on May 19, 2004. Qualitative information on the composition and distribution of plant species on the site was obtained during these site visits. Plant communities were identified on aerial photographs of the site. All habitats were surveyed on foot and assessed for similarity to sites known to support special-status species within the area. During the spring and summer of 2003, Virginia Dains conducted protocol botanical surveys of the Faria Preserve Project Site, the results of which were published in a report dated August 8, 2003 (HGB, 2005, which is included here as Attachment 3).

Vegetation communities are assemblages of plant species growing in an area of similar biological and environmental factors. Vegetation community types discussed in this report are generally based on the California Wildlife Habitat Relationships (WHR) System for habitat classifications (Mayer and Laudenslayer 1988). The WHR system defines aquatic as well as terrestrial habitats, and is one of the few systems that include urban areas. Nomenclature from the *List of Natural Communities Recognized by the Natural Diversity Database* (1997) is also provided. Wetland habitats on-site were further classified using the U.S. Fish and Wildlife's Service's "Classification System for Wetland and Deepwater Habitats" (Cowardin et al. 1979). Sensitive species and habitats were identified using the California Natural Diversity Database (CNDDB), which is maintained by the California Department of Fish and Game (CDFG). Table 4.3-1 identifies the vegetation community acreages found within the NWSP Area.

Table 4.3-1: Vegetation Communities of the NWSP Area

VEGETATION COMMUNITY	FARIA SITE	WESTERN PLAN AREA	COMBINED AREAS
Annual Grassland	267.50 acres	40.09 acres	307.59 acres
Valley Foothill Hardwood	17.97 acres	14.34 acres	32.31 acres
Chaparral	0.08 acres	---	0.08 acre
Valley Foothill Riparian	4.26 acres	9.61 acres	13.87 acres
Fresh Emergent Marsh	0.23 acre	0.03 acre	0.25 acre
Eucalyptus	1.09 acres	---	1.09 acres
Total	**291.12 acres**	**64.07 acres**	**355.19 acres**

Source: HBG, 2005

The Faria Preserve Project Site contains six habitat types according to the California Wildlife Habitat Relationships System: annual grassland, valley foothill riparian, and valley foothill hardwood, with small areas of fresh emergent marsh, chaparral, and eucalyptus habitat for a total of 291.12 acres. According to CNDDB nomenclature these habitats would be classified as California Annual (non-native) Grassland, Arroyo Willow Riparian Forest, Valley Oak/Coast Live Oak Woodland, Valley Freshwater Marsh, California Sagebrush Scrub, and Eucalyptus, respectively. Of the 18 reported sensitive species in the CNDDB, eight species are definitely known to be absent from the Faria Preserve Project Site as they require soil or other habitat conditions which are not present on-site, or surveys were conducted during the flowering period or when leaf morphology could be examined, with negative results (HBG, 2005). The remaining 10 species are considered potentially present (see discussion of Special Status Species, including Table 4.3-4, below).

[2] Gary Beeman of Beeman and Associates

[3] Virginia Dains of Geobotanical Phenomenology

The Western Plan Area contains four habitat types according to the California Wildlife Habitat Relationships System: annual (non-native) grassland, valley foothill riparian, valley foothill hardwood, and a small area of fresh emergent marsh for a total of 64.07 acres. Figures 4.3-1 and 4.3-2 show the extent and distribution of vegetation types within the NWSP Area. A list of identified plant species within the NWSP Area, separating the Faria Preserve Project Site from the Western Plan Area, is included in Table 4.3-2.

Annual Grassland

Annual grassland is the predominant habitat type in the NWSP Area, comprising approximately 90 percent of the Faria Preserve Project Site and approximately 63 percent of the Western Plan Area. The annual grassland found in the NWSP Area is composed largely of non-native grasses and herbs such as soft chess (*Bromus hordeaceus*) and filaree (*Erodium botrys*). This community is grazed by cattle during the winter and spring. Level and gently sloping areas of the grassland are more accessible to livestock and are more heavily used. As a result, colonization within the grassland of unpalatable plants, such as bull thistle (*Cirsium vulgare*), artichoke thistle (*Cynara cardunculus*) and horehound (*Marrubium vulgare*) at the Faria Preserve Project Site and Italian thistle (*Carduus pycnocephalus*), milk thistle (*Sylibum marianum*), and bull thistle in the Western Plan Area, is commonly observed.

Some portions of the annual grassland on the Faria Preserve Project Site have noticeable assemblages of native species. These areas tend to be found on steeper terrain on both east and west facing slopes. East facing slopes have some patches of native perennial grasses such as blue wildrye (*Elymus glaucus*), but these are not extensive. Kellogg's yampah (*Perideridia kelloggii*), blue-eyed grass (*Sisyrinchium bellum*), yarrow (*Achillea millefolium*) and Johnny-jump-ups (*Viola sp.*) are among the more common native forbs (non-grass species) found high on east facing slopes. The dryer, west-facing slopes support lower levels of vegetative cover. California poppy (*Eschscholzia californica*), arroyo lupine (*Lupinus succulentus*) and blue field-gilia (*Gilia capitata*) occur in these steep, dry, west-facing slopes.

Very few areas of the annual grassland on the Western Plan Area have any noticeable assemblages of native species. These areas are found on steeper terrain and east facing slopes. East facing slopes have small, isolated patches of native perennial grasses such as meadow barley (*Hordeum brachyantherum*).

Valley Foothill Riparian

Valley foothill riparian habitat occurs along creeks and drainages within the NWSP Area where dominant vegetation consists of trees such as arroyo willow (*Salix lasiolepis*) and California laurel (*Umbellularia californica*), and understory vegetation along stream banks such as Himalayan blackberry (*Rubus discolor*), and willow herb (*Epilobuim sp.*). The riparian corridors are heavily used by cattle, and stream banks are broken down by numerous trails and crossings. Willows and other streamside vegetation is rubbed, trampled and browsed upon by cattle. Weedy and unpalatable plants such as hoary nettle (*Urtica dioica ssp. holosericea*) and milk thistle (*Silibum marianum*) have colonized portions of the stream corridor. This use by cattle has substantially degraded the existing habitat value and functions of the drainages. Portions of streambeds at the Faria Preserve Project Site contain

vegetation such as rabbitfoot beardgrass (*Polypogon monspeliensis*) and spiny cocklebur (*Xanthium spinosum*). Within the Western Plan Area, trees such as red willow (*Salix laevigata*) and Northern California black walnut (*Juglans hindsii*) also are present.

Valley Foothill Hardwood Woodland

Coastal live oak and valley oak (*Quercus agrifolia* and *Q. lobata*) are the dominant species of the valley and foothill hardwood woodland. California buckeye (*Aesculus californicus*), elderberry (*Sambucus mexicana*), and California bay (*Umbellularia californica*) are found as isolated individuals in the woodland on the Faria Preserve Project Site and in the southern end of the Western Plan Area. The understory of this woodland is highly disturbed by livestock use; therefore, few shrubs and saplings of young oaks can be found. The herbaceous understory is uniformly shade-loving species dominated by bull thistle (*Cirsium vulgare*), the low-growing and prickly field hedge-parsley (*Torilis arvensis*) and miner's lettuce (*Claytonia perfoliata*). Elsewhere in the Western Plan Area, this woodland exists on steeper terrain and is largely inaccessible to livestock.

Chaparral

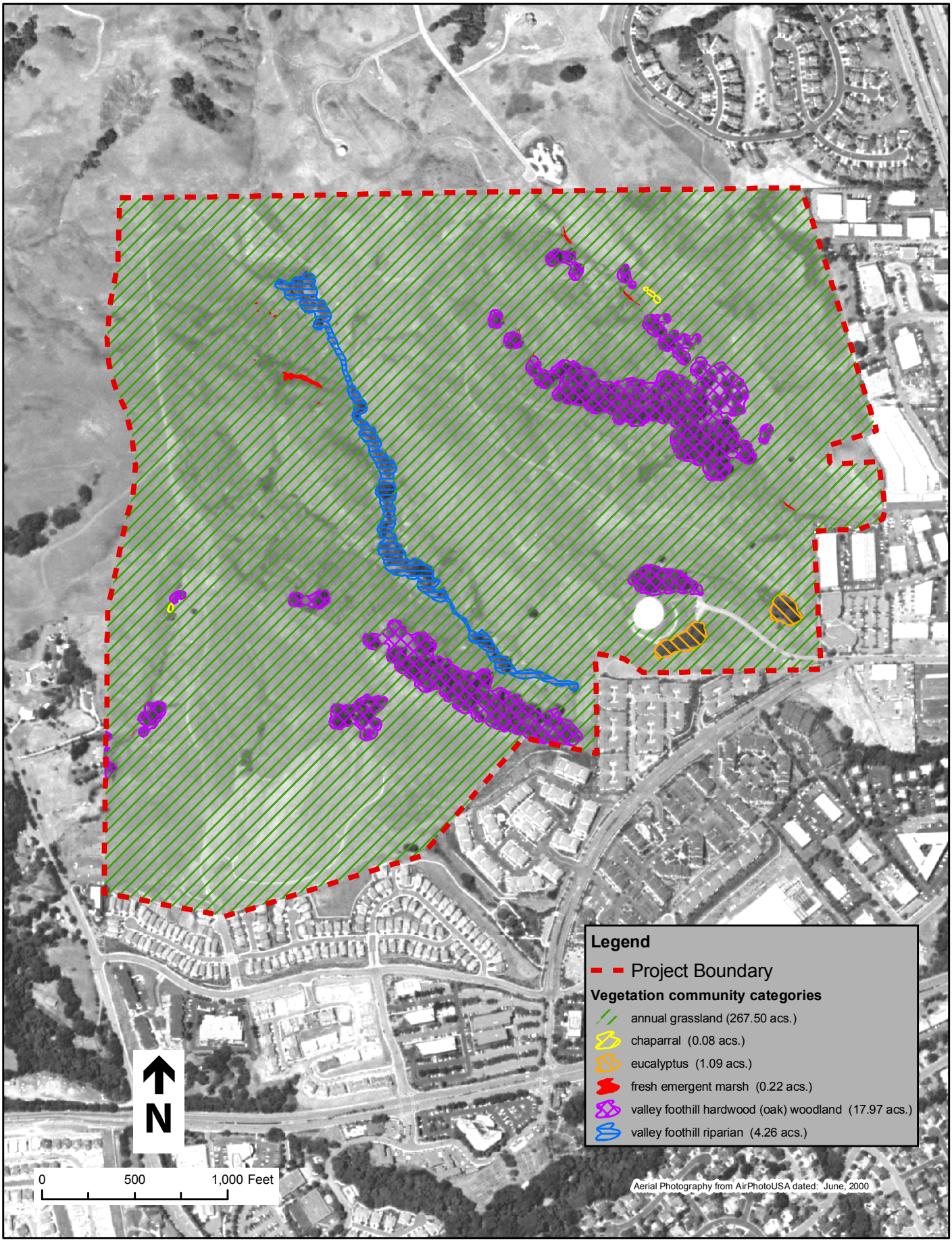
Two small patches of chaparral occur on the Faria Preserve Project Site, and are limited to sedimentary rock outcrops on steep exposed slopes. The community is typically dominated by California sagebrush (*Artemesia californica*). In more highly developed coastal sage scrub communities in the region, skunkbush (*Rhus trilobata*), silver bush lupine (*Lupinus albifrons* var. *collinus*), California fuchsia (*Epilobium canum*) often occur as sub-dominant shrubs, with a variety of native annual and perennial wildflowers. However, within the Faria Preserve Project Site, coastal sagebrush is the only species present in this habitat type.

Chaparral does not occur within the Western Plan Area.

Fresh Emergent Marsh

Several small depressions within the grassland on the Faria Preserve Project Site support seasonally-saturated soils and emergent marsh vegetation such as the non-natives spiny cocklebur (*Xanthium spinosum*), dog-fennel (*Anthemis cotula*) and swamp grass (*Crypsis schoenoides*). These wetland habitats are limited in extent (total of 0.23 acres) and have been and are being disturbed by cattle grazing. The wetland habitats are dominated by species of rush (*Juncus* sp.) and rabbitsfootgrass (*Polypogon monspeliensis*).

A small depression (0.03 acre) also exists within the Western Plan Area at the northern end of the annual grassland. This location supports seasonally-saturated soils and emergent marsh vegetation. Observed species include the non-natives curly dock (*Rumex crispis*) and Bermuda grass (*Cynodon dactylon*). Due to steep topography and lack of moisture, wetland habitats are very limited in extent within the Western Plan Area.



Source: The Huffman-Broadway Group, Inc., 2005

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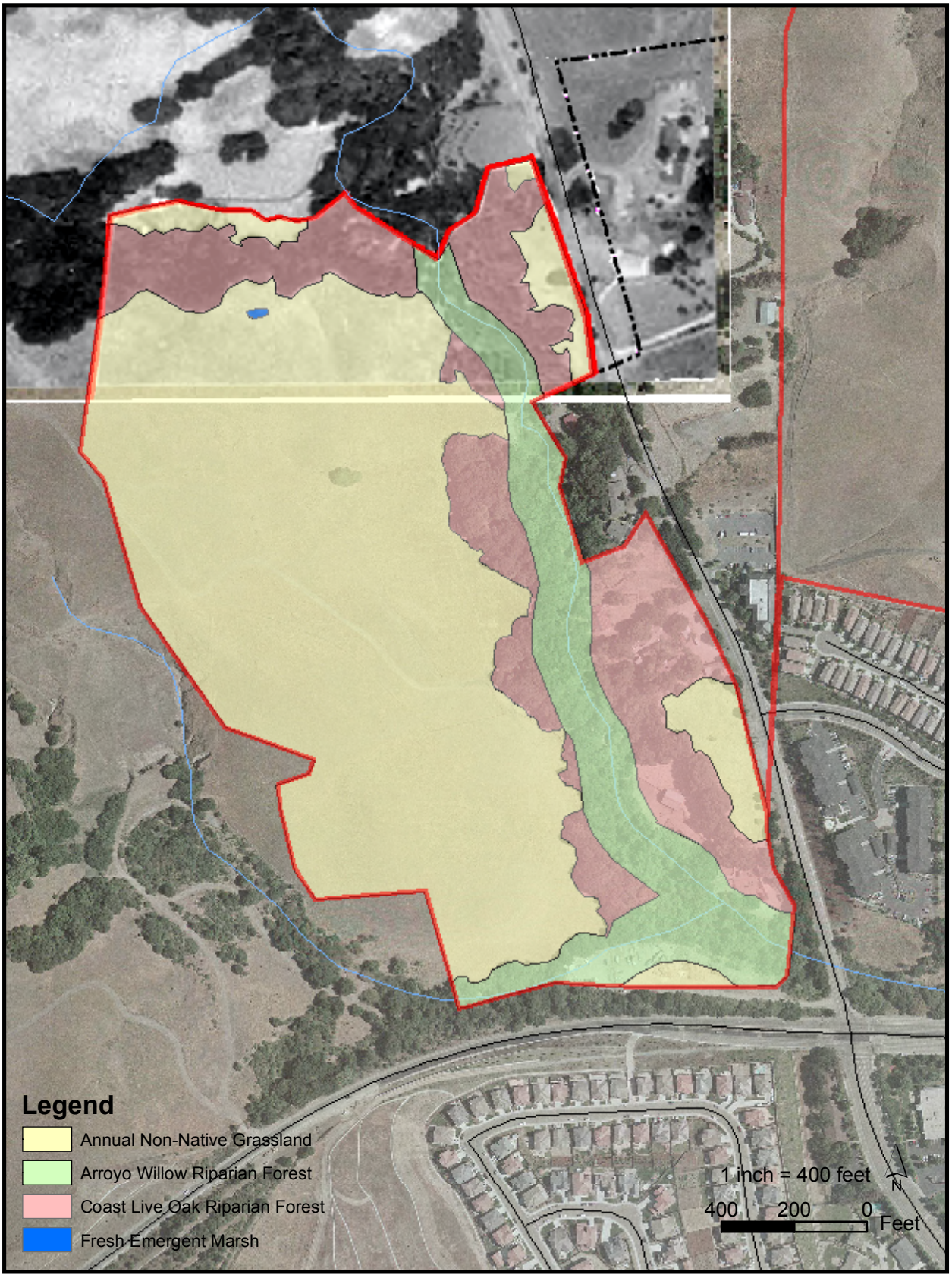

Source: EDAW, 2004

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Table 4.3-2: Plant Species Observed Within the NWSP Area

SCIENTIFIC NAME	COMMON NAME	FARIA SITE	WESTERN PLAN AREA
***Aceraceae* – Maple Family**			
Acer macrophyllum	big-leaf maple		√
***Anacardiaceae* – Sumac or Cashew Family**			
Rhus trilobata	skunkbush	√	
Toxicodendron diversilobum	poison oak	√	√
***Apiaceae* – Carrot Family**			
Conium maculatum *	poison hemlock	√	√
Foeniculum vulgare *	fennel	√	
Perideridia kelloggii	Kellogg's yampah	√	
Sanicula crassicaulis	Pacific sanicle	√	
Scandix pecten-veneris *	Venus' needle	√	
Torilis arvensis *	field hedge-parsley	√	
***Asclepiadaceae* – Milkweed Family**			
Asclepias fascicularis	narrow-leaf milkweed	√	
***Asteraceae* – Sunflower Family**			
Achillea millefolium	yarrow	√	
Achyrachaena mollis	blow-wives	√	
Agoseris grandiflora	large-flowered agoseris	√	
Anaphalis margaritacea	pearly everlasting	√	
Anthemis cotula *	dog-fennel	√	
Artemisia californica	California sagebrush	√	
Artemisia douglasiana	mugwort	√	√
Baccharis pilularis	coyote brush	√	
Carduus pycnocephalus *	Italian thistle	√	√
Centaurea calcitrapa *	purple star-thistle	√	
Centaurea solstitialis *	yellow star-thistle	√	
Chamomilla suaveolens *	pineapple weed	√	
Cirsium vulgare *	bull thistle	√	√
Cynara cardunculus *	Cardoon	√	
Grindelia sp.	gumplant		√
Hemizonia congesta ssp. *luzulifolia*	woodrush tarweed	√	
Hesperevax sparsiflora	few-flowered evax	√	
Hypochaeris radicata *	rough cat's ear	√	
Lagophylla ramosissima ssp. *ramosissima*	Common hareleaf	√	
Madia sativa	coast tarweed	√	
Microseris acuminata	Sierra foothills microseris	√	
Picris echioides *	bristly ox-tongue	√	
Silybum marianum *	milk thistle	√	√
Sonchus arvensis *	perennial sow thistle	√	
Sonchus asper ssp. *asper* *	prickly sow thistle	√	
Wyethia angustifolia	narrow-leaved mule-ears	√	

Table 4.3-2: Plant Species Observed Within the NWSP Area (Continued)

SCIENTIFIC NAME	COMMON NAME	FARIA SITE	WESTERN PLAN AREA
Wyethia helenioides	Whitehead wyethia	√	
Xanthium spinosum	spiny cocklebur	√	
***Boraginaceae* – Borage Family**			
Amsinckia menziesii	Ranchers fireweed	√	
Amsinckia menziesii var. *intermedia*	orange-flowered Menzies' fiddleneck	√	
Amsinckia menziesii var. *menziesii*	Menzies' fiddleneck	√	
Plagiobothrys humistratus	dwarf popcornflower	√	
Plagiobothrys trachycarpus	rough-fruited popcornflower	√	
***Brassicaceae* – Mustard Family**			
Brassica nigra *	black mustard	√	√
Capsella bursa-pastoris *	Shepherd's purse	√	
Lepidium nitidum	shining pepper-grass	√	
Raphanus sativus *	wild radish	√	
***Caprifoliaceae* – Caper Family**			
Sambucus mexicana	blue elderberry	√	√
Symphoricarpos albus var. *laevigatus*	Snowberry	√	√
Symphoricarpos mollis	Creeping snowberry	√	
***Caryophyllaceae* – Pink Family**			
Cerastium glomeratum *	mouse-ear chickweed	√	
Silene gallica *	windmill pink	√	
Stellaria media *	common chickweed	√	
***Convolvulaceae* – Morning-Glory Family**			
Calystegia sp.	morning glory		√
Convolvulus arvensis *	Bindweed	√	
***Crassulaceae* – Stonecrop Family**			
Crassula aquatica	aquatic pygmy-weed	√	
***Cucurbitaceae* – Gourd Family**			
Marah fabaceus	California man-root	√	√
***Cyperaceae* – Sedge Family**			
Cyperus eragrostis	tall flatsedge	√	
Eleocharis macrostachya	common spikerush	√	
***Euphorbiaceae* – Spurge Family**			
Eremocarpus setigerus	turkey mullein	√	
***Fabaceae* – Legume Family**			
Lotus corniculatus *	birdfoot trefoil	√	
Lupinus albifrons var. *collinus*	silver bush lupine	√	
Lupinus bicolor	miniature lupine	√	
Lupinus succulentus	arroyo lupine	√	
Medicago polymorpha *	California burclover	√	
Melilotus alba *	white sweetclover	√	
Trifolium campestre *	hop clover	√	
Trifolium dubium *	shamrock	√	

Table 4.3-2: Plant Species Observed Within the NWSP Area (Continued)

SCIENTIFIC NAME	COMMON NAME	FARIA SITE	WESTERN PLAN AREA
Trifolium glomeratum *	clustered clover	√	
Trifolium hirtum *	Rose clover		√
Trifolium hybridum *	alsike clover	√	
Trifolium pretense *	red clover	√	
Trifolium repens *	white clover	√	
Trifolium subterraneum *	subterranean clover	√	
Trifolium willdenovii	tomcat clover	√	
Vicia americana var. *americana*	American vetch	√	
Vicia sativa *	spring vetch	√	√
Vicia villosa *	hairy vetch	√	
***Fagaceae* – Oak Family**			
Quercus agrifolia	coast live oak	√	√
Quercus lobata	Valley oak	√	
***Geraniaceae* – Geranium Family**			
Erodium botrys *	long-beaked filaree	√	
Erodium cicutarium *	red-stemmed filaree	√	√
Geranium dissectum *	cut-leaved geranium	√	
***Hippocastanaceae* – Buckeye Family**			
Aesculus californica	California buckeye	√	√
***Iridaceae* – Iris Family**			
Sisyrinchium bellum	blue-eyed grass	√	
***Juglandaceae* – Walnut Family**			
Juglans californica var. *hindsii*	northern California black walnut		√
***Juncaceae* – Rush Family**			
Juncus balticus	Baltic rush	√	
Juncus bufonius	toad rush	√	
Juncus effusus	Common rush		√
Juncus ensifolius	three-stamened rush	√	
Juncus oxymeris	pointed rush	√	
Juncus patens	Common rush	√	
***Lamiaceae* - Mint Family**			
Marrubium vulgare *	Horehound	√	
Monardella villosa	coyote mint	√	
Stachys ajugoides var. *rigida*	rigid hedge-nettle	√	
***Lauraceae* – Laurel Family**			
Umbellularia californica	California bay	√	√
***Liliaceae* – Lily Family**			
Chlorogalum pomeridianum	Soap plant	√	
Dichelostemma capitatum	blue dicks	√	
Dichelostemma congestum	Ookow	√	
***Malvaceae* – Mallow Family**			
Malva neglecta *	Common mallow	√	

Table 4.3-2: Plant Species Observed Within the NWSP Area (Continued)

SCIENTIFIC NAME	COMMON NAME	FARIA SITE	WESTERN PLAN AREA
***Myrtaceae* – Myrtle Family**			
Eucalyptus camaldulensis *	red gum	√	
Eucalyptus globulus *	blue gum	√	√
***Onagraceae* – Evening Primrose Family**			
Clarkia purpurea ssp. *viminea*	purple clarkia	√	
Clarkia unguiculata	woodland clarkia	√	
Epilobium canum	California fuchsia	√	
Epilobium ciliatum	Willowherb	√	
***Papaveraceae* – Poppy Family**			
Eschscholzia californica	California poppy	√	
***Plantaginaceae* – Plantain Family**			
Plantago lanceolata *	English plantain	√	
***Poaceae* – Grass Family**			
Avena barbata *	Slender wild oat		√
Avena fatua *	wild oats	√	
Brachypodium distachyon *	purple false-brome	√	
Bromus diandrus *	ripgut grass		√
Bromus hordeaceus *	soft chess	√	√
Crypsis schoenoides *	swamp grass	√	
Cynodon dactylon *	Bermuda grass		√
Elymus glaucus	blue wildrye	√	
Hordeum brachyantherum	meadow barley	√	√
Hordeum depressum	low barley	√	
Hordeum marinum ssp. *gussoneanum* *	Mediterranean barley	√	√
Hordeum murinum ssp. *leporinum* *	foxtail barley	√	√
Leymus triticoides	creeping wildrye		√
Lolium multiflorum *	Italian ryegrass		√
Lolium perenne *	perennial ryegrass	√	
Melica californica	California melic	√	
Melica imperfecta	small-flowered melica	√	
Nassella pulchra	purple needlegrass	√	
Phalaris californica	California canarygrass	√	
Poa annua *	annual blue grass	√	
Polypogon interruptus *	ditch beard grass	√	
Polypogon monspeliensis *	rabbitfoot beard grass	√	
Vulpia bromoides *	brome fescue	√	
Vulpia myuros *	rattail fescue	√	

Table 4.3-2: Plant Species Observed Within the NWSP Area (Continued)

SCIENTIFIC NAME	COMMON NAME	FARIA SITE	WESTERN PLAN AREA
***Polemoniaceae* – Phlox Family**			
Gilia capitata	blue field-gilia	√	
Gilia clivorum	purple-spot gilia	√	
***Polygonaceae* – Buckwheat Family**			
Eriogonum nudum	naked buckwheat	√	
Pterostegia drymarioides	woodland pterostegia	√	
Rumex acetosella *	common sheep sorrel	√	
Rumex crispus *	curly dock	√	√
Rumex pulcher *	fiddle dock	√	
***Polypodiaceae* – Polypody Family**			
Polypodium calirhiza	acrid fern	√	
***Portulacaceae* – Purslane Family**			
Calandrinia ciliata	red maids	√	
Claytonia perfoliata	miner's lettuce	√	
***Primulaceae* – Primrose Family**			
Anagallis arvensis *	scarlet pimpernel	√	
***Pteridaceae* – Brake Family**			
Pentagramma triangularis	goldback fern	√	
***Ranunculaceae* – Buttercup Family**			
Ranunculus muricatus *	spiny buttercup	√	
Ranunculus occidentalis	western buttercup	√	
***Rhamnaceae* – Buckthorn Family**			
Rhamnus californica	California coffeeberry	√	
***Rosaceae* – Rose Family**			
Holodiscus discolor	oceanspray	√	
Rubus discolor *	Himalayan blackberry	√	
***Rubiaceae* – Madder Family**			
Galium aparine	goose grass	√	
Galium murale *	tiny bedstraw	√	
Galium triflorum	sweet-scented bedstraw	√	
***Salicaceae* – Willow Family**			
Salix laevigata	red willow		√
Salix lasiolepis	arroyo willow	√	√
***Saxifragaceae* – Saxifrage Family**			
Lithophragma affine	common woodland star	√	
***Scrophulariaceae* – Figwort Family**			
Bellardia trixago *	Mediterranean lineseed	√	
Castilleja attenuata	valley tassels	√	
Castilleja exserta	purple owl's clover	√	
Parentucellia viscose *	yellow parentucellia	√	
Scrophularia californica	California figwort	√	
Triphysaria pusilla	little owl's clover	√	

Table 4.3-2: Plant Species Observed Within the NWSP Area (Continued)

SCIENTIFIC NAME	COMMON NAME	FARIA SITE	WESTERN PLAN AREA
***Urticaceae* – Nettle Family**			
Urtica dioica	stinging nettle		√
Urtica dioica ssp. *holosericea*	hoary nettle	√	
***Violaceae* – Violet Family**			
Viola pedunculata	Johnny-jump-up	√	

* indicates non-native plant species

Source: HBG, 2005; EDAW, 2004.

Eucalyptus

Two small areas of eucalyptus habitat (formed by tree canopies comprised of blue gum eucalyptus [*Eucalyptus globules*] trees) are present at the southeast corner of the Faria Preserve Project Site, south and east of the water tank. Blue gum is an introduced non-native species.

Tree Survey

A tree survey was completed for the Faria Preserve Project Site by HortScience, Inc. in January 2003. The objectives of the survey were to provide: (1) a survey of trees greater than 6" in diameter growing on the site located within 50' of proposed grading; (2) an assessment of the impacts of constructing the proposed project on the trees; and (3) guidelines for tree preservation during the design, construction and maintenance phases of development. Trees were identified to species, measured for trunk diameter, evaluated for health and structural condition, and rated in terms of suitability for preservation.

A total of 704 trees were evaluated including nine tree species. The most frequently occurring species were coast live oak (39 percent of the population) and valley oak (34 percent). California buckeye was also well represented (10 percent). Tree size ranged from six inches to 82 inches. Tree condition was predominantly good (52 percent) to fair (34 percent), with 15 percent of the surveyed trees in poor condition. Poor condition trees suffered from age-related decline in health, or poor structure. No significant pest or disease problems were noted. Most of the trees were from species native to the area and presumably indigenous to the site. Exotic species included blue gum, other types of eucalyptus and almond.

Animal Populations

This assessment of animal species is based on a review of available literature from the CNDDB and habitat observations made during qualitative surveys in October and November 2002, March 2003, and August 2005 by HBG biologists at the Faria Preserve Project Site, as well as habitat observations made by EDAW biologists at both the Faria Preserve Project Site and the Western Plan Area during the May 2004 site visit. In addition, species-specific site assessments were conducted by Beeman & Associates for the California red-legged frog and the California tiger salamander, and a previous

habitat assessment for the Alameda whipsnake was conducted in April 2000 by EnviroNet (see Appendix D). An updated habitat assessment for the Alameda whipsnake was conducted by Swaim Biological, Inc., in December, 2005 (see Appendix E). The results of the species-specific site assessments and surveys are summarized in the "Special Status Species Section" below.

A list of wildlife species observed on-site or expected to utilize the site was obtained through habitat reconnaissance, field observation, and literature review. Supplemental information was obtained from the literature, particularly for wildlife taxa not observed during the surveys. A complete listing of the references from which information was compiled on the flora and fauna inhabiting the region is contained in the References section. Table 4.3-3 lists wildlife species based on these reconnaissance level observations for suitable habitat, reptiles, amphibians, birds and mammals. The table lists wildlife species observed or which may occur within the NWSP Area, and includes the scientific names of all species mentioned in the text.

The annual grassland, valley foothill hardwood and valley foothill riparian habitats in the NWSP Area support a variety of wildlife species. The presence of standing water in the fresh emergent marshes, on a seasonal basis, can accommodate wildlife adapted to aquatic habitats. Trees and shrubs provide nesting and roosting sites for birds, in addition to foraging areas for mammals, reptiles, amphibians, and birds. Riparian areas also support standing water on a seasonal basis and tree/shrub cover for animals, and may serve as migration and movement corridors for wildlife.

Table 4.3-3: Wildlife Species Observed or Which May Occur in the NWSP Area

COMMON NAME	SCIENTIFIC NAME	FARIA SITE	WESTERN PLAN AREA
Mammals			
Virginia Opossum	*Didelphis virginiana*		
Broad-footed Mole	*Scapanus latimanus*		
California Myotis	*Myotis californicus*		
Western Pipistrelle	*Pipistrellus hesperus*		
Big Brown Bat	*Eptesicus fuscus*		
Red Bat	*Lasiurus borealis*		
Pallid Bat	*Antrozous pallidus*		
Brazilian Free-tailed Bat	*Tadarida brasiliensis*		
Black-tailed Hare	*Lepus californicus*	√	
Desert Cottontail	*Sylvilagus audubonii*		
Botta's Pocket Gopher	*Thomomys bottae*	√	
Western gray squirrel	*Sciurus griseus*	√	√
California Pocket Mouse	*Chaetodipus californicus*		
Western Harvest Mouse	*Reithrodontomys megalotis*		
Deer Mouse	*Peromyscus maniculatus*	√	
Dusky-footed Woodrat	*Neotoma fuscipes*		
California Vole	*Microtus californicus*		
Norway Rat	*Rattus norvegicus*		
House Mouse	*Mus musculus*		
Coyote	*Canis latrans*	√	
Red Fox	*Vulpes fulva*		
Gray Fox	*Urocyon cinereoargenteus*		

Table 4.3-3: Wildlife Species Observed or Which May Occur in the NWSP Area (Continued)

COMMON NAME	SCIENTIFIC NAME	FARIA PRESERVE	WESTERN PLAN AREA
Raccoon	*Procyon lotor*	√	
Long-tailed Weasel	*Mustela frenata*		
Striped Skunk	*Mephitis mephitis*	√	
Bobcat	*Felis rufus*		
Mule Deer	*Odocoileus hemionus*	√	
Reptiles and Amphibians			
Ensatina	*Ensatina eschscholtzi*		
California Slender Salamander	*Batrachoseps attenuatus*	√	
Pacific Treefrog	*Hyla regilla*		√
Western Fence Lizard	*Sceloporus occidentalis*	√	
Western Skink	*Eumeces skiltonianus*		
Northern Alligator Lizard	*Gerrhonotus coeruleus*	√	
Ringneck Snake	*Diadophis punctatus*		
Sharp-tailed Snake	*Contia tenuis*		
Racer	*Coluber constrictor*		
Gopher Snake	*Pituophis melanoleucus*	√	
Common Kingsnake	*Lampropeltis getulus*		
Common Garter Snake	*Thamnophis sirtalis elegans*		
Night Snake	*Hypsiglena torquata*		
Western Rattlesnake	*Crotalis viridus*		
Alameda Whipsnake	*Masticophis laeralis euryxanthus*		
Birds			
Turkey Vulture	*Cathartes aura*	√	√
White-tailed Kite	*Elanus caeruleus*	√	
Northern Harrier	*Circus cyaneus*	√	
Sharp-shinned Hawk	*Accipiter striatus*	√	
Cooper's Hawk	*Accipiter cooperi*	√	
Red-shouldered Hawk	*Buteo lineatus*		
Red-tailed Hawk	*Buteo jamaicensis*	√	√
American Kestrel	*Falco sparverius*	√	
Prairie Falcon	*Falco mexicanus*	√	
Peregrine Falcon	*Falco peregrinus*	√	
Merlin	*Falco columbarius*		
Wild Turkey	*Meleagris gallopavo*	√	
California Quail	*Callipepla californica*	√	√
Killdeer	*Charadrius vociferous*	√	
Common Snipe	*Gallinago gallinago*		
Ring-billed Gull	*Larus delawarensis*		
California Gull	*Larus californicus*		
Rock Pigeon	*Columba livia*	√	
Mourning Dove	*Zenaida macroura*	√	
Band-tailed Pigeon	*Columba fasciata*	√	
Barn Owl	*Tyto alba*		
Great Horned Owl	*Bubo virginianus*	√	

Table 4.3-3: Wildlife Species Observed or Which May Occur in the NWSP Area (Continued)

COMMON NAME	SCIENTIFIC NAME	FARIA PRESERVE	WESTERN PLAN AREA
Western Screech-owl	*Otus kennicottii*		
White-throated Swift	*Aeronautes saxatalis*	√	
Anna's Hummingbird	*Calypte annas*	√	
Lewis' Woodpecker	*Malanerpes lewis*		
Acorn Woodpecker	*Melanerpes formicivorus*	√	
Red-breasted Sapsucker	*Sphyrapicus rubber*	√	
Northern Flicker	*Colaptes auratus*	√	
Nuttall's Woodpecker	*Picoides nuttallii*	√	
Hairy Woodpecker	*Picoides villosus*		
Downy Woodpecker	*Dendrocopos pubescens*	√	
Black Phoebe	*Sayornis nigricans*	√	
Say's Phoebe	*Sayornis saya*	√	
Olive-sided Flycatcher	*Contopus borealus*		
Western Wood-pewee	*Contopus sordidulis*		
Pacific-slope Flycatcher	*Empidonax difficilis*		
Ash-throated Flycatcher	*Myiarchus cinerascens*	√	
Western Kingbird	*Tyrannus verticalis*	√	
California Horned Lark	*Eremophila alpestris*	√	
Barn Swallow	*Hirundo rustica*	√	
Cliff Swallow	*Petrochelidon pyrrhonota*	√	
Tree Swallow	*Tachicineta bicolor*		
Violet-green swallow	*Tachycineta thalassina*		
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*		
Western Scrub-jay	*Aphelocoma californica*	√	
Common Raven	*Corvus corax*	√	
American Crow	*Corvus brachyrhynchos*	√	
Chestnut-backed Chickadee	*Parus rufescens*	√	
Oak Titmouse	*Baeolophus inornatus*	√	
Common Bushtit	*Psaltriparus minimus*	√	
White-breasted Nuthatch	*Sitta carolinensis*	√	
Bewick's Wren	*Thryomanes bewickii*	√	
House Wren	*Troglodytes aedon*		
Winter Wren	*Troglodytes troglodytes*		
American Robin	*Turdus migratorius*		
Hermit Thrush	*Hylocichla guttata*		
Swainson's Thrush	*Catharus ustulatus*		
Western Bluebird	*Sialia mexicana*	√	
Blue-gray Gnatcatcher	*Polioptila caerula*		
Ruby-crowned Kinglet	*Regulus calendula*	√	
Northern Mockingbird	*Mimus polyglottos*	√	
American Pipit	*Anthus rubescens*		
Cedar Waxwing	*Bombycilla cedrorum*		
Loggerhead Shrike	*Lanius ludovicianus*	√	
European Starling	*Sturnus vulgaris*	√	

Table 4.3-3: Wildlife Species Observed or Which May Occur in the NWSP Area (Continued)

COMMON NAME	SCIENTIFIC NAME	FARIA PRESERVE	WESTERN PLAN AREA
Hutton's Vireo	*Vireo huttoni*	√	
Orange-crowned Warbler	*Vermivora celata*	√	
Nashville Warbler	*Vermivora ruficapilla*		
Yellow Warbler	*Dendroica petechia*		
Yellow-rumped Warbler	*Dendroica coronata*	√	
Townsend's Warbler	*Dendroica townsendi*		
Black-throated Gray Warbler	*Dendroica nigrescens*		
Common Yellowthroat	*Geothlypis trichas*		
Wilson's Warbler	*Wilsonia pusilla*		
Western Tanager	*Piranga ludoviciana*		
Black-headed Grosbeak	*Pheucticus melanocephalus*		
Lazuli Bunting	*Passerina amoena*		
Spotted Towhee	*Pipilo maculates*	√	
California Towhee	*Pipilo crissalis*	√	
Chipping Sparrow	*Spizella passerine*		
Savannah Sparrow	*Passerculus sandwichensis*	√	
Lark Sparrow	*Chondestes grammacus*	√	
White-crowned Sparrow	*Zonotrichia leucophrys*	√	
Golden-crowned Sparrow	*Zonotrichia atricapilla*	√	
Fox Sparrow	*Passerella iliaca*		
Song Sparrow	*Melospiza melodia*	√	
Lincoln's Sparrow	*Melospiza lincolnii*		
Dark-eyed Junco	*Junco hyemalis*	√	
Western Meadowlark	*Sturnella neglecta*	√	
Red-winged Blackbird	*Agelaius phoeniceus*		
Brewer's Blackbird	*Euphagus cyanocephalus*	√	
Brown-headed Cowbird	*Molothrus ater*		
Bullock's Oriole	*Icterus bullockii*		
Purple Finch	*Carpodacus purpureus*	√	
House Finch	*Carpodacus mexicanus*	√	
Pine Siskin	*Carduelis pinus*		
American Goldfinch	*Spinus tristis*		
Lesser Goldfinch	*Spinus psaltria*	√	
House Sparrow	*Passer domesticus*		

√ Observed at the Faria Preserve Project Site by HBG biologists and/or on the Western Plan Area by EDAW biologists.

Source: HBG, 2005; EDAW, 2004.

A number of bird species were observed on the Faria Preserve Project Site during field reviews conducted by Gary Deghi of HBG in October and November, 2002 (See Table 4.3-3). All species are common to abundant in the region and would be expected in the combination of grassland and woodland habitats present at the Faria Preserve Project Site. Raptors observed in the project area included turkey vulture, white-tailed kite, northern harrier, red-tailed hawk, Cooper's hawk, sharp-

shinned hawk, prairie falcon, and American kestrel. Additional birds documented within on-site grasslands included rock dove, mourning dove, Say's phoebe, horned lark, loggerhead shrike, American crow, western bluebird, savannah sparrow, and western meadowlark. Birds observed primarily in oak woodlands included acorn woodpecker, Nuttall's woodpecker, red-breasted sapsucker, western scrub-jay, common raven, oak titmouse, bushtit, white-breasted nuthatch, Bewick's wren, Hutton's vireo, and dark-eyed junco. Riparian habitats supported the following observed species: California quail, Anna's hummingbird, northern flicker, black phoebe, chestnut-backed chickadee, ruby-crowned kinglet, European starling, yellow-romped warbler, orange-crowned warbler, California towhee, white-crowned sparrow, golden-crowned sparrow, and lesser goldfinch.

Additional wildlife species were observed on the site during spring season wildlife census work conducted by Gary Deghi of HBG in June of 2004. Raptors observed foraging over the on-site grasslands during the spring surveys included turkey vulture, white-tailed kite, red-tailed hawk, peregrine falcon and American kestrel. A red-tailed hawk nest was found in each of the two major oak woodland habitats on the property (see location of nest sites in Figure 6). Bird species observed in the project area grasslands during these spring nesting season surveys included rock pigeon, mourning dove, California horned lark, American crow, savannah sparrow, Brewer's blackbird and Western meadowlark. Birds observed primarily in oak woodlands and suspected of nesting in these areas were acorn woodpecker, Nuttall's woodpecker, black phoebe, Western kingbird, ash-throated flycatcher, Western scrub-jay, oak titmouse, bushtit, white-breasted nuthatch, Western bluebird, European starling, spotted towhee, California towhee, orange-crowned warbler, dark-eyed junco, lesser goldfinch and purple finch. A small flock of eight wild turkeys was observed in the easternmost oak woodland on the property and may nest in the vicinity. Birds observed in the main riparian canyon were California quail, Anna's hummingbird, Northern mockingbird, loggerhead shrike, lark sparrow and house finch, any of which may nest in the vicinity. Also observed flying over the property during June visits to the site was cliff swallow, barn swallow and white-throated swift. Great horned owl was also observed on the site by HBG during field verification of wetlands with the Army Corps of Engineers in August of 2005.

Reptiles and amphibians documented during the Faria Preserve Project Site survey included California slender salamander, northern alligator lizard, western fence lizard, and gopher snake. Mammals documented at the Faria Preserve Project Site included Botta's pocket gopher, deer mouse, black-tailed jackrabbit, western gray squirrel, striped skunk, mule deer, and coyote.

Due to the limited time spent at the Western Plan Area, the number of animal observations was minimal. However, raptors observed in this area included the turkey vulture (*Cathartes aura*) and red-tailed hawk (*Buteo jamaicensis*). Additionally, California quail (*Callipepla californica*) were observed within the grasslands. Reptiles and amphibians documented during the survey include the Pacific treefrog (*Hyla regilla*). The only mammal documented at the site was the Western gray squirrel (*Sciurus griseus*).

Wetland Delineation

HBG conducted an initial reconnaissance investigation of the Faria Preserve Project Site in October 2002. In November 2002, HBG conducted on-site evaluations of the geographic extent of wetlands and other "waters of the U.S." potentially subject to U.S. Army Corps of Engineers (Corps) jurisdiction (discussed in HBG, 2005, and amended in U.S. Army Corps of Engineers, 2006). A delineation report, which includes the delineation map verified by the Corps, is included in

Appendix F. The letter conveying the amendment to the wetlands delineation is attached as Appendix G. Existing land forms, vegetation, hydrology, and soil conditions were studied to identify areas that would likely contain wetland and aquatic habitats. These areas were classified using the U.S. Fish and Wildlife Service's "Classification System for Wetland and Deepwater Habitats" (Cowardin et al. 1979). The landward extent or boundary of these areas was further defined using the methodology currently in use by the Corps, published Corps regulatory guidance letters, and San Francisco District regulatory policy.

The 1987 "Corps Wetlands Delineation Manual" (1987 Manual) was used to determine the extent of wetlands at the Faria Preserve Project Site. Pursuant to the 1987 Manual, key criteria for determining the presence of wetlands are: (a) the presence of inundated or saturated soil conditions resulting from permanent or periodic inundation by ground water or surface water; and (b) a prevalence of vegetation typically adapted for life in saturated soil conditions (i.e., hydrophytic vegetation). Explicit in the definition is the consideration of three environmental parameters: hydrology, soil, and vegetation. Positive wetland indicators of all three parameters are normally present in wetlands. The combined use of indicators of all three parameters enhances the technical accuracy, consistency, and credibility of wetland determinations. For this reason, each of the parameters is required to be present according to the 1987 Manual.

Aquatic habitats, other than wetlands, which are considered to be waters of the United States were also identified as part of this study. Their landward extent was defined following the definitions provided in Corps regulations [33 CFR §328.4(a)(b) and (c)]:

(c) *Non-Tidal Waters of the United States*. The limits of jurisdiction in non-tidal waters:

(1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or
(2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.
(3) When the water of the United States consists only of wetlands, the jurisdiction extends to the limit of the wetlands.

An aerial photograph of the site taken by Air Photo USA, and dated June 1, 2000, was obtained from Earth Scan. The digital orthophoto was brought into GIS software and CAD contour data were overlaid on the aerial photo. Detailed field investigations were conducted on November 18, 2002 to delineate the limits of Corps jurisdiction on the Faria Preserve Project Site. A backpack-held, Trimble global positioning system (GPS) unit was used to map the wetland boundaries. Once field data collection was completed, the GPS data of the wetland boundaries were overlaid on the topographic map of the Faria Preserve Project Site and the acreages within the wetland polygons were calculated.

Representative sites were selected for detailed analysis of wetland indicators using a transect-based sampling approach. Site selection was based on an examination of sites which would likely pond, flood, or saturate based on their geographic position, soil permeability, and drainage characteristics in relationship to well-drained upland sites (as determined by NRCS soils data).

A detailed delineation report, prepared by HBG, is included in Appendix F. The delineation map and report were field verified by the Corps on August 18, 2005. The report contains all supporting

information associated with the wetland delineation, including a map of jurisdictional resources on the Faria Preserve Project Site and field data forms.

On April 24, 2006, HBG received a letter from the U.S. Army Corps of Engineers, advising that, based on a field visit in February 2006, the total wetland area on the project site is 0.49 acres, not 0.48 acres as identified previously. This additional 0.01 acre is an area that would be impacted by the proposed project. The Corps' letter is included as Appendix G, and biological resources impacts contained in this EIR are based on the revised wetland area of 0.49 acres.

Faria Preserve

Areas potentially subject to Corps jurisdiction on the Faria Preserve Project Site include several small depressions within the grassland community where saturated soils and wetlands can form and primarily unvegetated habitats along creeks and drainages. These latter areas comprise a portion of the valley foothill riparian and hardwood habitats defined by the WHRS criteria. The potential jurisdictional areas are classified by Cowardin, et. al. (1979) as palustrine emergent wetlands and riverine intermittent streambed habitats. The location of these areas, which total 0.49 acre, is shown in Figure 4.3-3. These wetlands serve the functions of flood flow alteration, groundwater recharge, sediment stabilization, sediment/toxicant retention, nutrient removal transformation, production export, and wildlife habitat.

Western Plan Area

A jurisdictional wetland delineation has not been completed for the Western Plan Area; however, it is likely that some amount of the observed creek and drainage area would be subject to Corps jurisdiction as either wetlands or other "waters of the U.S."

Special Status Species

As described above, rare, endangered, or threatened species are protected by the Federal Endangered Species Act of 1973 (as updated in 50 CFR § 17.11 and 17.12, January, 1982), the California Native Plant Protection Act of 1977, and the California Endangered Species Act of 1970 (California Administrative Code Title 14, Section 670.2 and 670.51). The California Environmental Quality Act (CEQA) (January, 1984) provides additional protection for unlisted species that meet the "rare" or "endangered" criteria defined in Section 15380.

The California Department of Fish and Game (CDFG) maintain records for the distribution and known occurrences of sensitive species and habitats in the California Natural Diversity Database (CNDDB). Sensitive species include those species listed by the federal and state governments as endangered, threatened, or rare or candidate species for these lists. The CNDDB is organized into map areas based on 7.5-minute topographic maps produced by the U.S. Geological Survey. All known occurrences of sensitive species and important natural communities are mapped onto the quadrangle map. The database gives further detailed information on each occurrence, including specific location of the individual, population, or habitat (if possible) and the presumed current state of the population or habitat.

The NWSP Area is located in the Diablo 7.5-minute quadrangle. A search of the CNDDB conducted for records of occurrence of special-status animals and plants and natural communities within this quadrangle indicated that no special-status species or natural communities are known to occur in the NWSP Area itself. However, the absence of a special animal, plant or natural community from the report does not necessarily mean that they are absent from the area in question, only that no occurrence data are currently entered in the CNDDB inventory. The occurrence of special-status species of plants and animals in the vicinity of the NWSP Area may be an indication that they also could occur in the NWSP Area. Table 4.3-4 presents a list of special-status animals and plants that have been reported in the NWSP Area vicinity (i.e., Diablo 7.5-minute quadrangle map and several nearby quadrangles: Las Trampas Ridge, Dublin and Hayward). The potential for occurrence within the NWSP Area of each species is discussed below.

Special-Status Plant Species

A list of special-status plants with potential to occur within the NWSP Area was developed from the California Department of Fish and Game's Natural Diversity Data Base (CNDDB, 2004), the U.S. Fish and Wildlife Service (USFWS) Endangered Species Office, the California Native Plant Society (CNPS), and field knowledge of the individual investigators. A complete list of special-status plant species occurring in the vicinity of the NWSP Area is included in Table 4.3-4.

Special-status plant species include:

- species that are listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (50 CFR 17.12; various notices in the Federal Register for proposed species);
- species that are listed, or proposed for listing by the state of California as threatened or endangered under the California Endangered Species Act (California Administrative Code, Title 14, Section 670.5);
- plants considered by the CNPS to be rare, threatened, or endangered in California and elsewhere (Skinner and Pavlik 1994); and
- plant species that meet the definition of rare or endangered under CEQA.

Source: The Huffman-Broadway Group, Inc., 2006

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Table 4.3-4: Special Status Animal and Plant Species Reported in Diablo USGS Quadrangle Map[1]

SPECIES	STATUS FED/STATE/CNPS[2]	HABITAT	OCCURRENCE ON THE FARIA PRESERVE	OCCURRENCE IN THE WESTERN PLAN AREA
ANIMALS				
California Tiger Salamander (*Ambystoma californiense*)	FT/CSC	Found in annual grasslands and grassy understory of valley-foothill hardwood habitats in central and northern California. Needs underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water source for breeding.	Possible. The species has not been documented at the site or adjacent areas. Beeman & Associates performed a species assessment on the project site in October 2002. No California Tiger Salamanders were observed and the assessment of on-site habitats indicates that there is no suitable breeding habitat or estival habitat on-site.	Unlikely. No California Tiger Salamanders were observed during reconnaissance-level surveys by EDAW. No suitable breeding habitat or estival habitat observed on-site.
California Red-legged Frog (*Rana aurora draytonii)*	FT/CSC	Mostly found in lowlands and foothills in/near permanent sources of deep water but will disperse far during and after rain. Prefers shorelines with extensive vegetation. Requires 11-20 weeks of permanent water for larval development and requires access to estivation habitat.	Unlikely. Beeman & Associates performed a habitat assessment of the site's suitability to support the California red-legged Frog in October 2002. The site was evaluated as having poor quality habitat. No frogs or larvae were observed.	Low. No wetland areas possessing sufficient inundation to support California red-legged frogs were observed.
Western Pond Turtle (*Clemmys marmorata marmorata*)	FSC/CSC	Aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Needs basking sites and suitable upland habitat for egg-laying (sandy banks or grassy open fields).	Unlikely. Suitable habitat is not present on-site due to the absence of wetlands with sufficient inundation.	Unlikely. Suitable habitat is not present on-site due to the absence of wetlands with sufficient inundation.
Alameda Whipsnake (*Masticophis laeralis euryxanthus)*	FT/-	Restricted to valley-foothill hardwood habitat of the coast range from north of San Francisco Bay to near Monterey. Requires open canopy chaparral or coastal scrub communities, rock outcrops, and talus with deep crevices and abundant rodent burrows, moderate populations of fence lizards, and south-facing slopes.	Possible. The species has not been documented at the site or adjacent areas. No core habitat areas occur on the site but potential core habitat areas are present in immediately adjacent properties to the north. Detailed mitigation program incorporated into project description to ensure no impacts to the species occur. Conference with the USFWS is anticipated as part of the Corps permit process.	Unlikely. Suitable habitat for the species is not present.

Table 4.3-4: Special Status Animal and Plant Species Reported in Diablo USGS Quadrangle Map[1] (Continued)

SPECIES	STATUS FED/STATE/CNPS[2]	HABITAT	OCCURRENCE ON THE FARIA PRESERVE	OCCURRENCE IN THE WESTERN PLAN AREA
Northern Harrier (*Circus cyaneus)* [Nesting]	-/CSC	Coastal salt marsh and freshwater marsh; nests and forages in grasslands; nests on ground in shrubby vegetation, usually at marsh edge.	Nesting unlikely. Appropriate nesting habitat is present in the project area and this species would be expected to forage on or near the site. Observed by HBG in November 2002.	Nesting unlikely. Appropriate nesting habitat is present in the area and this species would be expected to forage on or near the western Plan Area.
White-tailed Kite (*Elanus caeruleus*) [Nesting]	-/CFP	Open grassland and agricultural areas throughout Central California.	Nesting unlikely. Appropriate nesting habitat is not present on the Faria Preserve Project Site, however, this species would be expected to forage on or near the site, at any time of year. Observed by HBG in November 2002 and June 2004.	Nesting unlikely. Appropriate nesting habitat is present in the area and this species would be expected to forage on or near the western Plan Area, at any time of year.
Sharp-shinned Hawk (*Accipiter striatus)* [Nesting]	-/CSC	Breeds in ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers, but not restricted to, riparian habitats. North-facing slopes, with plucking perches are critical requirements. All habitats except alpine, open prairie, and bare desert used in winter.	Nesting unlikely. Appropriate nesting habitat not present on-site. Species likely forages on or near the site, especially in winter. Observed by HBG in November 2002.	Nesting unlikely. Appropriate nesting habitat is present in the vicinity and this species would be expected to forage on or near the western Plan Area, especially in winter.
Cooper's Hawk (*Accipiter cooperii*) [Nesting]	-/CSC	Nests primarily in deciduous riparian forests; forages in open woodlands.	Nesting unlikely. Appropriate nesting habitat not present on-site. Species likely forages on or near the site, especially in winter. Observed by HBG in October 2002. Individuals were not observed during nesting season surveys conducted in June 2004.	Nesting unlikely. Appropriate nesting habitat not present on-site. Species likely forages on or near the site, especially in winter.
Ferruginous Hawk (*Bueto regalis*) [Wintering]	FSC/CSC	Inhabits open country. Winters in small number along California coast and inland valleys.	Wintering possible. There is likely limited use of this area as winter foraging habitat.	Wintering possible. The species likely utilizes the site as a winter foraging habitat.

Table 4.3-4: Special Status Animal and Plant Species Reported in Diablo USGS Quadrangle Map[1] (Continued)

SPECIES	STATUS FED/STATE/CNPS[2]	HABITAT	OCCURRENCE ON THE FARIA PRESERVE	OCCURRENCE IN THE WESTERN PLAN AREA
Golden Eagle (*Aquila chrysaetos*) [Nesting and wintering]	-/CSC	Typically frequents rolling foothills, mountain areas, sage-juniper flats and desert.	Wintering possible. Limited us of this area as foraging habitat may occur.	Wintering possible. The species likely utilizes the site as a winter foraging habitat.
Prairie Falcon (*Falco mexicanus*) [Nesting]	-/CSC	Associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields and desert scrub. Permanent resident and migrant along inner coast and ranges.	Nesting unlikely. Appropriate nest sites not present. This species expected to forage on the site in winter. Observed by HBG in October 2002.	Nesting unlikely. Appropriate nest sites not present. This species expected to forage on the site in winter.
Peregrine Falcon (*Falco peregrinus*)	FE-D/CE	Nests in woodland, forest and coastal habitats, on cliffs or banks, and usually near wetlands, lakes, rivers, sometimes on human-made structures. In non-breeding seasons found in riparian areas and coastal and inland wetlands.	Possible. Species nests in the Diablo Range and foraging individuals could utilize the site. Species was observed at the site in June 2004; however no territorial behaviors or any other evidence of nesting by the species was observed.	Possible. Species nests in the Diablo Range and foraging individuals could utilize the site.
Merlin (*Falco columbarius*) [Wintering]	-/CSC	Breeds in Canada, winters in a variety of California habitats, including grasslands, savannahs, wetlands, etc.	Wintering possible. The species may utilize the site as a winter foraging habitat.	Wintering possible. The species may utilize the site as a winter foraging habitat.
Burrowing Owl (*Athene cunicularia*)	FSC/CSC	Found in open dry annual or perennial grasslands, deserts and scrublands characterized by low growing vegetation. This species is a subterranean nester, dependent upon the burrows of burrowing mammals, most notably the California ground squirrel.	Unlikely. No burrowing owls were observed during site surveys nor was there evidence of suitable habitat. Species would not be expected due to absence of ground squirrels and ground squirrel burrows.	Unlikely. No burrowing owls were observed during site surveys nor was there evidence of suitable habitat. Species would not be expected due to absence of ground squirrels and ground squirrel burrows.
California Horned Lark (*Eremophila alpestris actia*)	-/CSC	Resident in a variety of open habitats, including grasslands, less common in mountain regions.	Likely. The species was observed on-site by HBG in October and November of 2002, and with juvenile birds in June 2004.	Likely. Suitable forage and nesting habitat occurs on-site.

Table 4.3-4: Special Status Animal and Plant Species Reported in Diablo USGS Quadrangle Map[1] (Continued)

SPECIES	STATUS FED/STATE/CNPS[2]	HABITAT	OCCURRENCE ON THE FARIA PRESERVE	OCCURRENCE IN THE WESTERN PLAN AREA
Loggerhead Shrike (*Lanius ludovicianus*)	FSC/CSC	Habitat includes open areas such as desert, grasslands and savannah. Nests in thickly foliaged trees or tall shrubs. Forages in open habitats, which contain trees, fence posts, utility poles, and other perches.	Likely. The species was observed on-site in November 2002 and June 2004 in riparian habitat. Nesting on-site is possible.	Possible as a transient. Suitable forage habitat present.
Yellow Warbler (*Dendroica petechia*) [Nesting]	-/CSC	Breeds in deciduous riparian woodlands, widespread during fall mitigation.	Nesting unlikely. Limited breeding habitat on- site, migrants expected on-site, especially in fall. Considered extirpated.	Possible. On-site riparian corridors could support breeding. Considered extirpated.
Tri-colored Blackbird (*Agelaius tricolor*) [Nesting colony]	FSC/CSC	Breeds near freshwater, usually in tall emergent vegetation. Requires open water with protected nesting substrate. Colonies prefer heavy growth of cattails and tules. Uses grasslands and agricultural lands for foraging.	Nesting unlikely. Appropriate nesting habitat not present on-site. Utilization of habitat on-site for foraging in winter is possible.	Nesting unlikely. Appropriate nesting habitat not present on-site. Utilization of habitat on-site for foraging in winter is possible.
San Joaquin Kit Fox (*Vulpes macrotis mutica*)	FE/CT	Open grassland, oak savannah, valley sink scrub and alkaline meadow of Central Valley from Contra Costa County to Kern County.	Unlikely. San Joaquin Kit Fox occurs east of the project area. I-680 and urban development represent barriers for this species to access the site.	Unlikely. San Joaquin Kit Fox occurs east of the project area. I-680 and urban development represent barriers for this species to access the site.
PLANTS				
Coastal Triquetrella (*Tirquetrella california*)	--/--/1B	Coastal bluff scrub, coastal shrub. Known in California from about 10 small populations and in Oregon from one occurrence. Often found where moss is growing on soil. 10-100m. Known from Mt. Diablo.	Unlikely. Appropriate habitat is not present on-site. Surveys were negative.	Unlikely. Appropriate habitat is not present on-site.
Big-scale balsamroot (*Balsamorhiza macrolepis var. macrolepis*)	--/--/1B	Valley and foothill grassland, cismontane woodland. Sometimes on serpentine. 35-1000m. Occurs at Fairmont Ridge in Oakland.	Unlikely. Appropriate habitat is not present on-site. Surveys were negative.	Unlikely. Appropriate habitat is not present on-site.

Table 4.3-4: Special Status Animal and Plant Species Reported in Diablo USGS Quadrangle Map[1] (Continued)

SPECIES	STATUS FED/STATE/CNPS[2]	HABITAT	OCCURRENCE ON THE FARIA PRESERVE	OCCURRENCE IN THE WESTERN PLAN AREA
Diablo helianthela *(Helianthela castenea)*	--/--/1B	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Usually in chaparral/oak woodland interface in rocky, azonal soils. Often in partial shade. 25-1150m. Known to occur between Cull Creek and Crow Creek just west of Crow Canyon Road; also at Las Trampas Regional Park and Mt. Diablo.	Unlikely. Appropriate habitat is not present on-site. Surveys were negative.	Unlikely. Appropriate habitat is not present on-site. Surveys were negative.
Congdon's tarplant *(Centromadia parryi ssp congdonii)*	--/--/1B	Valley and foothill grassland. Alkaline soils, sometimes describes as heavy white clay. 1-230m. Occurs near Crow Canyon Road in San Ramon.	Unlikely. Appropriate habitat is not present on-site. Surveys were negative.	Unlikely. Surveys were negative, but were not conducted during blooming period for species.
Mt. Diablo jewel-flower (*Streptanthus hispidus*)	--/--/1B	Valley and foothill grassland, chaparral. Endemic to Contra Costa County. Talus or rocky outcrops. 275-970m. Nearest population at Mt. Diablo.	Unlikely. Appropriate habitat is not present on site. Surveys were negative.	Unlikely. Surveys were negative.
Mt. Diablo manzanita (*Arctostaphylos auriculata*)	--/--/1B	Chaparral, known only from the Mt. Diablo area in Contra Costa County. In Canyons and on slopes. On sandstone. 120-500m. Nearest populations on slope of Mt. Diablo.	Not present. Appropriate habitat not present on-site. Surveys were negative. No manzanita found on-site.	Not present. Appropriate habitat not present on-site. Surveys were negative. No manzanita found on-site.
Contra Costa manzanita (*Arctostaphylos manzanita ssp. laevigata*)	--/--/1B	Chaparral, endemic to Contra Costa County. Rocky Slopes. 500-1100m. Nearest populations are in Mt. Diablo State Park.	Unlikely. Appropriate habitat is not present on-site. Surveys were negative. No manzanita found on-site.	Not present. Appropriate habitat not present on-site. Surveys were negative. No manzanita found on-site.

Table 4.3-4: Special Status Animal and Plant Species Reported in Diablo USGS Quadrangle Map[1] (Continued)

SPECIES	STATUS FED/STATE/CNPS[2]	HABITAT	OCCURRENCE ON THE FARIA PRESERVE	OCCURRENCE IN THE WESTERN PLAN AREA
Alkali milk-vetch (*Astragalus tener var.tener*)	--/--/1B	Alkali playa, Valley and foothill grassland, vernal pools. Low ground, alkali flats, and flooded lands; in annual grassland or in playas or vernal pools. 1-170m. Nearest populations are near Hayward.	Unlikely. Appropriate habitat is not present on-site due to lack of alkaline wetland habitats. Surveys were negative.	Unlikely. Appropriate habitat is not present on-site due to lack of alkaline wetland habitats. Surveys were negative.
Round-leaved filaree (*Erodium macrophyllum*)	--/--/List 2	Clismontane woodland, valley and foothill grassland, clay soils. 15-1200m. Occurs in Moraga Valley.	Unlikely. Appropriate habitat is not present on-site. Surveys were negative.	Unlikely. Surveys were negative.
Mt. Diablo phacelia (*Phacelia phacelioides*)	--/--/1B	Chaparral, cismontane woodland. Adjacent to trails, on rock outcrops and talus slopes; sometimes on serpentine. 500-1370m. Occurs at Mt. Diablo.	Unlikely. Appropriate habitat is not present on-site. Surveys were negative.	Unlikely. Appropriate habitat is not present on-site. Surveys were negative.
Northern California black walnut *(Juglans hindsii)*	--/--/1B	Riparian forest, riparian woodland. Two extant native stands remain; widely naturalized. Deep alluvial soil associated with a creek or stream. 0-395m. Nearest occurrence in Lafayette.	Not present. Appropriate habitat is not present on-site. Surveys were negative.	Individuals present.
Robust monardella *(Monardella villosa ssp.globosa)*	--/--/1B	Chaparral, cismontane woodland; openings. 30-300m. Nearest population in Hayward hills.	Unlikely. Appropriate habitat is not present on-site. Surveys were negative.	Unlikely. Appropriate habitat is not present on-site. Surveys were negative.
Brewer's western flax *(Hesperolinon breweri)*	--/--/1B	Chaparral, cismontane woodland, valley and foothill grassland. Known only from Contra Costa, Napa, and Solano counties. Often in rocky serpentine soil in serpentine chaparral and serpentine grassland. 30-885m. Nearest population at Mt. Diablo State Park.	Unlikely. Appropriate habitat is not present on site. Surveys were negative.	Unlikely. Surveys were negative.

Table 4.3-4: Special Status Animal and Plant Species Reported in Diablo USGS Quadrangle Map[1] (Continued)

SPECIES	STATUS FED/STATE/CNPS[2]	HABITAT	OCCURRENCE ON THE FARIA PRESERVE	OCCURRENCE IN THE WESTERN PLAN AREA
Hall's bush mallow *(Malacothamnus hallii)*	--/--/1B	Chaparral; some populations on serpentine, 10-550m. Closest population is near Mt. Diablo.	Unlikely. Appropriate habitat is not present on-site. Surveys were negative.	Unlikely. Appropriate habitat is not present on-site. Surveys were negative.
Mt. Diablo fairy-lantern *(Calochortus pulchellus)*	--/--/1B	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland. Primarily from the Mt. Diablo area. On wooded and brushy slopes. 200-800m. Known to occur at Las Trampas Regional Park southwest of Danville.	Unlikely. Appropriate habitat is not present on-site. Surveys were negative.	Unlikely. Appropriate habitat is not present on-site. Surveys were negative.
Fragrant fritillary *(Fritillaria liliacea)*	--/--/1B	Coastal scrub; valley and foothill grassland; coastal prairie. Often on serpentine; various soils reported though usually clay, in grassland. 3-410m.	Not present. Appropriate habitat is not present on-site. Surveys were negative.	Unlikely. Appropriate habitat is not present on-site. Surveys were negative.
Bent-flowered fiddleneck *(Amsinckia lunaris)*	--/--/1B	Valley and foothill grassland, cismontane woodland	Possible. Suitable habitat present on-site.	Unlikely. Appropriate habitat is not present on-site. Surveys were negative.
Oval-leaved viburnum (*Viburnum ellipticum)*	--/--/List 2	Chaparral, cismontane woodland, lower montane coniferous forest	Unlikely. Appropriate habitat is not present on-site.	Unlikely. Appropriate habitat is not present on-site. Surveys were negative.

[1] Source: California Natural Diversity Data Base, Natural Heritage Division, California Department of Fish and Game for the Diablo 7.5 Minute Quadrangle Map, information dated August 2004.

[2] Status Codes:

- FE Federally Endangered
- FT Federally Threatened
- FPE Federally Proposed Endangered
- FPT Federally Proposed Threatened
- FSC Federal Species of Concern (most are former C2 Candidates and some former C1)
- CE California Endangered
- CT California Threatened
- D Delisted
- CR California Rare
- CFP California Fully Protected
- CSC California Species of Special Concern
- CNPS 1A Plants Presumed Extinct in California
- CNPS 1B Plants Rare, Threatened or Endangered in California or elsewhere
- CNPS LIST 2 Plants Rare, Threatened or Endangered in California, but more common elsewhere

Faria Preserve

According to the botanical surveys conducted by Virginia Dains in March 2003, the Faria Preserve Project Site does not represent high-quality habitat for special-status plants (HBG, 2005). Heavy continuous cattle grazing over a long period of time appears to have altered habitats making them less likely to support rare species. In addition, non-native species may compete with localized native plants. However, enclaves of native species exist on the Faria Preserve Project Site, and these isolated locations could provide suitable habitat for special-status plants.

No special status plant species were found in spring/summer surveys conducted at the site. Some of the target species such as Mt. Diablo phacelia (*Phacelia phacelioides*) or Diablo helianthela (*Helianthela castenea*) may occur in similar habitats as present on Faria Ranch, but at higher elevations. Others such as fragrant fritillary (*Fritillaria liliacea*), Brewer's western flax (*Hesperolinon breweri*), and big-scale balsamroot (*Balsamorhiza macrolepis* var. *macrolepis*) are often found on serpentinitic soils that are not present at Faria Ranch. Chaparral species such as Mt. Diablo manzanita (*Arctostaphylos auriculata*), Contra Costa manzanita (*Arctostaphylos manzanita* ssp. *laevigata*), or Hall's bush mallow (*Malacothamnus hallii*) may require a more contiguous habitat than is found in the small rock outcrops on the site.

Western Plan Area

The Western Plan Area does not represent high-quality habitat for special-status plants. Comparable to the Faria Preserve Project Site, heavy season-long cattle grazing over a long period of time has altered habitats making them less likely to support rare species. Competition with introduced non-native species also threatens the viability of localized native plants.

A total of 16 special-status plant species were reported in the CNDDB as occurring within the four quadrangle search areas. Of these 16 species, only one special-status plant species, the Northern California black walnut, was observed in the Western Plan Area. This species is found in the valley foothill riparian habitat area. Although individuals were found, this area is not suspected of containing a native stand of Northern California black walnut, which is a key factor in the sensitive status of this species. Planted or escaped Northern California black walnuts, which these individuals may be, are not considered to be special-status species.

Of the remaining 15 plants, seven species are likely to be absent from the site, as they require soil or other habitat conditions which are not present. Since there are no on-site chaparral habitats, it is certain that Diablo manzanita, Contra Costa manzanita, Hall's bush mallow, Mt. Diablo phacelia, and oval-leaved viburnum (*Viburnum ellipticum*) are not present. The San Joaquin saltbush (*Atriplex joaquiniana*) requires alkaline wetland habitats, while coastal triquetrella (*Triquetrella californica*) is found in coastal scrub habitats. These habitat types were not observed in the Western Plan Area, so the occurrence of these species is not expected. None of these seven species were observed during field surveys of the Western Plan Area.

The other eight species could occur, but were not observed within the Western Plan Area during the May 2004 site survey. Since this survey was conducted outside of the flowering period for Congdon's tarplant (June to October), there is the potential that this species could occur in the Western Plan Area. A survey conducted during the flowering period indicated would be necessary, and is

recommended, to accurately determine presence or absence. The special-status plant species that were not observed within the Western Plan Area, but were surveyed for within their flowering period include the Diablo helianthella, Mt. Diablo jewel-flower, round-leaved filaree, Brewer's western flax, Mt. Diablo fairy-lantern, and bent-flowered fiddleneck (*Amsinckia lunaris*). As they were not observed, but should have been visible and identifiable, their occurrence is unlikely.

Special Status Animal Species

Animal species noted in the CNDDB as occurring in the Diablo, Las Trampas Ridge, Dublin and Hayward 7.5 minute quadrangle map areas, or that are known to occur in the general vicinity based on previous reports and EDAW's staff knowledge, are discussed below.

California Tiger Salamander

The California tiger salamander (*Ambystoma californiense*) is a federally threatened species and a California species of special concern. California tiger salamander occurs in central California from the central Sacramento Valley to the central San Joaquin Valley and surrounding foothills of both the Coast Range and the Sierra Nevada. The species also has been recorded in the San Francisco Bay area, the Monterey Bay area, and valleys and foothills in San Luis Obispo and Santa Barbara Counties. The actual occurrence of the species within this range is restricted to locations where breeding ponds are surrounded by suitable upland habitat.

Adult California tiger salamanders inhabit grassland, savanna, or deciduous oak woodland habitats which contain natural ponds, vernal pools, intermittent streams, or stock ponds. They usually are not found unless there is this combination of ponded water for breeding and surrounding upland which provide burrows for estivation, with a predominant ground cover of grassland. They spend the majority of their time below ground, in rodent burrows, or other natural crevices. The major threat to the California tiger salamander is the loss of breeding pools and ponds and the conversion of upland habitat for agriculture and urban development. The nearest known sighting of California tiger salamander is located approximately three miles from the Faria Preserve Project Site near San Ramon Creek in Danville.

Faria Preserve

At the request of HBG, Gary Beeman, of Beeman & Associates, conducted a habitat assessment for the California tiger salamander for the Faria Preserve Project Site. The site was surveyed by Mr. Beeman on October 18 and 19, 2002. Mr. Beeman did not observe California tiger salamanders on the site. He also concluded that suitable breeding habitat did not exist on the Faria Preserve Project Site, and that potential estivation habitat is not present on-site due to lack of ground squirrel burrows and a very limited number of other open rodent burrows.

Western Plan Area

Within the Western Plan Area, EDAW biologists did not observe California Tiger Salamanders on-site, and concluded that suitable breeding habitat did not exist. The Western Plan Area lacks ground squirrel burrows and sufficient numbers of other rodent burrows to support estivation habitat.

California Red-legged Frog

The California red-legged frog (*Rana aurora draytonii*) is a federally-listed threatened species and California species of special concern. The historical range of the California red-legged frog extended from the vicinity of Point Reyes National Seashore in Marin County southward to northwestern Baja California, Mexico and inland to approximately Redding in Shasta County (61 Federal Register 25813). The frog has sustained a 70 percent reduction in its geographic range. The nearest known population of this species is approximately two miles southwest of the project site near Crow Creek.

California red-legged frogs have been observed in a number of aquatic and terrestrial habitats, including marshes, streams, lakes, reservoirs, ponds and other permanent, or near permanent, sources of water. Although they occur in ephemeral streams or ponds, California red-legged frogs are expected to thrive in permanent deep-water pools with dense stands of overhanging willows (*Salix* spp.) and emergent vegetation. However, they have been observed in a variety of aquatic environments, including stock ponds and artificial pools with little to no vegetation. California red-legged frogs are usually observed near water, but can move long distances over land between water sources during the rainy season.

Faria Preserve

A habitat assessment was conducted according to USFWS survey protocol on October 18 and 19, 2002 by Gary Beeman. During the habitat assessment, no wetland areas with inundation sufficient to support California red-legged frog were observed at the site. It was Mr. Beeman's assessment that the Faria Preserve Project Site had poor quality habitat for the California red-legged frog. In addition, Mr. Beeman determined that it was highly unlikely that the Faria Preserve Project Site is utilized as a corridor or dispersal area since all suitable habitat in the vicinity is blocked by development on the south.

Western Plan Area

During the habitat assessments for the Western Plan Area, no wetland areas with inundation sufficient to support California red-legged frog breeding sites were observed; however, this is not to say that site conditions are not more favorable at other times of the year. Aside from breeding, California red-legged frogs may access the portion of Bollinger Creek within the Western Plan Area from stream locations north or south of the NWSP Area. EDAW biologists recommend focused presence/absence surveys to determine the presence or absence of California red-legged frogs prior to any disturbance or construction activities within 100 feet of suitable habitat.

Western Pond Turtle

The western pond turtle (*Clemmys marmorata marmorata*) is both a federal and state species of special concern. It occupies ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. The western pond turtle is associated with permanent or nearly permanent water in a wide variety of habitat types. Individuals normally are associated with permanent ponds, lakes, streams, irrigation ditches or permanent pools along intermittent streams. They rely on suitable upland areas of scrub and woodlands for refugia. The species currently is known to occur broadly throughout the state. The closest occurrence recorded in the CNDDB is from Tassajara Creek.

Faria Preserve

Suitable habitat with permanent water does not exist on the Faria Preserve Project Site for the western pond turtle, and none of the species were observed.

Western Plan Area

Similarly, for the Western Plan Area, suitable habitat does not exist on-site for the Western pond turtle, and none were observed.

Alameda Whipsnake

The Alameda whipsnake, a federally-listed threatened species, is considered a subspecies of the California whipsnake, which is widely distributed. The Alameda whipsnake is associated with chaparral, Diablan sage scrub, northern coyote brush scrub, and riparian scrub communities and the adjacent mosaic of grassland and wood habitats found in Alameda and Contra Costa counties. The suppression of fire has created mature stands of chaparral which prohibit the passage of light and heat. These mature stands create a dark understory which prevents cold blooded reptiles, such as the whipsnake, from sufficiently heating their body temperature to active levels. For this reason, southern exposure slopes of open chaparral are important to the whipsnake, since the southern exposure gets maximum light exposure and the open canopy allows light to pass without leaving the snakes vulnerable to predators. The rock outcrops and rodent holes create an area for nightly protection and winter hibernation protecting whip snakes from both predators and weather. The Alameda whipsnake feeds almost exclusively on lizards, with its preferred prey being the northwestern fence lizard (*Sceloporous occidentalis*). Grassland habitats are used by whipsnakes most extensively during the spring mating season.

The Alameda whipsnake was listed as threatened under the Federal Endangered Species Act on December 5, 1997. The USFWS designated critical habitat for Alameda whipsnake on October 3, 2000 encompassing 405,598 acres in Contra Costa, Alameda, San Joaquin, and Santa Clara County. The NWSP Area was included in this designation, despite the fact that no core habitat areas are present and the snake has never been documented there. This proposed designation was vacated by a U.S. district Court on May 9, 2003, and the USFWS was subsequently directed to issue a revised critical habitat designation and proposed rule by October 2005. A revised proposed rule was issued by the USFWS on October 13, 2005, and the Faria Preserve Project Site is included within the area proposed to be designated as critical habitat. No core habitat areas exist on the Faria Preserve Project Site, but the presence of foraging habitat does exist in adjacent areas.

Faria Preserve

The observations of Alameda whipsnake closest to the Faria Preserve Project Site are at Las Trampas Ridge Regional Park, managed by the East Bay Regional Park District. There are records from approximately four miles northwest of the Faria Preserve Project Site. (Swaim, 2005, see Appendix E). Additional observations of the whipsnake are clustered approximately five miles to the northwest of the Faria Preserve Project Site. There have been no sightings of the Alameda whipsnake within the Faria Preserve property or within the immediately adjacent properties. Figure 4.3-4 shows the locations of Alameda whipsnake observations closest to the project site.

A habitat assessment for both the entire Faria property (approximately 450 acres, including both the Faria Preserve and the remainder parcel outside of the NWSP Area) and nearby Freitas Ranch was conducted on April 10, 2000, and the report, prepared by EnviroNet, is included in Appendix D. The report concludes that the Faria Preserve does not contain all four elements necessary to support Alameda whipsnake. Specifically, areas with habitat elements such as rock outcrops or rodent holes, or sufficient populations of northwestern fence lizard were not present. Although chaparral is present in portions of the EnviroNet study area, other elements critical to support of the Alameda whipsnake were found by EnviroNet to be absent from the Faria Preserve. However, it has since been found that these habitats are present in two small patches within the Faria Preserve Project Site (291 acres) totaling 0.08 acres (HBG, 2005).

The more recent habitat assessment (Swaim, 2005) identifies extensive areas of chaparral and scrub habitat immediately adjacent to and north of the Faria Preserve property that provides potential core habitat for the Alameda whipsnake, and concludes that any whipsnakes that may occupy these adjacent habitats could include portions of the Faria Preserve with their home range. Chaparral habitats are more plentiful near the Adjacent Faria Offsite Preservation Area than near the Faria Preserve Project Site.

Western Plan Area

No evidence of Alameda whipsnake habitat or individuals was observed by EDAW biologists during the May 2004 site visit to the Western Plan Area.

Northern Harrier

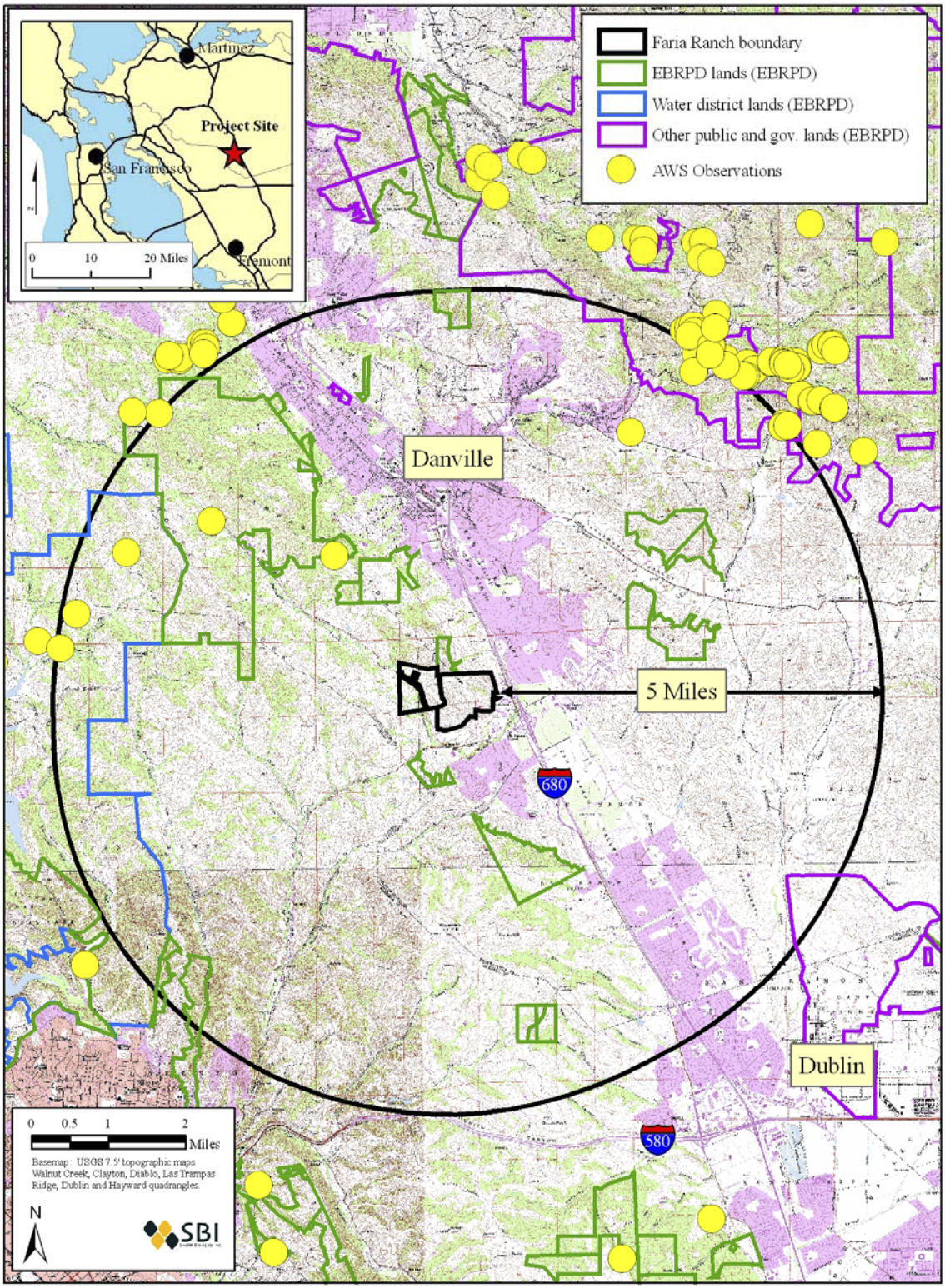
The northern harrier (*Circus cyaneus*), a California species of special concern with respect to nesting habitat, is found throughout lowland California. Northern harrier nest preferably in emergent wetlands, or along rivers and lakes, but may nest in grasslands. Its nests are found on the ground in shrubby vegetation, usually at the edge of marshes. The CNDDB does not document nesting by this species in the vicinity of the NWSP Area.

Faria Preserve

Preferred nesting habitat for this species is not present on the Faria Preserve Project Site due to the lack of appropriate vegetation. Foraging on the site by the species during the winter is expected, and several individuals were observed on-site by HBG in November 2002, and by EDAW in December 2003.

Western Plan Area

Appropriate nesting habitat for this species is not present on the Western Plan Area due to the lack of appropriate vegetation. Foraging on the site by the species during the winter may be likely. This species was not observed on-site by EDAW biologists during the May 2004 site visit.



Source: SBI, 2006

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White-tailed Kite

White-tailed kite (*Elanus caeruleus*) is a California fully protected species and a federal species of concern with respect to nesting habitat. The white-tailed kite is a common to uncommon, year-long resident in coastal and valley lowlands, but rarely is found away from agricultural areas. It prefers open grassland and agricultural areas and inhabits herbaceous and open stages of most habitats, mostly in cismontane California. The species has extended its range and increased its numbers in recent decades. White-tailed kite was observed on the Faria Preserve Project Site by HBG in November 2002 and June 2004.

Faria Preserve

Potential nesting habitat is present on Faria Preserve Project Site, and this species likely forages on or near the site, especially during winter. The species was observed on the Faria Preserve Project Site by HBG in November 2002, and by EDAW in December 2003.

Western Plan Area

Potential nesting habitat for this species on the Western Plan Area was limited to large eucalyptus trees. Foraging on the site by the species during the winter may be likely. This species was not observed on the Western Plan Area by EDAW biologists during the May 2004 site visit.

Sharp-shinned Hawk

Sharp-shinned hawk (*Accipiter striatus*) is a California species of special concern with respect to nesting habitat. These raptors are found throughout California in winter and are permanent residents in mountainous regions in the northwest and Sierra Nevada (except at high elevations). The species breeds in ponderosa pine, black oak, riparian deciduous and mixed conifer forests of the northern half of state. A nest site is documented in the CNDDB from Walpert Ridge near Hayward. Many habitats are used by this raptor in winter.

Faria Preserve

Appropriate nesting habitat is not present on the Faria Preserve Project Site, although the species likely forages on or near the site, especially during winter. The species was observed on the Faria Preserve Project Site by HBG in November 2002. Individuals were not observed during the nesting season surveys conducted in June 2004.

Western Plan Area

Appropriate nesting habitat is present within the riparian corridors within the Western Plan Area, and the species likely forages on or near the site, especially during winter. This species was not observed at the Western Plan Area by EDAW biologists during the May 2004 site visit.

Cooper's Hawk

Cooper's hawk (*Accipiter cooperii*) is a California species of special concern and federal species of concern with respect to nesting habitat. The species nests primarily in riparian forests dominated by

deciduous species, but also nests in densely canopied forests from digger pine-oak woodland to ponderosa pine. Although specializing on small- to medium-sized birds, Cooper's hawk also prey on a substantial number of small mammals. They typically hunt from a perch in a tree and are associated with wooded or scrub habitat or with grasslands bordered by woody habitat. In the winter, their habitat requirements are broader than in the breeding season. Cooper's hawks forage in open woodlands.

Faria Preserve

Appropriate nesting habitat is not present on the Faria Preserve Project Site, although the species likely forages on or near the site, especially during winter. The species was observed on the Faria Preserve Project Site in October 2002. Individuals were not observed during the nesting season surveys conducted in June 2004.

Western Plan Area

Although this species is likely to forage on or near the Western Plan Area during winter months, appropriate nesting habitat is not present on-site. This species was not observed within the Western Plan Area by EDAW biologists during the May 2004 site visit.

Ferruginous Hawk

The ferruginous hawk (*Buteo regalis*) is a federal species of concern and a California species of special concern. As a wintering species, ferruginous hawks forage almost entirely over open grasslands. Ferruginous hawks require tall trees or telephone poles in which to roost and use as lookouts for prey.

Faria Preserve

Suitable wintering foraging habitat occurs in the non-native grassland on the Faria Preserve Project Site. No ferruginous hawks were observed on the site by HBG during fall 2002 surveys. Limited use of the site as winter foraging habitat by these hawks likely occurs.

Western Plan Area

Suitable wintering foraging habitat occurs in the non-native grassland within the Western Plan Area. There were no Ferruginous hawks observed on the site by EDAW biologists during the May 2004 survey; however, limited use of the site as winter foraging habitat by these hawks likely occurs.

Golden Eagle

The golden eagle (*Aquila chrysaetos*) is a California species of special concern and fully protected. The species has no federal status under the Endangered Species Act. However, the golden eagle is protected under the federal Bald and Golden Eagle Protection Act of 1940. Golden eagles typically frequent rolling foothills, mountain areas, sage-juniper flats and desert. Suitable foraging habitat occurs in the non- native grassland on the site. A nest site is documented from the CNDDB from Walpert Ridge near Hayward.

Faria Preserve

No golden eagles were observed on the Faria Preserve Project Site by HBG during the fall 2002 surveys or spring 2004 surveys. One golden eagle was observed by EDAW in December 2003. Limited use of the site as foraging habitat likely occurs during winter.

Western Plan Area

No golden eagles were observed within the Western Plan Area by EDAW biologists during May 2004. Limited use of the site as foraging habitat likely occurs during winter.

Prairie Falcon

Prairie falcon (*Falco mexicanus*) is a California species of special concern with respect to nesting habitat. Prairie falcons nest in scrapes on steep cliffs, bluffs, or rock outcrops and forage for prey over open country. They may also occupy old red-tailed hawk, common raven or golden eagle nests. They prey on small mammals and birds. Habitats where prairie falcons occur include grassland, savanna, rangeland, agriculture fields and desert scrub.

Faria Preserve

Appropriate nest sites are not present on the Faria Preserve Project Site. Prairie falcons could occur on this site in winter, and were observed on the site by staff of HBG in October and November 2002. No individuals were observed on the site during nesting season surveys in June 2004.

Western Plan Area

Appropriate nest sites are not present within the Western Plan Area. Prairie falcons could occur on this site in winter, but were not observed by EDAW biologists during the May 2004 site visit.

Peregrine Falcon

Peregrine falcon (*Falco peregrinus*) is state listed as endangered (de-listed Federal in 1999). Peregrine falcons breed mostly in woodland, forest, and coastal habitats. Nest sites are near wetlands, lakes, rivers, or other waters, and are usually on high cliffs, banks, dunes, mounds and even human-made structures. Riparian areas and coastal and inland wetlands are important habitats yearlong, especially in nonbreeding seasons. Peregrine falcons are known to nest in the Diablo Range, and would be expected to be observed foraging anywhere in the region during the nesting season.

Faria Preserve

One peregrine falcon was observed in the western portion of the Faria Preserve Project Site on June 5, 2004, however, no nests or territorial behaviors or any other evidence of nesting by the species was observed.

Western Plan Area

No peregrine falcons were observed in the Western Plan Area. However, because peregrine falcons are known to nest in the Diablo Range, they could be expected to be observed foraging anywhere in that area during the nesting season.

Merlin

Merlin (*Falco columbarius*) is a California species of special concern with respect to wintering habitat. Merlin breed in Canada in open woods or wooded prairies and winters in small numbers in a variety of California habitats, including grasslands, savannahs, and wetlands. Merlin forage along the margins of wooden habitat, including riparian strips, and woodland, chaparral, and savanna borders to grasslands. They feed mostly on small birds, although they are known to take aerial insects such as dragonflies and occasionally small mammals.

Faria Preserve

A small number of individuals may pass through the Faria Preserve Project Site, with incidental use of this site as a winter foraging habitat. However, no merlins were observed by HBG during surveys of the Faria Preserve Project Site.

Western Plan Area

Similarly, within the Western Plan Area, a small number of individuals may pass through, with incidental use of the site as a winter foraging habitat. This species was not observed on-site by EDAW biologists during the May 2004 site visit.

Burrowing Owl

Burrowing owl (*Athene cunicularia*) is both a federal and state species of special concern. Burrowing owls are small terrestrial owls commonly found in open grassland topography ranging from western Canada to portions of South America. Burrowing owl habitat can be found in annual and perennial grasslands, deserts, and scrub lands characterized by low-growing vegetation. In California, burrowing owls most commonly use ground squirrel burrows, but they also may use man-made structures, such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement. Burrowing owl may use a site for breeding, wintering, foraging, and/or migration stopovers during migration. Occupancy of suitable burrowing owl habitat can be verified at a site by an observation of at least one burrowing owl, or, alternatively, its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance. Burrow sites are noted in the CNDDB from near Hopyard Road in Pleasanton.

Faria Preserve

The Faria Preserve Project Site has limited potential habitat for burrowing owls due to the absence of California Ground Squirrel burrows. No burrowing owls or signs indicating their presence were observed on-site by HBG during site surveys in October or November 2002, or by EDAW in December 2003, or by HBG during spring surveys conducted in June 2004.

Western Plan Area

The Western Plan Area has no suitable habitat for Burrowing Owls due to the absence of California ground squirrel burrows or other man-made structures. No Burrowing owls or signs indicating their presence were observed on-site by EDAW biologists during the May 2004 survey of the Western Plan Area.

California Horned Lark

The California horned lark (*Eremophila alpestris actia*) is a California species of special concern. California horned lark is a common to abundant resident in open, level or rolling short-grass prairies, plains, and meadows. Grassland and open habitat with low, sparse vegetation and surface irregularities, such as rocks, litter, and clods of soil, which provide cover, are preferred habitat for the California horned lark.

Faria Preserve

Suitable foraging and nesting habitat for this species occurs in the grasslands on the Faria Preserve Project Site. Flocks of California horned larks have been observed in the grassland on virtually every visit made to the site by HBG. During spring surveys of the site in June 2004, flocks of California horned larks, including young, were observed on the slopes in primarily the western half of the Faria Preserve Project Site. As flocks observed at the Faria Preserve Project Site at this time of year contained juvenile birds, it seems likely that this species nests there.

Western Plan Area

Suitable foraging and nesting habitat for this species occurs in the grasslands within the Western Plan Area. However, it is unknown whether the species nests in this area, and no California horned larks were observed during the May 2004 survey. Follow-up studies are recommended to determine their presence on-site.

Loggerhead Shrike

Loggerhead shrike (*Lanius ludovicianus*) is a federal species of concern and California species of special concern. Loggerhead shrikes are resident and winter visitors in lowlands and foothills throughout California, and are rare along the coast in winter north to Mendocino County. Preferred habitat includes open areas such as desert, grassland, and savannah. Loggerhead shrikes nest in thickly foliaged trees or tall shrubs, and forage in open habitats which contain trees, fence posts, utility poles, and other perches. Loggerhead shrikes are usually solitary birds and feed on insects, reptiles, and small mammals which they frequently impale on thorns and barbed wire after capturing.

Faria Preserve

Suitable habitat for loggerhead shrike occurs in the grassland habitats and riparian canyons of the Faria Preserve Project Site. The species is known to winter at the Faria Preserve Project Site as the species was observed by HBG in November 2002. Individuals of this species were also observed during the nesting season on June 5, 2004 within the main riparian canyon. Although no birds were observed carrying nesting material, defending territories, tending to young or exhibiting behaviors that would suggest nesting, it is possible the species nests in the vicinity.

Western Plan Area

Suitable habitat for loggerhead shrike occurs in the grassland habitats of the Western Plan Area. It was not observed by EDAW biologists during the May 2004 site visit.

Tri-colored Blackbird

Tri-colored blackbird (*Agelaius tricolor*) nesting colonies are protected as both a federal species of concern and California species of special concern. Tri-colored blackbirds breed near freshwater, usually in emergent wetlands with tall, dense cattails or in thickets of willow, blackberry, or wild rose. Nesting colonies prefer heavy growth of cattails and tules. Tri-colored blackbirds use grasslands and agricultural lands for foraging.

No nesting colonies are expected on the Faria Preserve Project Site or the Western Plan Area due to the lack of suitable habitat. Utilization of the habitat on-site for winter foraging is possible. There were no sightings of tri-colored blackbirds by EDAW biologists during the May 2004 site visit.

Yellow Warbler

The yellow warbler (*Dendroica petechia brewsteri*) is a California species of special concern with respect to nesting habitat. The species breeds in deciduous riparian woodlands, and is widespread during migration. The nearest documented sighting in the CNDDB is from Cull Creek near Castro Valley which includes one male observed displaying breeding behavior.

Faria Preserve

On the Faria Preserve Project Site, the on-site riparian corridors have a potential to support breeding yellow warbler; however this species is believed to be extirpated from most of its distribution. Therefore, this species has a low potential to nest on the Faria Preserve Project Site, and is only expected to occur during migration.

Western Plan Area

The riparian corridors within the Western Plan Area also have the potential to support breeding yellow warbler. Additionally, this species is expected in the area during migration, especially in fall; however this species is believed to be extirpated from most of its distribution. This species was not observed on-site by EDAW biologists during the May 2004 site visit.

San Joaquin Kit Fox

The San Joaquin kit fox (*Vulpes macrotis mutica*) is known to occur in eastern Alameda County. The San Joaquin kit fox was historically distributed over a large portion of central California, extending roughly from southeastern Contra Costa County south along the eastern edge of the Interior Coast Range to the southern San Joaquin Valley, including major portions of western Kern County and Tulare County. In the northern portion of its range, the San Joaquin kit fox is limited to the southwestern portion of Contra Costa County extending approximately two miles north and four miles west of Byron, the northeastern corner of Alameda County and east into western San Joaquin County in a strip parallel to Interstate 580. The populations of kit fox in this area are dependent on a narrow strip of grassland bounded on the west by the coastal mountains, on the north by the San Joaquin Delta and intensive agriculture and on the east by the California Aqueduct and Delta Mendota Canal. The principal habitat for the San Joaquin kit fox is the native alkali sink vegetation of the San Joaquin Valley. The edge of the known range of the San Joaquin kit fox is more than 10

miles distant and separated from the NWSP Area by I-680 and urban development which represent barriers for this species to access the NWSP Area. For this reason, the San Joaquin kit fox is not expected in the NWSP Area. No evidence of San Joaquin kit fox habitat or individuals were observed within the Western Plan Area during the May 2004 site visit.

Regulations and Permit Requirements

In addition to local approval, the Faria Development and other future developments in the NWSP Area would require permits or approvals from several federal, state, and local agencies. A brief discussion of federal, state and local regulatory requirements follows as they relate to the Plan.

U.S. Army Corps of Engineers (Corps)

Section 404 of the Clean Water Act (CWA) regulates the discharge of dredged or fill material to wetlands and other waters of the United States. The U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency (EPA) are responsible for implementing this program. Section 404(a) authorizes the Corps to issue permits, after notice and opportunity for comment, for discharges of dredged or fill material into waters of United States. Section 404(b) requires that the Corps issue permits in compliance with EPA guidelines, which are known as the Section 404(b)(1) guidelines. Specifically, the Section 404(b)(1) guidelines require that the Corps only authorize the "least environmentally damaging practicable alternative in order to accomplish the project purpose" ("LEDP A") and include all practicable measures to avoid and minimize impacts to the aquatic ecosystem. The guidelines also prohibit discharges that would cause significant degradation of the aquatic environment or violate state water quality standards. The Corps has established a nationwide permit (NWP) program to approve activities that would cause only minimal impacts to waters of the United States.

EPA and Corps regulations define wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" [40 CFR §230.3(t); 33 CFR §328.3(b)].

The CWA and the associated guidelines, outlined in a memorandum of agreement (MOA) between the EPA and the Corps dated November 15, 1989, set forth a goal of restoring and maintaining existing aquatic resources. This MOA directs the Corps to strive to avoid adverse impacts to water quality and aquatic resources and to offset unavoidable adverse impacts; regarding wetlands, the MOA calls for a goal of no overall net loss of values and functions. While focusing the no-net-loss policy on wetlands, the MOA also noted the value of other waters of the United States, such as streams, rivers, and lakes. These guidelines afford protection for all waters of the United States, including requiring appropriate and practicable mitigation based on values and functions of the aquatic resource that will be affected.

Faria Preserve

Based on investigations of the project site, HBG has determined that the Faria Preserve Project Site contains 0.23 acre of wetlands and another 0.26 acre of waters of the United States, totaling 0..49 acre and extending for a total of 5,748 linear feet. Accordingly, as the project description proposes to discharge fill into those areas, this action will require a Section 404 permit from the Corps. Following the U.S. Supreme Court decision in *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers*, *No.* 99-1178 (*2001*), some isolated wetlands may be excluded from the Corps' Section 404 jurisdiction because they are (1) non-tidal, (2) non-navigable, (3) not hydrologically connected to navigable waters or adjacent to such waters, and (4) not subject to foreign or interstate commerce. Wetlands on the Faria Preserve Project Site were reviewed to determine whether they could be disclaimed from Corps jurisdiction as isolated wetlands. Through this analysis, it was determined that wetlands on the Faria Preserve Project Site do not qualify for exclusion from Corps jurisdiction based on the *Solid Waste Agency of Northern Cook County* decision (HBG 2004). However, on December 22, 2005, the Project Sponsor filed an individual permit application with the Corps.

The Supreme Court recently held that wetlands adjacent to non-navigable tributaries are jurisdictional only if there is a "significant nexus" to navigable waters. Here, the drainages themselves are tributaries; therefore they are unaffected by this recent Supreme Court decision. However, the 0.23 acres of wetlands could be subject to this ruling and may not have the required "significant nexus" to navigable waters to fall within Corps jurisdiction. Even if such a nexus is found to be lacking, the wetlands would likely be considered "Waters of the State" and subject to the Porter-Cologne Water Quality Control Act and fall under the jurisdiction of the Regional Water Quality Control Board. Regardless of any determination of such nexus, the project sponsor proposes to implement the full wetlands portion of The Faria Preserve Biological Mitigation/Enhancement and Monitoring Plan.

Environmental Protection Agency (EPA)

Although the Corps is the principal permitting authority under Clean Water Act 404, EPA has oversight over this authority. EPA comments on project compliance with the 404(b)(1) guidelines during the public notice process and may elevate Corps permit decisions if they do not comply with the guidelines. Section 404(c) authorizes the EPA to veto a Corps decision to issue a permit of that discharge that "will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishing areas."

U.S. Fish and Wildlife Service (USFWS)

The U.S. Fish and Wildlife Service (USFWS) is responsible for implementing the Federal Endangered Species Act (FESA). The purpose of the FESA is "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved" (16 USC 1531). The FESA establishes an official listing process for plants and animals considered to be in danger of extinction; requires development of specific plans of action for the recovery of listed species; and restricts activities perceived to harm or kill listed species or affect critical habitat (16 USC 1532, 1536).

The FESA also requires federal agencies to ensure that their actions do not jeopardize the continued existence of listed species or adversely modify critical habitat (16 USC 1536). Therefore, the FESA is invoked when the property contains a federally listed threatened or endangered species that may be affected by a federal permit decision. In the event that listed species or designated critical habitat are involved and a Corps permit is required for impacts to jurisdictional waters, the Corps must initiate consultation with USFWS (or the National Marine Fisheries Service, NMFS) pursuant to Section 7 of the FESA (16 USC 1536; 40 CFR § 402). If formal consultation is required, USFWS or NMFS will issue a biological opinion stating whether the permit action is likely to jeopardize the continued existence of the listed species, recommending reasonable and prudent measures to ensure the continued existence of the species, establishing terms and conditions under which the project may proceed, and authorizing incidental take of the species. The take[4] prohibition of the FESA prohibits the unpermitted harm of a listed endangered or threatened species, which includes habitat modification that actually kills or injures a listed animal. Therefore, substantial project-related impacts to these species or their habitats would be considered significant in this EIR.

USFWS also has responsibility for project review under the Fish and Wildlife Coordination Act. This statute requires that all federal agencies consult with USFWS, NMFS, and the state's wildlife agency (California Department of Fish and Game, CDFG) for activities that affect, control, or modify streams and other water bodies. Under the authority of the Fish and Wildlife Coordination Act, USFWS, NMFS, and CDFG review applications for permits issued under Section 404 and provide comments to the Corps about potential environmental impacts.

Federal Migratory Bird Treaty Act

The Federal Migratory Bird Treaty Act (16 U.S.C., Sec. 703, Supp. I 1989) prohibits the killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the USFWS. This act encompasses whole birds, parts of birds, and bird nests and eggs. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, wading birds, seabirds, and passerines.

California Endangered Species Act

Under the California Endangered Species Act (CESA), the CDFG has the responsibility for maintaining a list of threatened and endangered species (California Fish and Game Code 2070). CDFG also maintains a list of "candidate species" which are species formally noticed as being under review for addition to the lists of threatened or endangered. In addition, CDFG also maintains a list of species of special concern, which serve as watch lists. Pursuant to the requirements of CESA, an agency reviewing a project within its jurisdiction must determine whether any state listed threatened or endangered species may be present on the project region and determine whether the project would have a potentially significant impact on such species. In addition, the CDFG encourages informal consultation on any project that may impact a candidate species. Substantial project-related

[4] "Take," as defined in Section 9 of the FESA, is broadly defined to include intentional or accidental "harassment" or "harm" to wildlife. "Harass" is further defined by the USFWS as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, and sheltering. "Harm" is defined as an act which actually kills or injures wildlife. This may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

impacts to State-listed species would be considered significant in this EIR. Impacts to species of concern would be considered significant under certain circumstances, as discussed below.

CEQA Guidelines Section 15380

Although threatened and endangered species are specifically protected by specific federal and state statutes, Section 15380(b) of the CEQA Guidelines states that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals. This section was included in the CEQA Guidelines primarily to address situations in which a public agency is reviewing a project that may have a significant effect on, for example, a candidate species that has not yet been listed by either the USFWS or DFG. Thus, CEQA provides an agency with the ability to protect a species from a project's potential impacts until the respective government agencies have an opportunity to designate the species as protected.

California Department of Fish and Game (CDFG)

California Fish and Game Code Section 1602

Pursuant to Fish and Game Code Section 1602, CDFG regulates activities that use materials from any streambeds; or divert, obstruct, or change the natural flow or bed of any river, stream or lake. Section 1602 allows CDFG to review any proposed construction and to propose reasonable modifications for the protection and construction of a fish or game resource that might be substantially adversely affected by such construction. CDFG enters into a Streambed Alteration Agreement with a project applicant and can impose conditions on the agreement to prevent adverse impacts to fish and wildlife resources and ensure no net loss of wetlands. If mutual agreement between the CDFG and the affected agency is not reached, agreement will be reached through an arbitration procedure to be completed prior to construction of a proposed project.

As described above, under authority of the Fish and Wildlife Coordination Act, CDFG may review applications for permits issued under Section 404 and provide comments to the Corps regarding environmental impacts. Fish and Game Code Section 5650F gives CDFG jurisdiction over the input of any deleterious substances, such as silt, into the waters of the State of California, resulting from construction activities.

California Fish and Game Code Section 2050, 2081

In 1984, the State enacted the California Endangered Species Act (CESA) (Fish and Game Code section 2050). Under CESA, the CDFG has the responsibility for maintaining a list of threatened and endangered species (California Fish and Game Code 2070). CDFG also maintains a list of "candidate species" which are species formally noticed as being under review for addition to the lists of threatened or endangered. In addition, CDFG also maintains a list of species of special concern, which serve as watch lists.

Because CESA does not have a provision for "harm," CDFG considerations pursuant to CESA are limited to those actions that would result in the direct take of a listed species. If a proposed project

would result in impacts to a State-listed species, an incidental take permit pursuant to section 2081 of the Fish and Game Code is necessary. State and Federal incidental take permits are issued on a discretionary basis and are typically only authorized if applicants are able to demonstrate that impacts to the listed species in question are unavoidable, and can be mitigated to an extent that the reviewing agency can conclude that the impacts of a proposed project would not jeopardize the continued existence of the listed species.

In addition, the CDFG encourages informal consultation on any project that may impact a candidate species. Substantial project-related impacts to State-listed species would be considered significant in this EIR. Impacts to species of concern would be considered significant under certain circumstances, as discussed below.

California Fish and Game Code 3503

Active bird nests are protected in California under the Section 3503 of the California Fish and Game Code. In addition, Section 3503.5 protects birds of prey. Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." The only species exempt from this regulation are the non-native species, European starling and house sparrow.

Disturbance that causes nest abandonment and/or loss of reproductive effort of any other bird species is considered to be a taking by CDFG.

California Native Plant Society

Both the Federal and State governments maintain lists of species that are not legally protected but are nevertheless rare or uncommon. Some of these species may be scarce enough to qualify for listing under the respective endangered species acts. In addition, the California Native Plant Society (CNPS) maintains lists of species in California that are considered rare or endangered according to their criteria.

The California Native Plant Society (CNPS) has developed lists of plants of special concern in California. A CNPS List 1A plant is a species, subspecies, or variety that is considered to be extinct. A List 1B plant is considered rare, threatened, or endangered in California and elsewhere. A List 2 plant is considered rare, threatened, or endangered in California but is more common elsewhere. A List 3 plant is potentially endangered but additional information on rarity and endangerment is needed. A List 4 plant has a limited distribution but is presently not endangered. Impacts to List 1 and 2 plants are frequently considered significant. All species on Lists 1 and 2 meet the definitions of Section 1901, Chapter 10 of the Native Plant Protection Act (NPPA) or Sections 2062 and 2067 of CESA and are eligible for state listing. It is strongly recommended that CNPS List 1and List 2 species be fully considered during the CEQA process. Some of the plants on List 3 meet the definitions of Section 1901, Chapter 10 of the NPPA or Sections 2062 and 2067 of CESA and are eligible for state listing. DFG and CNPS recommend that List 3 plants be considered during the CEQA process. Plants on List 4 generally do not meet the definitions of Section 1901, Chapter 10 of the NPPA or Sections 2062 and 2067 of CESA and are not currently eligible for state listing. However, these species are generally of local concern and the CNPS and DFG recommend

consideration of List 4 species during the CEQA process particularly in areas where the species is especially uncommon or has sustained a significant decline.

In general, plants appearing on CNPS List 1 or 2 that meet CEQA's Section 15380 criteria and effects to these species are considered significant in this EIR.

Regulatory Background

This section describes the existing policies and regulations that apply to the protection of biological resources within the NWSP Area. Assessments of biological resources depend on a variety of federal, state, and local regulations and policies, in addition to the thresholds established by CEQA, to provide consistent standards and a basic framework for evaluation. The following paragraphs identify and explain the applicable policies and regulations as they relate to future development in the NWSP Area.

City of San Ramon 2020 General Plan

The City of San Ramon 2020 General Plan (General Plan) (City of San Ramon, 2002) contains policies and standards that are intended to ensure high quality development and protect the City's biological resources. The following General Plan policies are important in consideration of the proposed NWSP and Faria Preserve:

8.3-I-1 Preserve, protect, and maintain woodlands.

8.3-I-2 Enhance San Ramon's creeks and riparian corridors by requiring preservation or replacement of riparian vegetation, as appropriate and in conformity with regulatory requirements.

8.3-I-3 Preserve as open space significant creek, trail, and viewshed corridors, areas of riparian and wildlife habitat, and prominent topographic features.

8.3-I-4 Require maintenance plans for open space areas, including identified natural resources such as ridges and creeks. Use East Bay Regional Park District standards as a guide for the management and maintenance of open space, except in the Dougherty Valley, which has separate regulatory agency maintenance requirements.

8.3-I-5 Provide wildlife corridors to allow movement of animals and minimize wildlife-urban conflicts.

8.3-I-6 Require a conservation easement or dedication of natural, unaltered open space that is designated as a condition of development.

8.3-I-7 Work with Contra Costa County, neighboring jurisdictions and trustee agencies to ensure that development within Dougherty Valley and the Westside subareas and any other future development provides adequate mitigation for any impacts to special status species, wetlands, and significant natural biotic communities.

8.3-I-8 Encourage public access to creek corridors with a system of trails.

8.3-I-9 Limit culverting or channelization of creeks to only those situations in which public health and safety are at risk.

8.3-I-10 Ensure maintenance and uniform protection of creeks in San Ramon through the use of Geologic Hazard Abatement Districts.

8.3-I-11 Maintain an inventory of creeks, and periodically update maps of creeks in the Planning Area to facilitate implementation of this policy.

8.3-I-12 Continue participation in the Contra Costa Clean Water Program to control stormwater pollution and protect the quality of the City's waterways.

City of San Ramon 2020 General Plan EIR

In the General Plan EIR, the following biological impacts are identified:

Impact 4.12-a: New rural development under the proposed General Plan could result in substantial loss or degradation of sensitive wetlands, native grasslands, riparian habitats, oak woodlands, and habitats supporting special-status plant or animal species. New rural or hillside development could also result in the loss or disturbance of state- or federally-listed rare, endangered, or threatened wildlife or plant species, or species of concern.

Impact 4.12-b: New development under the proposed General Plan could interfere with the movement of migratory wildlife.

Impact 4.12-c: New development under the General Plan could result in the introduction and spread of non-native invasive plant species.

All three of the potential impacts were determined to be less than significant before mitigation by implementation of policies proposed in the General Plan. Impact 4.12-a, which may be relevant to the Western Plan Area, identified new rural development in areas with sensitive habitats as a potential impact. The General Plan EIR concluded that this impact would be mitigated by a combination of the City's Resource Conservation Overlay District (RCOD) and the following General Plan policies:

4.6-I-8: Create a San Ramon Habitat Protection Program and require the preparation of Natural Communities Conservation Plans (NCCP) to be implemented in a timely fashion where rural development could potentially affect sensitive habitat areas, sensitive species habitats, migratory patterns, and riparian corridors identified in the General Plan.

Impact 4.12-b was identified in response to development proposed in areas with migratory wildlife. The General Plan EIR determined that the following General Plan policies would reduce this impact to a less than significant level.

4.6-I-8: *Described above.*

8.3-I-4: *Described above.*

8.3-I-5: *Described above.*

Impact 4.12-c relates to activities associated with existing and new development that would introduce and spread invasive plants in the City. Coupled with amendment to San Ramon's Water Conservation and Landscape Ordinance 218 to promote planting of native plant species, the General Plan EIR concluded that implementation of the following General Plan policy would reduce this impact to a less than significant level.

8.4-I-9: Establish and fund a program, to be administered by the City, to restore degraded habitat on publicly owned open space and to provide technical assistance, where justified, to owners of privately-owned land, dedicated as permanent open space, to facilitate private restoration efforts.

4.3.2 Thresholds of Significance

Criteria used to evaluate the significance of impacts to biological resources are derived from the legal requirements to protect sensitive species and sensitive habitats as well as the CEQA Guidelines. Impacts to biological resources would be considered significant if actions associated with implementation of the Plan and/or the Faria Preserve would:

- Adversely impact, either directly or through habitat modifications, any endangered, rare, or threatened species, as listed in Title 14 of the California Code of Regulations (Sections 670.2 or 670.5) or in Title 50, Code of Federal Regulations (Sections 17.11 or 17.12).
- Have a substantial adverse impact, 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 Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse impact 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 Game or US Fish and Wildlife Service.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Potential impacts can be classified as direct or indirect. Direct impacts also include those that may result from an activity, such as increased human activity and noise, which would disturb or interfere

with breeding or foraging. Indirect impacts are those impacts that are not a direct result of the proposed action but that are reasonably certain to occur as a result of implementing the Plan.

Impacts can be short-term or long-term. Short-term activities are those that are brief relative to the duration of a breeding season or other biological time context. The significance level of the impact depends on the duration of the temporal loss and the ability of the population to respond to changes.

4.3.3 Environmental Evaluation

This impact analysis focuses on potential effects to biological resources associated with implementation of the NWSP and Faria Preserve. The Faria Preserve has developed a comprehensive "Biological Mitigation/Enhancement and Monitoring Plan" designed to enhance biological conditions at the Faria Preserve Project Site and to fully mitigate for impacts to sensitive habitat. It should be noted that, unless otherwise indicated, the Program- and Project-level impacts are considered identical for the purposes of this report. Evaluation of potential impacts was based on available information regarding the biological resources of the NWSP Area and vicinity, project-specific plans, and applicable regulations and guidelines.

IMPACT BIOLOGY - 1

Impact Biology-1: Loss of Sensitive Habitats. Implementation of the Northwest Specific Plan would result in the loss of sensitive habitats. The Faria Preserve would impact 11.06 acres of valley foothill hardwood, 4.20 acres of valley foothill riparian, and 0.16 acre of fresh emergent marsh. The development of the Western Plan Area would impact approximately 19 acres of habitat, which include sensitive valley foothill hardwood woodland and arroyo willow riparian forest.

This would be a *potentially significant* impact (Faria Preserve and Western Plan Area).

The NWSP Area consists of primarily annual (non-native) grassland, valley foothill hardwood (oak) woodland, and valley foothill riparian corridors along ephemeral drainages, with small patches of chaparral, fresh emergent marsh, and eucalyptus. These habitat types support common animal species and may potentially support special-status species.

Impacts on plant and animal communities would result from vegetation removal due to the conversion of upland areas, which contain annual grassland and valley foothill hardwood woodland, and due to the filling of valley foothill riparian areas to accommodate proposed development in the NWSP Area.

Faria Preserve

Table 4.3-5 shows the acreage of each of the six vegetation communities found on the Faria Preserve Project Site and the acreage of each that would be removed by the Faria Development. An overlay of the development footprint for the Faria Project with vegetation communities found on the Faria Preserve Project Site is shown in Figure 4.3-5. Included in this assessment are impacts that would result from the installation of the proposed EBMUD water tanks and associated access/trails in the

northwestern portion of the Faria Preserve Project Site, which is estimated to affect approximately 3.25 acres of annual grassland.

Table 4.3-5: Impacts to Vegetation Communities on the Faria Preserve Project Site

VEGETATION COMMUNITY	EXISTING ACREAGE	PROPOSED REMOVAL	REMAINING ACREAGE
Annual Grassland	267.5 acres	176.18 acres	91.32 acres
Valley Foothill Hardwood [1]	17.97 acres	11.06 acres	6.91 acres
Chaparral	0.08 acres	0.08 acre	---
Valley Foothill Riparian [1]	4.26 acres	4.20 acres	0.06 acre
Fresh Emergent Marsh [1]	0..34acre	0 .17acre	0.06
Eucalyptus	1.09 acres	0.46 acre	0.63 acre
Total	**291.13 acres**	**192.15acres**	**98.98 acres**

[1] sensitive plant community

Source: HBG, 2005; EDAW, 2005

Western Plan Area

Development of the Western Plan Area would result in the loss of approximately 19 acres of habitat, including valley foothill hardwood woodland and arroyo willow riparian forest.

Impacts to the annual grassland are not considered significant due to the prevalence of this habitat type in the region and because it is not considered a sensitive habitat by CDFG. Elimination of non-native plant communities, such as eucalyptus, also is not considered significant. Wetlands and jurisdictional waters of the U.S. are analyzed separately in Impact Biology-4. Impacts to sensitive habitat types in the NWSP Area are analyzed further below.

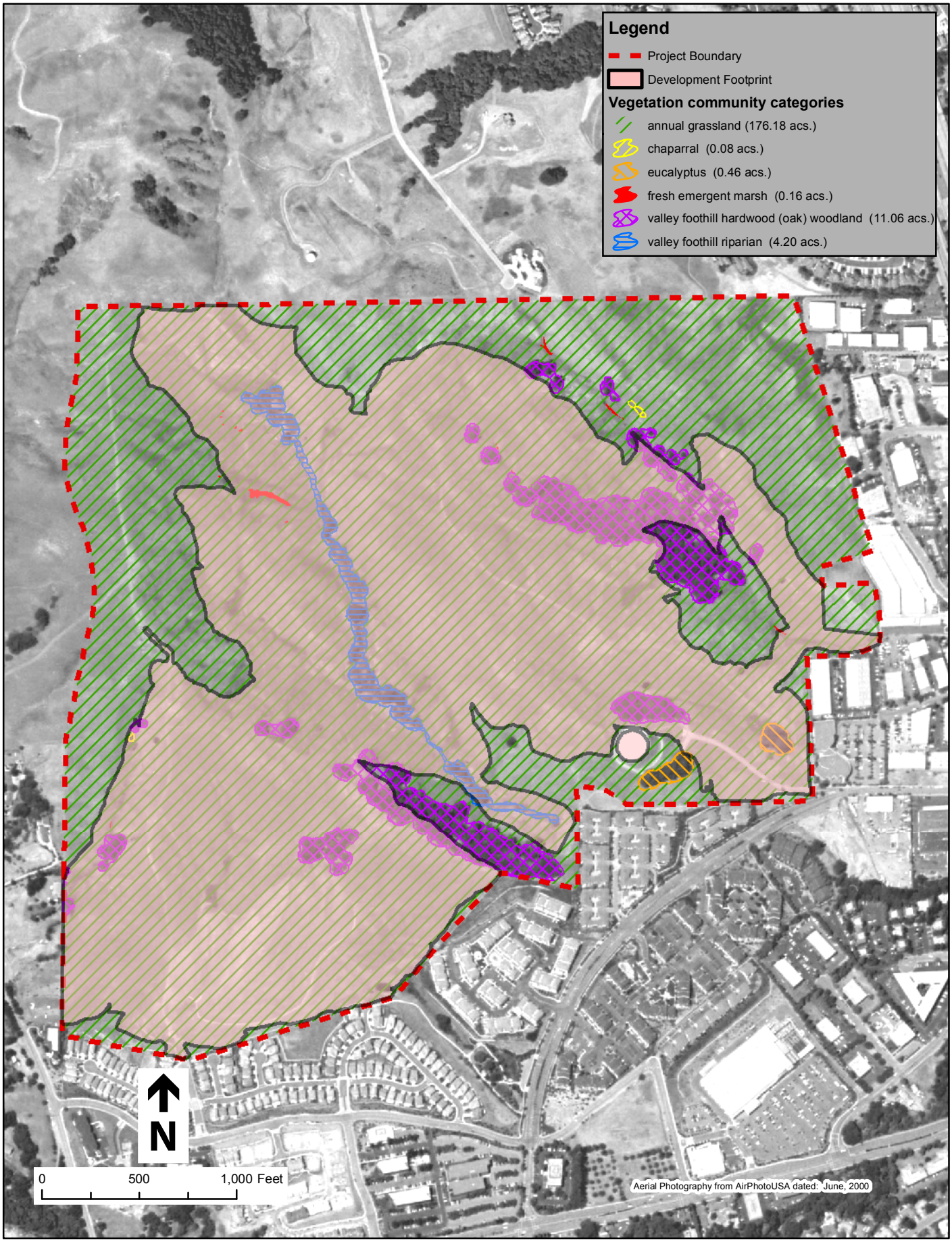
Valley Foothill Riparian Habitat

Faria Preserve

Implementation of the Faria Preserve grading plan included in the Vesting Tentative Map application would require the filling of a canyon that contains valley foothill riparian habitat. The grading for the Faria Preserve would remove approximately 4.2 acres of the riparian habitat on the Faria Preserve Project Site. Riparian vegetation that would be removed consists primarily of arroyo willow and California bay. This would be a potentially significant impact.

Western Plan Area

Development of the Western Plan Area would result in the loss of an area along the northern boundary containing valley foothill riparian habitat dominated by arroyo willows. In addition, placement of a bridge over Bollinger Creek to access future development areas would impact valley foothill riparian habitat. Loss of riparian habitat would result from physical removal of native vegetation, and may also result from bridge shading depending on how the bridge is designed.



Source: The Huffman-Broadway Group, Inc., 2005

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Implementation of the NWSP would prevent development of any kind within 100 feet of the centerline of Bollinger Creek (see NWSP Parks and Open Space Goal 1, Objective A, Policy 3). However, because detailed development plans do not currently exist for the Western Plan Area, estimates of habitat loss cannot be quantified at this time. This would be a potentially significant impact.

Valley Foothill Hardwood Habitat

Faria Preserve

Development of the Faria Preserve Project Site would result in the loss of approximately 61 percent (11.06 acres) of the valley foothill hardwood habitat on the site (see Figure 4.3-4). A substantial number of trees consisting of valley oaks, coast live oaks, and California buckeye would be removed in association with cut and fill grading required to prepare the existing canyon areas for residential development. The Faria Project would require the removal of 514 trees (Hort Science April 2003); however, some of these trees are currently in poor health or a state of decline. Because of their locations relative to proposed grading and associated site improvements, these trees would be directly and adversely affected by the Faria Project. Cattle are eating or trampling all new trees, so only old ones exist. Cattle will continue to destroy any new trees. A total of 190 trees within 50 feet of the development footprint were recommended for preservation, along with all trees in the remaining open spaces of the Faria Preserve Project Site.

Development of the Faria Preserve Project Site could also indirectly impact those oak trees to be preserved through increased soil compaction in the root zone of the trees, summer watering within the root zone, and excessive pruning to allow development of structures and open up views. Death of oak trees could result from oak root fungus (*Armillaria mellea*) resulting from operation of landscape irrigation systems in developed areas up slope from the native oak trees. Movement of heavy construction vehicles and equipment could cause impacts such as broken branches, compaction of soils within root zones, etc. which could result in a weakening and eventual death of the tree. The response of individual trees would depend on the amount of excavation and grading and the construction methods. This would be a potentially significant impact..

Western Plan Area

Development of the Western Plan Area would result in the loss of an area along the northern boundary containing valley foothill hardwood woodland, and could potentially result in comparable indirect impacts to individual trees. This would be a potentially significant impact..

Mitigation Measure Biology-1a (The Faria Preserve Biological Mitigation/Enhancement and Monitoring Plan): The project sponsor for the Faria Preserve Project Site has developed an extensive program referred to as the Faria Preserve Biological Mitigation/Enhancement and Monitoring Plan for the creation and enhancement of riparian and wetland habitat and the full mitigation of potential biological impacts. The project sponsor shall implement this plan, which includes the following:

- Set aside 144 acres of a remainder parcel into an open space preserve subject to a conservation easement and managed by a third party. This area is referred to in the Project Description as the Adjacent Faria Offsite Preservation Area

- Set aside an 8.9 acre Riparian and Wildlife Corridor with an average width of 200 feet that will allow creation of wetland and riparian habitats to compensate for habitat loss resulting from the project. This area would be preserved by conservation easements and managed by a third party.

- Preserve 0.09 acres of wetlands and riverine intermittent streambed and 6.91 acres of valley foothill hardwood habitat not impacted by the proposed project.

- Create 1.15 acres of palustrine emergent and palustrine scrub-shrub wetland habitat along the Riparian and Wildlife Corridor.

- Create 6.06 acres of valley foothill riparian habitat along the Riparian and Wildlife Corridor. This includes 4.91 acres of forested habitat beyond the 1.15 acres of jurisdictional wetlands. The riparian vegetation would consist of willows and California bay trees near the creek and coast live oak and valley oaks further up the riparian area slopes.

- Develop a vegetated buffer within the 8.9 acre riparian corridor to maintain and enhance aquatic functions in the wetland mitigation/preservation area. The vegetated buffer would include a 4.91 acre planted riparian corridor adjacent to the stream and wetlands, and a 2.82 acre, 30-foot wide area around the perimeter of the riparian canopy and beyond the rear of homes that would not be planted with trees, and would remain as a mowed or disked grassland area that would serve as a firebreak.

- Create approximately 45 acres of valley foothill hardwood habitat within designated mitigation sites at various undisturbed locations within the property through planting of coast live oak and valley oak trees.

- Plant coast live oak and valley oak trees within the 45 acres of tree replacement mitigation area to compensate for the 514 trees removed by construction of the project. Replacement trees would be primarily coast live oak and valley oak and would total 1,606 trees (accounts for expected survival of 80 percent of plantings).

- Provide for long-term "in perpetuity" habitat/species protection through a conservation easement and funding of a long term protection program over approximatlely 152.9 acres (144 acres off-site and 8.9 acres on-site).

Similar riparian corridor mitigation measures have been successfully implemented elsewhere. Given the existing degraded condition of the riparian corridor as a result of usage by cattle and the presence of exotic species, the habitat values and functions of the drainages are reasonably anticipated to be improved as compared to existing conditions with the implementation of this mitigation measure. Since the impacts of the project are expected to be fully compensated through creation of the Riparian and Wildlife Corridor, additional or offsite mitigation is not expected to be necessary to compensate for project impacts.

Mitigation Measure Biology-1b (Western Plan Area): The following actions shall be implemented by developers of the Western Plan Area to ensure adequate protection of trees.

These measures implement mitigation in the Western Plan Area that is the same in scope to what is set forth in the Biological Mitigation/Enhancement and Monitoring Plan for the Faria Preserve Project Site.

(A) The Project Sponsor shall implement a Tree Mitigation and Replacement Plan. The plan shall include the following: (1) replacement of trees at a ratio of 2.5:1; (2) the specific locations of the tree planting, (including a map and planting plan); (3) schedules and methodologies for maintaining and monitoring the success of the plan; and (4) performance standards.

(B) The Project Sponsors shall prepare and submit to the City of San Ramon Tree Protection Plans prior to approval of any grading or other site disturbance. The protection plans shall be implemented to minimize damage to native trees during construction. In addition, all landscape plans shall be reviewed and approved by an ISA-certified project arborist.

(C) The City of San Ramon shall review final project grading and construction plans to minimize encroachment within the drip line of any trees not eliminated as part of site grading. This review shall include assurances that the design of roads, utilities, slope stabilization work, subdrains, and other types of infrastructure avoid the area within the dripline of native trees where feasible; and that all grading is designed to drain water away from the base of trees so as not to create areas of ponding within the dripline.

Mitigation Measure Biology-1c (Faria Preserve and Western Plan Area): The following actions shall be implemented by developers throughout the NWSP Area (Faria Preserve and Western Plan Area) to prevent pollution of streams and drainages, including wetlands, during construction:

- Implementation of standard erosion control devices and Best Management Practices (BMP's) that shall be incorporated in construction specifications. These shall include but are not limited to:
- Erosion control to stabilize disturbed soils (cover vegetation, mulching, erosion control fabric, etc.);
- Installation of sediment capture devices at strategic locations (sediment control "silt" fencing, weed-free straw bales, straw wattles);
- Storage of hazardous material at least 200 feet away from a drainage, water body or sensitive habitat;
- Restriction of refueling of mobile and/or portable equipment to areas more than 200 feet away from a drainage (including riparian vegetation), sensitive habitat (i.e., wetland, vernal pool) or water body;
- Use of catch bases and absorbent pads for refueling of sedentary equipment within 100 feet of a drainage (including riparian vegetation) or water body.
- Any additional mitigation measures required by local, state, or federal permits shall be implemented.

Mitigation Measure Biology-1d (Western Plan Area): The following actions shall be implemented by developers within the Western Plan Area to address impacts to sensitive habitats:

- Compensate for impacts to valley foothill riparian habitat at a minimum ratio of 3:1.
- Compensate for impacts to valley foothill hardwood woodland habitat at a minimum ratio of 6.5:1.
- Provide for long-term "in perpetuity" habitat/species protection through a conservation easement and funding of a long term protection program for all areas located outside of the development footprint.
- Prior to project implementation, a streambed alteration agreement shall be acquired from the California Department of Fish and Game for all proposed impacts to valley foothill riparian habitat.

Level of Significance after Mitigation: *Less than Significant* (Faria Preserve and Western Plan Area).

IMPACT BIOLOGY - 2

Impact Biology-2: Special-Status Plant Species. The Western Plan Area may contain special-status species that were not detected in field surveys and loss of such species in association with development could occur.

This would be a *potentially significant* impact (Western Plan Area).

As identified in Table 4.3-4, a total of 18 special-status plant species were reported in the CNDDB as occurring within the four quadrangle search areas in and around the NWSP Area.

Faria Preserve

During the spring and summer of 2003, Virginia Dains conducted protocol botanical surveys of the Faria Preserve Project Site, the results of which were published in a report dated August 8, 2003 (HGB, 2005). Of the 18 reported species in the CNDDB, eight species are definitely known to be absent from the Faria Preserve Project Site as they require soil or other habitat conditions which are not present on-site, or surveys were conducted during the flowering period or when leaf morphology could be examined, with negative results. Ten species are potentially present; these species could be removed, damaged or have their necessary habitat conditions diminished by the project if they are present.

Western Plan Area

Individuals of one species, the Northern California black walnut, were observed within the Western Plan Area. Field surveys were completed outside of the flowering periods of the remaining nine special-status plant species; therefore, there is the potential that these species could occur within the NWSP Area.

A survey during the specified blooming period is necessary to determine the presence or absence of the following species within the Western Plan Area: Big-scale balsamroot (*Balsamorhiza macrolepis macrolepis*) (March to June); Diablo helianthela (*Helianthela castenea*) (April to May); Congdon's tarplant (*Centromadia parryi congdonii*) (June to October); Mt. Diablo jewel-flower (*Streptansthus hispidus*) (March to June); round-leaved filaree (*Erodzum macrophyllum*) (March to May); Mt. Diablo phacelia (*Phacelia phacelioides*) (April to May); Robust monardella (*Monardella villosa globosa*) (June to August); Brewer's

western flax (*Hesperolinon breweri*) (May to July); Mt. Diablo fairy-lantern (*Calochortus pulchellus*) (April to June).

Because these special-status plant species may occur on the Western Plan Area and surveys during their blooming seasons were not conducted to verify their occurrence or absence, conversion of the existing open space to developed uses could result in the destruction of special-status species. This impact is potentially significant.

Mitigation Measure Biology-2 (Western Plan Area): The following actions must be implemented by developers on the Western Plan Area to ensure that impacts to special-status plant species are avoided:

- The Project Sponsor shall conduct field surveys during the appropriate flowering seasons for the following nine special-status plant species prior to any new construction-related ground disturbance within non-paved areas (i.e., clearing and grubbing):

Species	Flowering Period
Big-scale balsamroot (*Balsamorhiza macrolepis macrolepis*)	March to June
Diablo helianthela (*Helianthela castenea*)	April to May
Congdon's tarplant (*Centromadia parryi congdonii*)	June to October
Mt. Diablo jewel-flower (*Streptansthus hispidus*)	March to June
Round-leaved filaree (*Erodzum macrophyllum*)	March to May
Mt. Diablo phacelia (*Phacelia phacelioides*)	April to May
Robust monardella (*Monardella villosa globosa*)	June to August
Brewer's western flax (*Hesperolinon breweri*)	May to July
Mt. Diablo fairy-lantern (*Calochortus pulchellus*)	April to June

- If any special-status plant species are identified, their quantity and significance of the impact shall be assessed for review by the City of San Ramon and CDFG. Depending on the legal protection afforded the particular species, identified plants would either a) be fenced off by a biologist and avoided by construction activities; b) be salvaged and relocated on-site following consultation with CDFG; or c) be removed without further consequence, if so allowed by CDFG.

Level of Significance after Mitigation: *Less than Significant* (Western Plan Area).

IMPACT BIOLOGY - 3

Impact Biology-3(a)(Faria Preserve): Special-Status Animal Species. Implementation of the Faria Preserve would result in a less than substantial reduction in the numbers and range of rare, endangered or threatened species.

This would be a *less than significant* impact (Faria Preserve).

Impact Biology-3(b)(Western Plan Area): Special-Status Animal Species. Implementation of the Western Plan has the potential to result in the loss of habitat for special-status animal species that may reside or forage in the Western Plan Area, potentially resulting in a more than substantial

reduction in the numbers and range of rare, endangered or threatened species.

This would be a *potentially significant* impact (Western Plan Area).

The NWSP Area includes habitats for several special-status animal species. Development within the NWSP Area would reduce the acreage of habitats that support these species. During construction activities (staging, mass grading, building construction), the potential exists for special-status species including the Alameda whipsnake and nesting birds to be directly trampled or lose their nests through the clearing and grubbing of habitats during periods of occupation and nesting. In addition, construction-related noise, dust, vibration, and nighttime lighting could disrupt nesting behavior and young rearing of adjacent nests and potentially lead to reduced nest success and/or abandonment, or ultimately a decline in the individual species population. Impacts are discussed below as they would pertain to the Faria Preserve Project Site and the Western Plan Area.

California Red-legged Frog

Faria Preserve

As reported in the setting section, during a habitat assessment conducted according to USFWS protocol on October 18 and 19, 2002, no wetland areas with inundation sufficient to support California red-legged frog at the Faria Preserve Project Site. It was concluded that the Faria Preserve has poor quality habitat for the Califronia red-legged frog and that any use of the area as a corridor or dispersal is highly unlikely. Therefore, the potential impact to California red-legged frog is considered to be less than significant in the Faria Preserve.

Western Plan Area

During the habitat assessments for the Western Plan Area, no wetland areas with inundation sufficient to support California red-legged frogs breeding sites were observed; however, this is not to say that site conditions are not more favorable at other times of the year. Aside from breeding, California red-legged frogs may access this portion of Bollinger Creek within the NWSP Area from stream locations north or south of the NWSP Area. Any disturbance or construction activities planned within 100 feet of suitable habitat could result in the loss of California red-legged frog should it be present in Bollinger Creek. Therefore, the potential impact to California red-legged frog is considered to be potentially significant in the Western Plan Area.

Alameda Whipsnake

Faria Preserve

Based on studies prepared by EnviroNet (see HBG, 2005, Attachment 4A) habitat for the federally-listed threatened Alameda whipsnake does not occur at the Faria Preserve Project Site. However, according to more recent habitat assessment evaluations by Swaim Biological, Inc., extensive chaparral and scrub habitat occurring immediately adjacent to and north of the Faria Preserve Project Site provides potential core habitat for the species. It is unknown whether such areas are occupied by the whipsnake, but any whipsnakes that may occupy these habitats would include portions of the

Faria Preserve Project Site within their home range. If such areas are occupied, impacts to foraging individuals within grasslands of the Faria Preserve Project Site are possible during construction of the project. Existing cattle ranching and grazing are destroying future habitat.

In addition, the dedication of approximately 144 acres (the Adjacent Faria Offsite Preservation Area) within the approximately 168-acre Faria remainder parcel would mitigate habitat impacts of the proposed development. This parcel, proposed for conservation easements, is immediately adjacent to extensive chaparral habitats on property to the north that provides significant potential core habitat area for the Alameda whipsnake. The Adjacent Faria Offsite Preservation Area would ensure the impacts to the whipsnake remain less than significant by protecting areas anticipated to be used as a foraging area for whipsnakes that may occupy the potential core habitat areas on property adjacent to the Faria Preserve Project Site. Because implementing the NWSP and the Faria Preserve would not affect substantial numbers of whipsnake or a substantial portion of the range of whipsnake, the potential impacts would be less than significant.

Western Plan Area

No evidence of Alameda whipsnake habitat or individuals was observed by EDAW biologists during the May 2004 site visit to the Western Plan Area.

California Horned Lark

Suitable foraging and nesting habitat for California horned lark occurs in the grasslands within the NWSP Area. Flocks of California horned larks have been observed in the grassland during most visits made to the Faria Site. During spring surveys of the site in June 2004, flocks of California horned larks, including young, were observed on the slopes in primarily the western half of the Faria Preserve Project Site. As flocks observed at the Faria Preserve Project Site at this time of year contained juvenile birds, it seems likely that this species nests there. Nesting activities of this species could be directly impacted by habitat removal resulting in loss of active nests, and indirectly impacted by adjacent construction noise and vibration, nighttime lighting, or excessive dust creation resulting in nest abandonment or breeding/rearing failure. The Faria Preserve would comply with the restrictions of Fish and Game Code Section 3503 and 3503.5. Because implementation of the NWSP and the Faria Preserve would not result in substantial reductions in the numbers or the range of the California horned- lark, the impact would be less than significant.

Loggerhead Shrike

Suitable habitat for loggerhead shrike occurs in the grassland habitats within the NWSP Area, and this species has been observed on the Faria Preserve Project Site. The species is known to winter at the Faria Preserve Project Site as the species was observed by HBG in November 2002. Individuals of this species were also observed during the nesting season on June 5, 2004 within the main riparian canyon. Although no birds were observed carrying nesting material, defending territories, tending to young or exhibiting behaviors that would suggest nesting, it is possible the species nests in the vicinity. Though likely to be transient visitor, nesting activities of this species could be directly impacted by habitat removal resulting in loss of active nests, and indirectly impacted by adjacent construction noise and vibration, nighttime lighting, or excessive dust creation resulting in nest

abandonment or breeding/rearing failure. However, the Faria Preserve would comply with the restrictions of Fish and Game Code Section 3503 and 3503.5. Because implementation of the NWSP and the Faria Preserve would not result in substantial reductions in the numbers or the range of the loggerhead shrike the impact would be less than significant.

Yellow Warbler

The on-site riparian corridors within the NWSP Area could support breeding yellow warbler. However, this species is believed to be extirpated from most of its distribution. The yellow warbler was not observed on-site by EDAW biologists during the May 2004 site visit. Therefore, this species has a low potential to nest on the Faria Preserve Project Site and likely would occur only during migration. The Faria Preserve would comply with the restrictions of Fish and Game Code Section 3503 and 3503.5. Because implementation of the NWSP and the Faria Preserve would not result in substantial reductions in the numbers or the range of the yellow warbler, the impact would be less than significant.

Peregrine Falcon

Although a peregrine falcon was observed within the NWSP Area during the nesting season, this is an individual that likely nests somewhere in the Diablo Range and uses a wide area, at times including the NWSP Area, for foraging. It is not expected that development within the NWSP Area would measurably impact the peregrine falcons that are known to nest in the Diablo Range. Because implementation of the NWSP and the Faria Preserve would not result in substantial reductions in the numbers or the range of the peregrine falcon, the impact would be less than significant.

Raptor Species

Several raptor species designated by the State of California as species of special concern and/or fully protected species occur within the NWSP Area. These species, including northern harrier, white-tailed kite, Cooper's hawk, prairie falcon, and golden eagle (observed only in the Western Plan Area), were all observed utilizing the habitats of the NWSP Area after the breeding season in late fall and winter for forage. Winter use of the site by these species is expected; however, in all cases, appropriate nesting habitat appears not to be present. Two other raptors, ferruginous hawk and merlin, were not observed, but also could be winter visitors. These are wide-ranging species often wintering over a broad area, and incidental use of the NWSP Area by these species in winter is certainly possible. Sharp-shinned hawks also have not been observed within the NWSP Area during the nesting season. Suitable nesting habitat exists for these species within the site. Nesting activities of these species could be directly impacted by habitat/tree removal resulting in loss of active nests, and indirectly impacted by adjacent construction noise and vibration, nighttime lighting, or excessive dust creation resulting in nest abandonment or breeding/rearing failure. Because implementation of the NWSP and the Faria Preserve would not result in substantial reductions in the numbers or the range of the raptor species, the impact would be less than significant.

Mitigation Measure Biology-3a (Faria Preserve and Western Plan Area): The following actions shall be implemented by developers of both the Faria Preserve and the Western Plan Area to further ensure that impacts to Alameda whipsnake are less than significant:

- A herpetologist permitted by the USFWS to work with Alameda whipsnakes shall survey all areas proposed for construction no earlier than 48 hours before the onset of activities. If any life stages of Alameda whipsnake are found, the approved biologist would contact the USFWS to determine if moving any such life stages is appropriate.
- Before any grading activities begin on individual NWSP Area development phases, a herpetologist permitted by the USFWS to work with the Alameda whipsnake shall conduct a training session for all grading personnel. At a minimum, the training shall include a description of the natural history of the Alameda whipsnake, and its habitat. Training shall include the general measures that are being implemented to conserve whipsnakes as they relate to the individual development project and the boundaries (work area) within which the project may be accomplished. Training sessions shall be repeated for all new employees before they access the project site. Sign up sheets identifying attendees and the contractor/company they represent shall be maintained by an on-site construction manager.
- A qualified biological monitor (approved by USFWS) shall conduct regular visits during initial ground disturbing activities including grading and construction. The biological monitor shall have the authority to halt all project activities at any time if Alameda whipsnakes are encountered.
- All construction-related lay-down and deposition areas shall be inspected each morning by a designated monitor to ensure that Alameda whipsnakes are not present. All construction activities that take place on the ground shall be performed in daylight hours. Vehicle speed on site shall not exceed 15 miles per hour. Construction materials, soil, construction debris, or other material shall be deposited only on areas where vegetation has been mowed and any snakes present would be readily visible.
- Prior to issuance of a grading permit, the Project Sponsor shall provide to the City evidence of compliance with the Endangered Species Act through consultation with USFWS. This consultation shall be formal or informal, as determined by the USFWS. Any measures agreed to as a result of this consultation shall be adhered to in addition to the measures presented above.
- The project proponent would place and maintain a temporary erosion control (exclusionary) fence along the western and northern edges of the property during construction. The exclusionary fence to be constructed and maintained during construction is expected to prevent use of the development area by whipsnakes.

Mitigation Measure Biology-3b (Faria Preserve and Western Plan Area): The following actions shall be implemented by developers of both the Faria Preserve and the Western Plan Area to further ensure that impacts to nesting raptors and other special-status birds (e.g., horned lark, loggerhead shrike, yellow warbler) are less than significant: A preconstruction survey shall be conducted by a qualified biologist for nesting raptors and other special-status bird species a maximum of two weeks prior to any new construction activities (i.e. ground clearing and grading,

staging of equipment, ground disturbance) during the breeding season (February 1 – August 31) to ensure there are no nesting sensitive birds within the project area. If active nests are found during the preconstruction survey, a no-disturbance buffer zone shall be created around active nests during the breeding season or until a qualified biologist has determined the young have fledged. The no-disturbance buffer zone shall be a minimum of 250 feet from active raptor nests, 100 feet from special-status species, and 50 feet from non-special status nesting bird species until chicks have fledged. Reductions in the size of the buffer zones and or allowances of limited types of construction activities within the buffer zone shall be determined by a qualified biologist through coordination with CDFG and shall be based on existing noise and human disturbance levels at the project site and observed evidence of disturbance to birds.

Mitigation Measure Biology-3c (Western Plan Area): The following action shall be implemented by developers in the Western Plan Area to assure that potentially significant impacts to California red-legged frogs do not occur:

- A California red-legged frog presence/absence survey shall be conducted along Bollinger Creek prior to implementation of development of Neighborhood E. The survey shall be conducted per USFWS protocols.
- If California red-legged frogs are present within Bollinger Creek within the Western Plan Area, measures to avoid impacts shall be determined in coordination with CDFG. Such measures may include, but are not limited to, biological monitoring, exclusion fencing, alteration of construction schedule to avoid breeding season, or other measures.
- Developers shall use standard Best Management Practices (BMPs) and erosion control measures throughout construction to prevent increased discharge of sediment and/or pollutants into aquatic habitats. See Mitigation Measure Biology-1c.

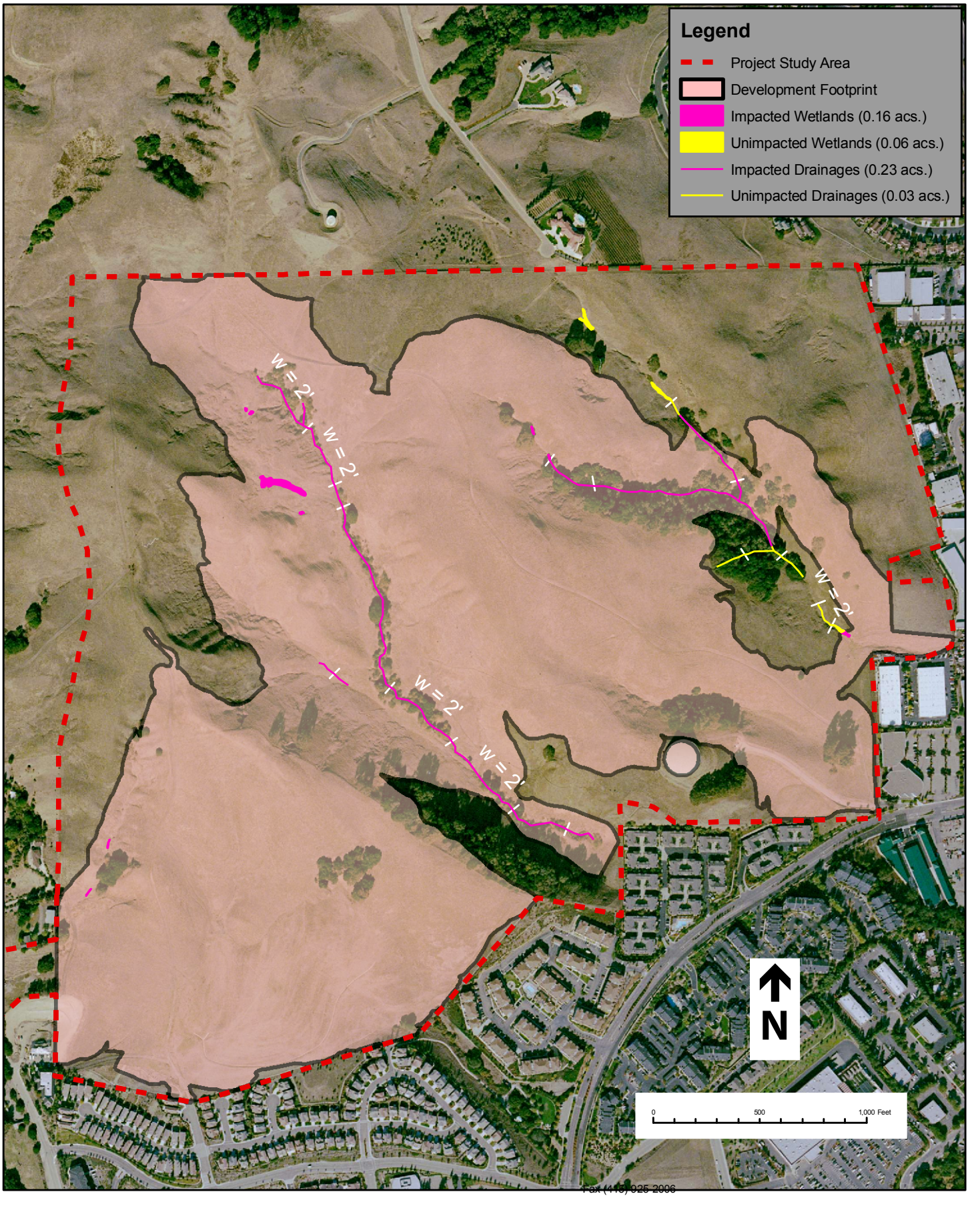
Level of Significance after Mitigation: *Less than Significant* (Faria Preserve and Western Plan Area).

IMPACT BIOLOGY - 4

Impact Biology-4: Jurisdictional Waters of the United States and Riparian Habitat. Development of the Faria Preserve Project Site would result in the filling and replacement of 0.40 acre of wetlands and waters of the U.S.

This would be a *significant* impact (Faria Preserve).

Of the total of 0.49 acre of wetlands and waters of the U.S. under Corps jurisdiction found on the Faria Preserve Project Site, 0.40 acre would be filled to accommodate the proposed development with consequent loss of the function provided by these areas unless mitigated. The linear length of drainages filled by the project would total 5,055 feet, with the longest one measuring 3,021 feet in length. Impacted wetland areas and waters of the U.S. are shown in Figure 4.3-6. The proposed Faria Preserve Project includes a Biological Mitigation/Enhancement and Monitoring Plan that would provide for the creation and maintenance of wetland features and ponds having a combined surface area of over 1.15 acres, which would replace the 0.40 acre of impacted jurisdictional waters on a three to one basis. In addition, a riparian corridor of approximately 8.9 acres, located along the westerly drainage swale, would meander through Neighborhood A on the Faria Preserve Project Site.



Source: The Huffman-Broadway Group, Inc., 2005

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The wetland corridor would include a riparian drainage swale and a series of small wetland habitat areas and connecting ponds.

Mitigation Measure Biology-4a (Faria Preserve): The Faria Preserve developer shall be responsible for mitigation of impacts to wetlands and jurisdictional waters, pursuant to a Mitigation and Monitoring Plan approved by the Corps. Further, prior to issuance of a grading permit, the developer shall provide written evidence that the following approvals have been received:

- A Clean Water Act Section 404 permit by the U.S. Army Corps of Engineers.
- A Section 401 Water Quality Certification from the Regional Water Quality Control Board.

Mitigation Measure Biology-4b (Faria Preserve): Wetlands shall be mitigated and monitored as required by the Clean Water Act Section 404 permit.

Mitigation Measure Biology-4c (Faria Preserve): During construction and prior to any clearing, grading, or construction activities, temporary barriers shall be placed around all wetlands and riverine intermittent drainages that are to be avoided by the development plan. These barricades shall create at least a 20-foot buffer area around drainages and shall be consistent with the Best Management Practices implemented as part of a Stormwater Pollution Prevention Plan (see Mitigation Measure Hydrology-1b). No clearing, operation of heavy equipment, or storage of construction materials shall be permitted within this area.

Level of Significance after Mitigation: *Less than Significant* (Faria Preserve).

IMPACT BIOLOGY - 5

Impact Biology-5: Jurisdictional Waters of the United States and Riparian Habitat. Development of the Western Plan Area could result in the filling and replacement of wetlands and/or waters of the U.S.

This would be a *significant* impact (Western Plan Area).

A jurisdictional wetland delineation has not been completed for the Western Plan Area; however, it is likely that portions of the creek and drainage area within the Western Plan Area would be subject to Corps jurisdiction as either wetlands or other "waters of the U.S."

Mitigation Measure Biology-5a (Western Plan Area): Developers of the Western Plan Area shall be responsible for conducting an on-site evaluation to determine whether any portion of the creek or drainage areas within the Western Plan Area would be subject to Corps jurisdiction as either wetlands or other "waters of the U.S."

Mitigation Measure Biology-5b (Western Plan Area): If wetlands and/or waters of the U.S. under Corps jurisdiction are determined to be present within the Western Plan Area, the developer shall be responsible for mitigation of impacts to wetlands and/or jurisdictional waters, pursuant to a Mitigation and Monitoring Plan approved by the Corps. Further, prior to the issuance of a grading permit, the developer shall provide written evidence that the following approvals have been received:

- A Clean Water Act Section 404 permit by the U.S. Army Corps of Engineers.

- A Section 401 Water Quality Certification from the Regional Water Quality Control Board.

Mitigation Measure Biology-5c (Western Plan Area): Wetlands shall be mitigated and monitored as required by the Clean Water Act Section 404 permit.

Mitigation Measure Biology-5d (Western Plan Area): During construction and prior to any clearing, grading, or construction activities, temporary barriers shall be placed around all wetlands and riverine intermittent drainages that are to be avoided by the development plan. These barricades shall create at least a 20-foot buffer area around drainages and shall be consistent with the Best Management Practices implemented as part of a Stormwater Pollution Prevention Plan (see Mitigation Measure Hydrology-1b). No clearing, operation of heavy equipment, or storage of construction materials shall be permitted within this area.

Level of Significance after Mitigation: *Less than Significant* (Western Plan Area).

A development plan and use permit application for the house of worship would be required at the time such a facility is proposed.

IMPACT BIOLOGY - 6

Impact Biology-6: Wildlife Corridors. Implementation of the NWSP would result in the minor fragmentation of existing wildlife corridors. Such fragmentation would not affect a substantial portion of the range or restrict the movement of any species.

This would be a *less than significant* impact (Faria Preserve and Western Plan Area).

While the NWSP Area currently accommodates the movement of wildlife within the site, particularly from the northwest corner down along the riparian drainages, most of the NWSP Area itself does not function as an important corridor between larger open space wildlife areas. In particular, for the Faria Preserve portion of the NWSP Area, the proposed development area is an extension of the urban fringe. Nevertheless, development of the Faria Preserve would eliminate an area that currently provides wildlife access to the site. Implementation of the Faria Preserve Biological Mitigation/Enhancement and Monitoring Plan outlined in Mitigation Measure Biology-1a would lead to the creation of a riparian and wildlife corridor on the Faria Preserve that would facilitate wildlife access to the site. Implementation of Mitigation Measure Biology-1a would reduce the project's impact on the existing Faria Preserve site wildlife corridor to a level of less than significant.

In the Western Plan Area, Bollinger Creek is an important wildlife corridor that connects wildlife corridors north of the NWSP Area with other important wildlife corridors to the south, namely within San Ramon Creek. Substantial development in Bollinger Creek is not anticipated and it is expected that the project design will avoid substantial impediments to wildlife corridors.

Mitigation Measure Biology-6a (Faria Preserve Biological Mitgiation/Enhancement and Monitoring Plan): Mitigation Measure Biology-1a would require implementation of the Faria Preserve Biological Mitigation/Enhancement and Monitoring Plan, which would establish a riparian and wildlife corridor on the Faria Preserve Project Site with an average width of 200 feet.

Implementation of Mitigation Measure Biology-1a would further ensure the impacts are less than significant.

Mitigation Measure Biology-6b (Western Plan Area): The following actions shall be implemented by developers in the Western Plan Area to further ensure impacts to the Bollinger Creek wildlife corridor are less than significant:

- Establish a riparian wildlife corridor open space preserve subject to a conservation easement and managed by a third party. Habitats within the open space corridor shall include Bollinger Creek and associated riparian canopy (e.g., valley foothill riparian and valley foothill hardwood habitats) along banks on both sides of the creek. At a minimum, the width of the wildlife corridor open space preserve shall be no less than the width of the creek and associated riparian canopy. This would require revision of Specific Plan Policy A-3 in the Preservation of Natural Resources section of the Parks and Open Space chapter, which currently states that development shall not occur within 100 feet of the centerline of Bollinger Creek.

- Install permanent fencing along the outer edge of the riparian wildlife corridor to prohibit motor vehicle, bicycle, and pedestrian traffic in the corridor area.

- Design of the future vehicular bridge crossing over Bollinger Creek shall comply with the following performance standards:

    - Bridge design shall maintain clearance for a wildlife upland passage zone during periods of high flood flows (e.g., 50-year flood events). The zone shall consist of native vegetation/habitat cover and shall have at least ten feet of vertical clearance.

    - The final post-construction vegetative percent cover of the wildlife corridor shall be equal to the pre-construction value.

Level of Significance after Mitigation: *Less than Significant* (Faria Preserve and Western Plan Area).

IMPACT BIOLOGY - 7

Impact Biology-7: Colonization by Invasive Species. Invasive non-native plants used in Faria Preserve Project Site and Western Plan Area landscaping could be dispersed from development areas where they are to be planted and eventually displace native plants within natural and created wildlife habitat areas.

This would be a *potentially significant* impact (Faria Preserve and Western Plan Area).

Invasive non-native plants, when used in landscaping near natural areas, tend to be dispersed from landscaped areas and displace native plant species in nearby natural areas. As a result, invasive plant species can adversely affect natural areas that support native ecosystems, including ecological reserves and wildlife areas. However, the Faria Preserve Project Site is already predominantly occupied by non-native species. Therefore, the use of invasive non-native plants in landscaping within graded and disturbed areas along the periphery of NWSP Area development, as well as along trail

improvements, could result in a potentially significant impact to the Western Plan Area. Such impact would not occur on the Faria Preserve Project Site as it is already predominantly occupied by non-native species. In addition, the Faria Preserve Biological Mitigation/Enhancement and Monitoring Plan, proposed as part of the Faria Preserve project and identified in Mitigation Measure Biology-1a, would establish a vegetated buffer within a riparian corridor on the Faria Preserve Project Site. This area is intended to allow the creation of wetland and riparian habitats to compensate for habitat losses resulting from the Faria Preserve project. This riparian area and vegetated buffer would be susceptible to colonization by invasive plant species from developed/landscaped portions of the Faria Preserve Project Site, however, such risk is controlled by restrictions on the land.

Mitigation Measure Biology-7 (Faria Preserve and Western Plan Area): In order to ensure integrity of the restored riparian zone on the Faria Preserve and to reduce impacts in the Western Plan Area to less than significant, the following mitigation measure will be implemented by developers of the Faria Preserve and Western Plan Area:

- Landscape plans and plant selections for any portion of the Plan Area shall ***not*** include any invasive exotic plants listed by the California Invasive Plant Council (Cal-IPC) in their Invasive Plant Inventory (Cal-IPC, 2006).

Level of Significance after Mitigation: *Less than Significant* (Faria Preserve and Western Plan Area).

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4.4 CULTURAL RESOURCES

This section describes existing sensitive cultural resources in the NWSP Area, regulations protecting those resources, and the potential for impacts to these resources. Discussion of impacts and corresponding mitigation measures are provided separately for the proposed NWSP and for the proposed Faria Preserve. Specifically, distinctions are made between impacts and mitigations pertaining to the portion of the NWSP Area located west of Bollinger Canyon Road (Western Plan Area) and the portion of the NWSP Area located east of Bollinger Canyon Road (Faria Preserve). This analysis is summarized from: an historical resources records search; archaeological investigations performed by EDAW, Inc. (EDAW) in February and June 2004; and a cultural resources assessment conducted in December 2002 by Basin Research Associates (Basin)[1].

Cultural resources include resources that are deemed to be of historical and/or archaeological significance. Historic resources are significant if it they are listed in, or determined to be eligible for listing in, the California Register of Historical Resources (CRHR). Eligibility for listing in the CRHR, which is described in greater detail in Section 4.4.2, is dependent upon a resource's association with events or persons important to California's history and cultural heritage, what information it has yielded or might yield about prehistory or history, and the degree to which it embodies the distinctive characteristics of a particular type, period, region or method of construction or represents the work of an important creative individual. Historic resources that are on or eligible for inclusion in the National Register of Historic Places fall within this definition.

"Unique archaeological resources" are also defined in greater detail in Section 4.2.2. Such resources are generally associated with an event or person of recognized significance in California or American history or recognized scientific importance in prehistory. They also can provide information that is of value to the public and/or scientific community and have a particular quality with regard to age, type, size or rarity. In practice, most archaeological resources that meet the definition of a "unique" resource shall also meet the definition of an "historical resource." CEQA analysis does not require consideration of non-unique archaeological resources (PRC 21083.2(a)).

The purpose of the Basin assessment was to identify prehistoric and historic archaeological resources at the Faria Preserve project site (Faria Preserve Project Site). The Basin assessment included a search of archival records and a pertinent literature review. An archeological field inventory was also conducted. An EDAW cultural resource specialist conducted a site reconnaissance to confirm Basin's findings at the Faria Preserve Project Site in February 2004. Sensitive cultural resources were not identified by Basin or by EDAW at the Faria Preserve Project Site. No project specific Record Search was conducted as part of the City of San Ramon 2020 General Plan (General Plan) (City of San Ramon, 2002) or City of San Ramon 2020 General Plan Draft Environmental Impact Report (General Plan EIR) (City of San Ramon, 2001).

In June 2004, an EDAW cultural resources specialist conducted a site reconnaissance survey of the Western Plan Area not covered by the Basin assessment. The EDAW site reconnaissance found sensitive cultural resources located on the Western Plan Area.

[1] The Basin Research Associates report is available for review in the Planning Division's case file for this project.

4.4.1 Existing Setting

As stated in the General Plan, the entire San Ramon Planning Area includes several sites of both historic and prehistoric value. According to the Northwest Information Center (NWIC) at Sonoma State University, local archaeological sites include both Native American habitations as well as rock art (Basin Research Associates, 2002). In addition to archaeological resources, the San Ramon Planning Area includes valuable historic structures, such as the original farmhouses of early European settlers from the nineteenth century. Native American archaeological sites in San Ramon tend to be situated along ridgetops, midslope terraces, alluvial flats, at the base of hills, between saddles, near ecotones, and near sources of water including springs (City of San Ramon, 2002).

Regulatory Background

As stated in the General Plan, several State laws, most notably California Environmental Quality Act (CEQA) Guidelines 15064.5(f) and Public Resources Code 5020-5029 and 21083.2, protect archaeological and historical resources. To protect historic resources, the State of California has formed the State Historical Resources Committee (Committee), which conducts the State Historic Resource Inventory and maintains the California Register of Historic Resources, which in turn identifies historic landmarks and points of interest. The Committee also provides recommendations for the National Register of Historic Resources (City of San Ramon, 2002).

Policies contained in the Open Space and Conservation Element of the General Plan:

8.8-G-1: Identify and preserve the archeological, paleontological, and historic resources that are found within the San Ramon Planning Area.

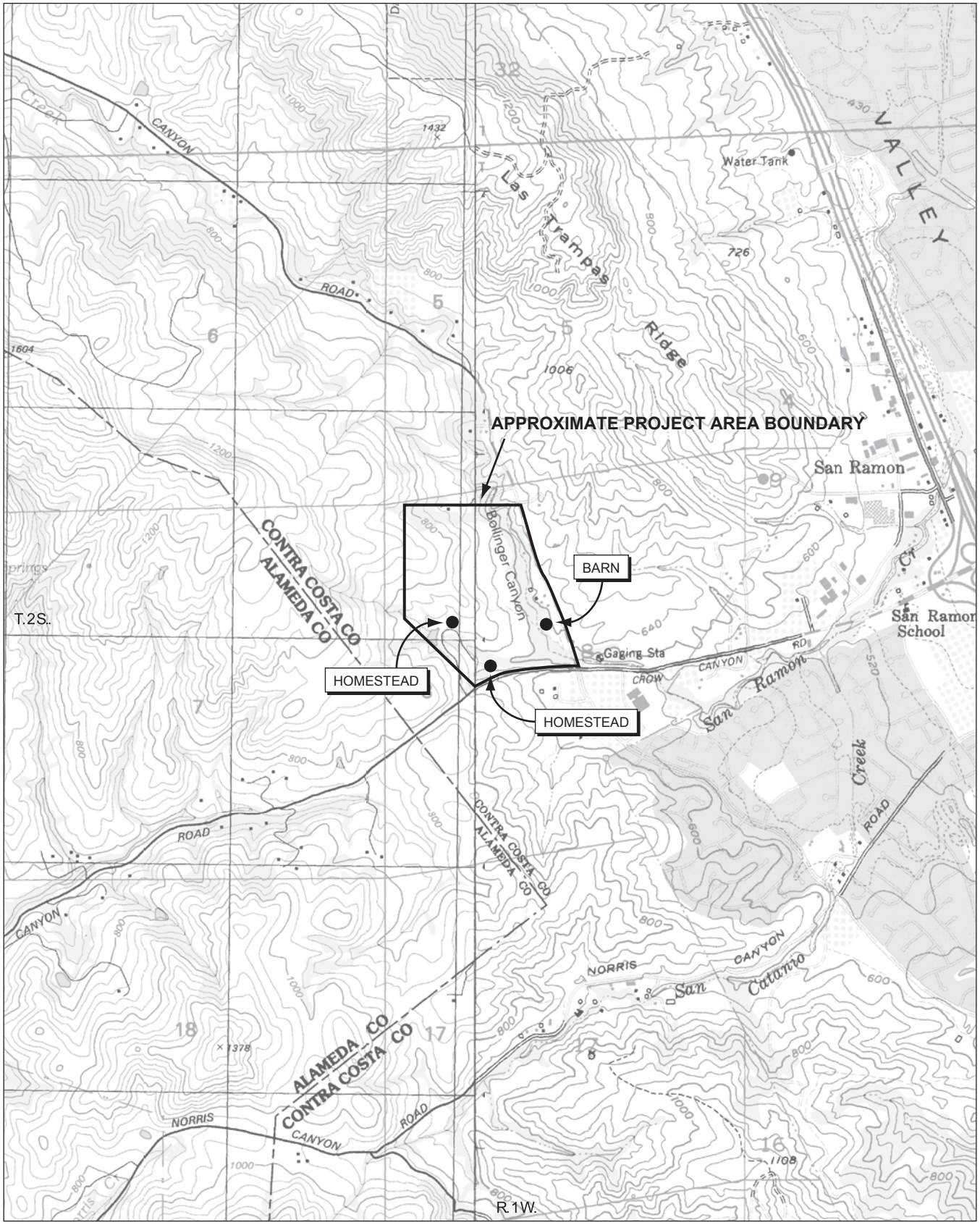
8.8-I-1: If evidence of prehistoric or historic artifacts or remains are known to exist or are uncovered during the course of excavation for a development project, grading activity in the immediate area should cease and a qualified archaeologist or paleontologist contacted so that appropriate mitigation programs can be developed.

Known Cultural Resources

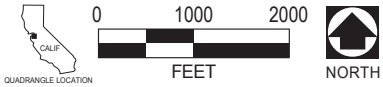
Western Plan Area

In June 2004, an EDAW cultural resources specialist conducted a reconnaissance survey of the Western Plan Area located west of Bollinger Canyon road. The purpose of this survey was to confirm the results of previous cultural resource investigations of the property and to confirm the results of a record search provided by the Northwest Information Center (NWIC). According to the NWIC, the entire NWSP Area had been surveyed in 1982 in relation to the proposed Rocky Ridge General Plan Amendment. The record search indicated that no prehistoric or historic cultural resources had been recorded within or in the immediate vicinity of the NWSP Area.

Despite previous research and the NWIC findings, the EDAW reconnaissance survey revealed the presence of several historic-era sites, buildings, and structures on the Western Plan Area (see Figure 4.4-1). It is estimated that a barn complex near Bollinger Canyon Road dates to at least the 1920s which makes it eligible for consideration as a cultural resource under CEQA. In addition,



Source: USGS Las Trampas Ridge Quad 1993 -- contour interval 40 feet
USGS Diablo Quad 1953 (photorevised 1980), EDAW, 2004 using contour interval 20 feet



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partial remains of what appeared to be two late 19th or early 20th century home sites were identified (EDAW, 2004). None of these sites or buildings were noted in the 1982 cultural resources survey and as a result, the NWIC has no record of such sites in the NWSP Area.

There are two likely reasons the omission of these sites occurred in the 1982 study. First, that research may have only been cursory in nature and may not have included a field examination of the property. Secondly, professional standards and measures of potential significance have developed considerably since the 1982 study was conducted. Consequently, what is considered a cultural resource today may not have fallen within the definition of a "site" over twenty years ago (EDAW, 2004).

Faria Preserve

In order to confirm the findings of the December 2002 cultural resources study conducted on the Faria Preserve Project Site by Basin, an EDAW cultural resource specialist conducted a peer review of the investigation report and a reconnaissance of the Faria Preserve Project Site. The report prepared by Basin provides information on the cultural context and history of the Faria Preserve Project Site, field and documentary research methodologies, and the findings of a December 2002 intensive survey. In summary Basin found that, "numerous prehistoric archaeological sites have been recorded within the San Ramon Valley, but none have been recorded in/adjacent to the project;" and furthermore, "no evidence of prehistoric or historically significant archaeological resources was observed during the field inventory completed for this report" (Basin Research Associates, 2002).

A February 2004 field reconnaissance of the Faria Preserve Project Site conducted by EDAW confirmed that conditions on the ground are consistent with those described in the Basin report. The generally steep topography and apparent lack of perennial water sources on or within the immediate vicinity of the Faria Preserve Project Site make it unlikely that significant prehistoric cultural resources in particular are present within the site. In addition, no historic resources such as refuse deposits, building remains, or structure elements were noted during the 2002 survey, or as a result of EDAW's 2004 reconnaissance.

Regulatory Background

This section describes the existing policies and regulations that apply to the protection of cultural resources within the NWSP Area. Assessments of cultural resources depend on a variety of federal, state, and local regulations and policies, in addition to the thresholds established by CEQA, to provide consistent standards and a basic framework for evaluation. The following paragraphs identify and explain the applicable policies and regulations as they relate to future development in the NWSP Area.

City of San Ramon 2020 General Plan

The General Plan contains policies and standards that are intended to ensure high quality development and protect the City's cultural resources. The following General Plan policies are important in consideration of the proposed NWSP and Faria Preserve:

8.8-G-1: Identify and preserve the archaeological, paleontological, and historic resources that are found within the San Ramon Planning Area.

8.8-I-1: Require that new development analyze, and therefore avoid any potential impacts to archaeological, paleontological, and historic resources.

City of San Ramon 2020 General Plan EIR

In the General Plan EIR, the following impacts related to cultural resources are identified:

Impact 4.14-a: New development under the proposed General Plan has the potential to adversely affect identified historic or cultural resources that appear on State historical or archaeological inventories.

Impact 4.14-b: New development that has the potential to disturb unidentified cultural resources that may be eligible for a federal or State list, may qualify as "important" or "unique," according to State definitions, or may have historic or cultural significance to a community or ethnic or social group.

These potential impacts were identified in response to proposed development in San Ramon's Planning Area. Both impacts were determined to be less than significant after mitigation by implementation of policies proposed in the General Plan. In particular, implementation of the following General Plan policies would reduce these impacts to less than significant levels:

8.8-G-1:*Described above.*

8.8-I-1: *Described above.*

4.4.2 Thresholds of Significance

The proposed NWSP and the Faria Preserve would have a significant cultural resources impact if either would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the State CEQA Guidelines;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the State CEQA Guidelines;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature;
- Disturb any human remains, including those interred outside of formal cemeteries.

State CEQA Guidelines Section 15064.5(a) defines the term historical resources to include a resource listed in, or determined to be eligible for listing in, the California Register of Historic Resources, a resource included in a local register of historic resource, or identified as significant in an historical resource survey. Substantial adverse change in the significance of an historic resource means physical

demolition, destruction, relocation, or alteration to the resource or its immediate surroundings such that it demolishes or materially alters in an adverse manner those physical characteristics that convey its historical significance.

Determination of archaeological significance generally involves archaeological excavation to determine data potentials, site content, integrity of deposits, and the nature of constituent features and artifacts.

Prehistoric and historic cultural resources may, depending on significance and integrity, be eligible for inclusion on the California Register of Historical Resources (CRHR) and the National Register of Historical Resources (NRHP). Each register utilizes similar criteria and sites eligible for CRHR listing are also potentially eligible for inclusion on the NRHP.

Determining the CRHR eligibility of historic and prehistoric sites located within the study area is guided by the specific legal context of the site's significance as outlined in sections 15064.5(b), 21083.2 and 21084.1 of the Public Resources Code (PRC). NRHP eligibility is based on similar criteria outlined in Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470). In both the CRHR and NRHP, cultural resources are defined as buildings, sites, structures or objects that may have historical, architectural, archaeological, cultural or scientific importance. As indicated previously, cultural resource may be eligible for listing on the CRHR and/or NRHP if it:

- is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- is associated with the lives of persons important in our past;
- embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of an important creative individual or possesses high artistic values; or
- has yielded, or may be likely to yield, information important in prehistory or history.

Resources included in a local register of historical resources or identified as significant in an historical resource survey meeting certain requirements shall also be presumed to be historically or culturally significant. Public agencies must treat such resources as significant unless the preponderance of the evidence demonstrates that they are not historically or culturally significant.

Finally, any object, building, structure, site, area, place, record, or manuscript which a Lead Agency determines to be historically significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historic resource, provided the Lead Agency's determination is supported by substantial evidence in light of the whole record.

In California, if a prehistoric or historic resource does not necessarily meet any of the four CRHR criteria, but does meet the definition of a "unique" site as outlined in the PRC (Section 21083.2), it may still be treated as a significant resource. This is the case if it is "…an archaeological artifact, object or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- It contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
- It has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- It is directly associated with a scientifically recognized important prehistoric or historic event."

These two sets of criteria operate independently to ensure that significant potential effects on archaeological and historic resources are considered as a part of a project's environmental analysis. PRC guidelines also recommend provisions be made for the accidental discovery of archaeological sites, historical resources or Native American human remains during construction (PRC Section 5097.98).

4.4.3 Environmental Evaluation

This section evaluates the potential for implementation of the proposed NWSP and the Faria Preserve to significantly impact cultural resources in the Western Plan Area and Faria Preserve Project Site, including known historic and archaeological resources, and those subsurface resources that could exist, but have yet to be discovered. (Impacts and mitigations are distinguished between the NWSP Area and the Faria Preserve Project Site).

IMPACT CULTURAL -1

Impact Cultural-1: Implementation of the Northwest Specific Plan could adversely affect unidentified, potentially significant subsurface cultural resources in the NWSP Area as a result of project specific ground-disturbing construction activities.

This would be a *significant* impact (Western Plan Area and Faria Preserve)

Adoption of the NWSP would allow for the development of the NWSP Area and therefore could increase the probability that unknown or unrecorded subsurface resources would be disturbed. Construction activities associated with a particular development project within the NWSP Area involving ground-disturbing activities such as grading, excavation, or construction of building foundations or other subsurface structures, could adversely impact subsurface archaeological sites that may be located in the NWSP Area but have yet to be identified. As described previously, based on the field survey conducted for this EIR, archaeological resources including several historic-era sites, buildings, and structures were found to be located on the Western Plan Area.

Mitigation Measure Cultural-1a (Western Plan Area): Prior to any project-related ground disturbing activities, the Western Plan Area shall be re-inventoried. This survey shall incorporate a pedestrian survey of the site and a thorough recording and assessment of the sites presently known to exist within the area, in conformance with CEQA guidelines. Implementation of this mitigation measure would identify known cultural resources and ensure that they would be avoided.

Mitigation Measure Cultural-1b (Western Plan Area and Faria Preserve): The City of San Ramon shall require implementation of a monitoring and response procedure during construction of

any proposed project within the NWSP Area in order to avoid adverse effects on potentially significant archaeological resources. Specific steps in the procedure are as follows:

- Prior to construction, the construction contractor and subcontractors shall be informed of the legal and regulatory consequences of knowingly destroying cultural resources or removing artifacts, human remains, bottles, and other significant cultural materials from the site. Significant cultural materials include but are not limited to: aboriginal human remains; chipped stone; groundstone; shell and bone artifacts (both human and animal); concentrations of fire-cracked rock; bottle glass; ceramics; ash and charcoal; and historic features such as privies or building foundations/remains.

- If an inadvertent discovery of cultural materials is made during project-related construction activities, ground disturbances in the area of the find shall be halted and a qualified professional archaeologist shall be notified regarding the discovery. The archaeologist shall determine whether the resource is potentially significant as per the California Register of Historical Resources and develop appropriate mitigation.

- All artifacts or samples collected as part of the initial discovery, monitoring, or mitigation shall be properly preserved, catalogued, analyzed, evaluated, and curated along with the associated documentation in a professional manner consistent with current archaeological standards.

- If human remains are uncovered during construction, the construction contractors must stop potentially damaging work, assess the significance of the find, and pursue appropriate management. California law recognizes the need to protect interred human remains, particularly Native American burials and associated items of patrimony, from vandalism and inadvertent destruction. The procedures for the treatment of discovered human remains are contained in California Health and Safety Code §7050.5 and §7052 and California Public Resources Code §5097.

  In accordance with the California Health and Safety Code, if human remains are uncovered during ground disturbing activities all such activities in the vicinity of the find shall be halted immediately and the City's designated representative shall be notified. The City of San Ramon shall immediately notify the Contra Costa County coroner and a qualified professional archaeologist. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The responsibilities of the City of San Ramon for acting upon notification of a discovery of Native American human remains are identified in detail in the California Public Resources Code Section 5097.9. The City of San Ramon or its appointed representative and the professional archaeologist shall consult with a Most Likely Descendent (MLD) determined by the NAHC regarding the removal or preservation and avoidance of the remains and determine if additional burials could be present in the vicinity.

  Assuming an agreement can be reached between the MLD and the City of San Ramon or their representative with the assistance of the archaeologist, these steps would result in minimizing or eliminating adverse impacts to the uncovered human remains.

Level of Significance after Mitigation: *Less than Significant* (Faria Preserve and Western Plan Area).

References

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4.5 GEOLOGY/SOILS

Information on the existing geology, soil conditions, and seismicity applicable to the NWSP Area was obtained from the City of San Ramon 2020 General Plan (General Plan) (City of San Ramon, 2002), City of San Ramon 2020 General Plan Draft Environmental Impact Report (General Plan EIR) (City of San Ramon, 2001), and preliminary geologic and geotechnical studies conducted by Earth Systems Consultants Northern California (ESCNC) and Treadwell & Rollo, Inc[1]. This section describes potential hazards and constraints associated with development of the NWSP Area, which consists of two separate areas: the portion of the NWSP Area located west of Bollinger Canyon Road (Western Plan Area) and the portion of the NWSP Area located east of Bollinger Canyon Road (Faria Preserve), for which a mixed residential and community facility project is proposed. Existing setting, impacts and mitigation measures address various geologic/geotechnical/seismic-related hazards, including fault rupture, groundshaking, unstable slopes, expansive soils, erosion, and other seismic-related hazards, and are presented as they pertain to the Western Plan Area, the Faria Preserve Project Site, or the entire NWSP Area.

4.5.1 Existing Setting

The NWSP Area is located in the northwest corner of the City of San Ramon, in Contra Costa County. The majority of the Area is hilly with only a small amount of relatively flat ground east of Bollinger Canyon Road on the southwest corner and along the terrace at the top of the incised channel of Bollinger Creek. The topography is dominated by four northwest-trending ridges. One of the ridges is located on the west side of Bollinger Creek, at the southern end of the larger regional Rocky Ridge. Three of the ridges (referred to as eastern ridge, central ridge, and western ridge) are located east of Bollinger Canyon Road (within the Faria Preserve Project Site) at the southern end of the larger regional Las Trampas Ridge. The latter area is defined by two drainages, the eastern drainage (where the Calaveras fault zone is located), and the main or central drainage (between the central and western ridges). Within the NWSP Area, ridges are covered with seasonal grasses and scattered shrubs and drainages have scattered groves of oak, cottonwood, and willow trees. A mapped trace of the Calaveras Fault intersects the eastern part of the NWSP Area, and landslides and debris flows are scattered throughout the NWSP Area.

Figure 4.5-1 shows the topography of the region surrounding the NWSP Area. Figure 4.5-2 displays more specific geologic features of the Faria Preserve Project Site.

Site elevations within the NWSP Area vary. Elevations range from approximately 524 feet in the eastern edge of the Faria Preserve Project Site to approximately 998 feet on the western edge of the Faria Preserve Project Site. Elevations in the western portion of the NWSP Area, west of Bollinger Canyon Road (Western Plan Area) range from approximately 570 feet to approximately 860 feet.

[1] ESCNC conducted a geologic hazards evaluation and preliminary geotechnical engineering study for the eastern portion of the NWSP Area (Faria Preserve Project Site) in 2004 and 2005. The latest study (*Supplemental Fault Investigation Fault A/Calaveras Fault Western Traces*) has not yet been finalized. The area investigated by ESCNC does not include the Western Plan Area. Treadwell & Rollo conducted a preliminary geologic hazards study in the western portion of the NWSP Area.

Only a very small portion of the NWSP Area has been developed to date. Improvements in the Western Plan Area consist of dirt roads, a wooden barn, appurtenant structures, corrals, and wire livestock fences (Treadwell & Rollo 2004). A 5.1 million gallon circular metal water tank reservoir, owned by East Bay Municipal Utility District (EBMUD), is located near the southeast corner of NWSP Area (within the Faria Preserve Project Site), and is accessed from Deerwood Road (ESCNC 2004). Vehicular access is provided to the NWSP Area via dirt roads. Currently, portions of the NWSP Area are used for cattle grazing.

Geology and Soils

The NWSP Area is located in the East Bay Hills of the Coast Ranges Geomorphic Province of California. This province is characterized by northwest trending ridges and valleys (generally parallel to predominantly right-lateral strike-slip faults of the San Andreas fault system) with incised drainages and steep sloping hillsides.

Sandstone bedrock crops out locally on ridge crests and underlies upper hilltops at shallow depths. Soils are thin to non-existent on the major ridges, crests, and slopes of the hills; thicken toward the base of the slopes; and generally are thick in colluvium-filled swales at the base of the valleys.

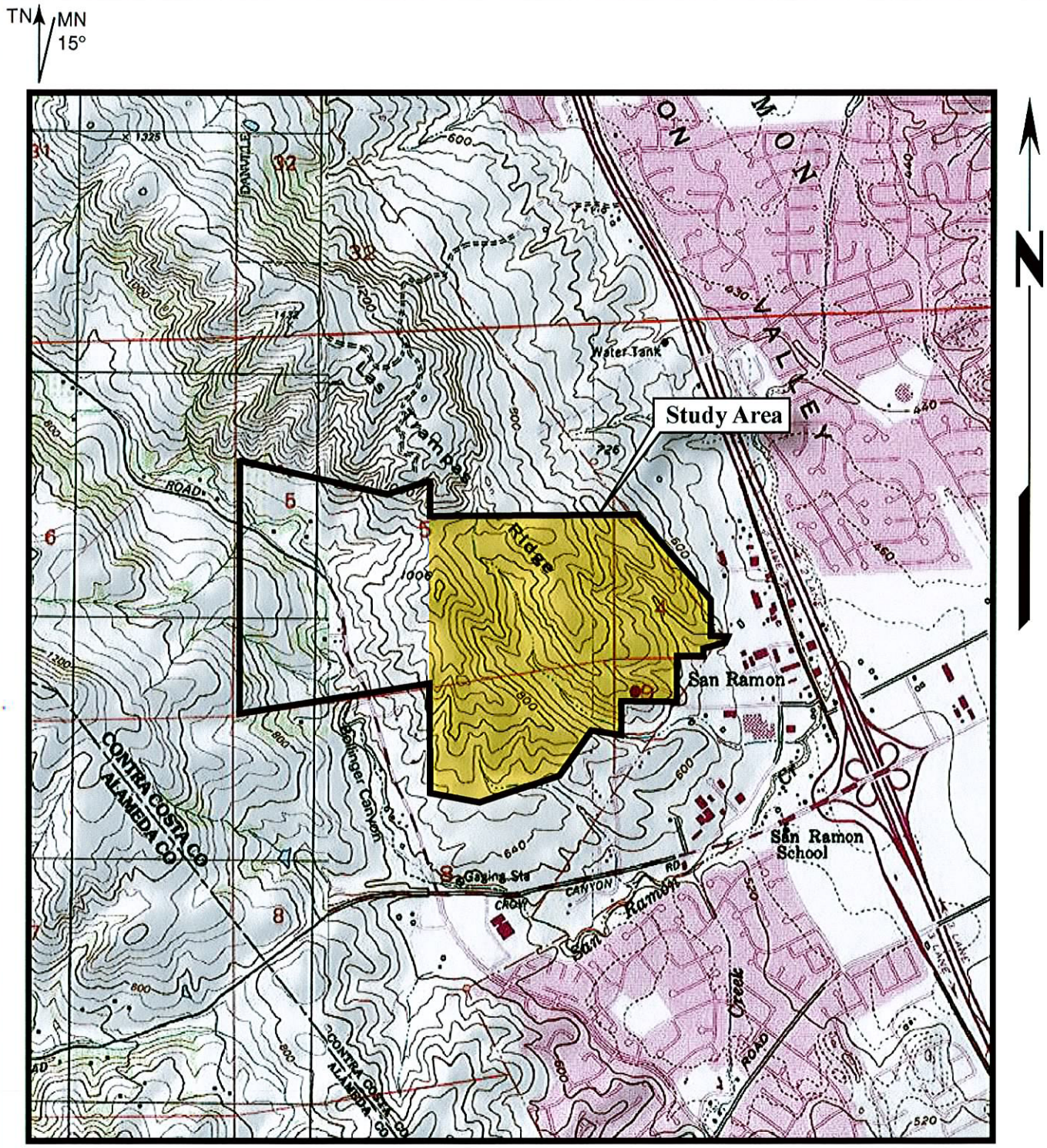
Bedrock in the area has been identified as clastic sedimentary rocks of predominately silt to sand size materials (ESCNC 2004; Treadwell & Rollo 2004), and Pliocene-age (between 5.3 and 1.8 million years old) non-marine mudstone, siltstone, sandstone, and pebble conglomerate of the Orinda Formation. The Western Plan Area consists of undifferentiated Pliocene-age sedimentary rocks. Pliocene-age sedimentary and volcanic rocks have been identified in the south and west portion of the NWSP Area (Treadwell & Rollo 2004).

Western Plan Area

Soils in the Western Plan Area consist mostly of residual soil (including topsoil), colluvium, alluvium, and landslide debris over the bedrock of the Orinda Formation (Treadwell & Rollo 2004). Few rock outcrops are present in this area. Relatively thick alluvial deposits overlie the Orinda Formation bedrock in the incised cut bank along the west side of Bollinger Canyon creek and locally mantle the bedrock in the channel bottom. The geology and soils on the eastern portion of the site (Faria Preserve Project Site) are described below.

Faria Preserve

Miocene-age (between 24 and 5.3 million years old) marine, locally pebbly sandstone were mapped on the eastern portion of the NWSP Area, within the Faria Preserve Project Site (ESCNC 2004). Similarly, Wagner (1978) mapped the Faria Preserve Project Site as underlain by Tertiary sedimentary rocks including the Briones and Orinda Formations (ESCNC 2004). Graymer, et al. (1994) mapped Briones Formation and Neroly Formation within the Faria Preserve Project Site (ESCNC 2004).



Approximate Scale 1: 24,000

1 0 1 Mile

1 0 1 Kilometer

Base: U.S.G.S. 7.5 minute Diablo, (1980) Quadrangle
Map created with Topo!® © 2003 National Geographic (www.nationalgeographic.cm/topo)

Source: Earth Systems Consultants, 2004

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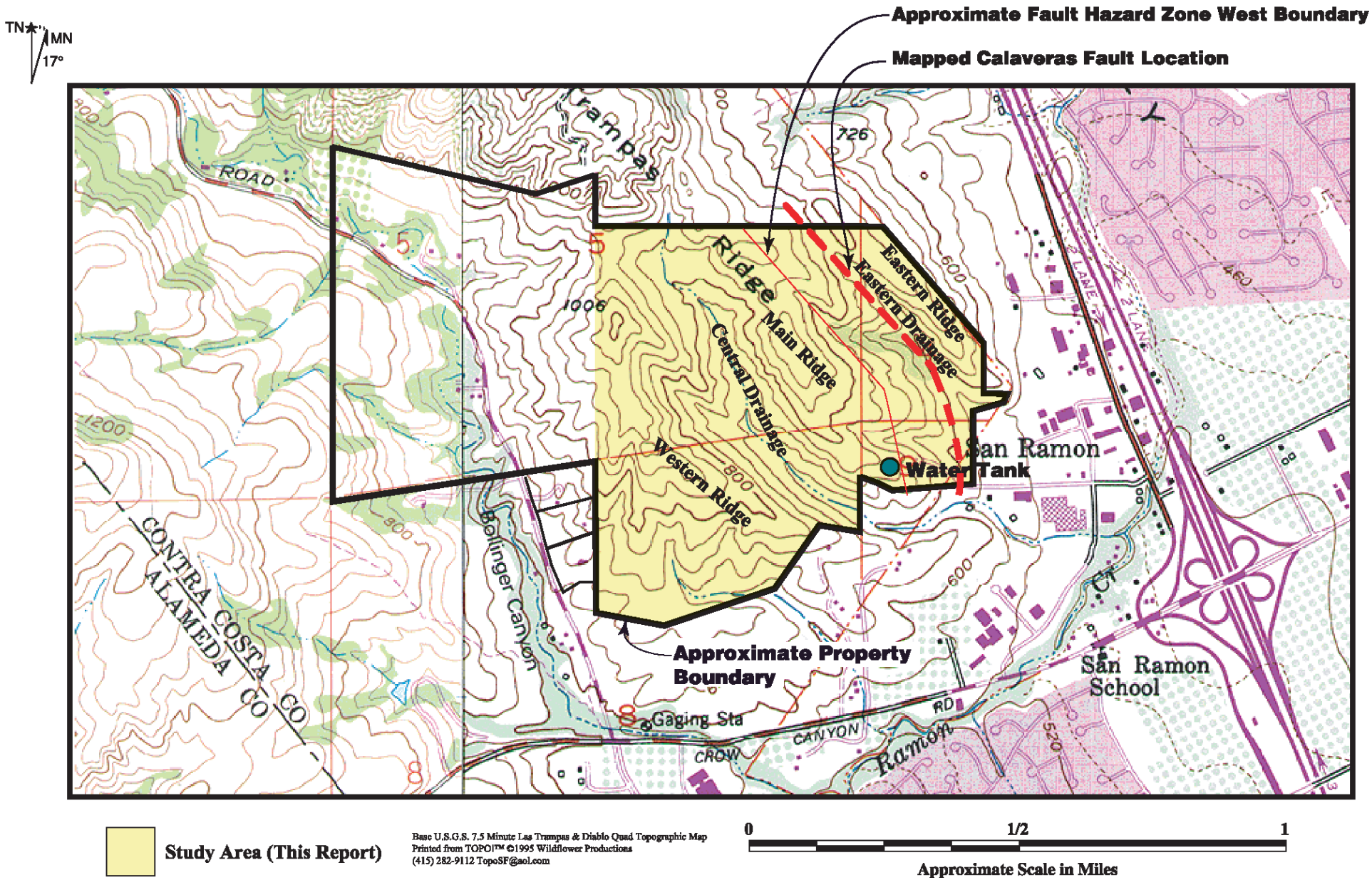

Source: Earth Systems Consultants, 2004

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Soils on the Faria Preserve Project Site consist of a thin layer of topsoil underlain at shallow depth by dense bedrock along the ridges, and thick colluvium and landslide material in the drainage channels (ESCNC 2004).

Artificial Fill

Faria Preserve

Approximately 900,000 cubic yards of fill was placed along the southern edge of the NWSP Area, east of Bollinger Canyon Road, when the adjacent properties to the south along Deerwood Road were graded, yielding excess earth materials (ESCNC 2004). Information on the quality and engineering oversight of the onsite artificial fill is unknown and therefore considered non-engineered.

Topsoil

Western Plan Area

Topsoil in the Western Plan Area ranges from three to six feet in depth (Treadwell & Rollo 2004).

Faria Preserve

The native topsoil within the Faria Preserve Project Site is relatively thin and heterogeneous, and generally consists of clay and silt (ESCNC 2004). These deposits are highly plastic and have a high expansion potential.

Colluvium and Alluvium

Northwest Specific Plan Area

Deposits of colluvial soil have accumulated in swales within the NWSP Area due to erosion and slow, continuous down-slope creep. The colluvium generally consists of clay and silt with moderate to high plasticity and moderate to high expansion potential. Alluvial deposits are observed along drainage valleys and consist of heterogeneous soil deposits of clay, silt, sand, and rock fragments. Most of the alluvial deposits are highly plastic and have a high expansion potential.

Accumulated colluvium (up to 200 feet wide) is located along the valley bottoms upslope of the flat stream terrace deposit in the Western Plan Area (Treadwell & Rollo 2004). The thickness of colluvium and alluvium in this area ranges from 4 to 6 feet in all areas except along stream banks, which exceed 30 feet in thickness (Treadwell & Rollo 2004).

The clay, silt, and rock fragments of claystone and siltstone have a high expansion potential. In addition, the colluvium and alluvium deposits are generally compressible.

Faria Preserve

Depth of alluvial deposits varied from less than 5 feet to over 20 feet thick in the Faria Preserve Project Site (ESCNC 2004). Test pits and borings performed within the Faria Preserve Project Site indicate that the colluvial deposits range from less than 5 feet to over 30 feet thick in main drainage courses (ESCNC 2004).

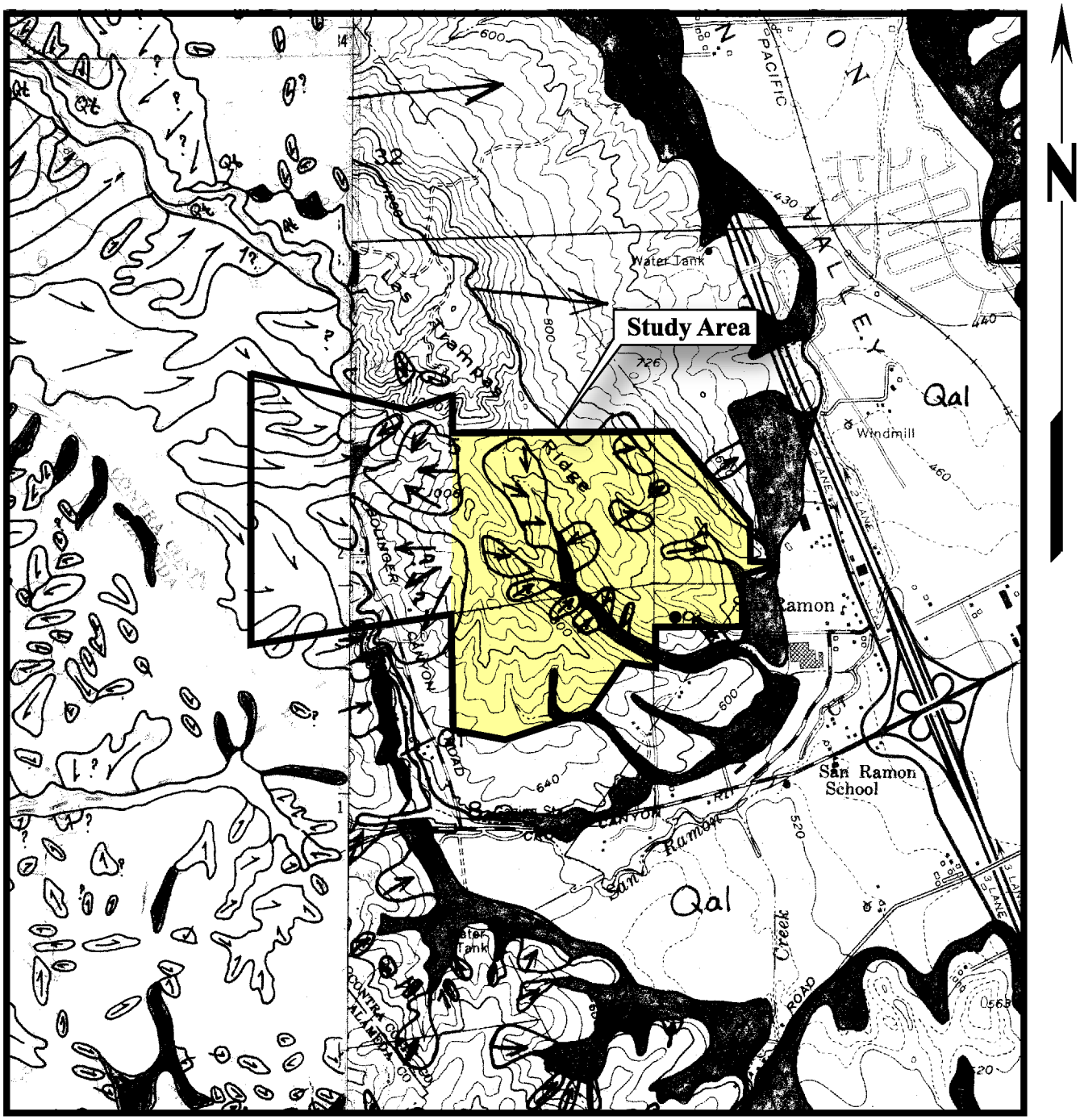
Landslides

Northwest Specific Plan Area

Geologic information from aerial photographs, site reconnaissance, test pits, and exploratory borings indicate evidence of past landsliding within the NWSP Area (Treadwell & Rollo 2004; ESCNC 2002 and 2004). Three dormant landslides and an east-west trenching gully were identified in a 1954 photograph for the Western Plan Area (Treadwell & Rollo 2004). These landslides appeared to cover approximately 30 percent of the Western Plan Area, and extend downslope to a flat terrace along the west side of the creek. The headscarps were indistinct (covered by vegetation) and no bedrock was exposed. In 1959, there appeared to be reactivation of the headscarp area of the south landslide. Through 2002, changes were limited to the extension of the existing gully and creation of additional gullies in the Western Plan Area. Regional photo interpretation landslide maps by Nilsen (1975a and b, as referenced in Treadwell & Rollo 2004) show two large landslides in the Western Plan Area. Based on the exploratory borings conducted at the property, the maximum depths of these slides appear to be at least 40 feet for the central landslide and at least 35 feet for the southern landslide. The toes of the two landslides appear to have eroded or have been buried by alluvial deposits since the main movements of the slides initially took place; therefore, the slide masses may extend further eastward beneath the flat top of the alluvial terrace. Small local landsliding was also observed on the steep cut banks of the stream.

Faria Preserve

Based on preliminary aerial photointerpretation and the results by ESCNC, mapped landslide materials within the Faria Preserve Project Site range from less than 5 feet to over 50 feet in thickness (ESCNC 2004). Some of the landslides have multiple slide planes. Landslide debris consists of heterogeneous soil, including clay, silt, sand, and highly to completely weathered siltstone and claystone. Many of the shallow landslides deposits consist primarily of clay, silt, and rock fragments, and highly to completely weathered siltstone and claystone. The deeper landslides extend significantly into bedrock and involve large blocks or relatively intact siltstone and claystone. A map of landslides on the Faria Preserve is presented in Figure 4.5-3.



Base: U.S.G.S. Preliminary Photointerpretation Map of Landslide and Other Surficial Deposits of the Diablo and Las Trampas Quadrangles by Nilsen (1975), Open Files 75-277-24 & 750277-14

Landslide deposit Arrows indicate general direction of downslope movement. Queried where uncertain.

Qal Alluvial deposit

Colluvial deposit and/or small alluvial fan deposit.

Quarry or gravel pit

Approximate Scale 1: 24,000

Source: Earth Systems Consultants, 2004

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Groundwater

Northwest Specific Plan Area

Groundwater was encountered during drilling in the Western Plan Area at approximately 33 feet below ground surface (bgs) (Treadwell & Rollo 2004). This water level is unlikely static and is anticipated to fluctuate seasonally.

Faria Preserve

Within the Faria Preserve Project Site, groundwater levels ranged from 9.5 to 75 feet bgs (ESCNC 2004). Groundwater levels varied from 11 to 25 feet in some of the landslide masses and under the valley floor, and 34 to 75 feet in areas designated for deep cuts. A subsurface groundwater spring was identified at the bottom of a small east-west trending gully that cuts through the middle of the central landslide within the Faria Preserve Project Site.

Seismicity and Seismic Hazards

Northwest Specific Plan Area

Regional and Project Area Faults

The San Francisco Bay Region contains several active and potentially active faults[2] and is considered a region of high seismic activity. The major active faults recognized in this region of California are the San Andreas, Hayward, and Calaveras Faults (ESCNC 2004). The Calaveras Fault crosses the east side of the NWSP Area (CDMG 1982; Jennings 1994 as referenced in ESCNC 2002 and 2004). This fault, considered active from San Ramon to Hollister, has been the source of three historic earthquakes of Richter magnitude 5.8 and larger (ESCNC 2004). This fault could generate earthquakes and possibly fault rupture at the ground surface within the NWSP Area in the future. Other active faults that have been shown to display offsets in the Holocene in this part of the eastern San Francisco Bay area include the San Andreas Fault (27 miles southwest of the NWSP Area) and the Hayward Fault (approximately 9 miles southwest of the NWSP Area). Other active faults include the Green Valley and Concord Faults mapped about 7.5 miles to the north and 12 miles to the northeast, respectively. Other faults within an approximate 30 mile radius are summarized in the Table 4.5-1.

It is not possible to predict the occurrence or magnitude of earthquakes. The Working Group of California Earthquake Probabilities (WGCEP) has estimated that there is a 62 percent probability that one or more major earthquakes will occur in the Bay Area within the next 30 years (ESCNC 2004).

[2] Active faults are defined by the State of California as exhibiting well-defined evidence of surface displacement within Holocene time (approximately the last 10,000 years). An accepted definition of potentially active faults is a fault that has shown evidence of surface displacement older than 11,000 years and younger than 2,000,000 years (Pleistocene Epoch). "Potentially active" is no longer used as criteria for zoning. The terms "sufficiently active" and "well-defined" are now used by the California Division of Mines and Geology as criteria for zoning faults under the Alquist-Priolo Act.

Table 4.5-1: Regional Faults and Seismicity

FAULT NAME	CLOSEST DISTANCE (KM) FROM NWSP AREA	DIRECTION FROM SITE
Northern Calaveras	0	–
Mount Diablo Thrust	5	Northeast
Green Valley	7.5	Northeast
Concord	12	Northeast
Hayward - Total	9	Southwest
Southern Hayward	9	Southwest
Northern Greenville	17	Northeast
Northern Hayward	16	West
Central Greenville	17	East
Great Valley - 6	21	Northeast
Southern Greenville	30	East
Great Valley - 5	31	Northeast
Southern Green Valley	32	North
Hayward - South East Extension	35	South
Great Valley - 7	36	East
San Andreas - 1906 Rupture	42	Southwest
San Andreas - Peninsula	27	Southwest
Monte Vista	43	Southwest
Rodgers Creek	46	Northwest
West Napa	48	Northwest

For Calaveras, WGCEP estimates that there is an 11 percent probability of a magnitude 7.0 earthquake on the Calaveras Fault occurring during the 30 year period beginning in 2002. Model runs show that that the largest possible earthquake (upper bounds) on the Calaveras Fault would be a magnitude of 7.5, and the Maximum Probable Earthquake[3] would be a magnitude of 6.2.

Groundshaking

Maximum (peak horizontal) ground acceleration is one of the basic parameters used to characterize the ground shaking potential at a given site. Actual ground accelerations at a locality are influenced by topography, geologic structure, condition of subsurface materials, and groundwater level. Earthquakes in the Bay Area could produce strong groundshaking at the location of the NWSP Area.

The Association of Bay Area Governments (ABAG) estimates the potential ground shaking intensities of Bay Area localities. For Calaveras Fault, an earthquake magnitude of 6.9 would result in relative ground shaking intensity of IX as defined by the Modified Mercalli Intensity (MMI) Scale (ESCNC, 2004). Similarly, an earthquake of magnitude 7.3 on the Hayward Fault would produce a MMI of IX (ESCNC 2004). A MMI value of IX would result in heavy damages that are characterized by "[g]eneral panic, [m]asonry D (weak materials) destroyed; masonry C (Ordinary workmanship and mortar) heavily damaged, sometimes with complete collapse; masonry B (Good workmanship and mortar) seriously damaged. (General damage to foundations). Frame structures, if not bolted, shifted off foundations. Frames racked. Serious damage to reservoirs. Underground pipes

[3] The Maximum Probable Earthquake is defined as the earthquake likely to occur in 100 years, but not less than the largest historic earthquake.

broken. Conspicuous cracks in ground. In alluvial areas sand and mud ejected, earthquake fountains, sand craters" (ABAG, 1995). An earthquake magnitude of 7.1 on the San Andreas (peninsula segment) would produce shaking intensity levels of VII – VIII on the MMI (ESCNC 2004). Such intensity would produce "strong" to "very strong" shaking intensity, respectively.

Surface Fault Rupture

Surface rupture can severely damage buildings or result in collapse of the structure. The magnitude, sense, and nature of fault rupture can vary for different faults or even along different traces of the same fault. Fault rupture caused by a large earthquake on an active fault in the region could have potentially substantial adverse effects on a development where the fault crosses a project area. Such faults are identified in accordance with the Alquist-Priolo Earthquake Fault Zoning Act[4]. A mapped trace of the Calaveras Fault intersects the eastern part of the NWSP Area and the NWSP Area is therefore located within an Earthquake Fault Zone. In addition, Fault A, the western splay of the Calaveras fault, was found in the general area of the Las Trampas Fault (originally mapped by Crane in 1988) at least 375 feet west of and parallel to the Calaveras Fault Rupture Hazard Zone (ESCNC 2005c). As discussed above, the Calaveras Fault is active and thus is capable of future ruptures along the fault and related splays. Fault A likely has complementary displacement from movement on the Calaveras fault (ESCNC 2005c).

Secondary Seismic Hazards

Major earthquakes on any regional fault can generate strong ground shaking at the site and could potentially trigger other secondary earthquake hazards, such as landslides, settlement, liquefaction, lateral spreading, lurching, ground vibration, and ridge-top cracking.

A landslide is a general term given to describe the forms of mass soil movement down a slope.

Settlement is the gradual downward movement of an engineered structure (such as a building) due to the compaction of unconsolidated material below the foundation. Seismic-induced settlement is described with other types of settlement in the Geologic Hazards section.

Liquefaction is the temporary loss of cohesion in saturated, granular soils induced by earthquakes or other vibrations. It typically occurs in areas underlain by fine to medium grained, well-sorted saturated sands. Within the Western Plan Area, due to the high content of fine material in the soil encountered in test pit and exploratory borings, liquefaction is not expected (Treadwell & Rollo 2004). Based on the findings of the geologic hazards study, most of the Faria Preserve Project Site is underlain by bedrock or moderately consolidated cohesive sediments, and thus is not susceptible to liquefaction (ESCNC 2004).

[4] The purpose of the Alquist-Priolo Act is to regulate development on or near active fault traces to reduce the hazard of fault rupture. The Act prohibits the location of most structures for human occupancy across active fault traces. Cities and counties must regulate certain development projects within the development sites are not threatened by future surface displacement (Hart and Bryant 1997). As specified in the *Fault-Rupture Hazard Zones In Californian, Spcial Publication 42,* "No structure for human occupancy, identified as a project under Section 2621.6 of the Act, shall be permitted to be placed across the trace of an active fault. Furthermore, as the area within fifty (50) feet of such active faults shall be presumed to be underlain by active branches of that fault unless proven otherwise by an appropriate geologic investigation and report prepared as specified in Section 3603(d) of this subchapter, no such structures shall be permitted in this area."

Lateral spreading is the horizontal movement of loose, unconsolidated sediments that are displaced towards an unsupported face such as a river or creek bank. Lurching is the horizontal movement of soil, sediments or fill found on steep slopes and embankments; lurching produces fracturing and irregular displacement of the ground surface that is sometimes associated with eruptions of sandy or muddy water jetting from the fractures. Lurching and lateral spreading are typically associated with unconsolidated sediments and a near-surface groundwater table.

All of these secondary ground failures could cause major structural damage to existing buildings, including tilting or settlement of foundations, twisting and breaking or structural building components, debris shedding, and potentially collapse of buildings. The potential for secondary seismic hazards is dependent on the underlying soils.

Sites located on ridge tops underlain by sedimentary rocks are particularly susceptible to ridge-top cracking; ridge-top cracks were observed in the Santa Cruz Mountains during the 1989 Loma Prieta earthquake due to the topographic focusing of earthquake pressure wave and regional uplift in the general vicinity of the Santa Cruz Mountains Summit area (ESCNC 2004). The NWSP Area is located on terrain of topographic relief generally comparable to that impacted by ridgetop fractures in the Santa Cruz Mountains during the 1989 Loma Prieta earthquake.

Faria Preserve

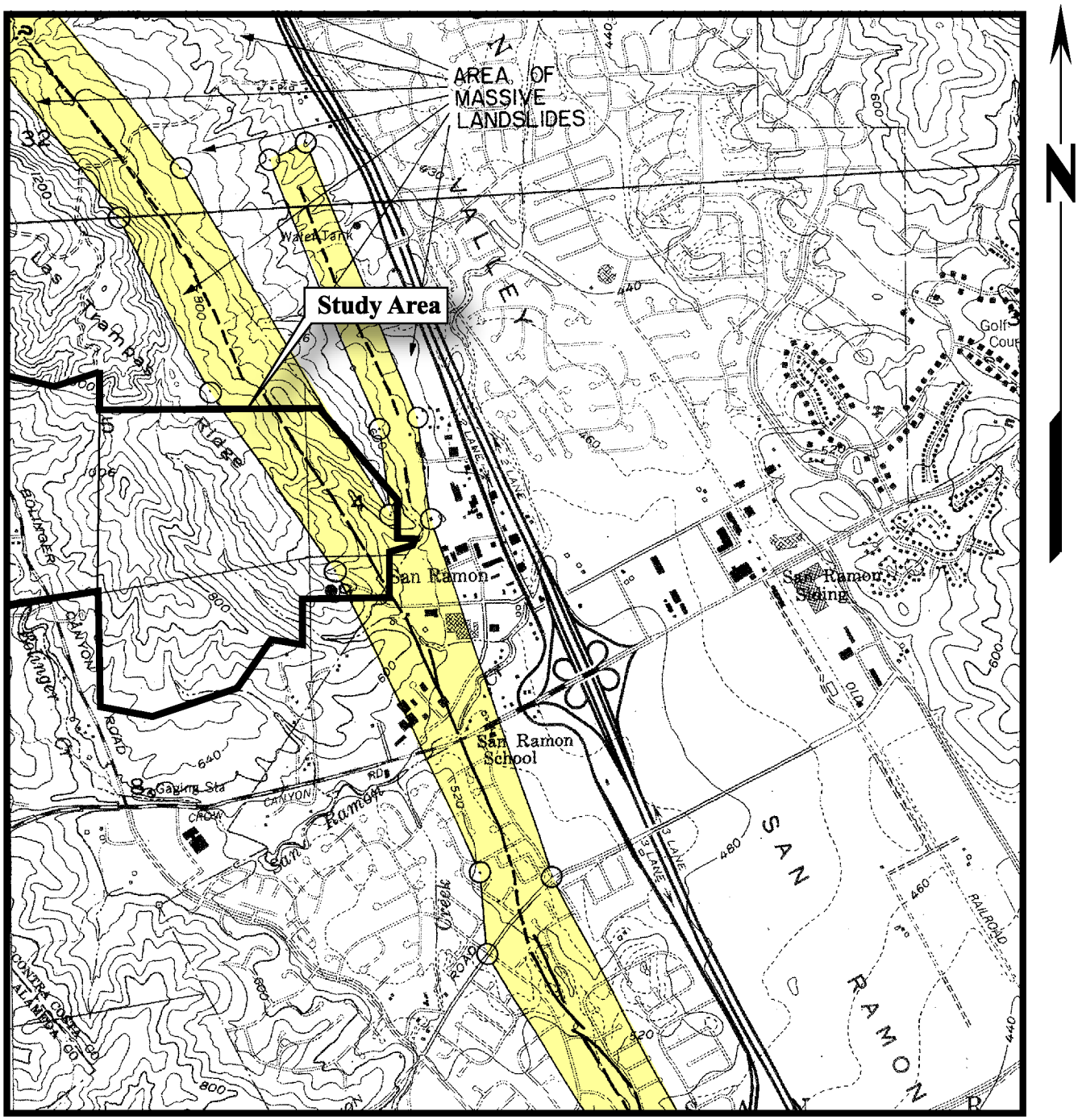
The environmental setting within the Faria Preserve Project Site is the same as that for the NWSP Area with regard to seismicity and seismic hazards. Figure 4.5-4 shows fault hazard zones within the Faria Preserve.

Geologic Hazards

Northwest Specific Plan Area

Settlement

Structures built on improperly placed and uncompacted (non-engineered) artificial fill may experience settlement due to non-uniform consolidation, hydro- consolidation), seismically-induced settlement, and/or presence of expansive soil. Foundations bearing on non-uniformly compacted fill would experience differential settlement under static loads. Hydrocompaction is caused when formerly unsaturated soils become saturated, which allows the soil particles to reorient into a more compact form. Seismic compaction is the result of soil particle reorientation into a more compact form during seismic loading. In addition, foundations bearing on near-surface expansive soil may experience uplift and settlement during seasonal wetting and drying cycles. Expansive soils are discussed below.



Base: C.D.M.G. State of California Special Studies Zones, (1982) Diablo Quadrangle

LEGEND

1906 C

Faults considered to have been active during Holocene time and to have a relatively high potential for surface rupture; solid line there accurately located, long dash where approximately located, short dash where inferred; dotted where concealed; query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake - associated event or C for displacement caused by creep or possible creep.

Special Studies Zone Boundaries
These are delineated as straight-line segments that connect encircled turning points so as to define special studies zone segments.

Approximate Scale 1: 24,000

Source: Earth Systems Consultants, 2004

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Expansive Soils

Expansive soils undergo large volume changes with changes in moisture content (i.e., it shrinks when dried and swells when wetted). Shrink and swell movements occur in fine-grained sediments containing expansive clays. Creep is the slow downward movement of surficial soils resulting from the cyclic wetting and drying of the soils with the changes in the seasons and the effects of gravity on the soil mass. Shrink/swell movement can adversely affect building foundations, often causing them to crack or shift, with resulting damage to the buildings they support. The major site soils discussed above (landslide, colluvium, alluvium, topsoil, and artificial fill) and the major bedrock units (except for the sandstone and conglomerate) are highly plastic and have a high expansion potential.

Slope Instability

Soil or rock masses with sloping surfaces, either natural or constructed, are subject to forces associated with gravity and seepage which cause instability. The majority of the site is hilly, and landslides or debris flows have been mapped within the NWSP Area. Placement of structures on unstable slopes could result in damage.

Soil Erosion

Soil erosion is the process whereby soil materials are worn away and transported to another area either by wind or water. Rates of erosion can vary depending on the soil material, structure placement, and human activity. Soil containing high amounts of silt is often easily eroded while sandy soils are less susceptible.

The most prevalent erosion takes place within drainages where there is a steep gradient or change in grade, or within areas of recent landsliding where the protective vegetation has been removed (ESCNC 2004). Erosion generally takes the form of undercutting of the banks and headward migration of the erosion channels. As water deepens the gullies on the slopes, the side banks are undercut, resulting in mass movement that ranges from minor sloughing to significant landsliding.

Excessive soil erosion can lead to damage of building foundations, roadways and stream embankments.

Faria Preserve

The environmental setting for the Faria Preserve Project Site is the same as that for the NWSP Area with regard to geologic hazards.

Regulatory Background

This section describes the existing policies and regulations that apply to the protection of geology and soils within the NWSP Area. Assessments of geological and soil resources depend on a variety of federal, state, and local regulations and policies, in addition to the thresholds established by CEQA, to provide consistent standards and a basic framework for evaluation. The following paragraphs identify and explain the applicable policies and regulations as they relate to future development in the NWSP Area.

City of San Ramon 2020 General Plan

The General Plan contains policies and standards that are intended to ensure high quality development and protect the City's geological and soil resources. The following General Plan policies are important in consideration of the proposed NWSP and Faria Preserve:

9.1-G-1: Minimize risks of property damage and personal injury posed by geologic and seismic hazards.

9.1-I-1: Review proposed development sites at the earliest stage of the planning process to locate any potential geologic or seismic hazards.

9.1-I-2: Prohibit structures intended for human occupancy within 50 feet of an active fault trace.

9.1-I-3: Require an independent, registered engineering geologist to review reports submitted by applicants on sites in seismically hazardous areas.

9.1-I-4: Require comprehensive geologic and engineering studies of critical structures regardless of location.

9.1-I-5: Require geotechnical field review during the construction phase of any new development.

9.1-I-6: Require preparation of a soils report as part of the development review and/or building permit process.

9.1-I-7: Limit cut-and-fill slopes to 3:1 (33 percent slope) except where an engineering geologist can establish to the City's satisfaction that a steeper slope would not pose undue risk to people and property.

9.1-I-8: Blend cut-and-fill slopes with existing contours to avoid the appearance of artificial slopes.

9.1-I-9: Provide information and establish incentives for property owners to rehabilitate existing buildings using construction techniques to protect against seismic hazards.

9.1-I-10: Control erosion of graded areas with revegetation or other acceptable methods.

9.1-I-11: Require financial protection for public agencies and individuals as a condition of development approval where geologic conditions indicate a potential for high maintenance costs for areas of public benefit.

9.1-I-12: Maintain and update, as appropriate, the City's emergency preparedness programs, plans, and procedures to ensure the health and safety of the community in the event of an earthquake or other disaster.

9.1-I-13: Initiate annual public information programs that explain the City's emergency preparedness programs and strongly encourage each household in the City to be self-sufficient for 72 hours after a major earthquake.

9.1-I-14: Encourage continued investigation by State agencies of geologic conditions within the City's Planning Area to promote public awareness of potential geologic and seismic hazards.

9.1-I-15: Encourage the purchase of earthquake insurance.

9.1-I-16: Review and update, as appropriate, City Code requirements for excavation, grading and filling to ensure that they conform to currently accepted standards. Recover the costs of this work through grading permit fees.

City of San Ramon 2020 General Plan EIR

In the General Plan EIR, the following impacts related to geological and soil resources are identified:

Impact 4.11-a: In the event of a major earthquake in the region, fault rupture or seismic groundshaking could potentially injure people and cause collapse or structural damage to existing and proposed structures. Groundshaking could potentially expose people and property to seismic-related hazards, including localized liquefaction and ground failure.

Impact 4.11-b: Areas of new development in San Ramon could be subject to the effects of landsliding, differential settlement, expansive soils, and subsidence.

Impact 4.11-c: Areas of new development are located on potentially erosive soils.

Each of these impacts was determined to be less than significant after mitigation by implementation of policies proposed in the General Plan. Impact 4.11-a, which identified development near the Calaveras fault zone that runs parallel to and just west of I-680 as having the potential to expose people and property to the risks of seismic hazards, was determined to be mitigated by a combination of the standards set forth in the California Uniform Building Code and the following General Plan policies:

9.1-G-1:*Described above.*

9.1-I-1: *Described above.*

9.1-I-2: *Described above.*

9.1-I-3: *Described above.*

9.1-I-4: *Described above.*

9.1-I-5: *Described above.*

9.1-I-9: *Described above.*

Impact 4.11-b identified areas within the NWSP Area containing steep slopes as potentially subject to subsidence. In addition, the General Plan EIR identified the following General Plan policies that

would ensure new development is built to take into account soil conditions, avoid problems with soil expansion, and settlement and thereby reduce this impact to a less than significant level:

9.1-I-6: *Described above.*

9.1-I-7: *Described above.*

9.1-I-10: *Described above.*

Impact 4.11-c identified areas throughout San Ramon, including the NWSP Area, as potentially subject to impacts relating to soil erosion. The required preparation of site-specific soils reports as part of the development review process, as provided by the General Plan policy below, was determined to reduce this impact to a less than significant level:

9.1-I-6: *Described above.*

4.5.2 Thresholds of Significance

The proposed NWSP and Faria Preserve would have a significant impact on geology or soils if any of the following occurs:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
  - Strong seismic ground shaking;
  - Seismic-related ground failure, including liquefaction; and
  - Landslides;
- Result in substantial soil erosion or the loss of topsoil
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse; or
- Be located on expansive soil, creating substantial risks to life or property

4.5.3 Environmental Evaluation

The following sections evaluate the potential for significant soils, geologic, and seismic hazards to occur within the NWSP Area, including hazards that could expose people or structures to the risk of loss, injury, or death. Impacts and mitigations are identified as being applicable to the Western Plan Area, the Faria Preserve Project Site, or both.

IMPACT GEO -1

Impact Geo-1: Surface Fault Rupture. People or structures would be exposed to an increased risk of substantial adverse effects, including the risk of loss, injury or death as a result of surface fault rupture.

This would be a *significant* impact (Faria Preserve).

A mapped trace of the Calaveras Fault intersects the eastern portion of the NWSP Area. The presence of this fault was confirmed through fault location studies (ESCNC 2004). The fault zone was found to be between 20 feet to 100 feet wide (in the northern end) with multiple splays. Based on the offsets observed in the field, the Calaveras Fault is considered an active fault and is capable of future ruptures along the principal fault and related splays; the potential for surface rupture along this fault is considered high.

The Alquist-Priolo Act prohibits the location of structures for human occupancy across active fault traces (Hart and Bryant 1997). Unless proven otherwise, the area within 50 feet of an active fault is presumed to be underlain by active branches of the fault. Structures located on the trace of the fault that ruptures would sustain damage, and people occupying these structures would be injured or harmed. The eastern portions of Neighborhood C would be located more than 150 feet outside the the mapped Fault Rupture Hazard Zone for the Calaveras Fault. As such, all habitable structures proposed within Neighborhood C would be located outside the 50-foot setback zone.

The proposed parking area in Neighborhood D, located in the southern portion of the NWSP Area, would extend into the Fault Rupture Hazard Zone for the Calaveras Fault. The eastern entrance roadway and related utility improvements would also cross the fault rupture zone within the southeasterly corner of the NWSP Area.

Wiithin Neighborhood A, supplemental subsurface investigations (reported in the October 2005 *Supplemental Fault Investigation, Fault A/Calaveras Fault Western Traces*) were conducted in May, July and September 2005 by ESCNC in the NWSP Area to further define the location of the westerly splays of the Calaveras fault (ESCNC 2005c). The subsurface investigations found older landslide deposits over a possible fault shear in the eastern portion of the NWSP Area, adjacent to the Calaveras fault zone within Neighborhood A lots 67 to 74 (ESCNC 2005c). These supplemental studies showed that the shears were related to the landslide or previous faulting older than 10,000 years, and therefore inactive. ESCNC concluded that the thrust fault feature was interpreted as the toe of a large landslide, and no faults were observed within the trench that would require a setback for Lots 67 through 74. Based on these findings, ESCNC also concludes that the Calaveras fault, and hence the Fault Rupture Hazard Zone, would shift further eastward than previously assumed.

Gilpin GeoSciences, Inc. conducted a peer review of ESCNC's *Supplemental Fault Investigation, Fault A/Calaveras Fault Western Traces* (the peer review is included in this document as Appendix H). The review recommended the further definition of the landslide deposits along the western edge of the Calaveras setback zone and assessment of the character of the shearing logged in two of the trenches (Gilpin GeoSciences 2006). The review also concluded the necessity of replotting the western extent of the Calaveras Fault to accurately depict the 50-foot setback along the western edge of the setback zone in accordance with available trenching data. In addition, it recommended that the western limit

of the fault in the vicinity of Neighborhood A should be shifted eastward to coincide with the fault suggested by other trenching data.

Until confirmation of the western setback zone of the Calaveras Fault, the 86 units in Neighborhood D would be considered to be located within the 50-foot setback zone. As such, potential impacts associated with the exposure of injury, harm, and damage to people and structures within Neighborhood D would be considered significant, and mitigation measures would be required to reduce potential impacts to a less-than-significant level. To ensure that the the 86 units are outside the 50-foot setback zone, the project sponsor will be required to reassess the location of the Calaveras fault zone based on the existing trenching data. If the 86 units are shown to be located within the 50-foot setback, then the City shall amend the Final Development Plan to ensure that the 86 units are located at least 50 feet away from the redrawn fault rupture hazard zone.

Although the access road and utilities are not considered habitable structures and are therefore not subject to the 50-foot setback, protective measures are proposed as mitigation to address potential damage to these improvements from surface displacement of the fault. Loss of utilities resulting from an earthquake, especially water to control fires, could result in substantial hazards to people and structures.

Similarly, because the western setback zone of the Calaveras fault needs further clarification, habitable structures proposed within Neighborhood A (lots 67 through 74) would be considered to be located within the 50-foot setback zone.As such, potential impacts associated with the exposure of injury, harm, and damage to people and structures within Neighborhood A would be considered significant. A 50-foot setback would be required to be incorporated in the Final Development Plan to reduce potential impacts to a less-than-significant level.

Based on the supplemental subsurface investigations by ESCNC, Fault A, a western splay of the Calaveras Fault Zone, runs through Lots 60, 61, 62, and 83 of Neighborhood A; the exact location of the fault has not yet been determined and would need to be determined during the grading phase (ESCNC 2005c). The lower portions of the soil profiles from Fault A indicate a soil age of approximately 80,000 years. A minor amount of vertical Holocene movement has likely occurred since 80,000 years ago, as suggested by the soil profile across the fault. Because the fault has shown evidence of activity within the last 10,000 years, and because it would be located in an area of habitable structures, setback from the fault trace would be required in order to comply with the Alquist-Priolo Act and San Ramon General Plan Policy 9.1-I-2.

The Act prohibits the location of most structures for human occupancy across active fault traces, but allows for the implementation of smaller setbacks as appropriate for minor faults (Hart and Bryant 1997; Pischke 2006). Policy 9.1-I-2 of the San Ramon General Plan prohibits structures intended for human occupancy within 50 feet of an active fault trace, without exceptions.

Due to the location of the fault through four Neighborhood A lots (lots 60, 61, 62, and 83), there is a potential that surface rupture along Fault A would expose people living on and structures located in these lots to injury, harm, or damage. ESCNC identified the need for a 10-foot setback in its October 2005 fault investigation report (ESCNC 2005c); this setback would be suitable for a bedding plane and/or complementary motion fault associated with the Calaveras fault. However, based on the peer

review of the fault investigation, a more conservative setback of 25 feet on either side of the fault would need to be provided because of the highly variable nature of the fault, the widely spread trenches where it is exposed, and the proposed deep cuts for site grading (Gilpin GeoSciences 2006). In addition, mapping of Fault A and exploratory excavations, as needed, should be performed during grading activities to precisely locate the trace on the as-built plans. Therefore, potential impacts associated with the exposure of people to harm and the exposure of structures to damage would be considered less than significant with implementation of proposed mitigation measures described below.

Mitigation Measure Geo-1a (Faria Preserve): The project sponsor shall require its geotechnical consultant to replot the Calaveras fault in the *Final Supplemental Fault Investigation, Fault A/Calaveras Fault Western Traces* based on its trenching data and reassess the setback distance between habitatable structures in Neighborhoods A and D (lots 67 to 74 and 86 units) and the Calaveras fault. In the geotechnical consultant's consideration of the western limit of the Calaveras fault setback zone below lots 67 and 74, the geotechnical consultant shall extend the western limit of the Calaveras fault setback zone in this area to coincide with the eastern ends of the exploratory trenches T7 and T9.

Mitigation Measure Geo-1b (Faria Preserve): The project sponsor shall ensure the 50-foot setback separating all habitable structures from the known Calaveras fault zone would be incorporated in the Final Development Plan. Implementation of this mitigation measure is required to reduce the level of risk associated with potential damage to structures or harm (risk of loss, injury or death) to people from fault rupture to an acceptable level.

Mitigation Measure Geo-1c (Faria Preserve): The project sponsor shall design utilities and road facilities that cross the Calaveras Fault to include additional protective features to reduce damage associated with fault rupture. For utilities that would cross active faults, the crossings shall be designed with flexible and easily repairable connections to minimize the loss of service if utilities are disrupted by fault replacement. Utility lines shall also be equipped with shut-off valves on each side of cross faults as deemed necessary by the utility companies or regulating agency. To ensure that access to the Project site after fault displacement is maintained, alternative access from Bollinger Canyon Road at the southeast corner of the development, as well as other "emergency access" connection points to the south, located away from the Calaveras fault rupture zone shall be provided.

Mitigation Measure Geo-1d (Faria Preserve): The project sponsor shall implement a minimum 25-foot setback separating all habitable structures (in lots 60, 61, 62, and 83) from Fault A. Implementation of this mitigation measure is required to reduce the level of risk associated with potential damage to structures or harm (risk of loss, injury or death) to people from fault rupture to an acceptable level.

Mitigation Measure Geo-1e (Faria Preserve): The project sponsor shall retain a licensed geologist on-site during grading activities. The licensed geologist shall map the landslide deposits along the western edge of the Calaveras Fault setback zone to more precisely locate the disturbed deposits and to assess the character of the shearing logged in two trenches. These features shall be shown on the as-built plans. Any changes in the nature of the shearing that might indicate they are related to active features of the Calaveras fault shall be addressed by the licensed geologist. Any changes made during grading to the precise location of active fault related features, the accompanying setback zone, or to the location of the residential units shall be updated in the Final Development Plan.

Mitigation Measure Geo-1f (Faria Preserve): The licensed geologist retained for the purposes described in Mitigation Measure Geo-1e shall also map the Fault A featured, and if necessary, conduct exploratory excavations to precisely locate the trace of Fault A on the as-built plans. At the time of the grading, the setback zone location and width shall be considered with respect to Lots 60, 61, 62, and 83 in Neighborhood A.

Level of Significance after Mitigation: *Less than Significant* (Faria Preserve).

IMPACT GEO-2

Impact Geo-2: Seismic Event. People or structures would be exposed to an increased risk of substantial adverse effects, including the risk of loss, injury or death as a result of ground shaking associated with a seismic event.

This would be a *significant* impact (Western Plan Area and Faria Preserve).

Several active faults are located in the region; Calaveras Fault crosses the eastern portion of the NWSP Area, and San Andreas and Hayward Faults are located approximately 27 and 9 miles east of the NWSP Area, respectively (ECSNC 2004; Treadwell & Rollo 2004). These faults have produced historic earthquakes (e.g., 1984 Morgan Hill Earthquake of magnitude 6.2 and 1989 Loma Prieta earthquake of magnitude 7.1), and are capable of producing earthquakes in the future.

Estimates of ground response characteristics in the NWSP Area and vicinity suggest that high peak accelerations could be expected during a moderate to major earthquake on the Hayward, Calaveras, or San Andreas Faults (ESCNC 2004). Historic earthquakes on these faults have caused ground shaking equivalent to a Modified Mercalli Intensity IX in the vicinity of the NWSP Area[5]. The duration of shaking and the frequency component of vibrational waves would depend on the magnitude and duration of the earthquakes. Moderate to severe ground shaking could be expected during the life of the project. Ground vibration is a potential hazard accompanying all earthquakes to a varying degree and could damage or destroy inadequately designed structures (ESCNC 2004), especially in areas underlain by artificial fill and alluvial deposits. In addition, facilities located on the ridgetop (e.g., EBMUD water tank sites) would be susceptible to hazards associated with ridgetop acceleration. Damage to structures or harm to individuals due to groundshaking is considered a potentially significant impact.

A number of additional secondary hazards could result from ground shaking during an earthquake. Seismically induced ground failure by lurching and lateral spreading could occur within the NWSP Area, as they were observed in areas flanked by unsupported faces (e.g., creek channels) during the 1906 San Francisco earthquake (ESCNC 2004). Along the banks of the drainage swales in undeveloped areas of the NWSP Area, these hazards are considered moderate (ESCNC 2004). Potential for seismically induced landsliding is discussed in Impact Geo-4, below. The potential for secondary seismic hazards is considered a potentially significant impact.

As described in the setting above, because the NWSP Area is located on terrain generally comparable to that impacted by ridgetop fractures in the Santa Cruz Mountains during the 1989 Loma Prieta

[5] An MMI of IX would result in heavy damages. See "Groundshaking" in Section 4.5.1 for a description of damages expected from an MMI of IX.

earthquake, it is possible that ridge-top cracking ground failure could occur (ESCNC 2004). However, based on the opinion of ESCNC, the potential for ridge-top cracking ground failure would likely be limited to those areas outside the proposed development, and is not expected to adversely affect structures or utility improvements as proposed. Therefore, ridge-top cracking is considered a less-than-significant impact.

Mitigation Measure Geo-2a (Western Plan Area and Faria Preserve): The project sponsors shall implement seismic design standards of the most recent Uniform Building Code (UBC) to reduce damage to structures and harm to people associated with groundshaking. Structures shall be designed to accommodate seismic vibrations. The project design engineer shall evaluate the adequacy of the seismic design criteria of the current UBC for the proposed development.

Mitigation Measure Geo-2b (Western Plan Area and Faria Preserve): The project sponsor shall ensure that construction is in strict accordance with approved plans and details, and recommendations contained in the geologic and geotechnical investigations.

Mitigation Measure Geo-2c (Faria Preserve): The project sponsor has conducted a detailed geotechnical study of the EBMUD water tank site(s).. Recommendations of the geotechnical study shall be followed with respect to structural design of the tank foundations and the tanks to ensure minimization of ridgetop acceleration effects on the tanks.

Mitigation Measure Geo-2d (Faria Preserve): The project sponsor shall remove and replace soils that are susceptible to seismic-related ground failure (e.g., with engineered fill where proposed improvements would be located), in accordance with the recommendations of the *Geologic Hazards Evaluation and Preliminary Geotechnical Engineering Study* conducted for the site, as well as those identified for Mitigation Measures Geo-4b and Geo-6b, below.

Mitigation Measure Geo-2e (Western Plan Area): The project sponsor shall, prior to development, conduct a geologic hazards evaluation and preliminary geotechnical engineering study for the Western Plan Area. Removal and replacement of soils that are susceptible to seismic-related ground failure (e.g., with engineered fill where proposed improvements would be located), shall be conducted in accordance with the recommendations in the study.

Level of Significance after Mitigation: *Less than Significant* (Western Plan Area and Faria Preserve).

IMPACT GEO -3

Impact Geo-3: People or structures could be exposed to substantial effects, including the risk of loss, injury or death involving liquefaction.

This would be a *significant* impact (Western Plan Area and Faria Preserve).

Based on the findings of the geologic hazards study, the potential for liquefaction is low throughout most of the area. There is, however, a high potential for liquefaction to occur in a loose sand deposit at a depth of 19.5 to 24.5 feet at one boring site located within the Faria Preserve, roughly to the northeast of the proposed EBMUD tank site (ESCNC 2004). This area is proposed for a fill of approximately 50 feet in thickness.

Mitigation Measure Geo-3a (Western Plan Area and Faria Preserve): The project sponsor shall implement Mitigation Measure Geo-6b. In addition to the overburden pressure resulting from this fill, liquefaction potential would be mitigated by measures intended to mitigate soil that is unstable and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse (see Mitigation Measure Geo-6b). Such measures would reduce soil settlement and mitigate liquefaction potential to less-than-significant levels.

Level of Significance after Mitigation: *Less than Significant* (Western Plan Area and Faria Preserve).

IMPACT GEO -4

Impact Geo-4: Landslides. People or structures would be exposed to an increased risk of substantial adverse effects, including the risk of loss, injury or death as a result of landslides and/or rock falls and slides.

This would be a *significant* impact (Western Plan Area and Faria Preserve).

Landslides could potentially occur in areas of moderate to steep slopes underlain by past landslide deposits, thick colluvium and alluvium, or weak, uncemented, or sheared rock. It could occur naturally due to these conditions or as a result of seismic events. Landslides may destroy or damage improvements through soil creep (discussed under expansion potential in Geo-4, above) or rapid landslide actions.

The NWSP Area is hilly and is underlain by material susceptible to landsliding. Multiple landslides have been mapped in the NWSP Area, and air photo interpretation also identified subdued landslides not visible during field investigations.

In the Western Plan Area, three dormant landslides have been identified. The northern landslide extends northward offsite. The central and southern landslides are at least 40 and 35 in depth, respectively (Treadwell & Rollo 2004). These dormant landslides are susceptible to failure.

Within the Faria Preserve Project Site, the proposed development would occupy areas underlain at shallow depth by interbedded siltstone and claystone of the Orinda Formation, which is prone to landslides (ESCNC 2004). The claystone and siltstone members of the other bedrock units are also prone to landslides, as well as debris flows. Multiple landslides were mapped on the Faria Preserve Project Site in siltstone and claystone units. Mudstone observed adjacent to the Calaveras Fault is also prone to landslides. In addition to the mapped landslides, debris flows were mapped on the western ridge and portions of the eastern ridge from air photos. Air photo interpretation also located many subdued landslides not visible during field work.

ESCNC drilled bores in the Faria Preserve Project Site to characterize landslide and colluvial slopes. Landslide debris was generally encountered between 14 to 26 feet bgs, except one site where landslide debris was encountered at 41 feet bgs (ESCNC 2004). With the exception of one large complex on the northwest side of the Faria Preserve Project Site, most of the landslides in this area appear to be shallow colluvial failures. The potential for landsliding on the portion of the Faria

Preserve Project Site currently planned for residential development would be considered moderate to high. Similarly, the potential for landsliding in the general area of the water tank sites would be considered moderate since they are underlain by Orinda Formation siltstones and claystones (however, no landslides were mapped in the vicinity of the water tank sites). The steep slopes along the west side of Neighborhood A are also prone to sloughing and debris flow. Therefore, the potential for damage from unstable slopes is considered potentially significant.

Regarding the potential for rock falls/slides, bedrock with dip slopes oriented out of slope and into open cuts is generally considered to be unfavorable. Open cuts on unfavorably oriented bedrock dip slopes may destabilize rock slopes, resulting in rock fall and rock slide hazards. This is a potentially significant impact.

Mitigation Measure Geo-4a (Western Plan Area): The project sponsor shall conduct a detailed geotechnical analysis (See Mitigation Measure Geo-2e), which shall include additional borings and deep trenches, for landslides identified in the Western Plan Area[6], to define the lower limits of landsliding on the central and south landslides prior to finalization of development plans. Trenching would be performed along the lower portion of the landslides and would extend a maximum of 15 feet in depth with appropriate shoring. Borings would extend a maximum of 50 feet in depth. Although the actual number of borings and trenches are not yet known and would be determined once a site development plan is proposed, there may be between 2 to 4 borings and between 2 to 4 trenches 20 to 30 feet in length for each landslide to assess their respective lower limits. Analyses shall also include investigations of static and dynamic slope stability and identify specific mitigation to address the potential for landslide. Methods to reduce landslide hazards shall be consistent with the recommendations of the detailed geotechnical studies and include, but are not limited to the following:

- Corrective grading including landslide removal and recompaction with engineered fill;
- Construction of soil embankments;
- Construction of surface and subsurface drainage systems;
- Grading of landslide slope and/or removal of the top of landslides to reduce the driving force of the landslide material; and/or
- Use of drilled pier foundations considered for slopes steeper than 5:1.

The northern landslide west of Bollinger Creek would require grading beyond the NWSP Area for stabilization. For those landslides in areas upslope or outside of proposed developments in the Western Plan Area, it is likely that grading would be required beyond the areas proposed to be developed in order to stabilize the landslide. In such an instance, mitigation measures shall include catchment and diversion structures to prevent landslides from entering developed areas.

Mitigation Measure Geo-4b (Faria Preserve): The project sponsor shall implement specific mitigation techniques to address landslide potential. These shall be in accordance with the

[6] Detailed geotechnical analysis for the area west of Bollinger Canyon Road shall be completed prior to development of this area, but need not occur prior to adoption of the NWSP or development of the Faria Preserve.

recommendations of the *Geologic Hazards Evaluation and Preliminary Geotechnical Engineering Study* conducted for the site, and shall include, but are not be limited to:

- Buttressing or encapsulation of landslides by planned valley fills;
- Corrective grading (including landslide removal) of and recompaction with engineered fill (for landslides along the edges of the valley fills and in shallow cut or natural portions of the development);
- Installation of catchment basins and berms to contain potential debris flows that may occur on the steep upslope adjacent to the development in Neighborhood A (the berm shall be at least 15 feet high); and
- Installation of additional buttress fill at the toe of the large deep-seated landslide in the northwestern portion of the Faria Preserve Project Site.

Mitigation Measure Geo-4c (Faria Preserve): The EBMUD water tank site(s) shall be selected within the building envelope as delineated in the Preliminary Geotechnical Feasibility Study prepared for the proposed water tanks by ESCNC, March 2005. The building envelope was determined based on various factors, including the lack of landslides. The project sponsor shall conduct a design-level geotechnical study for the tank site(s) once details of the site(s) have been finalized. Recommendations of the geotechnical study shall be implemented to ensure minimization of landslide potential. Methods to reduce landslide potential include the techniques identified in Mitigation Measure Geo-4a, above.

Mitigation Measure Geo-4d (Faria Preserve): To address rock slide hazards associated with unfavorably-oriented bedrock dip slopes (which are prone to landslides), the project sponsor shall construct retaining structures to hold bedrock slopes in place. Retaining structures could include retaining walls, rock bolts, and/or soil nailing.

Level of Significance after Mitigation: *Less than Significant* (Western Plan Area and Faria Preserve).

IMPACT GEO-5

Impact Geo-5: Erosion. Excavation and earthmoving activities would increase the risk of erosion or loss of topsoil.

This would be a *significant* impact (Western Plan Area and Faria Preserve).

Construction activities would involve excavation, moving, filling, and the temporary stockpiling of soil. Earthwork associated with construction would expose soils to erosion.

The presence of the groundwater spring and / or seepage zone in the gully within the central landslide (in the Western Plan Area) indicates that localized groundwater would be shallow in this area (Treadwell & Rollo 2004). Shallow groundwater often has an adverse effect on slope stability, and can accelerate erosion.

Erosion is considered a moderate hazard along the incised channel of Bollinger Creek, along tributary gullies to this channel, and along the southwest portion of the Western Plan Area where gullies on the adjacent property have grown headward onto the site (Treadwell & Rollo 2004).

Within the Faria Preserve Project Site, detected groundwater levels ranged from 9.5 to 75 bgs (ESCNC 2004). Groundwater could be encountered during excavation in the drainages and in keyways placed for valley fills (ESCNC 2004). Groundwater would likely daylight on some of the taller cut slopes within the Faria Preserve Project Site. Soils on the Faria Preserve Project Site have a moderate to high in erosion potential (ESCNC 2004).

Erosion or the loss of topsoil from construction activities is considered a potentially significant impact.

Mitigation Measure Geo-5a (Western Plan Area): The project sponsor shall require protection of the toe of the stream bank from future stream erosion by setting back development beyond a 2:1 (horizontal: vertical) line extending up from the toe of the bank (or gully). If the banks cannot be protected, a wider set back zone shall be maintained to allow for future erosion based on soil type and vegetation. Set back zones shall be determined after a detailed geologic and geotechnical site investigation is performed at the site

Mitigation Measure Geo-5b (Western Plan Area): During repair of the existing landslide in the Western Plan Area, the project sponsor shall install subdrains beneath and upslope of the repaired landslide to collect groundwater and prevent it from saturating the engineered fill.

Mitigation Measure Geo-5c (Faria Preserve): The project sponsor shall implement best management practices for erosion control as specified on the Faria Preserve Vesting Tentative Map.

Mitigation Measure Geo-5d (Faria Preserve): Within the Faria Preserve Project Site, the project sponsor shall collect groundwater within the slope and remove it before the water daylights on the slope face. Methods to collect and remove the water shall be in accordance with the recommendations of the *Geologic Hazards Evaluation and Preliminary Geotechnical Engineering Study* conducted for the site, and could include any of the following: installation of finger drains, hydraugers, or gallery drains. As necessary, pumping or dewatering[7] shall be implemented during grading activities.

Please also refer to Mitigation Measure Hydrology-1b (see Section 4.7).

Level of Significance after Mitigation: *Less than Significant* (Western Plan Area and Faria Preserve).

[7] Dewatering is a technique used to control subsurface water during excavation activities.

IMPACT GEO-6

Impact Geo-6: Project Facilities Located on an Unstable Geologic Unit. The project facilities could be located on a geologic unit or soil that is unstable and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

This would be a *significant* impact (Western Plan Area and Faria Preserve).

The potential for landslide to occur is discussed in Impact Geo-4 above associated with seismic effects. That discussion is also relevant to landslides that are triggered naturally. The potential for lateral spreading and liquefaction is discussed in Impact Geo-2 and Impact Geo-3, respectively, as they are mostly associated with groundshaking events. None of the soils at the project site are susceptible to collapse. As such, no impact would occur and therefore no further discussion is required (Pischke 2005). The potential for subsidence, or settlement, is described below.

In general, colluvium and alluvium have varying strengths, thicknesses, and compressibility, and structures placed on these deposits may experience erratic differential settlements. Colluvium and alluvium are located throughout the NWSP Area. In addition, structures constructed on improperly placed and compacted (non-engineered) artificial fill would experience settlement. Artificial fill is present within the NWSP Area (information on the quality and engineering oversight of the onsite artificial fill is unknown and therefore considered non-engineered).

The potential settlement of the proposed deep compacted fills in the NWSP Area would result from consolidation of natural soils, hydro-consolidation of the compacted fills, and seismically induced settlement of compacted fills. Within the Faria Preserve Project Site, hydro-consolidation is the only type of settlement that has a high probability of occurring (ESCNC 2004). However, the potential for all three types of settlement within this area are discussed below.

Naturally occurring colluvial, alluvial, and landslide deposits adjacent to, or on the floor of, drainage channels proposed for filling are compressible under the anticipated loads of fills that would be up to 110 feet in depth (ESCNC 2004). The amount of such potential static settlement would vary depending on the final depth of fill and the thickness of compressible soil near the drainage floor. The thickness of soil deposits varies from approximately 10 to 50+ feet, averaging approximately 22 feet. Some of the underlying bedrock is highly weathered (broken down) and would behave like a stiff soil with moderate compressibility characteristics under high vertical loads. These materials would also be potentially compressible under higher loads. The calculated settlement for fill would vary from 4 to 24 inches (for fill with thickness between 25 and 100 feet) (ESCNC 2004).

Settlement typically begins as soon as the placement of fill commences and continues beyond the completion of mass grading, approximately one to three years, depending on the thickness of the compressible soil and the imposed loads (ESCNC 2004).

Settlement of compacted fill from hydro-consolidation may also occur. Compacted fills have a tendency to swell near the surface and consolidate at depth when exposed to water (ESCNC 2004). The magnitude of the settlement would be influenced by the degree of relative compaction and moisture content of the soil at the time of placement, as well as the clay content of the material. Analyses suggest that settlement due to combined dynamic and hydro-consolidation settlement

would be negligible for fills up to 50 feet, 0.3 percent of total fill thickness for fills between 50 and 75 feet thick, 0.7 percent for fills between 75 and 100 feet thick and 1 percent for fills over 100 feet thick (ESCNC 2005b).

The effect of hydro-consolidation would be an aerial settlement[8] of the ground surface (ESCNC 2004). Buildings, hardscapes, streets, and utilities under hydro-consolidation would generally settle in unison relative to the subsurface conditions.

Analysis of the compacted fills under dynamic conditions indicates that seismically induced settlement could occur in the event of a major earthquake. Dynamic consolidation is influenced by the soil type and relative compaction and moisture content of the fill material at the time of construction. The amount of potential settlement that could occur assuming a nearby magnitude 6.9 earthquake with a peak horizontal ground acceleration of 0.34g would vary from 0.3 inches to 2 inches for fill that is 25 to 100 feet thick (ESCNC 2004).

Mitigation Measure Geo-6a (Western Plan Area): For the Western Plan Area, detailed geologic and geotechnical investigations (including laboratory testing) shall be conducted to assess the strength and compressibility of colluvial and alluvial deposits[9]. In addition, onsite artificial fill shall be assessed for quality and surface and subsurface drainage details shall be verified. Methods to reduce the potential for settlement would include, but not be limited to, the following:

- Removal of non-engineered fill and recompaction or replacement with engineered fill;
- Construction of surface and subsurface drainage systems;
- Structural strengthening of shallow foundations to account for the potential total and differential settlements; and/or
- Support of future structures on deep and/or rigid foundation systems.

Mitigation Measure Geo-6b (Faria Preserve): For the Faria Preserve Project Site, the project sponsor shall implement mitigation measures that would reduce settlement. Methods shall be in accordance with the recommendations of the *Geologic Hazards Evaluation and Preliminary Geotechnical Engineering Study* conducted for the site, and shall include, but are not be limited to, the following:

- Reduction of settlement of native soil deposit by removal of the potentially compressible soils (colluvial, alluvial, and landslide deposits) to bedrock and replacement with compacted fill. Implementation of this mitigation measure would reduce potential settlement of the fill to one to five inches (resulting from hydro-consolidation only);
- Reduction of hydro-consolidation and seismically induced settlement by inclusion of higher compaction effort and higher moisture content at the time of placement, contour grading of the underlying ground surface, and stiffen foundations to accommodate the anticipated settlements;

[8] Aerial settlement refers the consistent lowering of ground surface by the approximately the same depth across an area. This is opposite of differential settlement which refers to the uneven lowering of the ground surface across an area.

[9] Detailed geotechnical analysis for the Western Plan Area shall be completed prior to development of this area, but need not occur prior to adoption of the NWSP or development of the Faria Preserve.

- Use of the following surface settlement factors shall be taken into account in the design of utilities, as surface settlements are expressed as a percentage of the total thickness of the underlying fill: for fills 50 to 75 feet thick, use 0.3 percent; for fill 75 to 100 feet thick, use 0.7 percent; and for fills greater than 100 feet thick use one percent;
- Reduction of differential settlement through contour grading and support structures on stiffened foundation systems that can withstand differential settlement (e.g., slab foundation, a thick mat post-tensioned foundation with stiffener ribs, or a stiffened foundation with underpinning piers); and
- Removal of landslide areas in the deeper fill areas (more than 50 to 60 feet deep to reduce potential settlement.

Level of Significance after Mitigation: *Less than Significant* (Western Plan Area and Faria Preserve).

IMPACT GEO -7

Impact Geo-7: Surface Soil Expansion. Structures could be damaged from expansion of the near surface soils.

This would be a *significant* impact (Western Plan Area and Faria Preserve).

Most of the soils (including colluvium and alluvium) within the NWSP Area as well as the bedrock (particularly the Orinda Formation claystone) are highly expansive. The Faria Preserve Project Site, including the proposed water tank sites, contain soil deposits with moderately low to very high expansion potential (ECSNC 2004). Structures placed on these deposits may experience shrink and swell effects causing differential settlement, thus resulting in potential damage to building foundations. Heave and soil creep may also occur due to the high expansion potential of the silt and clay deposits. Within the Faria Preserve Project Site, soil creep occurs mainly on the steeper slopes (ESCNC 2004); therefore, impacts would be limited to drainage ditches, as there are no buildings proposed to be constructed on the steeper slopes (ESCNC 2005b).

Mitigation Measure Geo-7a (Western Plan Area and Faria Preserve): For the Western Plan Area and the water tank sites, the project sponsor shall conduct detailed geologic and geotechnical investigations (including laboratory testing) to assess the soils underlying the proposed structures[10]. Mitigation measures that would reduce adverse effects resulting from expansive soils within the NWSP Area (including the Faria Preserve Project Site) shall include, but not be limited to, the following:

- Implementation of corrective grading procedures that include placement of expansive soils and bedrock materials in the deeper portions of the engineered fills and slope faces and near surface fill materials should be derived from the less expansive sandstone cuts;
- Implementation of corrective slope grading procedures for drainage ditches;
- Implementation of setback requirements from slopes in accordance with the 1997 UBC code (for buildings only);

[10] Detailed geotechnical analysis for the area west of Bollinger Canyon Road shall be completed prior to development of this area, but need not occur prior to adoption of the Northwest Specific Plan or development of the Faria Preserve Project Site portion of the NWSP Area.

- Removal of expansive soil and replacement with engineered fill;
- Engineered preparation of building and roadway subgrades, including the use of lime treatment of expansive deposits, where deemed necessary by the geotechnical analysis;
- Installation of drainage systems;
- Strengthening of shallow foundation systems (post-tension slab) to resist the movements associated with the volume changes; and/or
- Installation of deep foundation systems to support structures below the zones of severe moisture change (e.g., pier and grade beam, waffle slab, and thick mat slab foundations).

Methods implemented at the Faria Preserve Project Site shall be in accordance with the recommendations of the *Geologic Hazards Evaluation and Preliminary Geotechnical Engineering Study* conducted for the site.

Level of Significance after Mitigation: *Less than Significant* (Western Plan Area and Faria Preserve).

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4.6 HAZARDS

This section examines the potential hazards to public health and safety for the proposed Northwest Specific Plan (NWSP) and Faria Preserve. The level of this analysis is such that all discussion of potential impacts to the entire NWSP Area is consistent with the potential impacts to the Faria Preserve, since the Faria Preserve Project Site is located entirely within the NWSP Area.

4.6.1 Existing Setting

As determined in the City of San Ramon 2020 General Plan Draft Environmental Impact Report (General Plan EIR) (City of San Ramon 2001), there would be no hazards or hazardous materials that would result in significant impacts, with the exception of the potential for wildland fires.

Wildfire

The NWSP Area is located within a region that experiences a Mediterranean climate, with warm, dry summers. This low summer humidity, in combination with higher temperatures, creates very high seasonal fire risk for the NWSP Area which is, as discussed in the City of San Ramon 2020 General Plan (General Plan) (City of San Ramon 2002), adjacent to a wildland area that may contain substantial forest fire risk and hazards.

Factors generally contributing to the risk of urban and wildland fires in the City of San Ramon Planning Area include: the type of vegetation and ground cover in the Planning Area, the combustibility of certain building materials, ground slope aspect, adequacy of access to fire suppression services, water supply, water pressure, and weather conditions.

Regulatory Background

This section describes the existing policies and regulations that apply to potential hazards resulting from wildland fires within the NWSP Area. Assessments of fire hazards depend on a variety of federal, state, and local regulations and policies, in addition to the thresholds established by CEQA, to provide consistent standards and a basic framework for evaluation. The following paragraphs identify and explain the applicable policies and regulations as they relate to future development in the NWSP Area.

City of San Ramon 2020 General Plan

The General Plan contains policies and standards that are intended to prevent and minimize the risks associated with wildland fires or hazardous materials and to improve emergency procedures. The following General Plan policies are important in consideration of the proposed NWSP and Faria Preserve:

9.4-G-1: Minimize the risks to lives and property due to fire hazards.

9.4-I-1: Require site design features and fire retardant building materials to reduce the risk of fire within the City.

9.4-I-2: Require the completion of fire modeling for new development adjacent to high fire risk areas in order to determine which mitigation measures are appropriate to minimize fire hazard.

9.4-I-3: Work with the Fire Protection District on planning for a new training facility at an appropriate location where neighborhood impacts would be mitigated.

9.4-I-4: Require sprinklers in new homes located more than 1.5-miles from a fire station.

9.4-I-5: Require sprinklers in all mixed use development to protect residential uses from non-residential uses, which typically pose a higher fire risk.

9.5-G-1: Use the City's Emergency Response Plan as the guide for emergency management in San Ramon.

9.5-I-1: Maintain and update the City's Emergency Response Plan, as required by State law, to minimize the risk to life and property of seismic and geologic hazards, hazardous materials and waste, and fire.

9.5-I-2: Prepare and disseminate information, including a page on the City's website, about emergency preparedness.

9.5-I-3: Coordinate regular fire drills with emergency organizations, including City and County Fire, Police, Emergency Medical Service, Public Works, and the California Environmental Protection Agency and require all City staff to be adequately trained to handle emergency situations.

City of San Ramon 2020 General Plan EIR

In the General Plan EIR, the following impacts related to public safety and emergency preparedness are identified:

Impact 4.9-a: New development under the proposed General Plan requires police and fire protection that exceeds current staffing and facilities.

Impact 4.9-b: New hillside development under the proposed General Plan would be exposed to the risk of wildland fire hazards.

Impact 4.9-c: New development under the proposed General Plan requires emergency preparedness that may exceed the capabilities of existing programs.

Impact 4.9-a identified increased demand on police and fire services resulting from development under the General Plan. Through implementation of performance standards and the following General Plan policies, the General Plan EIR determined that this potential impact would be reduced to a less than significant level:

9.4-I-3: *Described above.*

9.4-I-4: *Described above.*

9.5-I-1: *Described above.*

9.5-I-3: *Described above.*

Impact 4.9-b identified new development under the NWSP as a policy that could expose new development to the risk of wildland fire hazards. The General Plan EIR determined that after implementation of performance standards and the following General Plan policies, this impact would be reduced to a less than significant level:

9.4-I-1: *Described above.*

9.4-I-2: *Described above.*

9.5-I-1: *Described above.*

9.5-I-3: *Described above.*

The following policies in the General Plan are designed to ensure that emergency preparations would meet the needs of the population and employment base at buildout, and would reduce Impact 4.9-c to a less than significant level:

9.5-I-1: *Described above.*

9.5-I-2: *Described above.*

9.5-I-3: *Described above.*

The General Plan EIR (City of San Ramon, 2001), identified the following impacts related to hazardous materials:

Impact 4.10-a: New development under the proposed General Plan could increase exposure to hazardous waste.

Impact 4.10-b: New development could interfere with existing emergency response plans or emergency evacuation plans.

Both of these impacts would be reduced below the level of significance through implementation of General Plan policies. Impact 4.10-a identified General Plan buildout and new nonresidential development as potential sources of hazardous waste. The General Plan EIR determined that, in combination with performance standards, implementation of the following General Plan policies would reduce this impact to a less than significant level:

9.2-I-1: Promote the reduction, recycling, and safe disposal of household hazardous wastes through public education and awareness. Collection programs should also be expanded.

9.2-I-2: Encourage changes in product development, labeling, packaging, and handling to reduce the amount of hazardous waste generated in daily household activity.

9.2-I-6: Require the clean-up of sites contaminated with hazardous substances.

9.2-I-8: Require businesses generating hazardous waste to pay necessary costs for local implementation of programs specified in the County Hazardous Waste Management Plan, as well as the costs associated with emergency response services for a hazardous materials release.

The General Plan EIR determined that Impact 4.10-b would be reduced to a less than significant level with construction of new circulation improvements under the NWSP and the following General Plan policies:

9.2-I-4: Promote the cooperation between police, fire, and emergency medical services, and support the required training of all personnel who may respond to an emergency involving hazardous materials.

9.2-I-5: Support the formation of a regional hazardous materials team consisting of specially trained personnel and equipment.

9.2-I-9: Establish an ordinance specifying routes for transporting hazardous materials.

9.5-I-1: *Described above.*

9.5-I-3: *Described above.*

4.6.2 Thresholds of Significance

As noted in the CEQA Guidelines, a significant impact would result if a project were to:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment;
- Reasonably be anticipated to emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Is the project 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;
- 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;
- For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area;

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

The Guiding Policy in the San Ramon General Plan (9.4-G-1) is to "Minimize the risks to lives and property due to fire hazards."

4.6.3 Environmental Evaluation

The NWSP Area is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Furthermore, the NWSP Area is not located within an airport land use plan, within two miles of a public airport or public use airport, or within the vicinity of a private airstrip.

The proposed use of the NWSP Area is not anticipated to create a significant toxic hazard to the public or environment, nor is development of the Faria Preserve community expected to create significant hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials, or the release of hazardous materials into the environment. Development under the NWSP is not expected to emit hazardous emissions or to handle hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. The Faria Preserve is not expected to interfere with emergency response plans, and the General Plan includes circulation improvements that would maintain level of service standards. A new collector road proposed to be constructed under the NWSP would facilitate evacuation of the NWSP Area.

The General Plan EIR identifies the wildland area at the City's northwestern corner as among the areas representing the greatest risk of wildland fires. The risk of urban and wildland fires exists within the entire NWSP Area, the impacts identified therefore pertain to both the Western Plan Area and the Faria Preserve Project Site.

IMPACT HAZARD -1

Impact Hazard-1: Construction of the 830 homes proposed for the NWSP Area would increase the risk of fire hazards since the proposed project is in an area with flammable brush and grass.

This would be a *significant* impact (Western Plan Area and Faria Preserve).

As discussed in the General Plan, fire hazards in San Ramon are typically created by increases in the number of homes adjoining open space; therefore, much of the threat of wildland fires is due to open grasslands abutting residential developments. Like the NWSP Area, many other neighborhoods within San Ramon are located in remote regions and are abutting open grasslands. The NWSP and Faria Preserve would add to the urban-rural interface currently expanding in San Ramon. San Ramon experiences many days where fire danger is critical, and the NWSP Area is characterized by steep woodland slopes and rolling grassy hills, which represent a high to extreme wildfire hazard. Therefore, the development proposed in the NWSP and Faria Preserve would

increase the potential for fire hazards caused by interactions between open grassland and compact residential development.

Mitigation Measure Hazard-1 (Western Plan Area and Faria Preserve): An Open Space Management Plan shall be submitted to and approved by the San Ramon Valley Fire Protection District prior to filing the first final map for the Western Plan Area and the Faria Preserve. The Open Space Fire Management Plan shall be based on the fire modeling required by General Plan Policy 9.4-I-2, and shall propose specific measures to reduce potential fire hazards, including construction of buffers between the homes, and regular maintenance and disking of the property lines.

Level of significance after mitigation: *Less than significant* (Western Plan Area and Faria Preserve).

References

City of San Ramon, 2001. City of San Ramon 2020 General Plan Draft Environmental Impact Report. EIR Certified November 13, 2001.

City of San Ramon, 2002. City of San Ramon 2020 General Plan. Approved by Voters of the City of San Ramon on March 5, 2002.

4.7 HYDROLOGY/WATER QUALITY

This section describes the existing hydrologic resources and the state of water quality in and near the Northwest Specific Plan Area (NWSP Area) and analyzes the potential impacts on those resources from implementation of the proposed Northwest Specific Plan (NWSP) and the Faria Preserve. Three documents are incorporated into this section: the Northwest Specific Plan Master Plan Hydrology report prepared by Kimley-Horn and Associates (KHA, 2005a); the Hydrology Study for the Faria Preserve conducted by Bellecci and Associates (2003, 2005); and the peer review of the Hydrology Study for the Faria Preserve by Kimley-Horn (KHA, 2005b).

This analysis assesses watershed conditions and potential water management impacts, as well as the results of surface runoff analyses. The existing setting will be discussed for the entire NWSP Area, providing specific information for the western portion of the NWSP Area (Western Plan Area) and the eastern portion of the NWSP Area (Faria Preserve Project Site) where appropriate. The hydrologic analysis considers surface runoff values for two separate drainages on the Faria Preserve Project Site as well as a single drainage on the Western Plan Area. Potential water quality impacts that would result from implementation of the NWSP are assessed in qualitative terms. Water quality impacts that would result from development of the Faria Preserve (Bellecci and Associates, 2005; KHA 2005a) are assessed quantitatively.

4.7.1 Existing Setting

Climate

San Ramon experiences a Mediterranean climate with mild, wet winters, and hot, dry summers. Average winter temperatures are approximately 47 degrees Fahrenheit and average summer temperatures are approximately 72 degrees Fahrenheit. The wet and dry seasons each last approximately six months, with the majority of rain falling between October and April. Average annual rainfall is approximately 24 inches (NOAA 2001).

Watersheds

All of the land in the NWSP Area drains to Bollinger Creek and is part of this main watershed. Bollinger Creek is a large tributary of Walnut Creek which flows northwards, terminating in Suisun Bay near the City of Martinez. Walnut Creek is listed for diazinon on the California 303d list of impaired waterbodies, but the U.S. EPA subsequently has restricted the residential use of diazinon. Suisun Bay and the Suisun Marsh Wetlands are also on the 303d list for a variety of compounds including chlordane, copper, DDT, Diazinon, Dieldrin, Dioxin compounds, exotic species, furan compounds, mercury, nickel, PCBs, selenium, nutrients, and organic enrichment (RWQCB 1999). The existing Beneficial Uses of Walnut Creek as defined by the San Francisco Regional Water Quality Control Board (RWQCB) are fish migration, non contact water recreation, fish spawning, warm freshwater habitat, and wildlife habitat (RWQCB 1995).

There are three main ephemeral drainages that originate within the Faria Preserve and flow generally southeast towards Bollinger Creek. Downstream of the NWSP Area, the easternmost drainage is

channelized underground before reaching the daylight portion of Bollinger Creek on the eastern side of I-680. Similarly, the central drainage is contained in a culvert before entering Bollinger Creek. The westernmost subwatershed is very small and flows under Bollinger Canyon Road directly to Bollinger Creek. On the west side of Bollinger Creek (within the Western Plan Area), a small drainage flows in an easterly direction and down a steep slope, towards the creek. Each of the four main drainages within the NWSP Area discharges into existing drainage facilities located to the east and south of the NWSP Area. The hydrologic report prepared by KHA (KHA 2005a) divides the four drainages into a number of smaller drainages for purposes of analysis (see Figure 4.7-1).

Drainage Characteristics

Drainage characteristics of a site depend largely on land use, topography, soils and the rainfall regime. Upon reaching the surface, rainfall can either infiltrate into the ground, or flow over the surface as runoff. In general, the steeper and more sparsely vegetated slopes have higher runoff rates and lower infiltration rates. The NWSP Area consists of steep to moderately sloping terrain, with very little area of level ground. The land is extensively grazed by cattle which are not excluded from riparian areas or streambeds. The existing cattle ranching operations tend to compact surface sediments and decrease vegetative cover, rendering the land less permeable to water and more prone to erosion (McGinty, et. al. 1979). Surface runoff rates and volumes from rangeland are therefore generally greater than from undisturbed open space. Undeveloped sites in the area with similar slopes are expected to have approximately four inches of the total annual rainfall leave the site as surface runoff (Rantz 1971). Because the NWSP Area is currently grazed, this number is probably much larger. Soils in the NWSP Area belong to hydrologic soils group B, C and D (KHA 2005a).

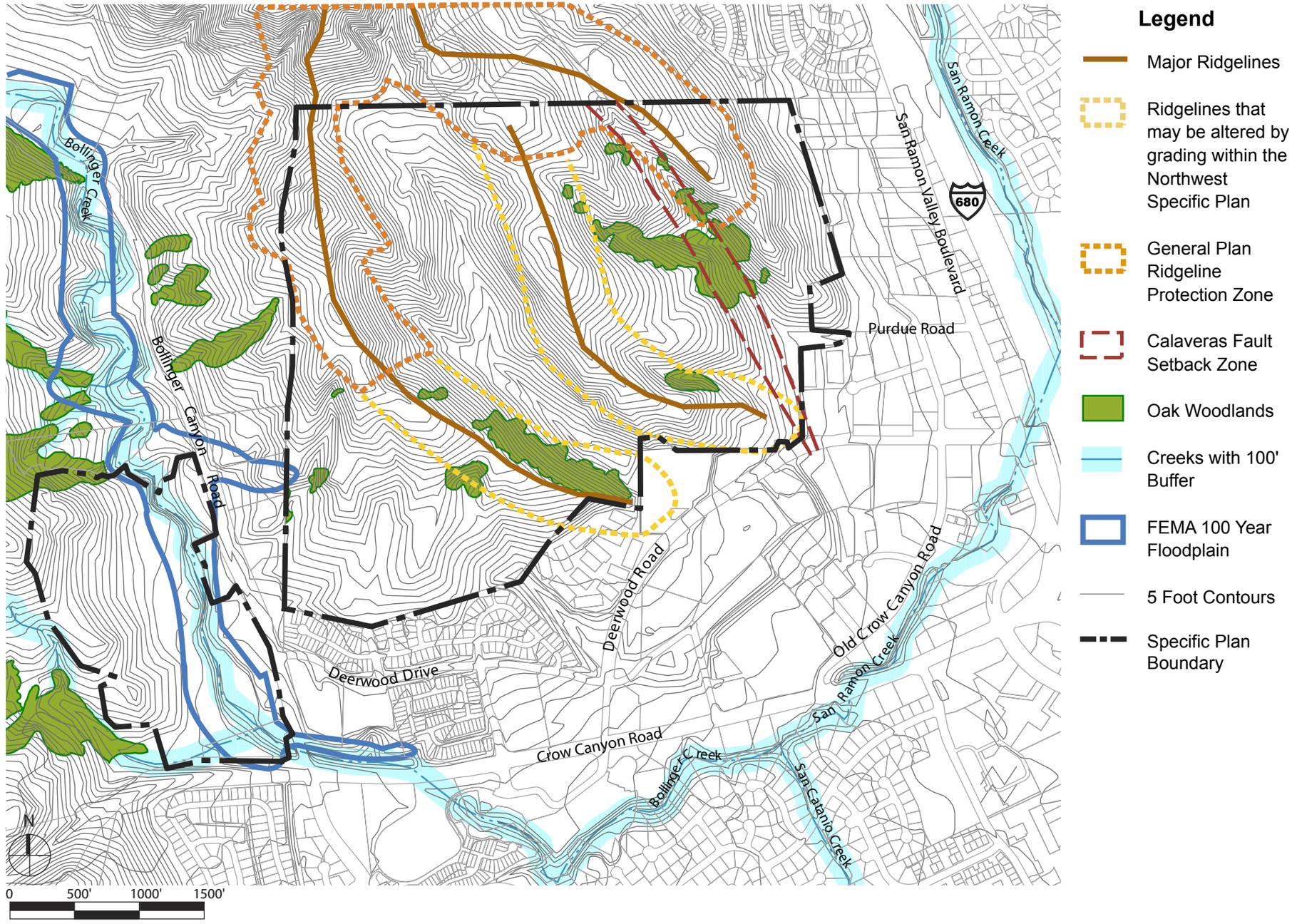
Flooding

Federal Emergency Management Agency (FEMA) flood hazard insurance maps and flooding studies were reviewed and the NWSP Area was evaluated for potential flooding hazards and floodway encroachment. The Bollinger Creek 100-Year Flood Zone begins to the northwest of the project site, extends south across Crow Canyon Road, effectively splitting the NWSP Area's. At this point, the Bollinger Creek flood zone is confined to the west side of Bollinger Canyon Road. A large section of the Western Plan Area is occupied by the 100-year floodplain. Downstream of the Crow Canyon Road / Bollinger Canyon Road intersection, the flood zone has not been fully determined.

The flood zones in the NWSP Area can be seen on Figure 4.7.1. The NWSP Area storm drain system is shown in Figure 4.7-2.

Regional Groundwater Basins

Groundwater refers to water occurring beneath the water table in soils or geologic formations that are fully saturated. The NWSP Area sits atop the San Ramon Valley groundwater basin which is bounded on the north by Stone Valley, on the west by Las Trampas Ridge, on the east by the foothills of Mt Diablo, and on the south by the Livermore Valley Groundwater Basin (California Department of Water Resources (CDWR) 1998). The cities of Danville and San Ramon overlie the



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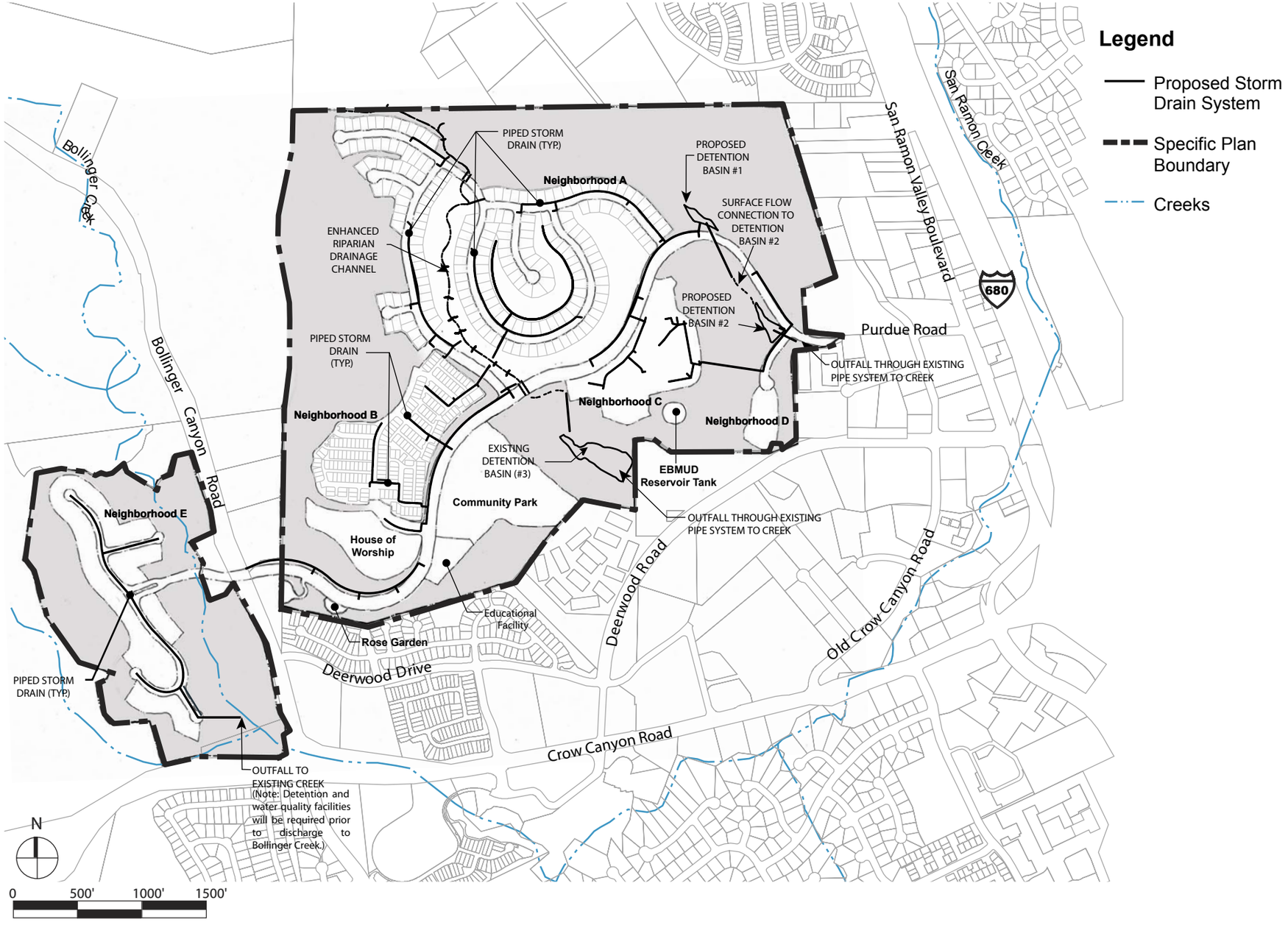

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basin, while Sycamore Creek and San Ramon Creek are the principal streams flowing through it. It is likely that groundwater recharge is restricted in the NWSP Area by the dominantly clay soils which act as an effective barrier to surface water infiltration. However, some groundwater recharge may be occurring in the stream beds on the valley floors of the NWSP Area where coarser grained alluvium. is present at the surface. The majority of recharge to the aquifer is likely to be through the larger streams in the area including Bollinger Creek, Sycamore Creek, and San Ramon Creek. There is no published data relating to groundwater levels, storage capacity, or water quality for this groundwater basin (CDWR 1998). However, on the nearby Thomas Ranch Subdivision, the depth to groundwater was found to be between 13 and 65 feet below the ground surface, and year round springs were observed (Harza 1996).

The RWQCB lists the existing beneficial uses of the San Ramon Valley Basin as municipal and domestic water supply, and agricultural water supply (RWQCB, 1995). The potential beneficial uses of the aquifer are industrial process water supply and industrial service water supply (RWQCB, 1995).

Water Quality/Contaminant Sources

Nutrients, biochemical oxygen demand (BOD), coliform, and sediment are all potential water quality concerns in the project site drainages. While no water quality data for these contaminants have been collected, they are assumed to be present within the NWSP Area based on existing land uses and site visits. Site visits by EDAW biologists revealed several areas in the easternmost and central drainages where the creek beds appeared to be incised and the hillsides were eroding. These generally occurred on the steepest slopes. These observations imply that cattle grazing has caused some erosion and sediment delivery to Bollinger Creek. In addition, grazing can cause elevated nutrient, BOD, and coliform concentrations in receiving waters, particularly when riparian buffers have not been established to prevent direct fecal deposition in stream beds or to reduce surface runoff and erosion. Groundwater contamination by nitrate from cattle grazing is also a concern in areas such as San Ramon, where groundwater is used for municipal and domestic water supply. Although industrial facilities are located immediately east of the NWSP Area, they are at a lower elevation and do not affect the quality of the water running off the site.

Regulatory Framework

Federal Regulations

The Federal Clean Water Act (CWA)

The CWA is the primary surface water protection legislation throughout the country. By employing a variety of regulatory and non-regulatory tools, including establishing water quality standards, issuing permits, monitoring discharges, and managing polluted runoff, the CWA aims to restore and maintain the chemical, physical, and biological integrity of surface waters to support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water." The CWA regulates both the pollutant content of point source discharges as well as addressing polluted runoff.

The proposed projects are subject to regulations governing discharge from point sources and "wet weather point sources," such as urban storm sewer systems and construction sites, as defined in

Sections 1311 -1330 of the CWA (Title 33, Chapter 26, Subchapter III of the United States Code). In addition, the proposed project may be subject to a number of permit requirements, including a National Pollutant Discharge Elimination System (NPDES) permit, a Construction Activities Storm Water Permit, and a Section 401/404 permit. Any and all necessary permits would be obtained prior to implementation of the proposed project.

Section 303(D). The Total Maximum Daily Load (TMDL) Program is required under provisions of the Clean Water Act. A TMDL represents the quantity of pollutants that a water body can receive without resulting in impacts to the designated beneficial uses of that water body. Under the current program, if a water body is designated "impaired" by a RWQCB, then a TMDL must be developed and implemented for the specific pollutant. The "impaired" status implies that the assimilative capacity of a particular water body for a specific pollutant has already been exceeded and any additional increment, however small, constitutes a significant cumulative impact. While many water bodies in California have been listed for various pollutants, very few TMDLs have actually been initiated.

Section 401. Section 401 of the Clean Water Act requires that state water quality standards be met and that construction, dredging, and disposal activities not cause concentrations of chemicals in the water column to exceed state standards. Section 401 requires a water quality certification from the RWQCB for issuance of a 404 permit. Because implementation of the proposed Plan and Faria Preserve community would require a Section 404 permit, a 401 certification would also be required.

Section 402. Section 402 of the Clean Water Act states that discharge of pollutants to waters of the United States is unlawful unless the discharge is in compliance with a National Pollution Discharge Elimination System (NPDES) permit. The NPDES permitting process is regulated by the Regional Water Quality Control Board (See State Regulations below). Construction-related stormwater discharges from the Project site are required to be permitted under a statewide general NPDES permit.

Section 404. The U.S. Army Corps of Engineers (Corps of Engineers) regulates discharges of fill or dredged materials into waters of the United States under Section 404 of the Clean Water Act (CWA). Waters of the United States include lakes; rivers, streams, and their tributaries; and adjacent or hydrologically connected wetlands. Wetlands are defined under Section 404 as areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that do support under normal circumstances, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR § 328; 40 CFR § 230). Activities that require a permit under Section 404 include placing fill or riprap, grading, mechanized land clearing, and dredging. Activities that result in the deposit of dredged or fill material below the ordinary high-water mark (OHWM) of waters of the United States or within a jurisdictional wetland typically require a Section 404 permit, even if the area is dry at the time the activity takes place. Under Section 404(b)(1) Guidelines, an application must include an evaluation of the impacts on the affected resources.

Because of the proposed cut and fill and creek restoration components of the NWSP and the Faria Preserve, applicant is currently working with the Corps of Engineers to obtain the necessary permits.

State Regulations

Sections 1600 - 1603 of the California Fish and Game Code

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream or lake in California that supports wildlife resources are subject to regulation by California Department of Fish and Game (CDFG), pursuant to Sections 1600 through 1603 of the California Fish and Game Code. Section 1603 states that it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake designated by CDFG, or use any material from the streambeds, without first notifying CDFG of such activity. The regulatory definition of a stream is 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 a surface or subsurface flow that supports or has supported riparian vegetation. CDFG's jurisdiction within altered or artificial waterways is based upon the value of those waterways to fish and wildlife. A CDFG Streambed Alteration Agreement must be obtained for any project that would result in impacts to a river, stream, or lake. A completed application is on file with CDFG.

The State Water Resource Control Board and Regional Water Quality Control Boards

Pursuant to the Porter-Cologne Water Quality Control Act, as well as federal laws and regulations, the State Water Resource Control Board (SWRCB) and Regional Water Quality Control Boards (RWQCBs) are responsible for preserving, enhancing, and restoring "the quality of California's water resources and ensuring their proper allocation and efficient use for the benefit of present and future generations" (SWRCB, 2003). SWRCB makes state-wide regulations governing water use and point source and non-point source pollutant discharge, while RWQCBs work in smaller regions throughout the state to implement SWRCB policies and regulations. RWQCBs also establish additional region- and area-specific regulations and policies to achieve water quality goals.

The project area lies in the San Francisco Bay region and is governed by the San Francisco RWQCB. The RWQCB's Water Quality Control Plan (Basin Plan), as amended, details the existing and potential beneficial surface and groundwater uses in the region. The plan provides water quality objectives and implementation measures for water quality parameters including: bacteria content, nutrient and biostimulatory substances content, chemical constituent, color, dissolved oxygen content, floating material, oil and grease, pH, pesticide content, radioactivity, salinity, settleable materials content, suspended materials content, tastes and odors, temperature, toxicity, and turbidity. The Basin Plan provides water quality criteria for the beneficial uses listed in the watersheds section for each surface water body in the study region.

The RWQCB requires the preparation and submission of an erosion control plan for construction in steeper areas and areas where greater than 10,000 square feet of surface area and or more than 100 cubic yards of excavated material would be disturbed (RWQCB 1995). Moreover, projects over one acre, or with the potential to result in storm water pollution would be required to prepare a Storm Water Pollution Prevention Plan (SWPPP). Lastly, the RWQCB requires construction and development projects to follow Best Management Practices to minimize impacts on water quality.

If a Notice of Intent and SWPPP is required by the RWQCB prior to commencement of construction activity for the proposed project, the SWPPP would be required to include measures to

reduce water quality impacts associated with erosion, waste disposal, spills, and maintenance activities.

Countywide General NPDES Permit

Provision C.3.f. of the Contra Costa Countywide NPDES Municipal Stormwater Permit requires dischargers to prepare a Hydrograph Modification Plan (HMP), for approval by the RWQCB, to manage impacts from changes to the volume and velocity of stormwater runoff from new development and significant redevelopment projects, where these changes can cause excessive erosion damage to downstream watercourses. This is due to the fact that significant change in impervious surface or significant change in stormwater runoff volume or timing is unlikely in this circumstance because the development will implement detention basis.. The Contra Costa Clean Water Program's Hydrograph Modification Plan was completed in May 2005. In February 2003, the RWQCB revised Provision "C.3" in the NPDES permit governing discharges from the municipal storm drain systems of Contra Costa County and cities and towns within the County. The new permit provision is being phased in from 2004 through 2006. The new "C.3" requirements are separate from—and in addition to—requirements for erosion and sediment control and for pollution prevention measures during construction.

Project site designs must minimize the area of new roofs and paving. Where feasible, pervious surfaces should be used instead of paving so that runoff can percolate to the underlying soil. Runoff from impervious areas must be captured and treated. The permit specifies ways to calculate the required size of treatment devices. Projects may also be required to detain or infiltrate runoff so that peak flows and durations match pre-project conditions. In addition, project applicants must prepare plans and execute agreements to ensure that the stormwater treatment devices are maintained in perpetuity. Through the Contra Costa Clean Water Program, Contra Costa municipalities have prepared a *Stormwater C.3 Guidebook* to guide developers through the process of submittals and reviews (Contra Costa Clean Water Program, 2005).

Local Regulations

City of San Ramon 2020 General Plan

Development within the NWSP Area, including the proposed Faria Preserve would be subject to policies contained in the City of San Ramon 2020 General Plan (General Plan) (City of San Ramon, 2002). The following General Plan policies are relevant to hydrology and water quality:

8.7-G-1: Encourage the implementation of water quality and conservation programs and measures by San Ramon employers, residents, and service providers.

8.7-I-1: Encourage State and regional agencies to monitor groundwater supplies and take steps to prevent overuse, depletion, and toxicity.

8.7-I-2: Require new development to be equipped with water conservation devices, including the possibility of dual water systems.

8.7-I-3: Continue to implement and enforce provisions of the Water Conservation and Landscape Ordinance 218.

8.7-I-4: Support the application of reclaimed water to reduce the demand on municipal water supplies.

8.7-I-5: Work with DERWA (Dublin San Ramon Services District and East Bay Municipal Utilities District Recycled Water Authorities) to encourage and promote water reclamation projects in the City of San Ramon.

8.7-I-6: Continue participation in the Contra Costa Clean Water Program to reduce storm water pollution and protect the water quality of the City's waterways.

City of San Ramon 2020 General Plan EIR

In the City of San Ramon 2020 General Plan Draft Environmental Impact Report (General Plan EIR) (City of San Ramon, 2001), the following impacts related to hydrology and water quality are identified:

Impact 4.6-b: New development under the proposed General Plan may substantially degrade or deplete groundwater recharge.

Impact 4.13-a: New development under the proposed General Plan could indirectly contribute to violations of water quality standards.

Impact 4.13-b: New development under the proposed General Plan could result in the alteration of existing drainage patterns.

Impact 4.13-c: New development could result in increased nonpoint source pollutant levels in stormwater runoff and in the regional storm drain system.

Impact 4.13-d: New development could increase stormwater runoff, resulting in increased flooding potential, affecting drainage into the City's waterways.

Impact 4.13-e: New development under the proposed General Plan may result in a substantial increase of construction-related erosion and sedimentation into surface waters.

Impact 4.13-f: New development under the proposed General Plan may disrupt a creek or stream channel.

Impact 4.13-g: Storm drains may not be able to accommodate 100- to 500-year flood flows, as a result of increased runoff from new development.

The General Plan EIR determined that Impact 4.6-b relating to groundwater recharge would be reduced to a less than significant level with implementation of the following General Plan policies:

8.7-I-1: *Described above.*

The General Plan EIR concluded that each of the foregoing impacts would be mitigated to a less than significant level with implementation of General Plan policies. In particular, Impact 4.13-a would be mitigated to a less than significant level by implementation of the following General Plan policy:

8.7-I-6: *Described above.*

Impact 4.13-b identified development under the NWSP as potentially altering existing drainage patterns in San Ramon Creek. However, with implementation of the following General Plan policy, the General Plan EIR concluded that this impact would be mitigated to a less than significant level:

9.3-I-2: Require new development to prepare hydrologic studies to assess storm runoff impacts on the local and subregional storm drainage systems and/or creek corridors.

The General Plan EIR determined that Impact 4.13-c relating to potential increases in nonpoint source pollution would be reduced to a less than significant level with implementation of the following General Plan policy:

8.7-I-6: *Described above.*

The General Plan EIR determined that Impact 4.13-d relating to potential increases in stormwater runoff resulting in increased flooding would be reduced to a less than significant level with implementation of the following General Plan policies:

8.7-I-1: *Described above.*

8.7-I-6: *Described above.*

9.3-I-2: *Described above.*

9.3-I-3: Require new development to provide for the perpetual funding and ongoing maintenance of detention basins. Maintenance may be by the City under contract, by a private entity, or by another public agency.

The General Plan EIR determined that Impact 4.13-e relating to potential increases is construction related erosion and sedimentation would be reduced to a less than significant level with implementation of the following General Plan policy:

8.7-I-6: *Described above.*

9.1-I-10: Control erosion of graded areas with revegetation or other acceptable methods.

Impact 4.13-f was identified in response to proposed development in areas of existing creeks or stream channels. The General Plan EIR determined that, in concert with the City's Resource Conservation Overlay District (Ordinance 129), the following General Plan policies would reduce this impact to a less than significant level:

8.3-I-3: Preserve as open space significant creek, trail, and viewshed corridors, areas of riparian and wildlife habitat, and prominent topographic features.

8.3-I-4: Require maintenance plans for open space areas, including identified natural resources such as ridges and creeks. Use East Bay Regional Park District standards as a guide for the management and maintenance of open space, except in the Dougherty Valley, which has separate regulatory agency maintenance requirements.

8.3-I-11: Maintain an inventory of creeks, and periodically update maps of creeks in the Planning Area to facilitate implementation of this policy.

9.3-I-2: *Described above.*

The General Plan EIR determined that Impact 4.13-g relating to increased burden on storm drains would be reduced to a less than significant level through implementation of the following General Plan policies:

9.3-G-1 Protect the community from risks to lives and property posed by flooding and stormwater runoff.

9.3-I-1 Eliminate hazards caused by local flooding through improvements to the storm drain system and/or creek corridors.

9.3-I-2: *Described above.*

9.3-I-4 Establish landscape and maintenance guidelines for required detention basins to ensure that such facilities achieve a look and quality that is consistent with the landscape of San Ramon and applicable regulatory requirements.

9.3-I-5 Encourage all property owners within flood hazard areas to carry flood insurance.

4.7.2 Thresholds of Significance

In accordance with CEQA, the effects of a project are evaluated to determine if they would result in a significant adverse impact on the environment.

Actions associated with implementing the proposed project would have a significant impact on water resources if they would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with ground water 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);
- 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- or off-site;

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows?
- 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
- Cause inundation by seiche, tsunami, or mudflow;

4.7.3 Environmental Evaluation

This impact analysis focuses on potential effects to drainage, flooding, and water quality associated with implementation of the NWSP and the Faria Preserve. Evaluation is based on available information regarding the water quality and hydrologic characteristics of the NWSP Area, Faria Preserve plans as presented in the Vesting Tentative Map (April 2006), and applicable regulations and guidelines.

Impacts and mitigation measures described in this analysis apply to the Western Plan Area, the Faria Preserve Project Site, or both. Impacts to hydrology are quantitatively assessed, while those for water quality are qualitative. The NWSP Area is not susceptible to inundation by seiche, tsunami, or mudflow; thus, there would be no impacts associated with such events.

IMPACT HYDROLOGY-1

Impact Hydrology-1: Construction-related water quality impacts. Implementation of the Northwest Specific Plan and Faria Preserve could introduce pollutants (namely suspended sediments, along with fuels, oils, lead solder, solvents and glues) to surface water or groundwater that could violate water quality standards or discharge requirements, or otherwise substantially degrade water quality (including sediment and other pollutants). These activities will be regulated under a Construction Activity NPDES Permit.

This would be a *significant* impact (Western Plan Area and Faria Preserve).

As discussed above in the setting section, there are four main surface water drainages in the NWSP Area, and the main groundwater basin is the San Ramon Valley groundwater system. The four main surface waters draining the NWSP Area drain directly to Bollinger Creek, and eventually to Walnut Creek, the San Francisco Bay Estuary near Suisun Bay, and the Pacific Ocean. Any construction-related water quality impacts to local surface waters would also affect these regional watersheds. Any subsurface contamination would enter the San Ramon Valley groundwater system.

Construction activities have the potential to impact surface water quality in several ways. The use of heavy machinery, including grading vehicles, bull dozers, and excavators would disturb soils, exposing them to the erosive forces of rain and wind. Erosion and subsequent sedimentation could reduce the water quality of Bollinger Creek as well as impact adjacent properties and roadways. In addition to sedimentation issues, contamination of runoff and groundwater with other hazardous chemicals such as fuels, oils, lead solder, solvents and glues could occur through the daily use of these materials during construction.

The RWQCB has determined that it is not feasible or practical to establish numeric effluent limitations for pollutants associated with construction activities, such as sediment, turbidity, fuels or oil. For instance, the RWQCB states the objective for suspended sediment load and suspended sediment discharge rates to surface waters "shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses." Further, "controllable water quality factors shall not cause a detrimental increase in the concentrations of toxic pollutants in sediments or aquatic life"(RWQCB, 1995). However, the RWQCB is actively working towards an integrated set of objectives, including numerical sediment objectives. Therefore, at this time, there are no numeric thresholds to identify in reference to construction activity.

Mitigation Measure Hydrology-1a (Western Plan Area and Faria Preserve): Construction Related NPDES Discharge Permit. The San Francisco Regional Water Quality Control Board requires that any project with a combined disturbance area of over one acre acquire an NPDES Construction Activity Stormwater Permit. Discharge of surface runoff from the construction site to Bollinger Creek shall be subject to this permit. Monitoring of the effluent and creek flow shall be required to ensure that water quality standards are not broken, and annual reports shall be prepared and submitted to the San Francisco Regional Water Quality Control Board. While compliance with the NPDES Construction Activity Stormwater Permit would be required and is therefore assumed, it is nonetheless included here as a mitigation measure to ensure there is a mechanism for City monitoring of compliance.

Mitigation Measure Hydrology-1b (Western Plan Area and Faria Preserve): Stormwater Pollution Prevention Plan. The NPDES Construction Activity Stormwater Permit shall also require the completion of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP shall require dischargers to implement Best Management Practices (BMPs) that prevent or reduce pollution into surface waters during construction at sites that disturb one acre or more. Types of BMPs include schedules of activities, prohibition of practices, maintenance procedures, management practices, or engineering controls.

Examples of construction-phase BMPs include, but are not limited to: the use of water filters over storm drains; construction or installation of sediment retention or erosion control structures such as hay bales, coconut fiber rolls, geofabric, and sand bags; reseeding of areas where vegetation has been removed or new sediment has been used as fill; stockpiling of topsoil removed during construction; minimization and clear marking of grading and designated construction areas to prevent equipment and vehicles from causing unnecessary disturbance; and wetting of dry and dusty surfaces to prevent fugitive dust emissions.

The SWPPP shall also establish specific fueling areas for construction vehicles, and establish handling procedures for hazardous materials. For many of the BMPs, installation is required before a

specific date representing the onset of the rainy season. This may be of particular concern for the cut and fill areas which would be highly exposed to erosion from surface runoff. Regrading and revegetation of disturbed areas would occur immediately following construction and are often required under the SWPPP. Additional required components of the SWPPP include monitoring, sampling, and annual reporting to show compliance with the NPDES Construction Activity Stormwater Permit.

Mitigation Measure Hydrology-1c (Western Plan Area and Faria Preserve): Detention Basins. Construction of the on-site detention basins shall occur prior to all other major construction activities such that these structures can be used to retain stormwater runoff and water from dewatering activities during the construction period. This would help to reduce sediment in surface runoff leaving the site.

Level of Significance after Mitigation: *Less than significant* (Western Plan Area and Faria).

IMPACT HYDROLOGY -2

Impact Hydrology-2: Once implemented, the Northwest Specific Plan and Faria Preserve would introduce pollutants into the surface water or groundwater that could violate water quality standards or discharge requirements, or otherwise substantially degrade water quality (including sediment and other pollutants).

This is a *significant* impact (Western Plan Area and Faria Preserve).

The composition of constituents in surface water runoff is largely a function of land use. Upon implementation of the NWSP and construction of the Faria Preserve community, land use on the 354.1 acre NWSP Area will have changed from primarily open space and grazing, to approximately 75 percent parks, community facilities, and open space and 25 percent developed with residential uses, including roads serving those various uses. This change is likely to alter the water quality of surface runoff from the site.

The proposed NWSP and Faria Preserve each include several measures that would improve water quality runoff from open space areas. These include a 200-foot wide riparian corridor in the central drainage of the Faria parcel and several detention basins designed to hold runoff and simultaneously remove sediment from surface water. The riparian corridor design includes rock energy dissipators, stream bank restoration, vegetation planting, and two wetland areas. These combined measures would reduce in-stream velocity, promote sedimentation of suspended solids, and reduce sediment and nutrient transport to the stream. For these reasons, runoff water quality from the central drainage is likely to improve with respect to sediment and nutrients. However, if grazing is allowed in the northeast section of the NWSP Area, where development has not been planned, surface water quality would remain poor in that watershed. If there is no Faria Preserve project, cattle grazing will continue on the Faria Preserve.

Developed areas, including roadways, parking lots, lawns, and gardens, would introduce petroleum products and other vehicle related pollutants such as mercury, copper, nickel, and selenium, as well as herbicides, pesticides, fertilizer (nutrients), surfactants (detergents and soaps), and other household chemicals to surface and ground waters. These pollutants are not likely to be present under existing

conditions. The applicant would comply with the County's "C.3" NPDES Municipal stormwater permit "Low Impact Design" (LID) requirements, which include multiple on-site "natural" water detention, infiltration, and treatment features. Incorporation of these features would reduce scouring flows and pollutant loads (from residential and developed areas) into receiving water bodies. LID features would also serve to reduce flood volumes and rates and would help to ensure that runoff from the Faria Preserve Project Site does not increase due to implementation of the NWSP and Faria Preserve. Because the NWSP Area would be developed and some amount of pollutants would enter receiving water bodies, concentrations of these pollutants would be higher under the Plan/Development conditions than existing conditions. [Reference the map suggested under 4.3-20 after Figure 4.3.3]

With implementation of LID features and Mitigation Measures-1a, 1b and 1c, the decline in water quality would be relatively small and would not violate any discharge requirements of the Statewide NPDES permit or water quality objectives set by the RWQCB. However, because Suisun Bay and Suisun Marsh are listed on the State 303(d) list of impaired water bodies for metals (nickel, copper, mercury, and selenium) dioxin and furan compounds[1], the increase in the concentration of these compounds in stormwater runoff, however small, would constitute a significant impact.

Mitigation Measure Hydrology-2a (Faria Preserve): Streambank Protection. A streambank protection corridor, similar to the riparian corridor designed for the central watershed on the Faria Preserve shall be implemented in the easterly watershed of the Faria Preserve property. This would improve both water quality and wildlife habitat in this drainage. Fencing shall be installed approximately 100 feet from either side of the stream, and any major reparations (or re-seeding) to the stream bank shall be made to reduce sediment load. Well-maintained vegetated streambank corridors have the capacity to reduce sediment load in runoff up to 75 percent or more (NRCS 2004). These buffer strips intercept surface and subsurface flow while stabilizing streambank sediment material. Native riparian tree and shrub species shall be planted on 8-foot centers throughout the streambank protection corridor creating a dense riparian corridor.

Mitigation Measure Hydrology-2b (Western Plan Area and Faria Preserve): Fertilizer and Pesticide limitations. Fertilizer, herbicide, and pesticide applications within the NWSP Area shall be limited to the dry season (April 1 – October 1). Residents shall be notified of these restrictions. A pesticide and fertilizer application program shall be prepared for all public open space and landscaped areas. This program shall include limitations on the types and amounts of chemicals allowed on the site. The program shall be designed to minimize chemical and fertilizer use throughout the project site.

Mitigation Measure Hydrology-2c (Western Plan Area): Creek Crossings. Per Policy 8.1 N of the General Plan, creeks shall not be culverted or channelized where they cross roads. Rather, a wildlife sensitive open/natural channel design shall be implemented where the project roads cross Bollinger Creek. This would serve to maintain the integrity of the creek, reduce erosion often associated with culvert outlets, and create a contiguous wildlife corridor across the property.

[1] The sources of Suisun Bay and Suisun Marsh impairment are various, and include atmospheric deposition, agriculture, urban and storm runoff, and unknown point and nonpoint sources. The problems identified in the State 303(d) listing for these receiving water bodies are the result of existing conditions created by historic and/or cumulative conditions.

Mitigation Measure Hydrology-2d (Western Plan Area and Faria Preserve): Low Impact Design. In order to meet the new requirements of Provision "C.3" in the Countywide NPDES Municipal stormwater permit, "Low Impact Design" (LID) features with multiple on-site "natural" water detention, infiltration, and treatment features shall be incorporated to reduce scouring flows in the receiving water bodies, and to reduce pollutant loads entering those water bodies from residential and developed areas. LID features would also serve to reduce flood volumes and rates and would help to ensure that runoff from the site is not increased due to implementation of the NWSPand Faria Preserve. While the proposed detention basins would serve to reduce flooding, they would not have the high water treatment capacity of the LID features. LID features shall be included in the street, residential, and landscape design, and shall include but not be limited to:

- grassy swales, vegetated filter strips, and infiltration trenches along sidewalk alignments, in parking lots and parking lot drainages, and in divided road meridians;
- pervious pavement and asphalt in parking lots, driveways, sidewalks, and other hard outdoor surfaces (Necessary impervious surfaces should be disconnected from other impervious surfaces by open ground areas for infiltration); and
- depressed curbs alongside roadways and in parking lots to allow water to run directly to swales and other LID features.

Combinations of the above LID strategies have been shown to reduce loading of heavy metals by up to 98 percent, oils and grease by up to 95 percent, TSS by up to 90 percent, TP by 83 percent, and TN by up to 75 percent (USEPA 2000). In addition, when properly designed, these features cost less than conventional stormwater management systems to construct and maintain, in part because of the need for fewer pipes, fewer below-ground infrastructure requirements, and less imperviousness.

Utilization of the LID features as part of the implementation of the Faria Preserve may reduce the size of the detention. Prior to implementation of the Faria Preserve, the required size of the detention basins shall be recalculated to account for the flood retention and reduction capacity of the LID features. Such redesign would be expected only to decrease the size of the detention basins.

The Contra Costa Clean Water Program has recently released the *Stormwater C.3 Guidebook* (Contra Costa Clean Water Program, 2005) to aid developers in meeting the RWQCB C.3 requirements (see Section 4.7.2 Regulatory Framework)

Level of Significance after Mitigation: *Less than significant* (Western Plan Area and Faria).

IMPACT HYDROLOGY -3

Impact Hydrology-3: Flooding. Implementation of the Northwest Specific Plan and the Faria Preserve would alter existing drainage patterns within the Plan Area and create/contribute runoff water such that flooding could occur or the capacity of existing or planned stormwater drainage systems could be exceeded.

This would be a *potentially significant* impact (Western Plan Area and Faria Preserve).

A Hydrology Report was completed by KHA to evaluate the pre- and post-project runoff conditions (KHA 2005a) using the HEC-HMC Runoff model Version 2.2.2 developed by U.S. Army Corps of Engineers. The report also evaluated and modified previous drainage studies by Bellecci and Associates (Bellecci and Associates 2003). Stormwater runoff for the 100-year/12-hour, and 24-hour events for both the existing and proposed development conditions was determined for both the entire NWSP Area and specifically for the Faria Preserve Project Site. The more conservative of the results for these two storm events with regard to peak discharges and runoff volumes was used to calculate the storage requirements for the detention basins. The study did not evaluate storm drain and culvert capacity analysis, but rather relied upon appropriate sizing of detention basins to reduce impacts of development on peak flow.

Mitigation Measure Hydrology-3a (Faria Preserve): Detention Basin Storage. In order to reduce the peak outflows under project conditions and have no net increase in flows, detention basins shall be provided within the Faria Preserve Project Site. The design and storage volumes of the detention basins shall be consistent with the design parameters contained in the drainage studies prepared by Bellecci and Associates (2005) and Kimley-Horn (2005a), and the recommendations contained in the Kimley-Horn (2005b).

Mitigation Measure Hydrology-3b (Western Plan Area): Detention Basin Storage. In order to reduce the peak outflows under project conditions, stormwater detention facilities shall be provided within the Western Plan Area. Retention requirements necessary to detain the volume associated with the difference in runoff volume between pre- and post-Project conditions is estimated to be a minimum 0.4 acre feet, based on preliminary lot layouts developed for the Western Plan Area Kimley-Horn (2005a). More detailed hydrology studies shall be required at the time a development application for the Western Plan Area is filed to ensure that water quality, retention requirements and flood control objectives are met.

Mitigation Measure Hydrology-3c (Western Plan Area and Faria Preserve): Maintain Watershed Boundaries and Area. The existing watershed boundaries and area shall be maintained. Watershed areas shall not be altered and all existing discharge points shall be maintained as closely as possible. Stormwater drainage from all developed areas shall be carefully designed such that runoff from streets, housing, and other impervious surfaces drains to the appropriate watershed based on pre-project drainage patterns (The Faria Preserve Project Site, as detailed in the Vesting Tentative Map, would do so).

New developments are required under the Contra Costa Countywide NPDES Municipal Stormwater Permit, Provision C.3.f, to manage impacts from changes to the volume and velocity of stormwater runoff from new development and significant redevelopment projects, where these changes can cause excessive erosion damage to downstream watercourses. The LID actions proposed under Mitigation Measure Hydrology-2d would be considered as BMP's designed to manage hydrograph modification impacts.

Level of Significance after Mitigation: *Less than significant* (Western Plan Area and Faria).

IMPACT HYDROLOGY -4

Impact Hydrology-4: Flood Zones. The proposed development within the Western Plan Area could place within a 100-year flood hazard area structures which could impede or redirect flood flows.

This would be a *potentially significant* impact (Western Plan Area).

Construction of a road across Bollinger Creek and the 100-year flood zone could result in construction within Bollinger Creek and the 100-year flood zone. It could also impede or redirect water flows.

Mitigation Measure Hydrology-4 (Western Plan Area): Low Impact Bridge Design. The proposed bridge crossing Bollinger Creek shall be designed to avoid the 100-year flood hazard zone, or shall be engineered so as not to impede or redirect flows in Bollinger Creek.

Level of Significance after Mitigation: *Less than significant* (Western Plan Area).

IMPACT HYDROLOGY -5

Impact Hydrology-5: Groundwater. The proposed Northwest Specific Plan and Faria Preserve would not affect groundwater water quality, substantially deplete groundwater supplies or interfere substantially with ground water recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table.

This would be a *less-than-significant* impact (Western Plan Area and Faria Preserve).

The NWSP Area is not considered a primary recharge area for the San Ramon Valley Basin. Rather, recharge of the basin is likely to occur mainly along Sycamore and San Ramon Creeks. On-site infiltration through the use of detention basins, augmented by implementation of Mitigation Measure Hydrology-2d, would ensure that increased runoff on developed sites and paved surfaces is compensated by increased infiltration at other locations within the NWSP Area. Therefore, the proposed NWSP and Faria Preserve would not cause groundwater depletion and would have a less than significant effect on groundwater discharge.

Groundwater infiltration at the site is likely to be minimal. Nevertheless, under existing conditions, nutrients from cattle grazing would have been the main pollutant entering the groundwater system. Under Plan and Project conditions, that input would be reduced by the exclusion of cattle from the developed areas of the Western Plan Area and Faria Preserve Project Site and the stream channels (see Mitigation Measure 2a). Other urban and stormwater pollutants are not expected to reach the groundwater basin due to adsorption to soil particles (metals, phosphorous), and uptake, storage and transformation in LID structures (nitrogen, pathogens, sediment, heavy metals, etc.). Therefore, neither groundwater quality nor groundwater quantity in the Western Plan Area and Faria Preserve Project Site would be affected by implementation of the proposed Plan or the Faria Preserve.

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4.8 LAND USE PLAN AND POLICY CONSISTENCY

Introduction

This section provides information on the current land use policies and designations applicable to the Northwest Specific Plan Area (NWSP Area) including the Faria Preserve Project Site. The proposed NWSP is assessed for consistency with the City of San Ramon 2020 General Plan (General Plan) (City of San Ramon, 2002), the City of San Ramon 2020 General Plan Draft Environmental Impact Report (General Plan EIR) (City of San Ramon, 2001) and the City of San Ramon Zoning Ordinance (Zoning Ordinance). This section identifies environmental impacts that would result from proposed land use changes and provides mitigation measures to reduce these impacts. Discussion of impacts and corresponding mitigation measures are provided together for the proposed NWSP and for the proposed Faria Preserve Project Site.

4.8.1 Existing Setting

Northwest Specific Plan

Existing Conditions

The entire NWSP Area is located outside of the City of San Ramon City Limits; however, the entire NWSP Area is located within the City's Planning Area Boundary and Urban Growth Boundary (UGB). The City may, consistent with its Municipal Code and the Planning and Zoning Law, approve a specific plan and subdivision maps for the NWSP Area (see Figure 4.8-1).

There are several different jurisdictional boundaries that apply to the NWSP Area. The City's Planning Area consists of land within the City and "any land outside its boundaries which, in the planning agency's judgment, bears relation to its planning" (City of San Ramon, 2002). The NWSP Area is located within the City's Sphere of Influence (SOI). The SOI is the probable ultimate physical boundary and service area of the City as determined by the Local Agency Formation Commission (LAFCO). The City's UGB encompasses the entire NWSP Area. The UGB was established during the General Plan Update process, and is a line that is intended to contain all future urban development in the City's Planning Area. Along with the General Plan itself, the UGB was approved by San Ramon voters in 2002.

Contra Costa County's Urban Limit Line (ULL) divides the NWSP Area; the Western Plan Area (on the west side of Bollinger Canyon Road) is within the ULL, while the Faria Preserve Project Site on the east side of Bollinger Canyon Road is outside of the County's ULL. The definition of an ULL is a boundary that is located to mark the outer limit beyond which urban development will not be allowed, and it has the aim of discouraging sprawl by containing development during a specific period. As shown in Figure 3-1 of the General Plan, a portion of the NWSP Area is located within the Contra Costa County Urban Limit Line. However, the County General Plan does not specify a land use designation for the NWSP Area, and it is not within an adopted area Plan.

Land Use Characteristics

This section provides a general overview of the NWSP Area conditions. Other EIR chapters (Project Description, Biological Resources, Geology/Soils, Hydrology and Water Quality, and Aesthetics) provide detailed information about NWSP Area's site characteristics.

A defining characteristic of the NWSP Area is the rugged topography. The site's terrain includes many slopes forming high ridges and low valleys in the area. A large portion of the NWSP Area has a slope greater than 20 percent. There are also three major ridgelines located within the portion of the NWSP Area east of Bollinger Canyon Road (the Faria Preserve Project Site), which run in a northwest-southeast direction, and are over 500 feet in elevation. Figure 4.8-2 indicates the location of the major ridgelines in the NWSP Area.

A large East Bay Municipal District (EBMUD) potable water storage tank is located on the southeast side of the NWSP Area, north of Deerwood Road.

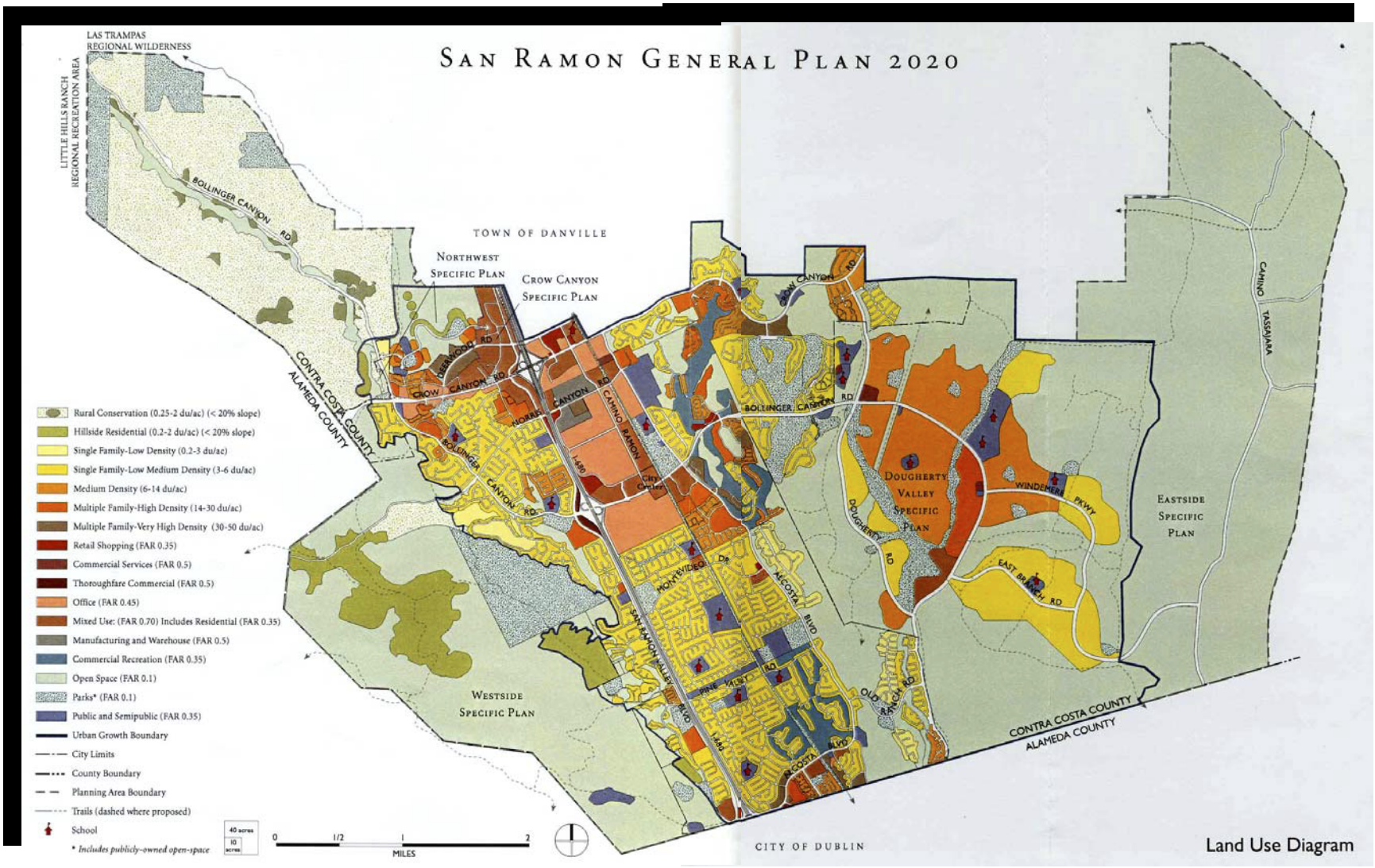
Surrounding Land Uses

Adjacent to the eastern side of the NWSP Area is the Crow Canyon subarea. This area incorporates industrial, office, and commercial uses into a 610-acre area. Goals of the Crow Canyon Specific Plan include the redevelopment and recycling of underutilized land, along with the creation of pedestrian-oriented community with retail shops, restaurants, a town center, housing, and mixed-use experiences. Public improvements and sustainability are also objectives throughout the area.

There are several single- and multi-family residential neighborhoods south of the NWSP Area, including Promontory View, Pinnacle Crow Canyon, and Deerwood Highlands. There is low density development in the town of Danville immediately north of much of the NWSP Area. The land northwest of the City of San Ramon Planning Area is primarily undeveloped, and is known for its rugged topography as well as its geologic instability (City of San Ramon, 2002).

There are two City parks that are within close proximity to the NWSP Area. Mill Creek Hollow Park is a small park located on Deerwood Road that serves as a community gathering area for local residents. Crow Canyon Gardens, located across Crow Canyon Road, is a public park which offers community gardens, a demonstration kitchen garden, classes, and tours. Additionally, the East Bay Regional Parks District (EBRPD) owns undeveloped land within close proximity to the NWSP Area.

There are several parcels which create a pie-shaped wedge between the eastern and western portions of the NWSP Area along Bollinger Canyon Road. Several of these parcels are developed, including Merrill Gardens, which is a 34-unit senior housing development; a private school; and several residential properties.



Source:City of San Ramon, 2002

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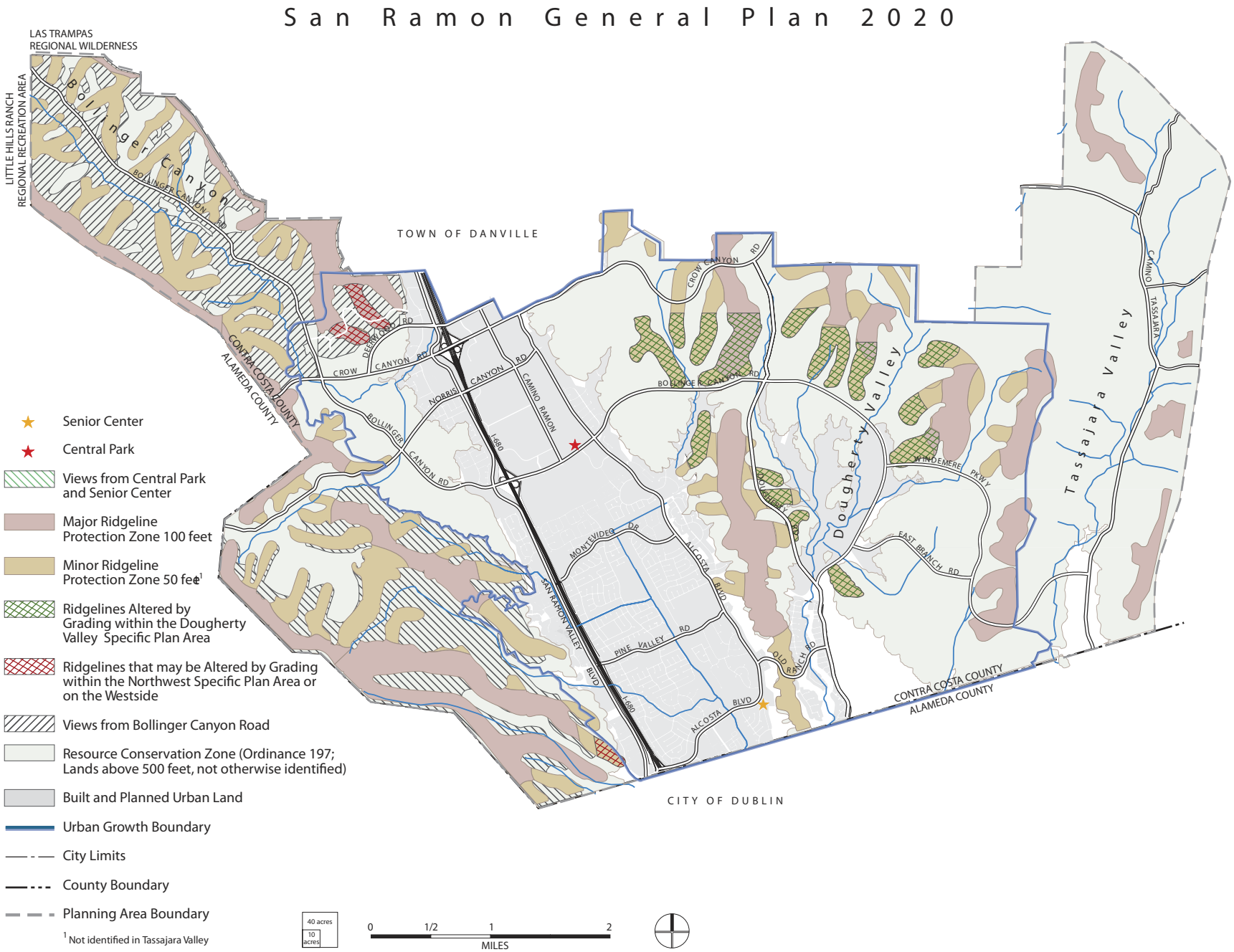

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Bollinger Canyon Subarea

As shown in Figure 4-1 of the General Plan, the NWSP Area is located in the Bollinger Canyon subarea. The Bollinger Canyon subarea follows both sides of Bollinger Canyon Road north from Crow Canyon Road and terminates approximately 4.5 miles to the northwest. The Bollinger Canyon subarea is located almost entirely outside San Ramon city limits, but within the City Sphere of Influence. Bollinger Canyon is paralleled on both sides by steep slopes and high ridges. The NWSP is that portion of the Bollinger Canyon subarea immediately adjacent to the City limits and included within the City's UGB. According to the General Plan, the NWSP Area is designated for development of up to 755 housing units with a density bonus of 10 percent, resulting in a total of up to 830 units. Specific requirements established to guide preparation of the NWSP would ensure that new development is carefully planned, that protected ridgelines are preserved, sensitive habitat is protected, and that substantial open space is preserved.

The General Plan states that the remaining areas of Bollinger Canyon located northwest of the NWSP are to remain rural in character and are subject to new zoning for Rural Conservation. Less than 40 new housing units are anticipated in this area under General Plan buildout. Any development of four or more units must be clustered to preserve open space, unless exempt by Plan policies (City of San Ramon, 2002).

Applicable Plans and Policies

The following section summarizes the applicable land use plans and policies that apply to the NWSP, including the Faria Preserve.

City of San Ramon 2020 General Plan Designations

The General Plan, approved by voter initiative in March 2002, sets the overall land use and planning policy affecting development in the City, including the NWSP Area.

The General Plan Land Use Diagram identifies several land use categories in the NWSP Area. Residential land use designations include Hillside Residential, Single -Family Medium Density, and Multiple Family-High Density. The NWSP Area also includes Rural Conservation, Open Space, Public and Semipublic, and Parks land use designations.

According to the General Plan, the land use designations within specific plan areas on the General Plan Diagram are illustrative. The final land use plan for the NWSP Area may deviate from the General Plan diagram provided it is faithful to representations of land use relationships and meets the criteria and standards of the specific plan policies contained in the General Plan.

The land use designations applied within the NWSP Area are defined in the General Plan as follows:

Residential

Rural Conservation (0-.2 du/acre, < 20 percent slope): This designation provides for rural single-family residential development of up to one unit/five gross developable acres in un-serviced

areas with clustering encouraged to permit suitable development sites at less than 20 percent slope and to achieve an open space preservation target of 90 percent. The Resource Conservation Overlay District sets additional requirements, and is discussed in further detail later in this document.

Hillside Residential (.2-2 du/acre, < 20 percent slope): This designation provides for single-family residential development of up to two units per acre in serviced areas, subject to the requirements of the Resource Conservation Overlay District, where applicable, with clustering required to permit suitable development sites on less than 20 percent slope and to achieve an open space preservation target of 70 percent.

Medium Density (6-14 du/acre): Single-family residential development at densities of between 6-14 units per acre with typical lot sizes of approximately 3,500 square feet and including detached units, zero lot line units, garden patio homes, and townhomes.

Multiple-Family High Density (14-30 du/acre): Multiple-family residential development at densities of between 14-30 units per acre. Such development should reflect high quality design with integrated open space and recreational and/or cultural amenities, and opportunities for workforce housing. Structure parking would be necessary at the higher end of the range.

Non-Residential

Open Space: Land protected from development and primarily held in its natural vegetative state, with some land privately owned and used for agricultural purposes. Where the site is also subject to the Resource Conservation Overlay District (RCOD), creek and ridgeline protection standards apply. The maximum FAR for non-residential structures is 0.10, and the residential density is limited to one unit per 20 acres, which may be reduced with clustering.

Public and Semipublic: Schools, hospitals and related medical offices, religious institutions, utilities, and quasi-public uses at intensities of up to .35 FAR.

Parks: Public and private recreation sites and facilities at intensities of up to .10 FAR.

General Plan Policies

The General Plan contains policies that seek to maintain a program of land uses which would support San Ramon as a self-sustaining city offering high quality jobs, a range of housing options, and community services and facilities. San Ramon has grown significantly over the past several years, with a 15 percent increase in population and a 25 percent increase in jobs between 1995 (when the previous General Plan was updated), and 2002. The City is projected to continue to grow, both in terms of jobs and population. The General Plan serves as the City's vision for long-range physical and economic development and resource conservation, and contains policies and implementation programs to help achieve this vision.

Land Use Element

The fundamental land use policies are located within the General Plan Land Use element, which contains a land use framework and supporting policies intended to guide development in the City for the next 20 years. The land use framework guiding principles seek to ensure that growth and

development will continue in San Ramon in an orderly fashion, with growth occurring in a compact form, and occurring in manner that allows for the efficient provision of facilities and services.

The Smart Growth Mandate of Measure G promotes infill development within the UGB and discouraging urban sprawl by providing a mix of commercial, retail, educational, recreational and housing uses. Measure G was passed in 1999 and mandated that the General Plan Review committee prepare a new General Plan for the City of San Ramon and submitted for voter approval. This new mandate required that the new General Plan be approved by voters, which was designated to lend credibility and strength to the document for the future growth and development of the City. Consistent with Measure G, the General Plan was developed with substantial public participation and was adopted by voter approval. The plan was approved by voters on March 15, 2002.

The General Plan includes an UGB, established in response to Measure G, to promote compact development, discourage urban sprawl, and protect rural lands and open space resources within the Planning Area. The UGB encourages increased densities and infill development, while preserving open space and natural resources and limiting the extent of urban development and services outside of the boundary. The NWSP Area falls entirely within the UGB.

The land use policies contained in the General Plan encourages a wide range of housing opportunities to help address the rising housing prices in the Bay Area. The use of creative site design and architectural quality is also noted as a policy, which demonstrates the City's commitment to maintaining an attractive, high-quality environment. Land Use policies prohibit gated communities; require high quality facilities, services, and other amenities be provided within close proximity to residents; and ensure that all residential development provides adequate on-site parking.

The General Plan Land Use Element contains policies designed specifically to guide the type, mix, and quality of development in the NWSP Area.

Policies contained in the Land Use Element of the General Plan:

4.7-I-1: Prepare a Northwest Specific Plan for the area delineated on the General Plan Diagram to guide the future development of these lands as compact urban neighborhoods offering a mix of housing types, including workforce housing, public and semipublic uses, and significant park and open space areas. This plan shall respond to the Smart Growth mandate of the General Plan and include as a minimum the following elements:

- Land use program, providing for development in the area east of Bollinger Canyon Road of up to 715 housing units, 15-20 acres of land for a school site (to revert to parkland or permanent open space if a school is not provided), community facilities, and a site for a house of worship. In the area west of Bollinger Canyon Road [Western Plan Area], 40 housing units may be developed, providing a maximum of 755 housing units in the NWSP Area.

- A workforce housing program providing that at least 25 percent of all units within the NWSP Area are affordable to Very Low, Low, and Moderate income households.[1] Such a program will determine the timing for workforce housing relative to the City's employment growth, the most appropriate income split, rental-to-ownership ratio, deed restrictions, and phasing requirements. As an additional incentive for workforce housing, the development limit set in the land use program may be exceeded by up to 10 percent in order to accommodate an additional housing unit for each additional affordable unit provided in excess of the minimum requirement. With this 10 percent additional amount allowed, the maximum capacity for residential development within the NWSP Area is 830 units (755 units + 10 percent (75) = 830).
- Development standards and design guidelines for building height, location, massing, parking, landscaping, signs, buffering, and transition requirements between uses, compatibility with existing neighborhoods, undergrounding of utilities, etc.
- Vehicular connections to Bollinger Canyon Road in the west and an improved Purdue Road in the east, as well as pedestrian connections to existing neighborhoods along Deerwood Road.
- Infrastructure program, including roadway, sewer, water, electricity, and drainage access, design, and capacity.
- Open space protection and trails program, including designation of at least 75 percent of the site for schools, parks, common and public open space uses, ownership and maintenance of public and private open space, and design of open space amenities, such as staging area, trails, and connections.
- Hazards program, including standards and guidelines to address unstable slopes, soils, Alquist-Priolo zone, etc.
- Exemptions required from Ordinance 197, which will require voter approval.
- Implementation, financing and maintenance program, including cost of and responsibility for necessary capital and other improvements, phasing of development, financing measures, plan administration and enforcement, etc.

Housing Element

The Housing Element of the General Plan focuses on providing opportunities for different types and levels of housing development throughout San Ramon. The Housing Element recognizes that there is a housing crisis in the Bay Area, and it contains goals, policies, and quantified objectives that are intended to help alleviate the housing crisis.

Affordable/Workforce Housing. The City of San Ramon has made a commitment to providing affordable housing, particularly workforce housing. The Housing Element contains policy direction

[1] Household incomes as defined by the 2004 Housing Element of the San Ramon General Plan are;

- *Very Low*: Those households with income less than 50 percent of the County's area median income (or less than $31,650 annually).
- *Low*: Those households with income between 50 and 80 percent of the County's area median income (or $31,651 - $50,640 annually).
- *Moderate*: Those households with income between 80 and 120 of the County's area median income (or $50,641 - $75,960 annually).
- *Above Moderate*: Those households with income above 120 percent of the County's area median income (or greater than $75,961 annually).

that requires housing developments with more than ten units to provide Below Market Rate (BMR) units through new construction, donation of land, or payment of in-lieu fees. A minimum of 25 percent of all residential units shall be constructed as BMR units, with guarantee of affordability for 50 years.

Regional Housing Needs Determination. By State mandate, the Association of Bay Area Governments (ABAG) is charged with quantifying housing needs that are generated by the region as a whole. These regional housing needs are then estimated for each jurisdiction in the Bay Area. Housing needs are based primarily on projected growth in households and job. For the period of January, 1999-June 2006, San Ramon's share of the regional housing need is currently estimated to be 3,389 units, according to the recently updated Housing Element of the San Ramon 2020 General Plan (City of San Ramon, 2004).. These units are broken into income categories as follows:

INCOME LEVEL[2]	NUMBER OF UNITS
Very Low	591
Low	372
Moderate	984
Above Moderate	1,442
Total:	***3,389[3]***
Source: City of San Ramon, 2004	

Housing Opportunity Sites. The Housing Element identifies housing opportunity sites in San Ramon, and includes the NWSP Area as a housing opportunity site.

Quantified Housing Objectives for General Plan Buildout. The Housing Element identifies quantified objectives for housing development for the NWSP Area during the timeframe of the Housing Element. The Housing Element provides an estimate of the City's production objectives by year 2006 based on realistic pace of development, level of funding resources available, and other resources. The NWSP allows for a total of 830 units as shown in Table 3-1 of the Project Description.

The quantified objectives for the NWSP Area, contained in the General Plan, are consistent with the Inclusionary Housing Program of the NWSP.

Open Space and Conservation Element

The Open Space and Conservation Element of the General Plan contains policies for planning for open space preservation and management in San Ramon. According to the Open Space and Conservation Element, open space in San Ramon is preserved for a variety of purposes: public health and safety, preservation of natural resources, managed production of resources, outdoor recreation, and as a means of shaping and limiting urban form (City of San Ramon, 2002).

Many of the guiding and implementing policies regarding open space relate to the NWSP Area, and the resources contained within this Area. Policies refer to the protection of hillside and ridgeline

[2] Refer to footnote number one, above.
[3] The The certified Housing Element has a technical error in Table 11-2.2. The correct number is 3,389 and does not change the City's Certified Housing Element.

areas, as well as natural resources such as woodlands, creeks, riparian corridors, viewshed corridors, wildlife habitat, and prominent topographic features.

Measure G mandated "a plan for the acquisition of ridgeline lands, contiguous to the City of San Ramon, to be preserved for open space purposes in perpetuity." As part of this mandate, the Open Space Preservation and Action plan was developed, and incorporated as part of the Open Space and Conservation element. This plan includes a system of policies designed to protect the City's open space resources (City of San Ramon, 2002).

Policies contained in the Open Space Conservation Element of the General Plan:

The guiding policy of the Measure G Open Space Conservation Plan states the following intention:

8.4-G-1: Expand the ridgeline and hillside open space system in the City's Planning Area by joint efforts with East Bay Regional Parks District, Contra Costa County and nonprofit trustee agencies.

According to the General Plan, this guiding policy expresses the open space preservation goal of Measure G, and recognizes the need for a cooperative effort.

The Open Space Conservation Plan also contains a number of implementing policies, which are intended to put into action the goals of the Plan. Several of the implementing policies are relevant to the planning for the NWSP Area, including the following:

8.4-1-5: Establish priorities for open space preservation and acquisition based on an evaluation of:

- Significant natural areas that are historically, ecologically, or scientifically unique or are outstanding, important, or threatened;
- Ridgelines and viewsheds over 650 feet elevation, as well as scenic vistas;
- Wildlife habitats and fragile ecosystems in need of protection;
- Creek environments;
- Lands suitable for recreation such as hiking, photography, nature study, bicycling, horseback riding, and fishing; and
- Land suitable for agricultural production.

This policy is relevant to the NWSP Area for several reasons; it contains ridgelines over 650 feet in elevation, and also contains Bollinger Creek.

City of San Ramon 2020 General Plan EIR

In the General Plan EIR, the following land use impacts are identified:

Impact 4.1-a: New development under the proposed General Plan would result in the loss of open space.

Impact 4.1-b: New policies in the General Plan encourage or provide incentives for development that may alter the scale and character of the City.

Impact 4.1-c: Development under the General Plan could potentially alter the views of the City.

Each of these impacts were determined to be less than significant after mitigation by implementation of policies in the General Plan. Impact 4.1-a was identified in response to development that would convert open space to urban uses. The General Plan EIR identified mitigation measures that would reduce these impacts to a less than significant level, including the following measures relevant to the NWSP Area:

4.6-I-1: Establish an ultimate Urban Growth Boundary (UGB) to the year 2020, as shown on the General Plan Diagram, that limits the extent of urban development and services within the San Ramon Planning Area. Amendments to the Urban Growth Boundary require City voter approval.

4.6-I-7: Require clustering of residential development of four or more units in rural conservation areas subject to appropriate standards, including: habitat, ridgeline and viewshed protection, size and spacing criteria, and provision of adequate rural services. Allow exemptions from clustering requirements at lower elevations on sites screened from view from the road where larger lot development would not adversely affect sensitive habitat (see Table 4.6-1 [of the General Plan]). (Additional standards are listed.)

8.4-I-1: Coordinate with the East Bay Regional Park District, Contra Costa County and nonprofit trustee agencies in the creation of an institutional framework and financing mechanisms necessary to acquire additional ridgeline areas and agricultural lands, and to preserve, restore, and manage important open space.

8.4-I-2: Establish regulatory incentives for open space preservation, including provision for transfer of development rights (TDRs).

8.4-I-3: Establish a secure funding source for open space acquisition and management sufficient to enable acquisition and preservation of a ridgeline and hillside open space system.

8.4-1-5: *Described above.*

Impact 4.1-b, which identified the preparation of the NWSP as one of the policies that may have potential impacts on the visual character, street systems, land uses, and building form of San Ramon, was determined to be mitigated by a combination of the City's Growth Management Performance Standards and several General Plan policies, including the following policies relevant to the NWSP Area:

4.6-I-7: *Described above.*

4.6-I-16: Establish development and design standards related to residential development in hillside areas. (Specific standards are listed.)

4.6-I-22: Establish design standards for mixed use development that will result in a high quality pedestrian-scaled environment, with one-to-four story buildings, side or rear parking areas, streetfront windows and entries, and public and private open space.

4.8-I-5: Encourage the linkage and integration of new development with existing neighborhoods by means of open space areas, parks, and pathways as a means of enhancing pedestrian connections.

4.8-I-8: Use the development review process to ensure that new development preserves and/or enhances significant views of the natural landscape.

4.8-I-16: Maintain the predominant low building form throughout the City.

4.8-I-18: Allow encroachments into the sun access plane to provide architectural flexibility. This may be done by allowing, for example, a 15-foot vertical projection above the sun access plane for up to 25 percent of the length of the lot line opposite the public park.

4.8-I-20: Continue to provide park resources that combine well-designed buildings, recreational equipment and playing fields, and complementary landscaping at key locations throughout the City.

5.1-I-6: Implement the following transportation programs: the Commute Alternative Program, the Traffic Engineering and Traffic Safety Program, the Residential Traffic Calming Program, and the Safe Routes to School Program.

6.5-I-1: Establish and maintain a standard of 6.5 acres of public parks per 1,000 residents, and public facilities to be within one-half mile of all homes with only usable acreage considered in meeting this standard.

8.3-I-3: Preserve as open space significant creek, trail, and viewshed corridors, areas of riparian and wildlife habitat, and prominent topographic features.

8.4-1-3: *Described above.*

8.4-1-5: *Described above.*

8.4-I-6: Use urban growth boundaries, specific plans, subdivision review procedures, and zoning performance standards to shape the development of the City, protecting and buffering important open space, preventing urban sprawl, and promoting infill development within the urban growth boundaries.

Impact 4.1-c was identified in response to the proposed development in areas of ridgelines and hillsides in the General Plan. The General Plan EIR determined that, in concert with the City's Resource Conservation Overlay District, certain General Plan policies, including the following policies relevant to the NWSP Area, would reduce Impact 4.1-c to less-than-significant levels:

8.4-G-1: *Described above.*

8.4-I-1: *Described above.*

8.4-I-5: *Described above.*

8.4-I-13: Provide incentives for clustering of allowable residential use on infill sites to avoid unnecessary grading and site development inconsistent with Plan policies for open space and resource conservation.

8.4-I-14: New development shall cooperate with Contra Costa County, East Bay Regional Park District, and neighboring jurisdictions to create a connecting region-wide open space system.

8.4-I-15: With voter approval, allow exemptions from the provisions of Ordinance 197, specifically, the prohibitions of developer on or adjacent to Major and Minor ridgelines, only where:

- The area to be preserved as permanent open space includes upper ridges and visible hillsides with a total area that is at least four times the area to be developed. A portion of this 80 percent open space commitment, not to exceed five percent of the total site area, may be provided by dedication of permanent open space off-site on a 2:1 basis (two acres of off-site open space = one acre of on-site open space). Only land that is within one-half mile of the area for which the exemption is sought, is designated as a Ridgeline Protection Zone by Ordinance 197, or is on a hillside visible from Central Park would meet the City's standards for a Specialized Recreation Area and quality as off-site open space under this provision;
- The area to be developed is within the City's Urban Growth Boundary (UGB);
- Trail connections to existing and planned trails are provided;
- Habitat protection for sensitive species is assured; and
- The development includes enforceable commitments to increase the City's stock of affordable housing, consistent with the General Plan.

Applicable City Ordinances and Measures

The following City ordinances and measures are applicable to the NWSP Area, including the Faria Preserve Project Site.

Resource Conservation Overlay District and Ordinance 197

Background

The Open Space and Conservation Element of the City's General Plan explains that the City's principal tool for the regulation of open space areas is the Resource Conservation Overlay District (RCOD). In 1990, the City Council strengthened the RCOD by enacting Ordinance 197. Ordinance 197 amended the City's then-current General Plan (a plan adopted in 1986) to require that all land within the City limits, or to be annexed to the City, above 500 feet in elevation be subject to the

policies of the RCOD. These policies include a prohibition of structures on most slopes greater than 20% and within 100 vertical feet of major ridgelines, a maximum allowable density formula for slopes between 10% and 20% (except that densities may be transferred on such slopes within a project area), and a building height limit of 32 feet. Ordinance 197 also provided that exceptions to such policies must be approved by the voters of San Ramon.

According to Ordinance 197, the specific purposes of the Resource Conservation Overlay provisions are to:

- Maintain an environmental equilibrium consistent with existing vegetation, soils, slopes, and drainage patterns, and to preserve the natural topography, including creeks and associated habitat, swales, canyons, knolls, ridgelines, and rock outcrops;
- Avoid development that would result in unacceptable fire, flood, slide, or other safety hazards;
- Avoid unwarranted high maintenance costs for public facilities;
- Provide a mechanism for flexible design of residential development projects in hillside areas so that development may be concentrated in those areas with the greatest environmental carrying capacity, and areas with low environmental carrying capacity developed at very low density, or reserved as permanent open space; and
- Encourage design of street systems and driveways that conform to natural contours.

Grading Ordinance (Ordinance No. 164)

The intent of this ordinance is to promote and conserve natural resources including streams, watersheds, hills and vegetation, thus protecting the natural beauty of the land. Ordinance 164 reduces or eliminates land hazards and minimizes the adverse effects of grading, cut and fill operations, and water runoff and soil erosion. The provisions of Ordinance 164 were adopted to protect the health and safety of City residents.

The City has rules and regulations in effect to control excavation, grading, earthwork construction, including fills and embankments. The appropriate administrative measures must be taken, including a complete application submitted by the Project Sponsor, as well as the issuance of permits and plan check approval.

Specific regulations for grading are:

- Cut slopes should be no steeper than two horizontal to one vertical (2:1), unless justified by a soil engineer or engineering geology report;
- Fills should be no steeper than 2:1 unless justified by a soil engineer or engineering geology report; and
- The appropriate setbacks stated within the ordinance will be applied to tops and toes of cut and fill slopes.

Tree Preservation (Ordinance No. 188)

San Ramon values trees due to their natural scenic beauty, the increases in property value they generate, and the way they encourage quality development for successful future growth. Under the City's tree preservation ordinance (Ordinance 188), a protected tree is defined as:

- Any oak tree having a trunk or main stem 15 inches or greater in circumference, or a multi stemmed oak having an aggregate circumference of 20 inches or more;
- Any tree (exclusive of oak) with the same main stem measurements of the oak, or a multi stemmed circumference of 40 inches or more;
- Any tree that stands four feet six inches above natural grade on any type of lot or grade;
- A memorial tree; and/or
- A tree planted as a replacement for an unlawfully removed tree.

A permit must be retained from the City of San Ramon in order to remove any protected tree.

City of San Ramon Zoning Ordinance

There are several existing prezoning districts applied to the NWSP Area: agriculture, residential, and parks. A majority of the site is prezoned Agriculture with a Resource Conservation Overlay applied (AG/RC). The entire NWSP Area falls within the Resource Conservation Overlay district (City of San Ramon, 1989).

In addition to the agricultural zoning district, the NWSP Area currently contains two residential zones: Rural Residential (RR), and Residential Estate (RE). Rural Residential is intended to provide opportunities for rural living, including rural subdivisions and scattered homes on parcels with a minimum lot size of five acres (density of one dwelling unit/five acres). Residential Estate is intended to provide opportunities for very low density residential land use, at a density of .2-3 dwelling units/acre, compatible with the topography and the public service capacities (City of San Ramon, 1989).

A small area at the intersection of Crow Canyon Road and Bollinger Canyon Road is prezoned as Park (P), with the Resource Conservation Overlay applied.

The City is currently undertaking a Zoning Ordinance Update in order to conform its Zoning Ordinance to the comprehensive land use designations and plans approved by voters in the General Plan. The City's Zoning Ordinance Update does not alter prezoning of areas outside of existing city boundaries and therefore does not propose to itself change the prezoning for the NWSP Area. However, consistent with City policy, including the current Zoning Ordinance Update, it is policy of the City of San Ramon to generally conform its zoning regulations to reflect the land use relationships, goals, policies, and objectives of the voter-approved General Plan.

The NWSP has been prepared so that it may also serve as a set of zoning regulations that provide specific direction to the type and intensity of uses permitted as well as development criteria (such as preservation of open space and natural resources) within the NWSP Area. It is therefore anticipated

that particular development within the NWSP Area will have Planned Development District (PD) zoning (or prezoning) approved for sites within the NWSP Area. The PD zoning ordinance will incorporate by reference the development regulations set forth in the Specific Plan.

Faria Preserve

The Faria Preserve Project Site constitutes the 290-acre portion of the NWSP Area located east of Bollinger Canyon Road and north of Crow Canyon Road.

A subset of the existing conditions described above, including land use characteristics, surrounding land uses, and General Plan land use designations, apply to the Faria Preserve Project Site, as described below. The General Plan policies and City ordinances and measures described above apply to the Faria Preserve Project Site and so are not repeated again here.

Existing Conditions

The Faria Preserve is located outside of Contra Costa County's Urban Limit Line. However, it is located entirely within the City of San Ramon's voter-approved UGB.

Land Use Characteristics

Like the rest of the NWSP Area, the Faria Preserve is characterized by rugged topography. The site's terrain includes many slopes forming high ridges and low valleys in the area. Portions of the Faria Preserve have slopes of greater than 20 percent. All three of the major ridgelines within the NWSP Area are located within the Faria Preserve and run generally in a northwest-southeast direction. Figure 8-3 of the Open Space and Conservation element of the City's General Plan identifies that two of these three major ridgelines may be altered by grading.

Surrounding Land Uses

To the east of the Faria Preserve is the Crow Canyon subarea, which incorporates existing industrial, office, and commercial uses. Immediately south of the Faria Preserve are the several single-family residential and multi-family residential neighborhoods identified above in the Surrounding Land Uses for the entire NWSP Area. To the west of the Faria Preserve is the pie-shaped area containing existing residential development that lies between the Faria Preserve and the Western Plan Area. A portion of the northern boundary of the Faria Preserve abuts open space leading up to Bollinger Canyon. The remainder of the northern boundary of the Faria Preserve, however, abuts low density residential development located in the City of Danville.

General Plan Designations

Of the General Plan Land Use designations identified above for the entire NWSP Area, the following are applied in the Faria Preserve: Hillside Residential, Medium Density, Multiple-Family High Density, Open Space, Parks, and Public and Semipublic. The densities and uses allowed by

these designations are the same as identified above. The entire Faria Preserve Project Site is identified in the City's certified Housing Element as a Workforce Housing Opportunity Site that would enable the City to meet its quantified housing objectives, including for affordable housing.

Western Plan Area

The Western Plan Area constitutes the 63.5 acre portion of the NWSP Area located west of Bollinger Canyon Road and north of Crow Canyon Road.

Similar to the Faria Preserve Project site, a subset of the existing conditions described above, including land use characteristics, surrounding land uses, and General Plan land use designations, apply to the Western Plan Area, as described below. The General Plan policies and City ordinances and measures described above apply to the Western Plan Area and so are not repeated again here.

Existing Conditions

The Western Plan Area is located within Contra Costa County's Urban Limit Line. It is also located entirely within the City of San Ramon's voter-approved UGB.

Land Use Characteristics

Like the rest of the NWSP Area, the Western Plan Area is characterized by rugged topography. The majority of the Area is hilly. The topography is dominated by a northwest-trending ridge on the west side of Bollinger Creek, at the southern end of the larger regional Rocky Ridge.

Surrounding Land Uses

To the east of the Western Plan Area is the pie-shaped area containing the existing residential development described above under Existing Conditions, and the proposed Faria Preserve,. Immediately south of the Western Plan Area are single family-low medium density residential neighborhoods. Lands to the west of the Western Plan Area is mostly undeveloped, and there are rural residential uses adjacent to the north.

General Plan Designations

Land uses in the Western Plan Area include rural conservation, hillside residential, open space and parks. The densities and uses allowed by these designations are the same as identified above. The western portion of the Western Plan Area is identified in the City's certified Housing Element as a Workforce Housing Opportunity Site that would enable the City to meet its quantified housing objectives, including for affordable housing.

4.8.2 Thresholds of Significance

In accordance with Appendix G of the California Environmental Quality Act (CEQA) Guidelines, the proposed NWSP and Faria Preserve would have a significant impact to land use, if either would:

- physically divide an established community;
- 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, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
- conflict with any applicable habitat conservation plan or natural community conservation plan.

Potential land use conflicts may also be considered significant adverse impacts if they are related to potential incompatibilities or conflicts between existing and proposed uses. Land use conflicts may occur if noise, air quality, biology, hydrology, or other environmental impacts are considered significant. A more complete discussion of these issues can be found in the relevant sections of this DEIR.

4.8.3 Environmental Evaluation

Policy Consistency Analysis

This section evaluates consistency with plans and policies and is intended to provide perspective on whether the NWSP and the Faria Preserve fit into the framework of goals and policies that the City of San Ramon has adopted to guide its future growth and development.

Division of an Established Community:

The NWSP Area is located immediately within the City's voter-approved UGB and is bordered by existing low density residential development in neighboring Danville and open space to the north, existing industrial and commercial uses to the east, and existing higher density residential development to the south. Land outside of the City's UGB lies to the west of the NWSP Area. The very low density development to the north in Danville is not part of the same existing community as the residential development in San Ramon located south of the NWSP Area. The NWSP and the Faria Preserve would enhance pedestrian and vehicular connections to surrounding communities as well as develop existing grazing land with new and revitalized land uses. The emphasis of the NWSP and the Faria Preserve is to create public and residential land uses that are easily accessible. Development of the NWSP Area, including the Faria Preserve, would not divide an established community. Therefore, there is no impact.

Consistency with Plans, Policies & Regulations Designed to Mitigate or Avoid Environmental Effects:

Consistency With General Plan Land Use Relationships, Policies, Goals & Objectives:

Development of the NWSP Area, including annexation, would result in a City boundary that is coterminous with the UGB adopted by San Ramon voters in 2002. The NWSP provides for a range of residential land uses that reflect the land use relationships illustrated on the General Plan Land Use Diagram while at the same time implementing the other important policies of the General Plan, including its Resource Conservation and Open Space policies and its mandate that there be a range of residential densities. The land uses and land use relationships established by the NWSP are consistent with the criteria and standards of the specific plan policies contained in the General Plan. The Faria Preserve Vesting Tentative Map is, in turn, reflective of those same land use relationships illustrated in the General Plan and in the NWSP. There is therefore no conflict with the land use relationships established by the General Plan.

Consistency With General Plan Policies

Land Use Element Policies

The NWSP and the Faria Preserve both implement the land use policies of the voter-approved General Plan. They therefore create no conflict with any of the land use policies intended to avoid or mitigate environmental effects. As explained further in the Project Description:

- The NWSP provides for a total of 830 residential units in the NWSP Area: 786 within the Faria Preserve and 44 in the Western Plan Area (including 10 percent density bonus units). The NWSP includes an affordable housing program that ensures that over 28 percent, or 238 of the 830 total residential units, will be affordable to Very Low, Low, and Moderate income households. With its affordable housing program and the density bonus, the Specific Plan provides for development of 830 residential units in the NWSP Area, consistent with the land use and affordable housing policies identified by the General Plan for the NWSP Area (755 units +10%(75) = 830. In addition, the Specific Plan and the Faria Preserve provide 13.2 acres of park area (located adjacent to 25 acres of passive open space), a 1.6 acre educational use site, and 6.1-acre house of worship site, consistent with the Land Use Element policies pertaining to the NWSP Area.

- The NWSP includes a main internal roadway extending through the Faria Preserve Project Site connecting Bollinger Canyon Road in the west and an improved Purdue Road in the east as well as pedestrian connections between the NWSP Area and existing residential neighborhoods along Deerwood Road to the south. As set forth in the Project Description, the NWSP and the Faria Preserve include an infrastructure program that consists of roadway, sewer, water, electricity and drainage access, design, and capacity.

- Development standards and design guidelines for building height, location, massing, parking, landscaping, signs, buffering and transition requirements between uses, compatibility with existing neighborhoods, and undergrounding of utilities have been developed and would be

approved in connection with development proposals, including the Faria Preserve, within the NWSP.

- Proposed development of up to 44 single-family homes (including 10 percent density bonus units) and local street improvements in the Western Plan Area would provide for permanent preservation of at least 75 percent of the approximately 63.5 acres within the Western Plan Area for open space related uses. In connection with the Faria Preserve, 217.56 acres are designated for schools, parks, common and public open space uses, ownership and maintenance of public and private open space, and design of open space amenities such as staging areas, trails, and connections, as required by the land use policies of General Plan applicable to the NWSP Area.

- The NWSP includes standards and guidelines to address unstable soils, slopes, and fault zones. It also includes an implementation program, which sets forth the financing and maintenance program, including cost of and responsibility for necessary capital and other improvements, phasing of development, financing measures, plan administration and enforcement. (See the NWSP, Chapter 7).

Housing Element Policies:

The NWSP provides for development of 238 units affordable to very-low, low-, and moderate-income households. This represents over 28 percent of all units to be developed in the NWSP Area and is therefore consistent with the Housing Element's affordable housing policies. The up to 830 residential units provided for in the NWSP allow the potential to maximize the use of the NWSP Area as a housing opportunity site and assist the City to meet its quantified housing objectives for General Plan buildout. Of these 238 affordable units, 226 are proposed for the Faria Preserve, amounting to over 28 percent of the total units proposed for the Faria Preserve. This affordable housing commitment satisfies the General Plan's affordable housing policies and objectives, which in part may mitigate environmental impacts arising from jobs/housing imbalances and related issues.

Open Space & Conservation Element:

The NWSP provides for the protection of significant portions of two major ridgelines running through the NWSP Area, as called for in the General Plan. The Faria Preserve is consistent with the open space policy of expanding the ridgeline and hillside open space system in the City's Planning Area through its preservation of protected ridgelines within the Faria Preserve and its provision of a permanent conservation easement over the approximately 143.8-acre Adjacent Faria Offsite Preservation Area.

The NWSP carries forward the General Plan policies requiring that the designation of at least 75 percent of the site for schools, parks, common and public open space uses, ownership and maintenance of public and private open space, and design of open space amenities, such as staging areas and trails and connections. In connection with the Faria Preserve, 217.56 acres are designated

for schools, parks, common and public open space uses, and open space amenities, resulting in dedication of more than 75 percent of the Faria Preserve to these uses.[4]

The Faria Preserve improves upon this ratio to implement open space policies relevant to the Resources Conservation Overlay District. The Faria Preserve provides for permanent dedication and protection through conservation easements of the 143.8 acre Adjacent Faria Offsite Preservation Area, which is located immediately adjacent to the Faria Preserve, is within a Ridgeline Protection Zone, and includes visible hillsides. With the preservation of this adjacent off-site hillside open space, the Faria Preserve actually achieves an overall ratio of 80 percent open space to 20 percent residentially developed area.

The system of open space areas incorporated into the NWSP reflects an evaluation of the location and importance of various resources, as contemplated by the General Plan's open space and conservation policies. The NWSP avoids major ridgelines identified for protection by the General Plan for their scenic values. The NWSP provides for the creation and enhancement of a riparian corridor in the location of a degraded seasonal drainage through the Faria Preserve. The NWSP provides for the continued protection of Bollinger Creek as it passes through the Western Plan Area. Finally, the NWSP establishes a trail system and staging area that take advantage of the ridgelines and scenic features of the site.

Consistency With Applicable City Ordinances & Measures:

Resource Conservation Overlay District and Ordinance 197:

The NWSP's proposed land use program is also consistent with the General Plan's Open Space and Conservation Policies and the City's Resource Conservation and Overlay District (RCOD).

In 2002, San Ramon voters approved a new General Plan, which included certain exceptions to the RCOD policies for the NWSP Area. Specifically, the voter approved General Plan expressly provided that portions of two of the three major ridgelines within the NWSP Area may be altered by grading, and that housing and other community facilities may be developed on these and other areas, which include slopes that exceed 20%, to meet the goals and objectives of the General Plan for the NWSP Area. (Gen. Plan Fig. 8-3, "Ridgelines, Viewsheds, and Resource Conservation Zone").

Consistent with the requirements of the City of San Ramon General Plan, all five neighborhoods in the Plan's land use program are located outside the portions of the major ridgelines and crests that remain protected by the General Plan. There are no protected minor ridgelines within the NWSP Area.

The RCOD's slope-density formula would permit overall development of up to 910 residential units on the eastern portion of the NWSP Area (the Faria property) and 53 residential units within the Western Plan Area (Chang and Panetta Properties). This results in a total minimum permitted

[4] Residential development areas within the Faria Preserve amount to 72.36 acres, while areas dedicated to schools, parks, common and public open space uses, ownership and maintenance of public and private open space, and design of open space amenities, such as staging areas, trails, and connections, etc. pursuant to General Plan Policy 4.4-I-1 is 217.56 acres. Excluded from these totals is approximately 0.7 acres, which represents the net loss of acreage pursuant to exchange agreements required to secure access for the central collector road, the Faria Preserve Parkway -- a necessary public facility that provides access to the park, open space, and other community uses.

development of up to 963 units.[1] Consistent with the General Plan land use policies for this area, the NWSP proposes development of up to 830 units, fewer than the maximum number of units that would be permitted under the RCOD slope-density formula. The Plan also locates the 830 units on the site in a manner which promotes General Plan policies (protection of the natural environment and preservation and provision of affordable housing). Specifically, the Plan allocates 75% of the property for open space, trails and other community-serving uses, and provides 25% affordable housing and extensive public and semi-public amenities.

The General Plan did not, however, provide that buildings within the NWSP Area could exceed a height of 32 feet, nor are such building heights required to accomplish the goals and policies of the General Plan for the NWSP Area. Accordingly, voter approval of buildings taller than 32 feet would be required to develop buildings greater than 32 feet in height to be consistent with this policy. The owner of the Faria Preserve property has submitted both flat roof and pitched roof designs for the apartment buildings located in Neighborhood C. While the flat-roof buildings are less than 32 feet in height, the pitched roof design results in apartment buildings that slightly exceed 32 feet. Accordingly, to ensure consistency with the RCOD policy, the NWSP approves the use of either a flat-roof design or a pitched roof design, provided that the pitched roof design is first approved by the voters of San Ramon.

Prerequisites for Exceptions to Ordinance 197

The General Plan requires that certain prerequisites also be met before an exception to the RCOD policies may be implemented, including an 80% open space commitment (which can include an off-site component), consistency with the City's UGB, habitat protection for sensitive species, and inclusion of affordable housing. (General Plan Policy 8.4-I-15). The proposed project within the Faria Preserve satisfies each of these prerequisites and therefore could be granted an exception by voters to allow buildings in excess of 32 feet in height. Any development application for the Western Plan Area that would require exceptions from Ordinance 197 would also be required to satisfy these prerequisites.

The table below presents the policies of Ordinance 197 and identifies the NWSP's compliance with each.

Grading Ordinance (Ordinance No. 164)

The grading plan submitted in connection with the Faria Preserve complies with the requirements of the City's Grading Ordinance. Compliance with the Faria Preserve grading plan and the policies of the City of San Ramon Grading Ordinance would be enforced through conditions of approval.

[2] The maximum unit count of 963 units under the RCOD slope density formula was determined by first applying 200'x200' grids across the property, as parallel as possible to the natural grade contour lines. The RCOD's slope densities were then applied to the Faria and Chang properties, consistent with the slope density formula (1 unit per 5 acres for slopes betweeen 15% and 20%, 1 unit per acre for slopes between 10% and 15%, and 10.6 units per acre for slopes less than 10%). The resulting slope analysis showed permitted unit counts of 828 units on the eastern portion of the NWSP Area (Faria Preserve) and 49 units on the Western Plan Area (Chang and Panetta Properties). With application of the General Plan's density bonus provisions in light of the more than 25% affordable housing provided within the NWSP Area, the maximum unit count is 910 units within the Faria Preserve and 53 units on the Western Plan Area, for an overall total of 963 residential units within the NWSP Area as part of the RCOD analysis. However, this unit count of 963 is not consistent with General Plan direction.

Table 4.8-1: Project Compliance with the RCOD and Ordinance 197 Policies of San Ramon 2020 General Plan

PROVISION OF RCOD & ORDINANCE 197	NWSP CONSISTENCY
A. Structures shall be prohibited in the following areas: 1. Land with an existing natural slope in excess of 20% with a minimum elevation differential of 40 feet and a minimum contiguous area of 3 acres	Consistent, in accordance with vote on the City of San Ramon's General Plan (March 2002)
2. Crests of Major and Minor Ridges	Consistent, no exception required.
3. Within 100 feet, measured vertically of the centerline of a major ridge, or within 50 feet, measured vertically, of the centerline of a minor ridge	Consistent, no exception required.
4. Within 100 feet of the centerline of a creek or stream channel identified on the RCPZ map	Consistent, no exception required.
B. Density of lands on which structures may be built shall be limited to a maximum of 1 dwelling unit/5 acres on slopes between 15-20%, and 1 unit/1 acre on slopes between 10-15%. Within these density ranges, units may be transferred so as to create a relatively even density gradient from higher density on 10% slopes to lower density on 20% slopes, without increasing the total number of units. Areas on which structures are prohibited shall be credited with a density of 1 unit/320 acres, which density may be exercised only upon transfer to a developable area.	Consistent, no exception required.
C. Where structures are proposed within 1,000 feet of a major ridge, the building pad shall be graded and buildings designed and built so that the structure maintains a low profile appearance and conforms to the natural grade of the hillside.	Consistent, no exception required.
D. Alterations of existing natural or artificial contours of land shall be minimized. Any natural contour altered by grading shall be rounded and shaped, and revegetated to simulate natural terrain, unless on an individual site where this would diminish open space or significant natural features of the site. Grading shall follow the natural topographic contours as much as possible.	Consistent, no exception required.
E. Structures within areas subject to this section of the Conservation Element shall be limited to a maximum height of 32 feet from the lowest to the highest points of the structure which are above ground.	Exception required (dependent on the design of the housing units in Neighborhood C)
F. Maximum street grades shall be 12%, and maximum driveway grades shall be 15%. Special streets such as one-way streets, split-level streets, and dead-end streets, and minor variations from the grade standard may be acceptable when their use is justified by detailed engineering and traffic studies, upon finding that such streets and minor variations are necessary to achieve the purposes of this chapter.	Consistent , no exception required.

Table 4.8-1: Project Compliance with the RCOD and Ordinance 197 Policies of San Ramon 2020 General Plan (Continued)

PROVISION OF RCOD & ORDINANCE 197	NWSP CONSISTENCY
G. Building designs shall conform to the natural land form and enhance the character of the site, and should use the following techniques: 1. The use of multi-level foundations (floor levels separated by a minimum of 4 feet) shall be permitted as a design for residential structures located on hillsides with slopes of 15-20%. 2. Rooflines shall relate to the slope and topography, and shall be as inconspicuous as possible. Flat roofs may be used. 3. Second story levels of structures, if any, shall incorporate a variety of bays, recesses, overhangs, or setbacks, on the downhill side of the structure, so that the appearance of vertical mass and the visual impact on the surrounding area are reduced.	Consistent. Project consistency to be demonstrated through the development review process.
H. Where natural building pads do not exist on a parcel, limited grading shall be used to create building pads so that structures are low in profile and do not require retaining walls or support structures. Exterior structural supports and undersides of floors and decks shall not exceed 12 feet in height, and shall only be used where the Planning Commission finds that (1) no alternative type of construction is feasible; (2) grading to eliminate the need for such support structures would result in severe environmental damage and (3) no building area exists on the property which would eliminate or reduce the need for such supports. Where such support structures are used, the dwelling unit shall be limited to one standard story in height, above the support structure.	Consistent. Project consistency to be demonstrated through the development review process.

When development is proposed for the properties in the Western Plan Area, submittal of detailed grading plans will be required. Such plans will be checked during the administrative review of such future applications and will not be deemed complete unless compliant with the requirements of the City's Grading Ordinance.

Tree Preservation (Ordinance No. 188)

The Faria Preserve has proposed a Biological Mitigation/Enhancement and Monitoring Plan for the Faria Preserve Project Site, which provides for an overall increase in the number of oak trees at the Faria Preserve. As described more fully under Biological Resources (Chapter 4.3) and in the Biological Mitigation/Enhancement and Monitoring Plan, a total of 1,606 trees would be planted within designated tree replacement sites to achieve a tree mitigation ratio of 2.5:1. This replacement planting would be achieved through planting of native tree species whose seeds and cuttings are collected from oak woodlands in the project area prior to construction. The specific conditions under which the tree mitigation program would be administered are explained more fully in the Biological Mitigation/Enhancement and Monitoring Plan (Appendix B). Through these mitigation obligations, the Faria Preserve is consistent with the City's Ordinance 188.

In the Western Plan Area, development applications would be required to comply with the City's Ordinance 188. Consistency would be enforced through conditions of approval for properties in the Western Plan Area.

Given the analysis above, there is consistency between both the Faria Preserve and the NWSP and all City land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. There is therefore no impact from either implementation of the NWSP or development of the Faria Preserve.

Consistency With Habitat Conservation Plans or Natural Community Conservation Plan:

Implementation of the NWSP and development of the Faria Preserve would not conflict with any Habitat Conservation Plan (HCPs) or Natural Community Conservation Plan (NCCPs) as that would apply to the NWSP Area. Therefore, there is a less than significant impact from implementation of the NWSP or from development of the Faria Preserve.

References

City of San Ramon, 1989. San Ramon Zoning Ordinance. Adopted October 10, 1989.

City of San Ramon, 2001. City of San Ramon 2020 General Plan Draft Environmental Impact Report. EIR Certified November 13, 2001.

City of San Ramon, 2002. City of San Ramon 2020 General Plan. Approved by Voters of the City of San Ramon on March 5, 2002.

City of San Ramon, 2004. San Ramon General Plan 2020 Housing Element – July, 2004.

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4.9 NOISE

This section includes a summary of applicable regulations and a description of ambient noise conditions. It also includes an analysis of potential noise impacts of the Northwest Specific Plan (NWSP) at the program-level and the proposed Faria Preserve community at the project-level. The analysis examines the effects of short-term construction and long-term operational source noise, as well as the land use compatibility of the proposed project site. Mitigation measures are recommended, as necessary, to reduce significant noise impacts.

4.9.1 Existing Setting

Introduction

Noise is unwanted or detrimental sound. Tolerance for noise varies greatly from person to person and tends to develop based on past exposure and adaptation. Important predictors of a community's response, therefore, are the existing or "ambient" community noise level and the degree of change in the noise level. Communities set acceptable noise levels based upon the existing degree of quiet or noise in the community, the sensitivity of land uses, and other factors.

Acoustic Fundamentals

Sound Properties

A sound wave is introduced into a medium (air) by a vibrating object. The vibrating object (e.g., vocal chords, the string and sound board of a guitar, or the diaphragm of a radio speaker) is the source of the disturbance that moves through the medium. Regardless of the type of source creating the sound wave, the particles of the medium through which the sound moves are vibrating in a back and forth motion at a given frequency (pitch). The frequency of a wave refers to how often the particles vibrate when a wave passes through the medium. The frequency of a wave is measured as the number of complete back-and-forth vibrations of a particle per unit of time. If a particle of air undergoes 1,000 longitudinal vibrations in 2 seconds, then the frequency of the wave will be 500 vibrations per second. A commonly used unit for frequency is hertz (Hz).

Each particle vibrates due to the motion of its nearest neighbor. The first particle of the medium begins vibrating, at say 500 Hz, and sets the second particle of the medium into motion at the same frequency (500 Hz). The second particle begins vibrating at 500 Hz and thus sets the third particle into motion at 500 Hz. The process continues throughout the medium and hence each particle vibrates at the same frequency. Subsequently, a guitar string vibrating at 500 Hz will set the air particles in the room vibrating at the same frequency; thus, carrying a sound wave with a frequency of 500 Hz to the detector.

The back-and-forth vibration motion of the particles of the medium is not the only observable phenomenon occurring at a given frequency. Since a sound wave is a pressure wave, oscillations in pressure from a high pressure to a low pressure and back to a high pressure are also observable. Compression (high pressure) and rarefaction (low pressure) disturbances moving through a medium

will reach the detector at a given frequency. For example, a compression will reach the detector 500 times per second if the frequency of the wave is 500 Hz. Similarly, a rarefaction will reach the detector 500 times per second if the frequency of the wave is 500 Hz. Thus, the frequency of a sound wave not only refers to the number of back-and-forth vibrations of the particles per unit of time but also refers to the number of compression or rarefaction disturbances that pass a given point per unit of time. The frequency of these pressure oscillations over a given period of time can also be measured with a detector. The period of the sound wave can be found by measuring the time between successive high pressure points (corresponding to the compressions) or the time between successive low pressure points (corresponding to the rarefactions). The frequency is simply the reciprocal of the period and thus an inverse relationship exists so that as frequency increases the period decreases.

A wave is an energy transport phenomenon that transports energy along a medium. The amount of energy carried by a wave is related to the amplitude (loudness) of the wave. A high-energy wave is characterized by high amplitude; a low energy wave by low amplitude. The amplitude of a wave refers to the maximum amount of displacement of a particle from its rest position. The energy transported by a wave is directly proportional to the square of the amplitude of the wave. This means that a doubling of the amplitude of a wave is indicative of a quadrupling of the energy transported by the wave.

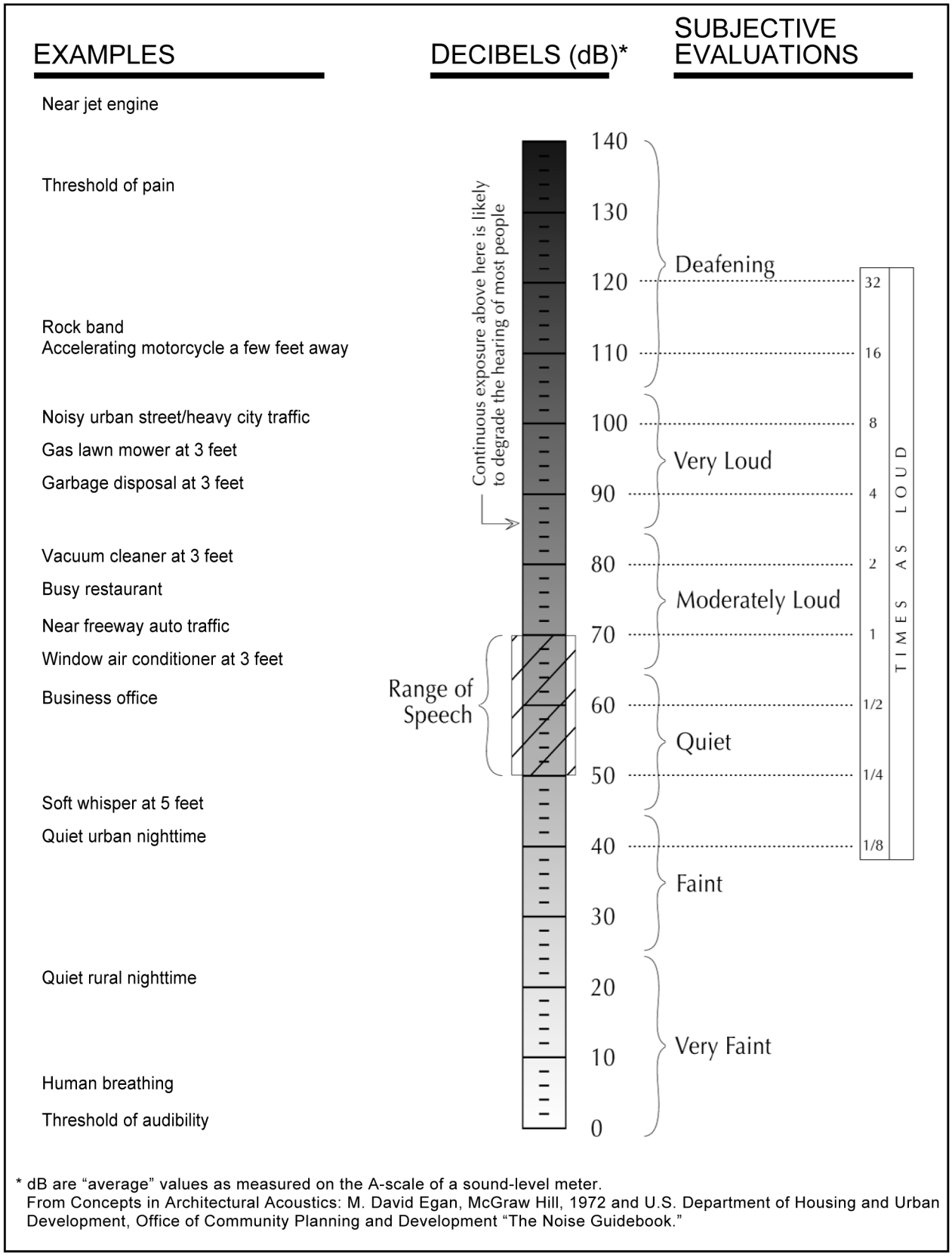
Sound and the Human Ear

Due to the ability of the human ear to detect a wide range of sound pressure fluctuations, sound pressure levels are expressed in logarithmic units called decibels (dB). The sound pressure level in decibels is calculated by taking the log of the ratio between the actual sound pressure and the reference sound pressure squared. The reference sound pressure is considered the absolute hearing threshold (California Department of Transportation (Caltrans), 1998).

In addition, since the human ear is not equally sensitive to all sound frequencies, a specific frequency-dependent rating scale was devised to relate noise to human sensitivity. An A-weighted dB (dBA) scale performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. The basis for compensation is the faintest sound audible to the average ear at the frequency of maximum sensitivity. This A-weighted dB scale has been chosen by most authorities for the purpose of regulating environmental noise. Typical indoor and outdoor noise levels are presented in Figure 4.9-1.

Amplitude is interpreted by the ear as corresponding to different degrees of loudness.

Generally, a 1 dBA increase is imperceptible, a 3 dBA increase is barely perceptible, a 6 dBA increase is clearly perceptible, and a 10 dBA increase is subjectively perceived as approximately twice as loud (Egan, 1988). Another feature of the decibel scale is that noise levels from multiple sources add together logarythmicaly. For example, a 65 dBA source of sound, such as a truck, when joined by another 65 dBA source results in a sound amplitude of 68 dBA, not 130 dBA (i.e., doubling the source strength increases the sound pressure by 3 dBA).



Source: EDAW, 2003

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Sound Propagation

As sound (noise) propagates from the source to the receptor, the attenuation, or manner of noise reduction in relation to distance, is dependent on surface characteristics, atmospheric conditions, and the presence of physical barriers. The inverse square law describes the attenuation due to the pattern in which sound travels from the source to receptor. Sound travels uniformly outward from a point source in a spherical pattern with an attenuation rate of 6 dBA/DD (doubling of distance). However, from a line source (e.g., a road) sound travels uniformly outward in a cylindrical pattern with an attenuation rate of 3 dBA/DD. The surface characteristics between the source and receptor may result in additional sound absorption and/or reflection. Atmospheric conditions such as wind speed, temperature, and humidity may affect noise levels. Furthermore, the presence of a barrier between the source and receptor may also attenuate noise levels. The actual amount of attenuation is dependent upon the barrier size and frequency of the noise. A noise barrier may be any natural or human-made feature such as a hill, tree, building, wall, or berm (Caltrans, 1998).

Noise Descriptors

The selection of a proper noise descriptor for a specific source is dependent upon the spatial and temporal distribution, duration, and fluctuation of the noise. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise are defined below (Caltrans, 1998, Lipscomb and Taylor 1978).

- L_{max} *(Maximum Noise Level)*: The maximum instantaneous noise level during a specific period of time. The L_{max} may also be referred to as the "peak (noise) level."
- L_{min} *(Minimum Noise Level)*: The minimum instantaneous noise level during a specific period of time.
- L_X *(Statistical Descriptor)*: The noise level exceeded X percent of a specific period of time.
- L_{eq} (Equivalent Noise Level): The energy mean (average) noise level. The instantaneous noise levels during a specific period of time in dBA are converted to relative energy values. From the sum of the relative energy values, an average energy value is calculated, which is then converted back to dBA to determine the L_{eq}.
- L_{dn} *(Day-Night Noise Level)*: The 24-hour L_{eq} with a 10 dBA "penalty" for the noise-sensitive hours between 10:00 p.m. and 6:00 a.m. The L_{dn} attempts to account for the fact that noise during this specific period of time is a potential source of disturbance with respect to normal sleeping hours.
- *CNEL (Community Noise Equivalent Level)*: The CNEL is similar to the L_{dn} described above, but with an additional 4.77 dBA "penalty" for the noise-sensitive hours between 7:00 p.m. to 10:00 p.m., which are typically reserved for relaxation, conversation, reading, and television. If using the same 24-hour noise data, the CNEL is typically ~0.5 dBA higher than the L_{dn}.
- *SEL (Single Event [Impulsive] Noise Level)*: The SEL describes a receiver's cumulative noise exposure from a single impulsive noise event, which is defined as an acoustical event of short duration (0.5 second) and involves a change in sound pressure above some reference value (approximately 40 dB).

Negative Effects of Noise on Humans

Negative effects of noise exposure include physical damage to the human auditory system, interference, and disease. Exposure to noise may result in physical damage to the auditory system, which may lead to gradual or traumatic hearing loss. Gradual hearing loss is due to sustained exposure to moderately high noise levels over a period of time as opposed to traumatic, which is due to sudden exposure to extremely high noise levels over a short period. However, gradual and traumatic hearing loss both may result in permanent hearing damage. In addition, noise may interfere with or interrupt sleep, relaxation, recreation, and communication. Although most interference may be classified as annoying, the inability to hear a warning signal may be considered dangerous. Noise may also be a contributor to diseases associated with stress, such as hypertension, anxiety, and heart disease. The degree to which noise contributes to such diseases depends on the noise frequency, band width, level, and exposure time (Caltrans, 1998).

Existing Noise-Sensitive Land Uses

Noise-sensitive land uses generally include those uses where exposure to noise would result in adverse effects, as well as uses where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Noise-sensitive land uses include hospitals, convalescent facilities, parks, hotels, churches, libraries, and other uses where low interior noise levels are essential.

The NWSP Area is currently undeveloped and there are no sensitive receptors located onsite. Most residences near the NWSP Area are located to the south. Single-family homes and multi-family apartments are located in the adjacent area accessed from Deerwood Road and Deerwood Drive, some of which have back yards that abut the Faria Preserve Project Site. The northeast side of the NWSP Area is approximately 250 feet from the back yards of single family homes in the Town of Danville (on Ridgeland Circle). An assortment of office, industrial/storage, and mixed-used land uses are located to the east.

Land uses adjacent to the NWSP Area includea neighborhood of single family houses south of the project site (and north of Deerwood Drive), rural residential land uses north of the proposed site, rural residential residences along Bollinger Canyon Road west of the proposed site, and a neighborhood of single family homes just southwest of the intersection of Bollinger Canyon Road and Crow Canyon Road. An assisted living facility, Merrill Gardens, is is located at 18888 Bollinger Canyon Road.

The nearest schools are Diablo Hills Country School and Stepping Stone Learning Center, both located on the south side of Crow Canyon Road between Bollinger Canyon Road and the I-680 interchange.

Ambient Noise Survey

An ambient noise survey was conducted by Papineau Environmental Service from the 2nd to the 9th of December in 2004 to document the existing noise environment at various locations within and near the NWSP Area (Papineau 2005). All short-term sound level measurements were collected

during the p.m. peak traffic hour. Table 4.9-1 lists the location of each measurement and the resulting sound level (in dBA L_{eq}).

Table 4.9-1: Ambient Sound Level Measurements

SOUND LEVEL MEASUREMENT LOCATION	MEASURED SOUND LEVEL (peak traffic hour Leq, dBA)
West end of Beta Court, along eastern boundary of Faria Preserve Project Site	53.2
West end of Purdue Road, along eastern boundary of Faria Preserve Project Site	67.2
North end of Omega Road, near Hooper Drive, along eastern boundary of Faria Preserve Project Site	58.5
Along Deerwood Road at Mill Creek Hollow Park	57.6
Along Bollinger Canyon Road at Deerwood Drive	62.5
Along Bollinger Canyon Road, 490 feet north of the centerline of Crow Canyon Road	61.6

Note: All sound level measurements were collected during the p.m. peak hour on days between December 2nd and December 9th of 2004. Additional information about the location of these sound level measurements is included in the community noise assessment report prepared for this project (Papineau 2005), in Appendix X.

Source: Papineau Environmental Service 2005.

Existing Noise Sources

The existing noise environment within the NWSP Area is influenced primarily by vehicle traffic on local roadways and freeway traffic on I-680. Additional noise sources include aircraft overflights and activity in the nearby light industrial/commercial area. These noise sources are discussed separately below.

Noise from I-680 and Traffic on Local Roads

Existing roadway traffic noise levels were calculated for area roads using the Federal Highway Administration (FHWA) Traffic Noise Prediction Model (FHWA, 1988) and traffic data obtained from the traffic analysis prepared for this project (Kimley Horn Associates (KHA), 2005). Additional input data included day/evening/night percentages of autos, medium and heavy trucks, vehicle speeds, ground attenuation factors, and roadway widths.

Table 4.9-2 presents the estimated L_{dn}/CNEL noise levels at 50 feet from the centerline of the near travel lane and the distances from the roadway centerline to the 70, 65, 60, and 55 dBA L_{dn}/CNEL contours for existing average daily traffic volumes.

Freeway Noise

The nearest segment of I-680 generally runs north-south and is as close as 1,000 feet to the east side of the NWSP Area and the Faria Preserve Project Site. The Noise Element of the City of San Ramon 2020 General Plan (General Plan) characterizes freeway noise levels along the I-680 corridor (City of San Ramon, 2002). According to the Noise Element, freeway traffic from I-680 is the greatest contributor to noise in the San Ramon Planning Area. Sound walls are located adjacent to the freeway to protect existing nearby homes, including those located south of Crow Canyon Road,

Table 4.9-2: Existing Traffic Noise Levels and Contour Distances

Roadway Segment and Location	Distance (ft) from Roadway Centerline to CNEL/L_{dn} (dBA)				CNEL/L_{dn} (dBA) 50 Feet from Centerline of Near Travel Lane
	70 CNEL	65 CNEL	60 CNEL	55 CNEL	
Crow Canyon Road west of Bollinger Canyon Road	70.0	150.3	323.6	696.8	71.5
Crow Canyon Road between Bollinger Canyon Road and San Ramon Valley Boulevard	98.9	201.8	429.2	921.8	71.1
Deerwood Drive between Bollinger Canyon Road and Deerwood Road	-	-	-	57.2	55.1
Deerwood Road between Deerwood Drive and San Ramon Valley Boulevard	-	-	103.7	218.6	62.4
Fostoria Way between San Ramon Valley Boulevard and Camino Ramon	-	76.5	158.3	337.8	65.2
Norris Canyon Road west of Bollinger Canyon Road	-	-	87.0	187.0	62.9
Norris Canyon Road between Bollinger Canyon Road and San Ramon Valley Boulevard	-	-	67.7	145.3	61.3
Bollinger Canyon Road between new spine collector road and Deerwood Drive	-	77.4	166.4	358.3	67.1
Bollinger Canyon Road between Deerwood Drive and Crow Canyon Road	-	91.5	196.7	423.5	68.2
Bollinger Canyon Road between Crow Canyon Road and Norris Canyon Road	-	-	105.4	224.4	63.0
Bollinger Canyon Road between Norris Canyon Road and San Ramon Valley Boulevard	-	88.3	176.0	377.6	66.4
Bollinger Canyon Road between Camino Ramon and Alcosta Boulevard	110.0	230.0	492.1	1,058.4	72.3
San Ramon Valley Boulevard north of Deerwood Road	53.3	112.4	241.0	518.7	69.0
San Ramon Valley Boulevard between Deerwood Road and Crow Canyon Road	71.8	152.9	328.5	707.2	71.0
San Ramon Valley Boulevard south of Bollinger Canyon Road	58.9	124.9	268.0	576.8	69.7
Camino Ramon north of Fostoria Way	-	-	107.2	230.5	64.3
Twin Creeks Drive between Crow Canyon Road and Norris Canyon Road	-	-	71.3	153.1	61.6
Crow Canyon Road between Camino Ramon and Alcosta Boulevard	115.0	237.9	507.8	1,091.7	72.2
Norris Canyon Road between San Ramon Valley Boulevard and Camino Ramon	58.1	116.4	246.5	529.1	68.2
Bollinger Canyon Road between San Ramon Valley Boulevard and I-680 ramps	100.3	200.6	424.5	910.9	70.7

Table 4.9-2: Existing Traffic Noise Levels and Contour Distances (Continued)

Roadway Segment and Location	Distance (ft) from Roadway Centerline to CNEL/L_{dn} (dBA)				CNEL/L_{dn} (dBA) 50 Feet from Centerline of Near Travel Lane
	70 CNEL	65 CNEL	60 CNEL	55 CNEL	
Camino Ramon between Fostoria Way and Crow Canyon Road	-	57.8	123.9	266.7	65.2
Old Crow Canyon Road between Deerwood Road and Crow Canyon Road	-	53.4	114.6	246.5	64.7
Crow Canyon Road betweenI-680 ramps and Camino Ramon	143.8	302.1	647.1	1,392.2	73.8
Bollinger Canyon Road betweenI-680 ramps and Camino Ramon	145.0	302.0	645.5	1,388.2	73.4

Note: Traffic noise levels were calculated using the FHWA Noise Prediction Model based on traffic volumes obtained from the traffic report prepared for this project. Calculated noise levels do not consider any shielding or reflection of noise by existing structures or terrain features or noise contribution from other sources. See modeling results in Appendix X for further detail.

Source: Data provided by EDAW in 2006.

but these walls also result in increased ambient noise levels in areas located uphill and at greater distances from the sound walls. A noise contour map developed for the General Plan, which represents conditions for the year 2000, indicates that the 60 dBA CNEL/L_{dn} contour for freeway noise generated by I-680 traffic extends more than 3/4 of a mile west of the freeway, almost reaching the segment of Bollinger Canyon Road north of Deerwood Drive. This comprises almost all of the Faria Preserve Project Site but does not reach the western portion of the NWSP Area. Given that the volume of traffic on I-680 has increased steadily during the past five years, current freeway noise levels are expected to be slightly higher. Because intervening terrain and buildings located along San Ramon Boulevard and in the Crow Canyon Industrial Area obstruct a direct line of site to/from the freeway, noise levels at many areas of the Faria Preserve Project Site are anticipated to be lower than indicated by the noise contours in the Noise Element.

Aircraft Activity

Other sources of noise include flyovers by small propeller-driven aircraft, generally on flight paths parallel to I-680. The NWSP Area is not located within an airport land use plan and no public use airports or private airstrips are located within nine miles of the NWSP Area. Therefore, aircraft noise was dismissed from further study.

Stationary- and Area-Noise Sources

The east end of the Faria Preserve Project Site is also exposed to some noise generated by light industrial sources near the west end of Purdue Road. Noise sources operating in this area, which includes several automotive repair facilities, include pneumatic tools (e.g., paint sprayers) and idling tow trucks.

Regulatory Setting

State

Title 24, Part II of the California Code of Regulations establishes standards governing interior noise levels that apply to all new residential dwellings in California. These standards require that acoustical studies be performed before construction at building locations where the existing L_{dn} exceeds 60 dBA. Such acoustical studies are required to establish mitigation measures that will limit maximum L_{dn} levels to 45 dBA in any habitable room. Although there are no generally applicable interior noise standards pertinent to all uses, many communities in California have adopted an L_{dn} of 45 as an upper limit on interior noise in all residential units.

In addition, the State has developed land use compatibility guidelines for community noise environments. The State of California General Plan Guidelines (State of California 2003), published by the state Governor's Office of Planning and Research (OPR), provides guidance for the acceptability of projects within specific CNEL/L_{dn} contours. Table 4.9-3 presents acceptable and unacceptable community noise exposure limits for various land use categories. Generally, residential uses are considered to be acceptable in areas where exterior noise levels do not exceed 60 dBA CNEL/L_{dn}. Residential uses are normally unacceptable in areas exceeding 70 dBA L_{dn} and conditionally acceptable within 55 to 70 dBA CNEL/L_{dn}. The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

Local

City of San Ramon 2020 General Plan

The Noise Element (Chapter 10) of the General Plan includes noise criteria for various land uses. These land use compatibility noise criteria provide the basis for decisions about the locations of land uses in relation to noise sources, and for determining noise mitigation requirements. Figure 4.9-2 presents the City's land use compatibility noise levels.

The Noise Element also contains policies that address noise issues in the city. The main guiding policy of the Noise Element, Guiding Policy 10.1-G-1, is to strive to achieve an acceptable noise environment for the present and future residents of San Ramon. Implementing Policies that are relevant to the development of the NWSP Area, including the Faria Preserve, are listed below.

10.1-I-2: Require a noise study for all projects that have noise exposure greater than "normally acceptable" levels indicated in Figure 4.9-2.

If noise exposure is greater than levels considered normally acceptable, some form of noise mitigation will have to be incorporated, to the extent practicable, unless the impacts are found to be less than significant. The mitigation can be conventional insulation features or techniques that require more complex building or equipment design and site layout. The City applies the standards of Title 24, Part II of the California Code of Regulations to all housing, thereby requiring an acoustical study if a proposed

Table 4.9-3: State Land Use Noise Compatibility Guidelines

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE (L_{DN} OR CNEL, DBA)			
	NORMALLY ACCEPTABLE[1]	CONDITIONALLY ACCEPTABLE[2]	NORMALLY UNACCEPTABLE[3]	CLEARLY UNACCEPTABLE[4]
Residential-Low Density Single Family, Duplex, Mobile Home	<60	55–70	70–75	75+
Residential-Multiple Family	<65	60–70	70–75	75+
Transient Lodging, Motel, Hotel	<65	60–70	70–80	80+
School, Library, Church, Hospital, Nursing Home	<70	60–70	70–80	80+
Auditorium, Concert Hall, Amphitheater		<70	65+	
Sports Arenas, Outdoor Spectator Sports		<75	70+	
Playground, Neighborhood Park	<70		67.5–75	72.5+
Golf Courses, Stable, Water Recreation, Cemetery	<75		70–80	80+
Office Building, Business Commercial and Professional	<70	67.5–77.5	75+	
Industrial, Manufacturing, Utilities, Agriculture	<75	70–80	75+	

[1] Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

[2] New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

[3] New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Outdoor areas must be shielded.

[4] New construction or development should generally not be undertaken.

Source: State of California Governor's Office of Planning and Research, 2003

development will be located in an area exposed to [L_{dn}] (Day-Night Average Sound Level) in excess of 60 dB. The Code requires mitigation to reduce the [L_{dn}] to 45 dB in all habitable rooms.

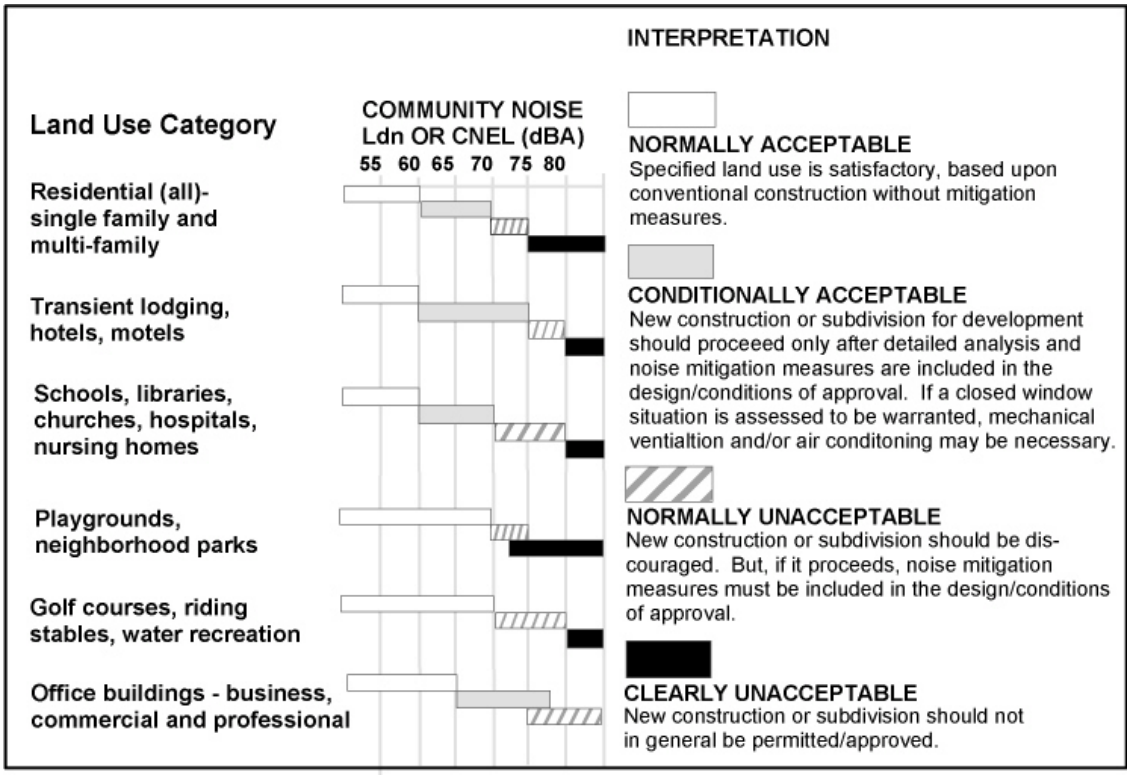
10.1-I-4: Include noise attenuation measures in new developments that expose the community to greater than "normally acceptable" noise levels.

Open space, building orientation and design, and landscaping and running water can be used to buffer or mask sound.

10.1-I-5: Discourage the use of sound walls.

The construction of sound walls will be considered where noise mitigation to acceptable levels by other means is not feasible.

Figure 4.9-2: City of San Ramon General Plan Land Use Compatibility Noise Levels Shown as dBA, L_{dn} or CNEL



Source: City of San Ramon General Plan as found in Papineau Environmental Service, 2005.

10.1-I-6: Require developers to reduce the noise impacts of new development on adjacent properties through appropriate means, including, but not limited to the following actions:

- Screen and control noise sources, such as parking and loading facilities, outdoor activities and mechanical equipment
- Increase setbacks for noise sources from adjacent dwellings
- Retain fences, walls, and landscaping that serve as noise buffers
- Use soundproofing materials and double-glazed windows
- Control hours of operation, including deliveries and trash pickup, to minimize noise impacts, and
- As a last resort, construct noise walls along highways and arterials when compatible with aesthetic concerns and neighborhood character. This would be a developer responsibility.

Mitigation for noise impacts should not transfer noise from one resident to another. Proposed development can introduce potential noise sources, even when it is compatible with existing adjacent uses. An example is the handling of large trash bins

for multi-family housing. Site design and/or screening techniques can help mitigate the resulting noise.

10.1-I-8: Protect especially sensitive uses, including schools, hospitals, and senior care facilities from excessive noise.

10.1-I-9: Implement the City's regulations and performance standards for noise control to ensure appropriate regulation of common residential, commercial, and industrial noise sources.

10.1-I-10: Require new noise sources to use best available control technology (BACT) to minimize noise from all sources.

The City of San Ramon 2020 General Plan Draft Environmental Impact Report (General Plan EIR) (City of San Ramon, 2001) identified three potential impacts from implementation of the General Plan related to noise:

Impact 4.8-a: New development under the proposed General Plan could expose noise-sensitive uses in excess of normally acceptable standards of 60 L_{dn} for residential, libraries, churches, and hospitals; 65 L_{dn} for business and commercial uses; and 70 L_{dn} for playgrounds, golf courses, and industrial areas.

Impact 4.8-b: The General Plan would potentially expose existing noise-sensitive uses to construction-related noise, and excessive levels of groundborne vibration and noise. Ambient noise levels near areas of new development may temporarily increase.

Impact 4.8-c: The General Plan would potentially increase ambient noise because of increased traffic volumes.

In its review of potential noise impacts at the programmatic level, the General Plan EIR noted that traffic is the predominant noise source in the NWSP Area. The General Plan EIR further noted that development in the NWSP Area may be subjected to ambient noise levels up to 65 dBA L_{dn}, which is 5 dBA greater than the "normally acceptable" land use compatibility threshold for residential land uses (City of San Ramon 2002). The General Plan policies identified above, including the requirement to undertake a project-level noise study and implement mitigation measures for projects that would have noise exposure greater than the "normally acceptable" level (General Plan Policies 10.1-I-2 and 10.1-I-4), and to reduce the noise impacts of new development and increased traffic noise through appropriate means (General Plan Policies 10.1-I-6, 10.1-I-8, 10.1-I-9 and 10.1-I-10), were concluded to reduce these program-level impacts to a less–than-significant level. This conclusion of less-than-significant impacts also applied to the NWSP Area, where traffic noise levels of up to 65 dBA were anticipated to occur. Thus, the City of San Ramon recommends that when a practical application of the best available noise-reduction technology cannot achieve the 60 dBA L_{dn}/CNEL standard at residential land uses, then an exterior noise level of up to 65 dBA L_{dn}/CNEL may be allowed, so long as interior noise levels do not exceed 45 dBA L_{dn}/CNEL (Chamberlain, pers. comm., 2006). This is consistent with the State land use noise compatibility guidelines (Table 4.9-3), which considers noise levels up to 70 dBA CNEL to be "conditionally acceptable" when noise insulation features are included.

San Ramon Municipal Code

Chapter V, Article 2, B6-100 of the San Ramon Municipal Code, limits noise-generating construction activities to daytime hours between 7:30 a.m. and 7:00 p.m. on weekdays, and between 9:00 a.m. and 6:00 p.m. on Saturdays and Sundays. No construction shall take place on federal holidays.

4.9.2 Thresholds of Significance

Thresholds of significance for environmental impacts related to noise are derived from the State CEQA Guidelines (Appendix G) and are detailed below. The following thresholds of significance were used to determine whether implementation of the NWSP and development of the Faria Preserve would result in significant noise impacts:

- Short-term construction noise impacts would be significant if construction noise levels would exceed the City of San Ramon's "normally acceptable" land use compatibility noise standards (Figure 4.9-2) or result in a noticeable increase in noise levels (i.e., 3 dBA or greater [Caltrans, 1998] at nearby noise-sensitive land uses during the more noise-sensitive morning and nighttime periods.
- Impacts of noise generated by stationary- and/or area-noise sources associated with operation of the proposed project would be considered significant if they would exceed the City of San Ramon's "normally acceptable" land use compatibility noise standards (Figure 4.9-2) and/or generate single event noise levels that could result in increased nighttime sleep disruption at nearby residents.
- Long-term traffic noise impacts would be significant if traffic generated by buildout of the NWSP (including the Faria Preserve development) would exceed any of the "normally acceptable" land use compatibility noise standards established by the General Plan (Figure 4.9-2) and result in a noticeable increase of 3 dBA or greater in the average daily noise level.
- Development of the proposed land uses under the NWSP, including the Faria Preserve project, would be a significant impact if projected onsite ambient noise levels under existing or future cumulative conditions would exceed any of the City of San Ramon's "normally acceptable" land use compatibility exterior noise standards (Figure 4.9-2). For residential land uses the "normally acceptable" land use compatibility exterior noise standard of 60 dBA L_{dn}/CNEL should be applied to the back yards of single family homes and the common outdoor activity areas of multi-family residential developments. Onsite noise levels would also be significant if interior noise levels at proposed residences exceed interior noise standard of the 45 dBA L_{dn}/CNEL established by California Code of Regulations Title 24 or residential land uses would be exposed to single-event noise levels that could result in nighttime sleep disruption.

4.9.3 Environmental Evaluation

This analysis evaluates the effects of short-term construction noise, stationary and area noise sources, and increased traffic noise associated with development of the Faria Preserve site and implementation of the Northwest Specific Plan, as well as the land use noise compatibility of the proposed Faria Preserve community and the NWSP Area.

IMPACT NOISE-1

Impact Noise-1: Short-Term Construction Noise. Development under the NWSP, including the Faria Preserve, would expose existing noise-sensitive land uses to construction related noise. Ambient noise levels in areas near the NWSP Area may temporarily increase.

This would be a *significant* impact (Faria Preserve and Western Plan Area).

Construction operations would include site grading, clearing, and excavation associated with the site preparation phase, as well as paving, building construction, and other miscellaneous construction operations. The noise generated by construction of the new development could potentially affect sensitive land uses. For instance, this could occur if construction activity were situated in close proximity to adjacent residential areas. In addition, because the elevation of the Faria Preserve is higher than the existing adjacent developments, construction noise may be audible across long distances. Furthermore, construction operations occurring during the evening and nighttime hours may result in annoyance and/or sleep disruption to occupants of the nearby residential dwellings. Without feasible noise controls, construction noise levels could result in a significant impact.

The onsite equipment required is not known at this time but, based on similar projects, would be anticipated to include excavators, graders, loaders, backhoes, haul trucks, and a crane. According to the EPA, the noise levels of primary concern are typically associated with the site preparation phase because of the onsite equipment associated with clearing, grading, and excavation. Depending on the operations conducted, individual equipment noise levels can range from 79 to 91 dBA at 50 feet, as indicated in Table 4.9-4. The simultaneous operation of the onsite heavy-duty equipment associated with the project, as identified above, could potentially result in combined intermittent noise levels of approximately 94 dBA at 50 feet. Based on these equipment noise levels and assuming a noise attenuation rate of 6 dBA per doubling of distance from the source and no intervening barriers, peak exterior noise levels at sensitive receptors located within approximately 2,400 feet of the project site could potentially exceed 60 dBA without feasible noise control. Based upon this attenuation rate, construction noise levels in excess of 80 dBA would occur within approximately 200 feet of the NWSP Area.

Table 4.9-4: Typical Construction Equipment Noise Levels

TYPE OF EQUIPMENT	NOISE LEVEL IN DBA AT 50 FEET	
	WITHOUT FEASIBLE NOISE CONTROL	WITH FEASIBLE NOISE CONTROL
Dozer or Tractor	80	75
Excavator	88	80
Compactor	82	75
Front-end Loader	79	75
Backhoe	85	75
Grader	85	75
Crane	83	75
Generator	78	75
Truck	91	75

Note: Feasible noise control includes the use of intake mufflers, exhaust mufflers, and engine shrouds in accordance with manufacturer's specifications.

Source: EPA 1971.

The City of San Ramon Municipal Code exempts noise generated by construction operations that occur between the hours of 7:30 a.m. and 7:00 p.m. on weekdays (save federal holidays), and between 9:00 a.m. and 6:00 p.m. on weekend days from the applicable noise standards. However, if construction operations were to occur during the noise-sensitive hours of 7 p.m. to 7:30 a.m. Monday through Friday, or 6 p.m. to 9 a.m. on Sunday, or anytime on a federal holiday the applicable noise standards could potentially be exceeded at residential dwellings near the NWSP Area. This would particularly be the case for residents of the single-family homes in the existing neighborhood located north of Deerwood Drive during construction of Neighborhood B, the house of worship, community park, and educational facility. The backyards of some of these homes are as close as 200 feet to the proposed educational facility site. Similarly, construction activity in Neighborhood D would be as close as 200 feet to existing attached units located on the north side of Deerwood Road (Papineua 2005). Furthermore, construction operations occurring during the evening and nighttime hours may result in annoyance and/or sleep disruption to occupants of the nearby residential dwellings.

In addition, some homes may be built and occupied on the Faria Preserve Project Site before construction of other facilities on the site is complete. For instance, based on the construction/ phasing plan proposed by the Project Sponsor, construction of Neighborhood C would still be occurring upon completion and occupation of residential dwellings in Neighborhood A.

Thus, if construction operations are not limited to the hours permitted by the San Ramon Municipal Code, the temporary construction noise associated with onsite equipment could potentially expose sensitive receptors to noise levels in excess of the criteria standards established in the City of San Ramon Noise Element (Figure 4.9-2) and/or result in significant ambient noise levels. This would be considered a significant impact.

Mitigation Measure Noise-1 (Faria Preserve and Western Plan Area): Short-Term Construction Noise. The City shall require prime contractors to implement the following measures to reduce temporary construction noise:

- Pursuant to Chapter V, Article 2, B6-100 of the San Ramon Municipal Code, construction operations shall be limited to the hours between 7:30 a.m. to 7 p.m. on weekdays, and 9 a.m. to 6 p.m. on weekend days, and be prohibited on federal holidays.
- All construction vehicles or equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers and acoustical shields or shrouds, in accordance with manufacturers' recommendations.
- Construction equipment and truck routes shall be arranged to minimize travel adjacent to occupied residences. For instance, construction-related traffic shall avoid using Deerwood Drive and Deerwood Road and the residential streets north of these two streets, and instead access the site from Purdue Road and Bollinger Canyon Road.
- Stationary construction equipment and staging areas shall be located a reasonable distance from sensitive receptors. The best staging area locations would be the north sides of all proposed neighborhoods and community facilities, unless the north side is substantially higher in elevation than surrounding developed areas.

- Designate a disturbance coordinator and conspicuously post the coordinator's telephone number around the project site and in adjacent public spaces. This disturbance coordinator shall receive all public complaints about construction-related noise and shall be responsible for determining the cause of the complaint, and implement any feasible measures to alleviate the problem.
- If determined necessary by the disturbance coordinator, a temporary solid construction/noise barrier along the exposed project boundaries should be erected. The barrier should not contain any significant gaps at its base or face, except openings for site access and surveying.

By requiring that project construction would comply with Chapter V, Article 2, B6-100 of the San Ramon Municipal Code, Mitigation Measure Noise-1 would ensure that nearby sensitive receptors are not exposed to construction noise during the more sensitive evening and nighttime hours. Implementation of Mitigation Measure Noise-1 would also reduce the level of noise exposure at sensitive receptors during daytime construction activity.

Level of Significance after Mitigation: *Less than Significant* (Faria Preserve and Western Plan Area).

IMPACT NOISE-2

Impact Noise-2: Stationary- and Area-Noise Sources. Noise levels generated by new stationary- and area-noise sources developed under the NWSP, including the Faria Preserve, would not exceed the city's "normally acceptable" land use compatibility standards at off-site sensitive receptors. Single event noise levels generated by garbage dumpster collection at some of the proposed land uses could result in increased sleep disruption and interference to nearby off-site sensitive receptors.

This would be a *potentially significant* impact (Faria Preserve and Western Plan Area).

Development under the NWSP would consist of residential land uses, a community park, a house of worship, and an educational facility/museum. Open space areas would also be maintained in the NWSP Area.

Noise typically associated with residential development includes the operation of lawn and garden equipment, central air conditioning units, voices, and amplified music. Noise sources associated with the proposed community park would include noise from recreational activities and noise associated with the operation of maintenance equipment (e.g., lawn mowers and sprayers). In addition, increases in single-event noise levels, such as screaming voices or equipment pass-bys, could result in increased levels of disturbance and sleep disruption for occupants of nearby residential dwellings, particularly during evening, nighttime, and early morning hours.

However, as shown in the existing surrounding land uses (see NWSP Figures 1-7 and 2-1), most of the proposed land uses associated with these stationary and area-noise sources would be set back from existing off-site noise-sensitive land uses. With a few exceptions, none of these proposed land uses are contiguous with existing off-site sensitive land uses. One exception is the south boundary of

the proposed senior housing in Neighborhood D that would be adjacent to part of Deerwood Road, which is not a sensitive land use, and across the road from the same type of land use (medium-high density residential). The east side of the community park would be adjacent to existing medium-high density residential land uses; however NWSP Figures 1-7 and 2-1 show that the nearest existing residential building would be about 250 feet from the community park boundary. Also, the northern portion of the hillside residential land uses proposed on the Western Plan Area would be close to similar existing land uses (rural residential), while the hillside residential land uses proposed on the Panetta property would be buffered by Crow Canyon Road.

The sources and associated levels of noise are discussed separately below.

Residential Land Uses

Noise from proposed residential dwellings could expose existing nearby residences to minor increases in ambient noise levels. Noise typically associated with such development includes landscaping equipment, voices, and amplified music. Because portions of the residential neighborhoods would be at higher elevation than the surrounding area, household noises such as voices and music may be heard from long distances. The types of noises produced would be similar to those that are currently generated in existing nearby neighborhoods though some increase may occur due to the increased population of the area. Activities associated with these land uses would be expected to result in only minor increases in ambient noise levels, primarily during the day and evening hours and less frequently at night, as perceived at the closest residential receptors. Therefore, this is considered a less-than-significant impact with regard to residential land uses.

Recreational and Outdoor Educational Activities

Recreational and outdoor educational activities would be expected to occur at the community park, the educational facility, and possibly on the grounds of the house of worship. Noise typically associated with parks and schools includes the voices of adults and children and group recreation activities. During periods when children and community members are using exterior recreational areas, exterior noise levels can range from 60–75 dBA L_{eq} at 50 feet (EDAW 2001). Sensitive receptors most likely to be affected would be the single family homes located in the existing neighborhood north of Deerwood Drive. The property lines of the proposed educational facility and house of worship would be as close as 300 feet to the closest back yards of homes in this existing neighborhood. At this distance noise generated by active recreational activities would attenuate to approximately 44–59 dBA L_{eq}. Assuming that active recreation activities would not occur 24 hours per day, these noise levels would not exceed the General Plan's "normally acceptable" land use compatibility noise level standard of 60 dBA CNEL for residential land uses.

The single family homes located west of Bollinger Canyon Road and south of Crow Canyon Road would also be in close proximity to the park proposed on the south end of the Western Plan Area. The nearest backyards of these homes would be as close as 250 feet to this park. At this distance noise generated by recreational activities in the park would attenuate to approximately 46-61 dBA L_{eq} through distance alone. Additional attenuation amounting to a reduction of more than 1 dBA would be provided by the existing sound wall along the south side of Crow Canyon Road. Therefore, noise from recreational activities would not exceed the General Plan's "normally acceptable" land use compatibility noise level standard of 60 dBA CNEL for residential land uses.

The proposed 0.5-acre memorial rose garden would be as close as 150 feet to the nearest existing homes, but this area is expected to host quieter, more passive types of recreation such as walking and interpretive activities (e.g., garden viewing). Therefore, proposed recreational and outdoor educational activities would not result in noise levels at nearby existing noise-sensitive receptors that would exceed standards established in the City of San Ramon Noise Element and consequently this impact would be considered less than significant.

The following measure is considered optional to further reduce noise exposure from active recreation activities at the community park and educational facility.

- Irrigation of playfields should be timed to occur during late evening hours to deter use of these facilities during the more noise-sensitive times of day.
- Lighted playfields should be located away from nearby sensitive receptors.

Locating lighted recreation areas in the community park away from nearby sensitive receptors and effective timing of irrigation of playfields would further reduce the potential for recreational noise to cause annoyance or sleep disruption during the more noise-sensitive evening and nighttime hours.

Landscaping Maintenance Equipment

Equipment used to maintain the grounds of the community park and educational facility would include lawnmowers and sprayers. Representative manufacturers' specifications for decibel levels measured at the operator's seat of these types of equipment are listed in Table 4.9-5, with a description of function and predicted noise levels. Mowing operations at playfields typically occur once per week and produce irregular sound levels because of fairly rapid movement among large areas and limited time of exposure to nearby land uses. Noise levels from maintenance equipment are also influenced by factors such as direction of movement, location, speed, and local wind conditions. Noise levels shown in Table 4.9-6 represent the loudest levels expected, based on direct exposure measurement of stationary equipment.

Table 4.9-5: Typical Generation of Landscaping Equipment Noise

EQUIPMENT AND FUNCTION	SOUND LEVEL AT OPERATOR'S POSITION (DBA L_{EQ})	ESTIMATED SOUND LEVEL AT 50 FEET (DBA L_{EQ})
Mower (Reelmaster 5000)	86	62
Mower (Groundmaster 325D)	90	66
Sprayer (Multi Pro 1100)	84	60

Notes: Sound levels at operator's position are based on manufacturers' specifications. Predicted sound levels at 50 feet assume a near-noise field of 3 feet and a 6 dBA reduction in noise levels per doubling of distance from the source.

Source: EDAW, 1997

Assuming a maximum noise level of 90 dBA associated with mowing along the outer perimeter of the playfields or the house of worship, the closest off-site noise-sensitive land uses approximately 300 feet from the activity could be exposed to levels of 50 dBA. Furthermore, the duration of mowing or spraying noise would not be continuous throughout the day. Therefore, noise levels generated by

landscaping activities would not exceed the "normally acceptable" threshold of 60 dBA CNEL/L_{dn} for residential land uses. As a result, the impact of noise levels generated by landscaping equipment would be less-than-significant.

Garbage Collection

Trash generated at the educational facility, the house of worship, and possibly the community park would be collected from large refuse dumpsters, potentially multiple times per week. The residents of existing nearby single-family homes are not currently subject to this type of noise because trash collection in their neighborhoods does not involve handling of large dumpsters. While noise generated by trash dumpster collection would likely not increase hourly L_{eq} levels or CNEL levels near the project site, maximum noise levels generated by trash collection activities at proposed multifamily residential land uses, the educational facility, or the house of worship could adversely affect existing off-site single family residences in nearby neighborhoods. Noise levels generated by garbage collection reach as high as 89 dBA L_{max} from a distance of 50 feet with frequent occurrence of maximum noise levels exceeding 80 dBA (EDAW 2004). These noise levels are sometimes generated high off the ground as a hydraulic lift shakes trash from a dumpster into the garbage truck. The closest existing off-site sensitive receptors to the Faria Preserve site are located approximately 300 feet from the property line of both the educational facility and house of worship. At this distance, maximum noise levels would attenuate to 73 dBA L_{max}. Depending on the location of the garbage dumpsters and the time of day when dumpster garbage is collected, noise from garbage collection activities could result in increased sleep disruption and interference to nearby off-site sensitive receptors. This would be a potentially significant impact.

Mitigation Measure Noise-2: The City shall ensure implementation of the following mitigation measures in the design and operation of the Faria Preserve to reduce exposure of nearby existing off-site sensitive receptors and proposed onsite receptors to noise levels that could potentially result in nighttime sleep disturbance.

- The city shall work diligently with its waste hauling contractors to limit garbage dumpster collection activity at all venues developed on the NWSP site to the hours between 7:30 a.m. and 7:00 p.m. on weekdays, and between 9:00 a.m. and 6:00 p.m. on Saturdays and Sundays, and prohibit garbage dumpster collection on federal holidays. These time periods are consistent with Chapter V, Article 2, B6-100 of the San Ramon Municipal Code, which was established to address noise generated by construction activity.
- To the extent feasible, garbage dumpsters shall be located as far as necessary from existing off-site sensitive receptors. Dumpsters should also be located such that proposed buildings shield nearby residential land uses from noise generated by dumpster collection activities.

Implementation of Mitigation Measures Noise-2 would prevent nighttime sleep disruption at nearby existing and proposed on-site residential land uses by limiting garbage collection to daytime hours (between 7:30 a.m. and 7:00 p.m. on weekdays, and between 9:00 a.m. and 6:00 p.m. on Saturdays and Sundays). Noise levels generated by garbage collection activity during daytime hours would also be reduced due to effective orientation of dumpster locations and on-site buildings. As a result, this impact would be reduced to a less-than-significant level.

Level of Significance after Mitigation: *Less than Significant* (Faria Preserve and Western Plan Area).

IMPACT NOISE-3

Impact Noise-3: Long-Term Operational Traffic Noise. Implementation of the proposed NWSP, including the Faria Preserve, would result in increases in traffic noise levels at off-site sensitive receptors located along area roads; however, traffic noise level increases would not be considered noticeable (i.e., 3 dBA or greater).

This would be a *less than significant* impact (Faria Preserve and Western Plan Area).

New development proposed under the NWSP, including the Faria Preserve, would result in population increases and additional motor vehicle trips on area roadways. Increased traffic volumes would be most noticeable on the access routes that directly serve the NWSP Area.

The FHWA Traffic Noise Prediction Model (FHWA, 1988) was used to calculate traffic noise levels along affected roadways for existing traffic conditions, with and without full buildout and operation of the NWSP, based on the trip distribution estimates obtained from the traffic analysis prepared for this project. The project's contribution to the existing traffic noise levels along area roadways was determined by comparing the predicted noise levels with and without project-generated traffic.

Table 4.9-6 summarizes the CNEL/L_{dn} 50 feet from the roadway centerline with and without the vehicle trips that would be generated by the NWSP for roadway segments in the NWSP Area that pass by existing noise-sensitive receptors. Table 4.9-6 also shows the net increase in roadside noise levels of the NWSP compared to baseline conditions. The roadway noise levels presented in the table represent worst-case potential noise exposures, which assume no natural or artificial shielding between the roadway and a noise receptor located 50 feet from the roadway centerline.

As shown in Table 4.9-6, traffic generated by full buildout of the NWSP would not result in a noticeable increase in traffic noise (i.e., 3 dBA or greater) along any of the studied road segments. . Therefore, this impact would be ***less than significant*** (Faria Preserve and Western Plan Area).

No mitigation measures are required.

Table 4.9-6: Summary of Modeled Net Increase in Traffic Noise Levels under Plus Project Conditions

RECEPTOR LOCATION	CNEL/ L_{DN} (DBA) 50 FT FROM ROADWAY CENTERLINE		TRAFFIC NOISE NET INCREASE (CNEL/L_{DN} (dBA)
	EXISTING	EXISTING PLUS PROJECT	
Crow Canyon Road west of Bollinger Canyon Road	72.2	72.3	0.1
Crow Canyon Road between Bollinger Canyon Road and San Ramon Valley Boulevard	76.4	76.7	0.3
Deerwood Drive between Bollinger Canyon Road and Deerwood Road	55.9	56.2	0.4
Deerwood Road between Deerwood Drive and San Ramon Valley Boulevard	63.0	63.1	0.1
Fostoria Way between San Ramon Valley Boulevard and Camino Ramon	65.9	66.4	0.5
Norris Canyon Road west of Bollinger Canyon Road	63.7	63.7	0.0
Norris Canyon Road between Bollinger Canyon Road and San Ramon Valley Boulevard	62.0	62.3	0.3
Bollinger Canyon Road between new spine collector and Deerwood Drive	67.9 [1]	69.7 [1]	1.8
Bollinger Canyon Road between Deerwood Drive and Crow Canyon Road	69.0 [1]	70.48 [1]	1.5
Bollinger Canyon Road between Crow Canyon Road and Norris Canyon Road	63.7	64.3	0.6
Bollinger Canyon Road between Norris Canyon Road and San Ramon Valley Boulevard	67.1	67.4	0.3
Bollinger Canyon Road between Camino Ramon and Alcosta Boulevard	72.9	73.0	0.0
San Ramon Valley Boulevard north of Deerwood Road	69.7	69.8	0.1
San Ramon Valley Boulevard between Deerwood Road and Crow Canyon Road	71.7	72.1	0.4
San Ramon Valley Boulevard south of Bollinger Canyon Road	76.0	76.1	0.1
Camino Ramon north of Fostoria Way	65.0	65.4 [1]	0.4
Twin Creeks Drive between Crow Canyon Road and Norris Canyon Road	62.3	62.5	0.2

Notes: Traffic noise levels were modeled using the FHWA Traffic Noise Prediction Model based on traffic information (e.g., average daily traffic volumes, vehicle speeds, roadway width) obtained from the data generated by Kimley-Horn Associates and used to prepare the traffic section for this Draft EIR. Roadway segments that do not pass by any noise-sensitive receptors are not included in the table.

[1] The average daily traffic volumes used to estimate traffic noise levels along these roadway segments for existing conditions and existing-plus-project conditions were not provided by Kimley-Horn Associates but rather estimated by EDAW based peak-hour traffic data provided for nearby road segments.

Source: Modeling performed by EDAW 2006.

IMPACT NOISE-4

Impact Noise-4: Land Use Compatibility with Onsite Noise Levels. Residential land uses developed under the NWSP, including the Faria Preserve, could be exposed to traffic noise levels that exceed both the City of San Ramon's "normally acceptable" land use compatibility exterior noise standard of 60 CNEL/L_{dn} and the Title 24 interior noise level standard of 45 CNEL/L_{dn}. In addition, some residential land uses proposed by the NWSP could be exposed to single-event noise levels generated by offsite commercial and industrial sources that result in sleep disturbance.

This would be a *potentially significant* impact (Faria Preserve and Western Plan Area).

Land uses proposed on the Faria Preserve Project Site could be exposed to excessive noise levels generated by off-site noise sources, including commercial and industrial activities and traffic noise from I-680. The effects of these sources are discussed separately below.

Commercial/Industrial Noise

Some existing commercial and light industrial land uses, including automotive repair shops, are located in close proximity to the senior housing units proposed for Neighborhood D. These facilities may include noise sources such as the operation of machinery or pneumatic tools and the loading and unloading of materials. Some of the residences of the proposed three-story building could have a direct line of site with neighboring noise sources. In addition, increases in single-event noise levels, such as backup alarms from material delivery trucks or tow trucks, occurring during the more noise-sensitive evening and nighttime hours, could result in increased levels of disturbance and sleep disruption to occupants of the senior residential apartments in Neighborhood D. This would be a significant impact.

Freeway Noise

For determination of land use compatibility, predicted traffic noise contours (in dBA CNEL/L_{dn}) for I-680 were modeled for future-plus-project conditions. Future traffic noise contours were modeled for the year 2020 using the FHWA Traffic Noise Prediction Model (FHWA 1988) and are based on the trip distribution estimates obtained from the community noise assessment report prepared for this project (Papineau 2005). Table 4.9-7 summarizes the distances from I-680 to the 55, 60, 65, and 70 dBA CNEL/L_{dn} contours for future-plus-project conditions based on estimates generated with the FHWA Traffic Noise Prediction Model. The predicted noise contour distances account for topography or shielding or reflection of noise from existing structures. Actual noise levels would vary from day to day, depending on factors such as local traffic volumes, traffic speeds, shielding from existing structures, and variations in attenuation rates resulting from surface parameters and meteorological conditions.

The noise contour distances estimated with the FHWA model and presented in Table 4.9-7 also do not account for the effect of existing sound walls located along nearby portions of the freeway to protect existing residential neighborhoods. According to the City's Noise Element, these existing sound walls result in increased noise levels in areas located uphill and at greater distances from the

sound walls (City of San Ramon, 2002). Future noise contour distances can also be estimated based on the City's Noise Element contour maps (City of San Ramon, 2002), and these distances are also presented in Table 4.9-7.

Table 4.9-7: Predicted Traffic Noise Contours of I-680 under Future-Plus-Project Conditions

I-680 NORTH OF THE CROW CANYON ROAD INTERCHANGE	DISTANCE (FEET) FROM CENTERLINE OF NEAR TRAVEL LANE OF I-680 TO NOISE CONTOUR (DBA)			
	70 CNEL/LDN	65 CNEL/LDN	60 CNEL/LDN	55 CNEL/LDN
Estimates generated with the FHWA Traffic Noise Prediction Model (FHWA 1988)[1]	748	1,608	3,463	7,459
Approximate noise contour distances based on the General Plan Noise Contour Maps (City of San Ramon 2002)	880	1,980	5,100	—[2]

[1] Traffic noise contour distances estimated the FHWA Traffic Noise Prediction Model (FHWA, 1988) are based on traffic information from the community noise assessment report prepared for this project (Papineau 2005) and freeway volumes from the California Department of Transportation (Caltrans, 2005). Modeled estimates assume no natural or human-made shielding (e.g., vegetation, berms, walls, buildings) along the modeled freeway segment or the affects of sound walls along nearby segments of I-680.

[2] A 55 dBA L_{dn}/CNEL noise contour is not included on the Noise Element's noise contour map.

Source: Modeling performed by EDAW, 2006; City of San Ramon, 2002.

This analysis takes a conservative approach to predicting traffic noise contours in that it uses the contour distances based on the General Plan noise Contour Maps (City of San Ramon 2002), which extend further than the modeled contours. All of the Faria Preserve Project Site would fall inside the 60 dBA CNEL/L_{dn} contour presented in the City's Noise Element. Neighborhood D of the Faria Preserve is located between the 65 and 70 dBA CNEL/L_{dn} contours. Thus, the senior housing units proposed in Neighbohood D, would be exposed to exterior noise levels that exceed the "normally acceptable" land use compatibility noise standard of 60 dBA CNEL/L_{dn} by up to 5 dBA This would be a significant impact.

Mitigation Measure Noise-4 (Faria Preserve): The City shall implement the following measures to reduce the exposure of sensitive receptors to single-event noise generated by nearby commercial/industrial activities and noise associated with traffic from I-680:

- Prior to the approval of building permits for individual subdivisions, the City shall evaluate the building permits for compliance with its "normally acceptable" land use compatibility standards for noise. These studies should take into account the topography of the area and the presences of intervening structures and buildings between the Faria Preserve and I-680. Where individual facilities do not clearly comply with the City's "normally acceptable" exterior noise standards, mitigation measures such as use of noise barriers, buildings for screening, and setbacks between noise sources and receptors, shall be implemented as appropriate to minimize exterior noise levels. Construction of sound walls shall be considered only if noise mitigation to normally acceptable levels by other means is not feasible pursuant to General Plan Policy 10.1-I-5. If constructed, any outdoor human-made

noise barriers shall have an aesthetically pleasing appearance, in that such barriers would be consistent with the color and character of nearby homes and facilities. Any and all noise studies and mitigation measures required above shall be fully funded by the Project Sponsors of the Faria Preserve.

- The City shall evaluate building permits for all residential dwellings for compliance with Title 24, Part II of the California Code of Regulations. Title 24 requires the preparation of an acoustical analysis for new residences that demonstrates how interior noise levels would achieve a 45 dBA CNEL/L_{dn} in locations where the exterior noise levels exceed 60 dBA CNEL/L_{dn}. To the extent necessary, noise control measures shall be designed according to the type of building construction and specified sound rating for each building element to achieve an interior noise level of 45 dBA CNEL/L_{dn}. Where new residential dwellings do not clearly comply with interior noise standards established by Title 24, mitigation measures such as use of dual-pane windows, mechanical air systems, exterior wall insulation, and other noise-reducing building materials and methods shall be required as appropriate to reduce interior noise exposure to 45 dBA L_{dn}. Where there is a question regarding pre-mitigation or post-mitigation noise levels for a particular facility, site-specific noise studies shall be conducted to determine compliance or noncompliance with Title 24 standards. Any and all noise studies and mitigation required above shall be fully funded by the Project Sponsors of the Faria Preserve.
- The City shall require the Project Sponsors to incorporate features in the design of multi-family residential developments on the Faria Preserve Project Site that reduce noise exposure at common outdoor activity areas . For instance, outdoor activity areas that are part of multi-family residential developments could be oriented such that the building(s) serve as a sound barrier providing protection from the nearest predominant noise source.

By requiring compliance with Title 24, Part II of the California Code of Regulations, implementation of Mitigation Measure Noise-4 would reduce interior noise levels at residential land uses to less-than-significant levels. Mitigation Measure Noise-4 would also achieve a minimum 5 dBA reduction of exterior noise levels at residential land uses, which is sufficient to ensure that exterior noise levels would be below 65 dBA CNEL/L_{dn}. Mitigation Measure Noise-4 would reduce exterior noise levels to less-than-significant levels.

Level of Significance after Mitigation: *Less than Significant* (Faria Preserve and Western Plan Area).

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4.10 TRAFFIC AND CIRCULATION

This section includes a description of the existing traffic conditions, an analysis of traffic impacts related to the Northwest Specific Plan (NWSP), which includes the Faria Preserve community (Faria Preserve) and traffic improvement measures that would mitigate the traffic impacts. The traffic impact analysis is based on traffic modeling conducted by Kimley-Horn and Associates (KHA) in December 2004 for the NWSP Area and information prepared by Abrams Associates in August 2004 for the Faria Preserve.

4.10.1 Existing Setting

This subsection describes the existing conditions of the transportation system surrounding the NWSP Area and the Faria Preserve project site (Faria Preserve Project Site), including the main intersections that would serve traffic generated by future development within the NWSP Area. The section also includes a list of planned transportation improvements. Because the Faria Preserve Project Site is located entirely within the NWSP Area and relies upon the same surrounding circulation system as the NWSP Area, this setting section applies to both the Plan and Faria Preserve.

Regional and Local Access

The NWSP Area is accessible from Interstate 680 (I-680) via San Ramon Valley Boulevard, Crow Canyon Road and Bollinger Canyon Road. The Crow Canyon Road/I-680 interchange is the primary regional access to and from the NWSP Area. Figure 4.10-1 depicts the roadway network surrounding the NWSP Area.

Roadways including Bollinger Canyon Road and Purdue Road provide access to the NWSP Area at the local level. The City roadway network connects the NWSP Area to the greater San Ramon area, as well as to adjacent cities including Dublin and Danville.

Transportation System

General Roadway Classification

As illustrated in Figure 4.10-1, the existing circulation network is composed of state freeways, as well as City arterials, collectors and local streets. The City of San Ramon 2020 General Plan (General Plan) (City of San Ramon, 2002) provides guiding policies for the different classification hierarchy of City streets as follows:

- *Arterial Roadways*. Design arterial roadways to carry high-volume, higher-speed traffic, thereby minimizing through-traffic in residential areas of the City.
- *Collector and Local Roadways*. Design and reconfigure collector and local roadways to improve circulation and to connect residential and commercial areas of the City.

State freeways are designed as high speed and high capacity facilities with grade-separated intersections. Freeways are intended to meet the need for longer regional trips.

Area Roadway Network

Main roadways serving local and regional traffic to and from the NWSP Area are described below:

State Highway

I-680: This is an interstate freeway located along the east side of the NWSP Area. I-680 provides a north-south freeway connection from Solano County in the north to Santa Clara County in the south. The segment of I-680 that travels through the City of San Ramon has three mixed flow lanes and one High Occupancy Vehicle (HOV) lane in each of the northbound and southbound directions. Regional traffic to and from the NWSP Area would mostly be served by a full access interchange at I-680/Crow Canyon Road. To the south, the City of San Ramon has two additional interchanges with I-680 located at Bollinger Canyon Road and Alcosta Boulevard. North of the NWSP Area, the next interchange is located in the Town of Danville at Sycamore Valley Road.

Arterial Roadways

San Ramon Valley Boulevard: This is a north-south arterial roadway that is parallel to I-680 along its westerly side. San Ramon Valley Boulevard has two vehicular traffic lanes and a Class II bike lane in each of the northbound and southbound directions.[1] It provides a combination of raised medians and striped left turn bays. There is minimal access management on San Ramon Valley Boulevard due to the need to serve multiple closely spaced driveways and intersections. Only a few of the driveways served by San Ramon Valley Boulevard have restricted movements. The posted speed limit on this arterial roadway is 35 miles per hour, which increases to 40 miles per hour outside of the City limits.

Crow Canyon Road: This is a six-lane arterial roadway that travels east-west. Crow Canyon Road has a raised and landscaped median providing access management. Therefore, full turning movements are provided only at signalized intersections, with limited right in/right out movements at mid-block driveways. Crow Canyon Road has a full access interchange with I-680, thereby providing an inter-city and intra-city roadway connection. Crow Canyon Road has a posted speed limit of 40 miles per hour.

Bollinger Canyon Road: South of Crow Canyon Road, Bollinger Canyon Road is classified as an arterial roadway. The evaluated segment of this arterial roadway has four lanes and bike lanes. The section of Bollinger Canyon Road located between Crow Canyon Road and Norris Canyon Road has a posted speed limit of 30 miles per hour. North and south of this segment, Bollinger Canyon Road generally has a posted speed limit of 40 miles per hour.

[1] Class II bicycle facilities are separate bicycle lanes adjacent to the curb lane, while Class III bicycle facilities are signed routes only, where bicyclist share travel lanes with motorized vehicles.

Source: Kimley-Horn and Associates, Inc. 2004

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Collector Streets

There are a number of collector roadways that serve the area. Collector roadways are used to travel within and between neighborhoods. These roadways collect traffic from local streets and route it to arterials. The designated collector roadways include Hooper Drive, Omega Road and Twin Creeks Drive, which are two-lane roadways with a posted speed limit of 25 miles per hour. Deerwood Drive, also a two-lane collector roadway, is designated as a Class III bike route and has a posted speed limit of 25 miles per hour. Deerwood Road is mostly a four-lane collector with bike lanes and a posted speed limit of 35 miles per hour.

Bollinger Canyon Road north of Crow Canyon Road is designated as a collector roadway with two travel lanes and a posted speed limit of 40 miles per hour. This section of Bollinger Canyon Road can be characterized as a rural two-lane roadway without improved edges or sidewalks.

Fostoria Way is a four-lane collector that has a posted speed limit of 35 miles per hour. The segment of Fostoria Way located between I-680 and Crow Canyon Place also has Class II bike lanes. Norris Canyon Road, west of I-680, has two travel lanes and is a designated Class III bike route. The segment of Norris Canyon Road located between Bollinger Canyon Road and San Ramon Valley Boulevard has a speed limit of 25 miles per hour. East and west of this roadway segment, the posted speed limit is 35 miles per hour. The speed limit on the collector street of Camino Ramon also changes from 25 miles per hour north of Norris Canyon Road, and to 30 miles per hour north of Crow Canyon Road.

Local Streets

Local streets are used to travel within residential and commercial areas and are designed to discourage through-traffic in neighborhoods. The City sets goals to limit traffic volume to acceptable levels on local streets, as they often have the capacity to carry far more traffic than would be tolerable to people residing alongside them.

Existing Traffic Volumes on Roadways

The City of San Ramon collects annual traffic data to monitor existing roadway and intersection conditions. The existing Average Daily Traffic (ADT) volumes on the area's arterial and collector roadways are shown on Figure 4.10-2. These counts are based on the City's 2002 Citywide Traffic Monitoring Study and supplemental counts conducted by the City in 2001 and 2002.

The two most heavily used arterials in the City of San Ramon are Crow Canyon Road between Camino Ramon and Twin Creeks Drive, and Bollinger Canyon Road between I-680 and Camino Ramon. As shown in Figure 4.10-2, Crow Canyon Road carries about 51,200 vehicles per day just west of I-680, and 53,300 vehicles per day just east of I-680. Bollinger Canyon Road carries about 53,100 vehicles per day just east of I-680. Based on Caltrans 2000 volumes, I-680 carries between 132,000 and 139,000 vehicles per day in the vicinity of San Ramon.

Study Intersections

The traffic study evaluated 24 intersections as shown on Figure 4.10-1, and listed below:

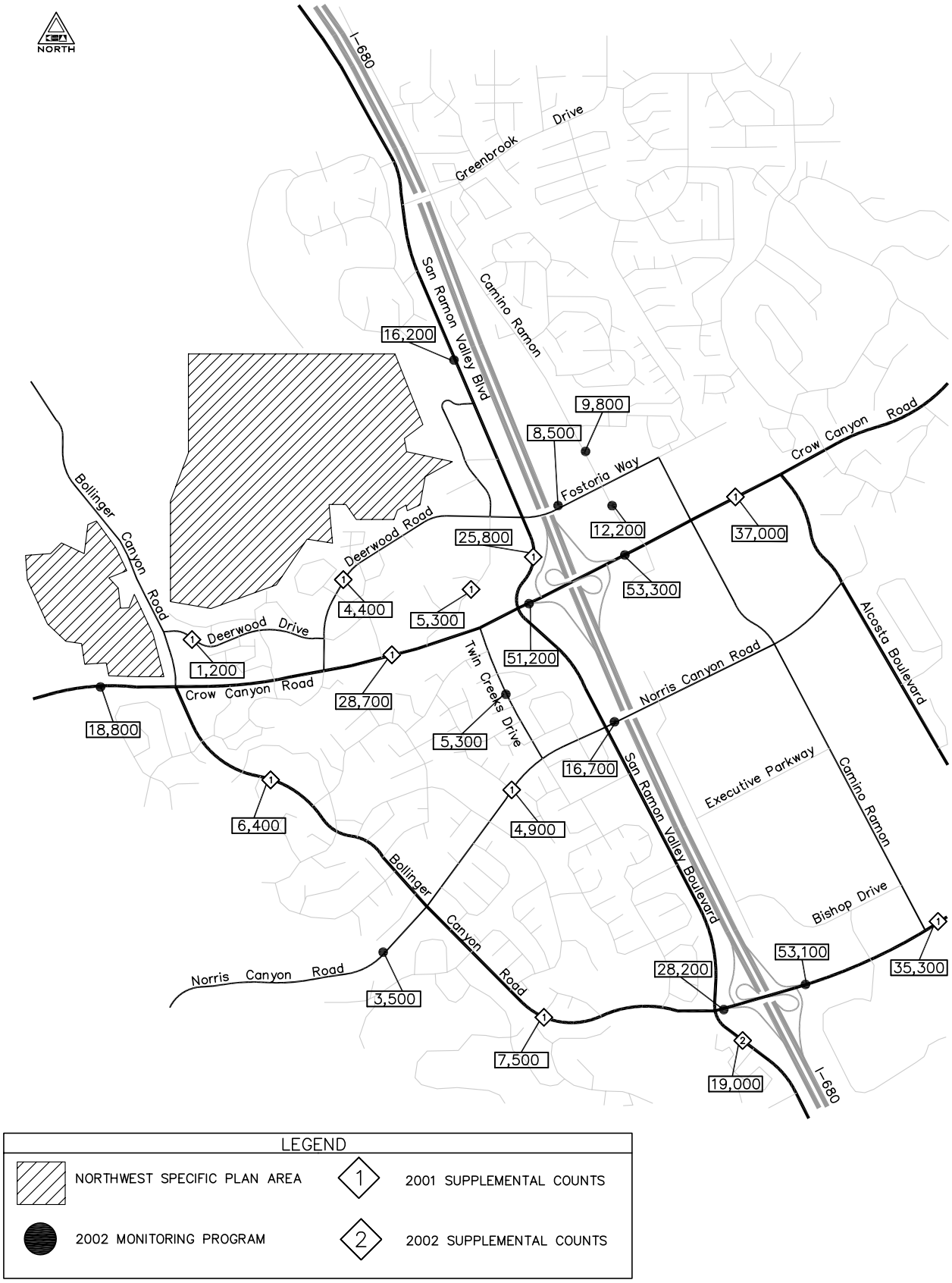
1. Greenbrook Drive/San Ramon Valley Boulevard
2. Hooper Drive/San Ramon Valley Boulevard
3. Purdue Road/San Ramon Valley Boulevard
4. Omega Road/Purdue Road
5. Bollinger Canyon Road/Deerwood Drive
6. Deerwood Drive/Deerwood Road
7. Deerwood Road/Omega Road
8. Deerwood Road-Fostoria Way/San Ramon Valley Boulevard
9. Bollinger Canyon Road/Crow Canyon Road
10. Crow Canyon Road/Porter Drive
11. Crow Canyon Road/Deerwood Road
12. Crow Canyon Road/Old Crow Canyon Road
13. Crow Canyon Road/Twin Creeks Drive
14. Crow Canyon Road/San Ramon Valley Boulevard
15. Crow Canyon Road/Southbound I-680 Ramps
16. Crow Canyon Road/Northbound I-680 Ramps
17. Crow Canyon Place/Crow Canyon Road
18. Camino Ramon/Crow Canyon Road
19. Alcosta Boulevard/Crow Canyon Road
20. Bollinger Canyon Road/Norris Canyon Road
21. Norris Canyon Road/San Ramon Valley Boulevard
22. Bollinger Canyon Road/San Ramon Valley Boulevard
23. Bollinger Canyon Road/Southbound I-680 Ramps
24. Bollinger Canyon Road/Northbound I-680 Ramps

Lane configurations and type of intersection control at each of the above noted study intersections are shown on Figure 4.10-3. Existing turning movement volumes are shown on Figure 4.10-4.

Public Transit (Bus) Service

Bus service in the City of San Ramon is provided by the Central Contra Costa Transit Authority (CCCTA), otherwise known as the County Connection. The different bus routes serving the City are illustrated on Figure 4.10-5. As shown in the figure, there is an inter-modal transit center located north of Executive Parkway and west of Alcosta Boulevard. This Transit Center serves commuters within San Ramon, as well as those using connecting bus service to and from Tri-Valley and Bay Area Rapid Transit (BART) stations in Walnut Creek and Dublin/Pleasanton. County Connection runs a number of routes with direct and indirect connections to the NWSP Area, as listed below:

- *Route 121*. Travels north and south on San Ramon Valley Boulevard, connecting the Cities of Pleasanton and Walnut Creek. Within the City of San Ramon, Route 121 serves communities with access to Crow Canyon Road, Bollinger Canyon Road and San Ramon Valley Boulevard. Route 121 would be the main route serving the NWSP Area. This route runs on 30-minute headways Mondays through Sundays, with an evening service Mondays through Saturdays.



Source: Kimley-Horn and Associates, Inc. 2004

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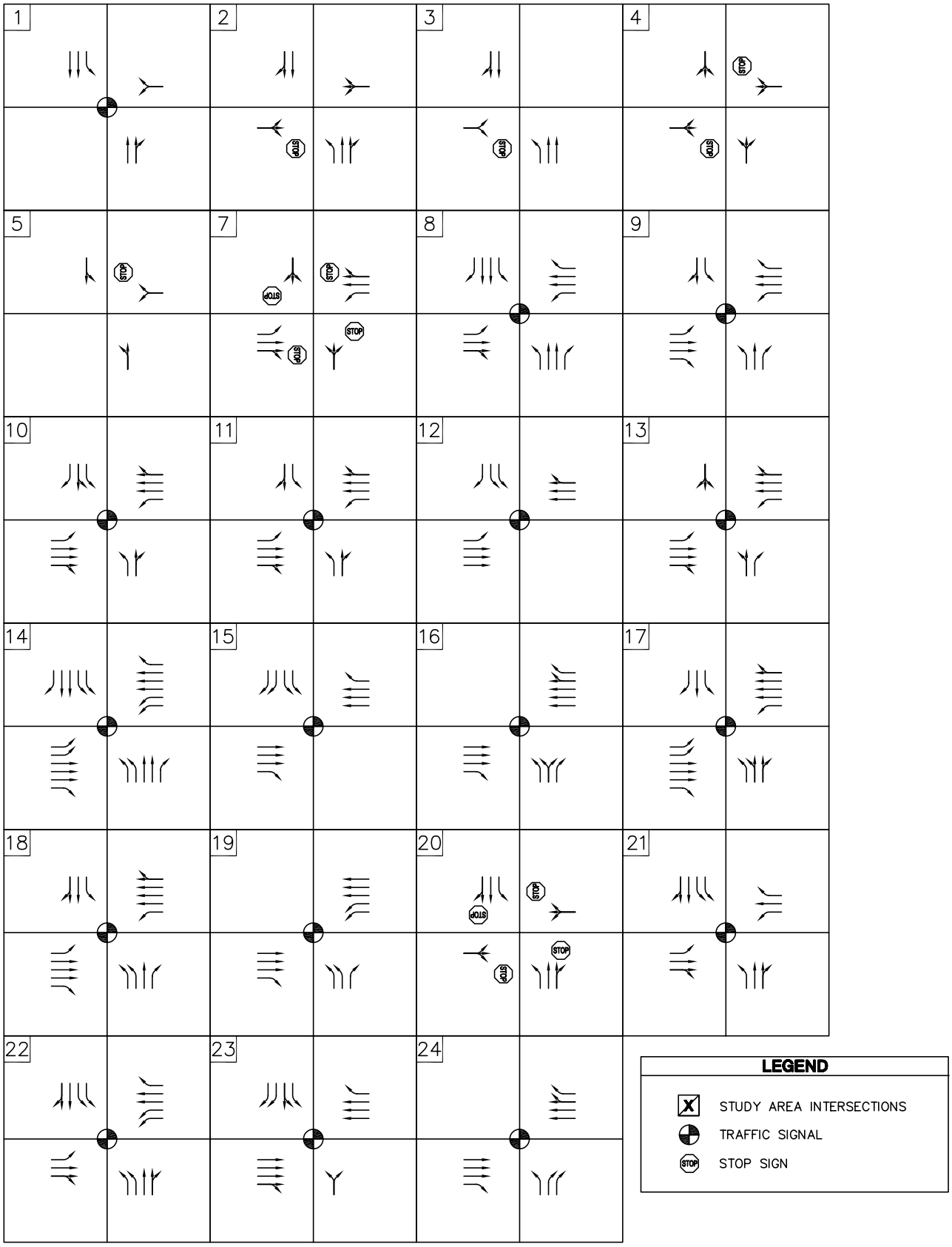

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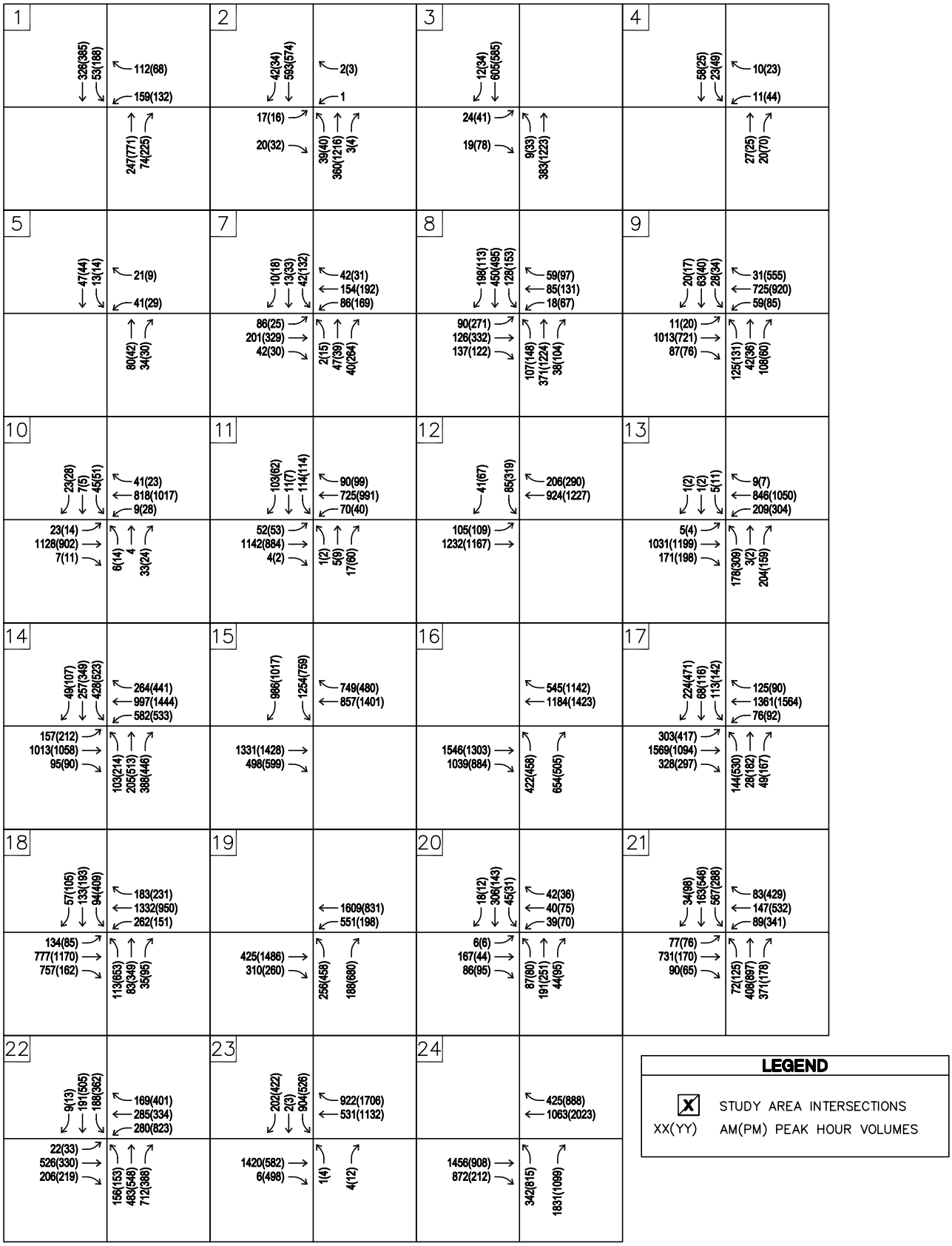

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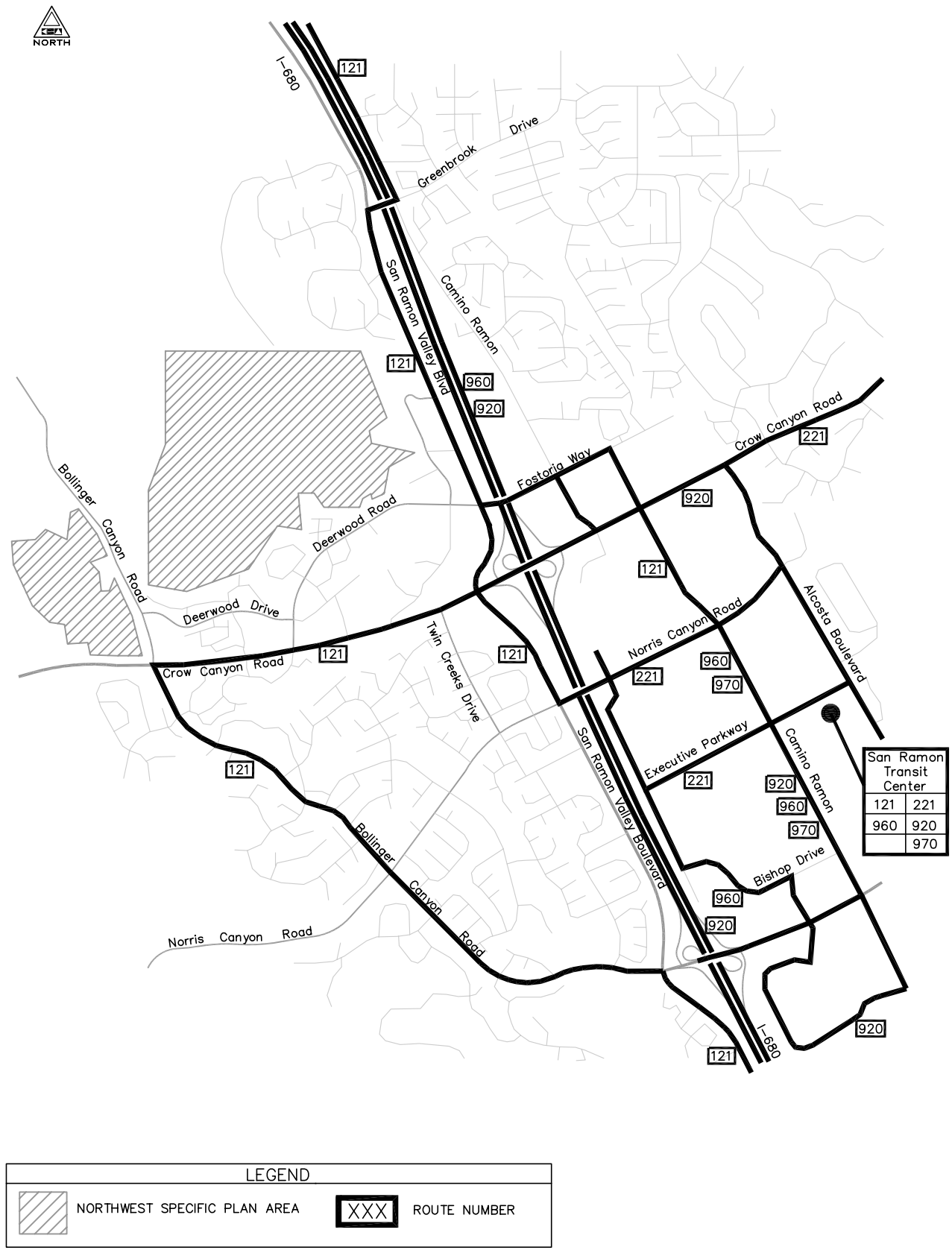

Source: Kimley-Horn and Associates, Inc. 2004

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- *Route 221*. Runs east and west along Crow Canyon Road and Norris Canyon Road. This Route operates Mondays through Fridays, and provides limited service in the San Ramon Valley Area.

- *Route 920*. Travels north-south along I-680 on the east side of the NWSP Area, connecting to the Pleasanton to Walnut Creek BART. Route 920 access the San Ramon Transit Center via Crow Canyon Road. This Route runs on 60-minute headways, Mondays through Fridays during the peak hour.

- *Routes 960B* & *960C*. Runs north and south mostly along I-680 and Camino Ramon, which are located to the east of the NWSP Area. The Routes connect Bishop Ranch in San Ramon to Walnut Creek BART. These Routes operate Mondays through Fridays with 30-minute headways during the AM and PM peak periods, and 60-minute headways during the off-peak periods.

- *Routes 970B* & *970C*. Run in San Ramon mostly on Camino Ramon, and connect Dublin/ Pleasanton Bart Station to Bishop Ranch. These two routes run Mondays through Fridays with 30-minute headways in the morning, and 60-minute headways in the afternoon.

Commuter Rail Service

Supported by CCCTA bus service, San Ramon is served by regional public transportation providers, including the BART, which has stations to the south in Dublin/Pleasanton and to the north in Walnut Creek. San Ramon is also served by the Altamont Commuter Express (ACE) train, via Express Bus connections, which runs weekdays between Stockton and San Jose.

BART rail service is provided along the I-580 corridor, with the terminal station currently located in Dublin near the I-580/Hacienda Drive interchange, and along the Highway 24 corridor, with the nearest station located in Walnut Creek. BART operates daily from 4:00 a.m. to 1:00 a.m. on weekdays, with 15-30 minute headways.

ACE is a passenger rail service that travels on weekdays between Stockton and San Jose. The station nearest to San Ramon, the Pleasanton Station, is located on Bernal Avenue at Pleasanton Avenue. ACE trains operate during the morning and evening peak commuter periods with headways ranging from 60 to 90 minutes. ACE trains currently serve approximately 2,500 passengers per day. The trains operate at an average of 85 percent of capacity, with individual runs sometimes operating at full capacity during the peak periods.

Bicycle and Pedestrian Facilities

Biking and walking are key elements of San Ramon's circulation system. The City has an extensive network of bikeways, sidewalks and trails that enhance neighborhood accessibility and help to reduce reliance on the private automobile.

As noted earlier and shown in Figure 4.10-6, Class II bike lanes are provided along San Ramon Valley Boulevard, Deerwood Road, the westerly section of Fostoria Way, and some segments of Bollinger Canyon Road. The San Ramon Valley Boulevard bike lanes connect to a series of Class II and III bike facilities on the City's arterial and collector street system. According to the City's

General Plan, the section of Norris Canyon Road located east of I-680 has Class II bike lanes, while Class III shared bike facilities are provided to the west of I-680. The Iron Horse Trail is accessible to the NWSP Area via Deerwood Road and Fostoria Way.

Pedestrians are served by sidewalks that are located on arterials, collectors and most local public streets, all of which are built to City standards. There are some sidewalk gaps along the roadways serving the NWSP Area. These include the undeveloped portion of Hooper Drive and the west side of Bollinger Canyon Road (north of Crow Canyon Road). Other sidewalk gaps exist on Old Crow Canyon Road, and the east side of San Ramon Valley Boulevard (at the Danville Town limit). Most sidewalks in the study area are in good condition.

Painted pedestrian crosswalks are provided on one or more approaches of all 24 study intersections with the exception of the intersections of Omega Road/Purdue Road, Bollinger Canyon Road/Southbound I-680 Ramps, and Bollinger Canyon Road/Northbound I-680 Ramps. Pedestrian call buttons and signal heads are provided at signalized intersections along Crow Canyon Road and San Ramon Valley Boulevard.

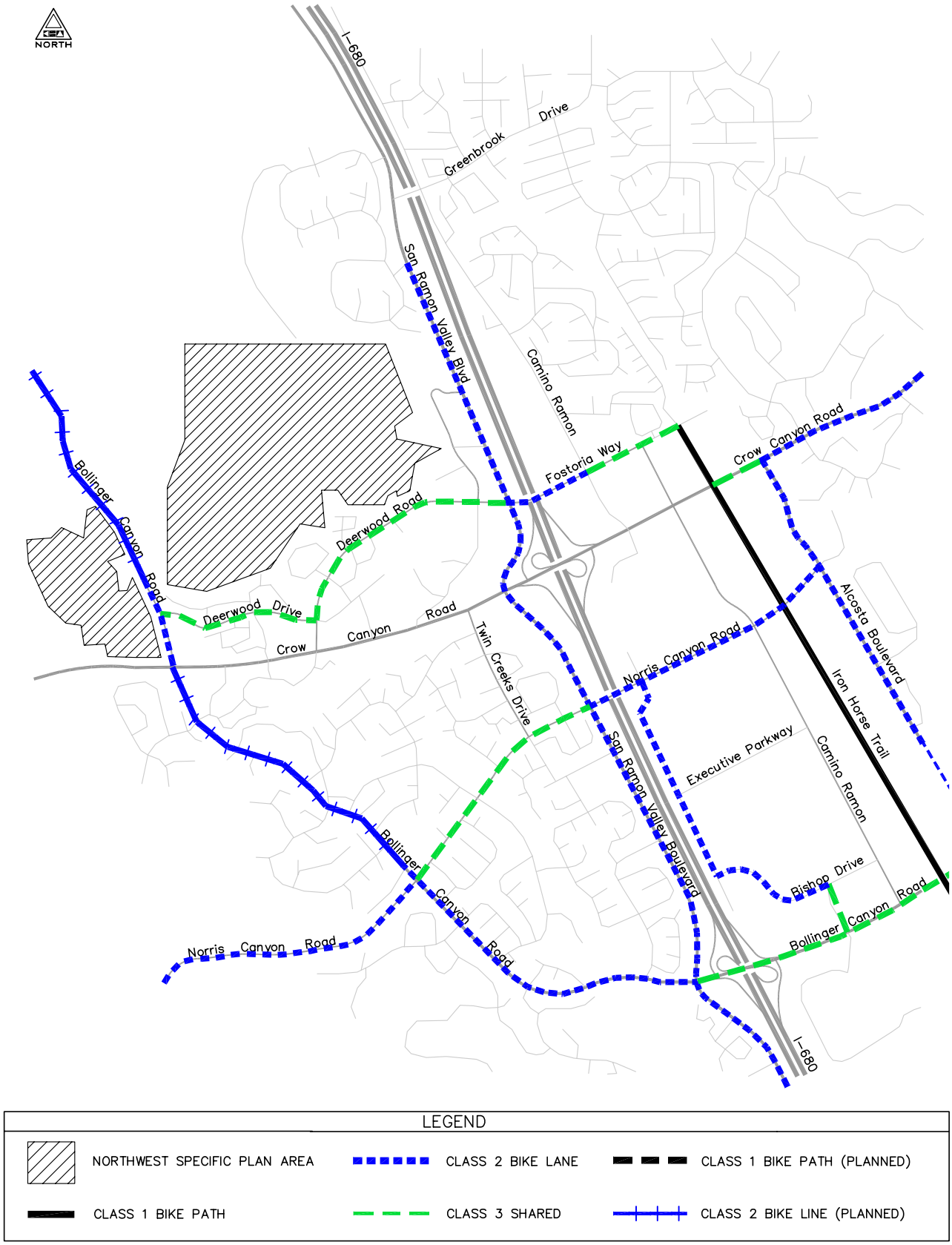
Parking Facilities

Parking in the study area is comprised of on-street parking on public roadways, and private off-street parking facilities serving individual land uses. On-street parking is generally permitted on local streets and on some collector streets including Purdue Road, Omega Road, Hooper Drive, and Twin Creeks Drive. On-street parking is also permitted on San Ramon Valley Boulevard. Parking is prohibited at all times along Crow Canyon Road and Deerwood Road. Based on observations, the commercial, office and light industrial land uses within the study area seem to have sufficient on-site parking supply, with little or no demand for on-street parking except in concentrated areas such as Beta Court. On-site parking is typically accommodated in surface parking lots. No parking structures were observed in the study area.

Transportation Demand Management

Transportation Demand Management (TDM) is a set of strategies, measures and incentives that result in more efficient use of transportation resources. There are many different TDM strategies with a variety of transportation effects, which vary depending on land uses and trip purposes. Some strategies improve the transportation options available to commuters. Some cause changes in trip scheduling, route, destination or mode. Others reduce the need for physical travel through more efficient land use, or transportation substitutes.

The City of San Ramon recognizes the need for reducing trips made by single occupant vehicles in order to achieve improved operational conditions and air quality. Since 1989, the City's TDM Program data have shown that it maintains the lowest drive-alone rate of all Contra Costa County jurisdictions, and has a high number of vanpools with a San Ramon destination. San Ramon's guiding policy is to utilize TDM as an integral component of the City's transportation program, as well as to reduce total vehicle trips on San Ramon streets and to contribute to regional air quality improvements.



Source: Kimley-Horn and Associates, Inc. 2004

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In 1989 San Ramon instituted a Commute Alternative Program, which was initially aimed at San Ramon's businesses but has expanded over the years to also target residences and schools. The City's program is coordinated with regional programs, such as the 511 Regional Rideshare Program. The City's program includes the following elements:

- Coordinate and implement regional commuter campaigns, such as Bike to Work Week, Spare the Air and Vanpool Month;
- Provide and disseminate information on national campaigns, such as Earth Day, Try Transit Week, and others;
- Provide "Transportation Options" presentations to employers and employees relocating to San Ramon and other portions of Southwest County;
- Organize and facilitate employer transportation and Spare the Air commuter fairs;
- Coordinate, distribute and evaluate bi-annual employee transportation surveys;
- Facilitate with local transit agencies to develop, increase and promote transit service;
- Provide assistance and support to property managers with multi-tenant buildings to coordinate and implement commuter rideshare programs; and,
- Provide and distribute rideshare information to local Chambers of Commerce, developers and homeowner associations.

In addition, the City promotes commuter incentive programs to both residents and employees. These incentive programs include the following:

- *Carpool Incentive Program.* Provides incentives to commuters who live and/or work in the City of San Ramon. Commuters are required to either start a new carpool, or add a new carpool rider to an existing carpool to be eligible for $40 of gas scrip.
- *Vanpool Passenger and Driver Incentive Program.* Provides half off of a new vanpool passenger fare for three months. Also, provides a new vanpool driver, who maintains a vanpool with a minimum of six new riders for twelve consecutive months, with a bonus of $l,000.
- *Transit Incentive Program.* Provides a $32 BART pass and $20 bus tickets for County Connection.
- *Guaranteed Ride Home Program.* Provides taxi vouchers or a rental car, up to six times per year, for emergencies including unscheduled mandatory overtime, family emergency, and vehicle or bus breakdown.
- *Carpool to BART Program.* Provides a $20 BART pass and a $20 gas coupon to commuters who Carpool to BART.
- *Altamont Commuter Express (ACE).* Provides a one-month pass on ACE for commuters who ride the County Connection 920 ACE shuttle from the San Ramon Transit Center and the Danville Sycamore Park & Ride lot to the ACE train station in Pleasanton.
- *San Ramon Transit Center.* Located along the Iron Horse Trail at the corner of Executive Parkway and Camino Ramon, the transit center provides commuters with 54 parking spaces to meet a carpool, vanpool or bus.

- *Bike Racks and Lockers at the Transit Center.* Lockers provided at the Transit Center are secured and can be rented monthly, quarterly, or yearly.
- *Park & Ride Lots.* These lots are available for commuters that carpool, vanpool and use public transit. The Bollinger Canyon Road/San Ramon Valley Boulevard lot provides 100 parking spaces, and the Sycamore Park & Ride lot in Danville provides over 150 spaces, and the San Ramon Transit Center provides 54 spaces, in addition to bike racks and lockers.
- *Youth Transit Tickect Program.* Provides students with two 12-ride transit passes for the school year.

Planned Transportation Improvements

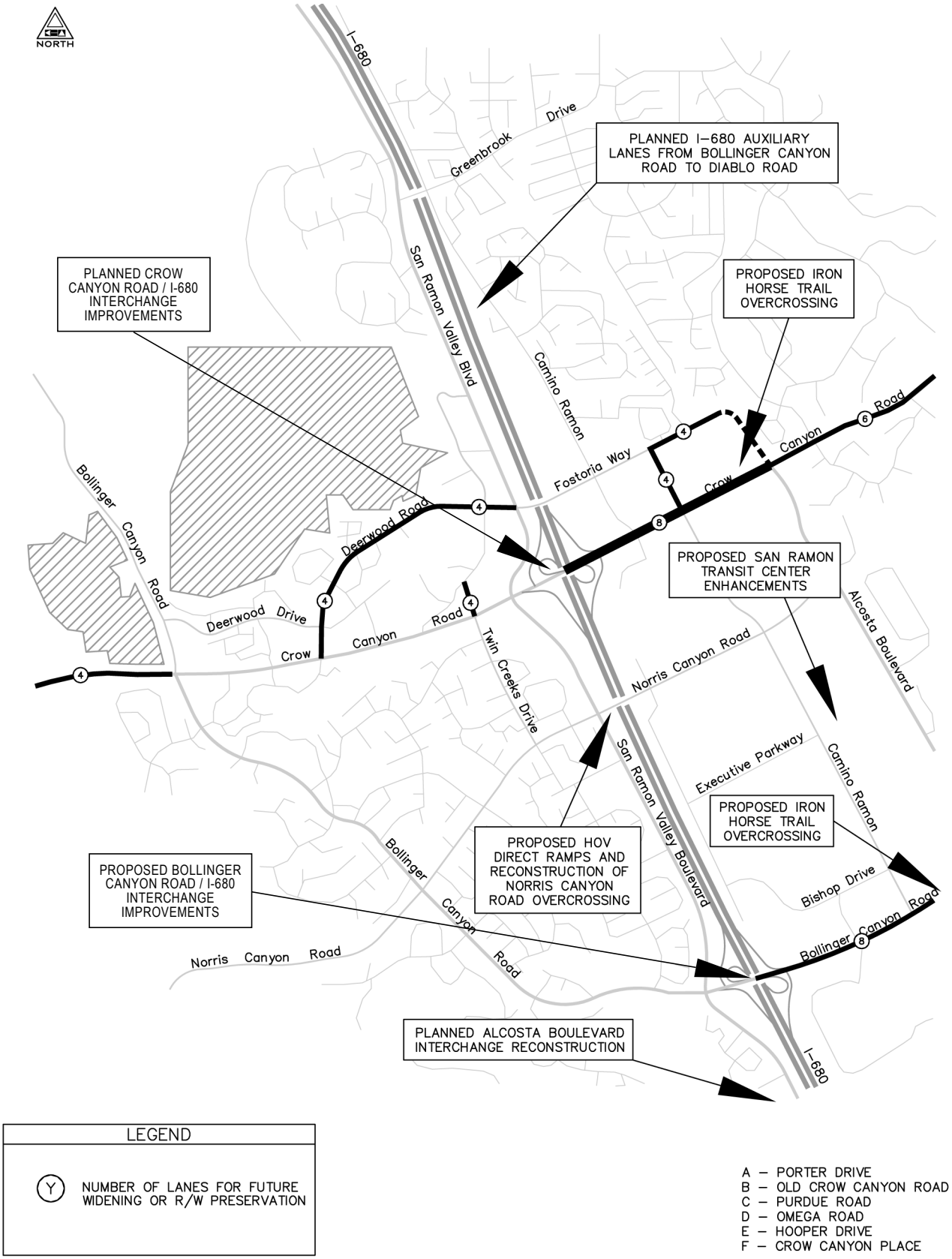
The General Plan identifies a number of planned improvements with regard to roadways, bicycle and pedestrian facilities, and transit service. Improvements in the City's Capital Improvement Program for the five fiscal years of 2002/03 to 2006/07 that would affect the NWSP Area are listed below and shown in Figure 4.10-7.

Roadway Improvements

- *Bollinger Canyon Road/Crow Canyon Road Instersection.* Modify the intersection to accommodate a right turn lane from southbound Bollinger Canyon Road to westbound Crow Canyon Road.
- *Crow Canyon Road.* Widen to eight lanes from I-680 to Alcosta Boulevard. Widen to six lanes from Alcosta Boulevard to Danville Town limits. Preserve right-of-way for widening to four lanes from Bollinger Canyon Road to Alameda County line. The I-680 to Alcosta segment of this project is currently under design.
- *Deerwood Road.* Widen to four lanes from San Ramon Valley Boulevard to Crow Canyon Road.
- *Twin Creeks Drive.* Extend and construct as a four lane street from Crow Canyon Road to Old Crow Canyon Road.

Bicycle and Pedestrian Facilities

- Adoption of a Bicycle Master Plan.
- Completion of Class II bike lanes on Deerwood Road/Deerwood Drive between San Ramon Valley Road and Bollinger Canyon Road.
- Completion of Class II bike lanes on Fostoria Way connecting to the Iron Horse Trail.
- Completion of Class II bike lanes on Bollinger Canyon Road.
- Studying the feasibility of bicycle/pedestrian over-crossings on the Iron Horse Trail at Bollinger Canyon Road and Crow Canyon Road.



Source: Kimley-Horn and Associates, Inc. 2004

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Transit Improvements

CCCTA (County Connection) was scheduled to provide approximately 302,200 hours of service in year 2003. This is an increase of approximately 5,400 hours of service compared to 2002. This is largely attributed to service improvement/increase initiated in year 2002 for Routes 960 and 970.

County Connection is planning to maintain existing frequencies, which reflects adding buses to core routes in the peak periods. This effort is a result of projected traffic congestion within the service area. For planning purposes, it is projected that 7 daily hours of service and 1.5 buses would be added in year 2004 to maintain current service levels.

For fiscal year 2004/05, one additional run on Route 121 is proposed to extend service until midnight, serving workers in service jobs throughout the San Ramon Valley and downtown Walnut Creek.

Regulatory Framework

Traffic Level of Service

The City of San Ramon has established traffic standards, expressed as an acceptable on Level of Service (LOS) for the City's street system. In most cases, the LOS analysis is undertaken using intersection turning movement volumes during each of the AM and PM peak hours. The LOS is presented by a letter grade "A" through "F" which is assigned based on delay, or on Volume/Capacity (V/C) ratio.

Table 4.10-1 summarizes the relationship between the level of service rating and the volume to capacity ratio for signalized intersections.

To evaluate unsignalized intersections, the operations method of the 2000 Highway Capacity Manual was utilized. This methodology determines the LOS based on delay rather than V/C ratio. The delay is for the worst approach when the intersection is controlled with one, or two-way stop signs. The delay is an average for all approaches when the intersection is controlled with all-way stop signs. The LOS criteria for unsignalized intersections are summarized in Table 4.10-2.

The LOS standards form the basis for the City's circulation and land use policies and are consistent with the standards provided by the Growth Management policies of Measure C. The Measure C LOS standards for Basic Routes are based on the type of land uses as summarized in Table 4.10-3.

The Measure C land use category of Central Business District is equivalent to San Ramon's arterial street classification (e.g. San Ramon Valley Boulevard, Crow Canyon Road, and the section of Bollinger Canyon Road located south of Crow Canyon Road). The land use categories of Urban and Suburban are equivalent to San Ramon's collector street classification (e.g. Deerwood Drive, Deerwood Road, Fostoria Way, and Omega Road). The Measure C's Rural and Semi-Rural categories represent San Ramon's local street classification.

Table 4.10-1: Level of Service Definitions for Signalized Intersections

LEVEL OF SERVICE	DESCRIPTION OF OPERATIONS	VOLUME TO CAPACITY RATIO
A	Free flow/non-congested operation. Turning movements are easily made and all queues clear in a single signal cycle.	0.00-0.60
B	Stable operation/minimal delays. An occasional approach phase is fully utilized. Drivers begin to feel somewhat restricted within platoons of vehicles.	0.61-0.70
C	Stable operation/acceptable delays. Major approach phases fully utilized. Backups may develop behind turning vehicles.	0.71-0.80
D	Approaching unstable operation/tolerable delays. Drivers may have to wait through more than one red signal indication. Queues may develop but dissipate rapidly, without excessive delays.	0.81-0.90
E	Unstable operation/significant delays. Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream of intersection.	0.91-1.00
F	Forced flow/excessive delays. Represents jammed conditions. Traffic demand exceeds the capacity. Queues may block upstream intersection.	Over 1.00
Source: Contra Costa Transportation Authority		

Table 4.10-2: Level of Service Definitions for Unsignalized Intersections

LEVEL OF SERVICE	DESCRIPTION OF OPERATIONS	CONTROL DELAY (SECONDS/VEHICLE)
A	Free flow/non-congested operation.	0 to 10
B	Stable operation/minimal delays.	> 10 to 15
C	Stable operation/acceptable delays.	> 15 to 25
D	Approaching unstable operation/tolerable delays.	> 25 to 35
E	Unstable operation/significant delays.	> 35 to 50
F	Forced flow/excessive delays.	> 50
Source: 2000 Highway Capacity Manual		

Table 4.10-3: Measure C Traffic Standards for Basic Routes

LAND USE	LEVEL OF SERVICE (LOS)	RANGE OF V/C
Rural	Low – C	0.70 – 0.74
Semi-Rural	High – C	0.75 – 0.79
Suburban	Low – D	0.80 – 0.84
Urban	High – D	0.85 – 0.89
Central Business District	Low – E	0.90 – 0.94
Source: City of San Ramon		

In addition to the Basic Routes, Measure C also identifies Routes of Regional Significance, which meet certain criteria with regard to inter-city and sub-regional importance. These routes have different Measure C LOS standards than the Basic Routes. Within the study area, the following streets are designated Routes of Regional Significance:

- San Ramon Valley Boulevard (Standard: LOS D with V/C ratio $\leq$ 0.91)
- Crow Canyon Road (Standard: LOS D with V/C ratio $\leq$ 0.91)

The General Plan (Policy 3.3-G-1) states that intersection LOS has to be equal to, or better than Measure C requirements on City streets. Specifically, the General Plan establishes LOS "C "or better (Policy 3.3-I-1) at all intersections subject to Measure C with LOS "D" during no more than three hours of the day (AM, PM, and midday peak hours). Another policy (Policy 3.3-I-2) accepts LOS "D" during a two-hour peak period only on arterial streets bordered by non-residential land uses.

Existing Traffic Operations

Using the turning movement volumes during the AM and PM peak hours as shown in Figure 4.10-4, intersection LOS calculations were carried out for the 24 study intersections. Analysis outputs for all signalized and unsignalized intersections for the AM and PM Peak Hour are included as Appendix I. Results of the peak hour LOS analysis for all 24 study intersections are summarized in the Table 4.10-4.

The intersections of Bollinger Canyon Road/San Ramon Valley Boulevard (intersection #22), and Bollinger Canyon Road/Northbound I-680 Ramps (intersection #24) currently operate at LOS "D" during the AM and PM peak hours. With the exception of these two intersections, all signalized intersections presently operate at a LOS "C" or better. In other words, all signalized intersections currently meet the City's and Measure C level of service standards.

The unsignalized T-intersections of San Ramon Valley Boulevard with Hooper Drive and Purdue Road currently operate at LOS "D" during the PM peak hour. It should be noted that this LOS is associated with the worst intersection approach on the minor street due to a one-way stop control. The minor intersecting streets at these two locations (i.e., Hooper Drive and Purdue Road) currently serve relatively low volumes of vehicular traffic, and, therefore, upgrade in their intersection control is not recommended based on existing traffic conditions.

Regulatory Background

This section describes the existing policies and regulations that apply to traffic and circulation impacts within the NWSP Area. Assessments of traffic impacts depend on a variety of federal, state, and local regulations and policies, in addition to the thresholds established by CEQA, to provide consistent standards and a basic framework for evaluation. The following paragraphs identify and explain the applicable policies and regulations as they relate to future development in the NWSP Area.

Table 4.10-4: Intersection Level of Service under Existing Conditions

INT. #	NORTH-SOUTH STREET	EAST-WEST STREET	TYPE OF INTERSECTION CONTROL	AM PEAK HOUR		PM PEAK HOUR	
				V/C	LOS	V/C	LOS
1	San Ramon Valley Blvd.	Greenbrook Dr.	Signalized	0.28	A	0.52	A
2	San Ramon Valley Blvd.	Hooper Dr.	Stop sign on EB	19.6[4]	C	32.1[4]	D
3	San Ramon Valley Blvd.	Purdue Rd.	Stop sign on EB	18.1[4]	C	31.7[4]	D
4	Omega Rd.	Purdue Rd.	Stop signs on EB & WB	9.0[4]	A	9.7[4]	A
5	Bollinger Canyon Rd.	Deerwood Dr.	Stop sign on WB	9.5[4]	A	9.2[4]	A
6	Deerwood Rd.	Deerwood Dr.	All-way stop	8.48[4]	A	8.33[4]	A
7	Omega Rd./Old Crow Canyon Rd.	Deerwood Rd.	All-way stop	9.67[4]	A	17.56[4]	C
8	San Ramon Valley Blvd.	Deerwood Rd./Fostoria Wy.	Signalized	0.30	A	0.67	B
9	Bollinger Canyon Rd.	Crow Canyon Rd.	Signalized	0.47	A	0.44	A
10	Porter Dr.	Crow Canyon Rd.	Signalized	0.27	A	0.25	A
11	Deerwood Rd.	Crow Canyon Rd.	Signalized	0.36	A	0.36	A
12	Old Crow Canyon Rd.	Crow Canyon Rd.	Signalized	0.31	A	0.46	A
13	Twin Creeks Dr.	Crow Canyon Rd.	Signalized	0.48	A	0.66	B
14	San Ramon Valley Blvd.	Crow Canyon Rd.	Signalized	0.60	A	0.72	C
15	Southbound I-680 Ramps	Crow Canyon Rd.	Signalized	0.63	B	0.58	A
16	Northbound I-680 Ramps	Crow Canyon Rd.	Signalized	0.51	A	0.55	A
17	Crow Canyon Pl.	Crow Canyon Rd.	Signalized	0.48	A	0.73	C
18	Camino Ramon	Crow Canyon Rd.	Signalized	0.69	B	0.79	C
19	Alcosta Blvd.	Crow Canyon Rd.	Signalized	0.39	A	0.68	B
20	Bollinger Canyon Rd.	Norris Canyon Rd.	All-way stop	24.37[4]	C	14.44[4]	B
21	San Ramon Valley Blvd.	Norris Canyon Rd.	Signalized	0.73	C	0.79	C
22	San Ramon Valley Blvd.	Bollinger Canyon Rd.	Signalized	0.81	D	0.85	D
23	Southbound I-680 Ramps	Bollinger Canyon Rd.	Signalized	0.52	A	0.49	A
24	Northbound I-680 Ramps	Bollinger Canyon Rd.	Signalized	0.83	D	0.88	D

[1] V/C: Volume to Capacity ratio

[2] LOS: Level of Service

[3] EB: Eastbound intersection approach & WB: Westbound intersection approach

[4] LOS at unsignalized intersections was estimated using the 2000 HCM methodology. This methodology measures LOS based on delay rather than V/C ratio. The assessed delay is for the worst intersection approach when the intersection is controlled by one, or two-way stop signs. The assessed delay is an average for the overall intersection approaches when controlled by all-way stop signs.

Source: KHA, 2004

City of San Ramon 2020 General Plan

The General Plan contains policies and standards that are intended to ensure high quality development and address traffic impacts within the City. The following General Plan policies are relevant to implementation of the NWSP and development of the Faria Preserve:

5.1-G-1: Maintain acceptable levels of service and ensure that future development and the circulation system are in balance.

5.1-I-1: Strive to maintain traffic LOS C or better as the standard at all intersections, with LOS D during a total of no more than three peak periods of the day (a.m., p.m., and noon peaks).

5.1-I-2: Require traffic impact studies for all proposed new developments which are projected to generate 50 or more peak hour vehicle trips.

5.1-I-3: Identify and implement circulation improvements on the basis of traffic studies.

5.1-I-4: Implement uniform design standards for City arterials, collectors, and local streets.

5.1-I-5: Monitor key intersection levels of service on an annual basis and document the results.

5.1-I-6: Implement the following transportation programs: the Commute Alternative Program, the Traffic Engineering and Traffic Safety Program, the Residential Traffic Calming Program, and the Safe Routes to School Program.

5.3-G-1: Design arterial roadways to carry high volume, higher-speed traffic,, thereby minimizing through traffic in residential areas of the City.

5.3-I-1: Ensure that adequate north-south and east-west arterial capacity is provided to accommodate future travel demand.

5.3-I-3: Construct the capacity improvements necessary to serve traffic growth generated by development under the General Plan. (Specific capacity improvements listed.)

5.3-I-5: Require traffic impact mitigation fees on new residential and commercial development to ensure that transportation improvements are constructed before the increased traffic causes conditions to deteriorate.

5.3-I-6: Make optimal use of federal, state, and other funding sources to complete circulation system improvements.

5.3-I-8: Encourage regional freight movement on freeways and other appropriate routes; evaluate and implement vehicle weight limits as appropriate on arterial, collector and local roadways to mitigate truck traffic impacts in the community.

5.4-G-1: Design and reconfigure collector and local roadways to improve circulation and to connect residential and commercial areas of the City.

5.4-I-1: Implement residential traffic calming measures, as warranted, and police enforcement to mitigate speeding and other traffic impacts in residential areas of the City.

5.4-I-2: Implement traffic-control measures and design features that support attainment of the City's goal of less than 3,000 vehicles per day on collector roadways.

5.4-I-3: Implement traffic-control measures, residential traffic calming, and design features that support attainment of the City's goal of less than 500 vehicles per day on local roadways.

5.4-I-4: Construct improvements to collector roadways. (Specific improvements listed.)

5.4-I-5: Mitigate appropriately traffic that impacts collector streets as a result of new residential development.

5.5-I-7 Encourage new development to include a mix of uses that will allow people to walk between destinations.

5.6-G-1: Encourage bicycling and walking as alternatives to the automobile.

5.6-I-1: Establish a network of on- and off-roadway bicycle routes to encourage their use for commute, recreational, and other trips. Improve and expand bicycle routes for commuters in San Ramon. The design of bike routes shall consider the safety of cyclists.

5.6-I-2: Develop bicycle routes that provide access to schools and parks.

5.6-I-3: Emphasize the Iron Horse Trail as a major north-south route for non-motorized transportation.

5.6-I-4: Require bicycle parking, storage and other support facilities as part of any new office and retail developments and public facilities.

5.6-I-5: Develop a series of continuous walkways within Bishop Ranch Business Park, commercial districts, and residential neighborhoods so they connect to one another.

5.6-I-6: Continue to carry out requirements to make public rights-of-way accessible to physically disabled persons.

5.6-I-8: Encourage alternate fuel sources, such as charging stations, as part of new large development projects to reduce the use of traditional fossil fuel burning vehicles.

5.6-I-10: Ensure that roadway improvement projects do not decrease mobility or accessibility for bicyclists or pedestrians.

City of San Ramon 2020 General Plan EIR

In the City of San Ramon 2020 General Plan Draft Environmental Impact Report (General Plan EIR) (City of San Ramon, 2001), the following impacts related to traffic and circulation are identified:

Impact 4.2-a: New development under the proposed General Plan is projected to generate traffic levels which produce LOS D or better conditions at the study intersections, during am and pm peak hours.

Impact 4.2-b: New development under the proposed General Plan provides for efficient pedestrian bicycle circulation.

Impact 4.2-c: New development under the proposed General Plan exceeds planned transit service.

The General Plan EIR concluded that these three impacts were less than significant. In particular, Impact 4.2-a, which relates to traffic impacts resulting from buildout of the General Plan, as future traffic levels at study intersections were projected to meet the City's LOS standard and the Traffic Service Objective (TSO) established by the Tri Valley Transportation Plan for San Ramon intersections on Routes of Regional Significance. In addition, because traffic conditions on I-680 in the Planning Area are projected to meet the established TSO standard and the Contra Costa County Congestion Management Program, no impact was identified for freeway conditions. As a result, no significant or potentially significant impacts were identified.

No significant or potentially significant impacts were identified with respect to Impact 4.2-b, because the General Plan contains policies that strongly support bicycling and walking, and the General Plan supports more compact and mixed-use land development patterns, which would facilitate non-auto travel.

No significant or potentially significant impacts were identified in connection with Impact 4.2-c, because the General Plan contains policies to ensure that the City would promote adequate transit service for the duration of the General Plan.

4.10.2 Thresholds of Significance

The City of San Ramon 2020 General Plan and General Plan EIR establish criteria for the determination of significant environmental impacts related to transportation. The criteria relate to the City's policies regarding traffic circulation, bicycle and pedestrian circulation, and transit service. According to the General Plan, traffic service criteria are quantifiable, but the pedestrian, bicycle, and transit service criteria are qualitative and are intended to provide a basis against which to evaluate the City's policies relating to these modes of travel.

A proposed development project would have a significant impact on the transportation system if it would:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system, including causing a study intersection to exceed the City's standard of LOS "C," with LOS "D" (volume to capacity ratio less than or equal to 0.90) for more than three hours of the day (AM, noon, and PM peak hours), unless the City determines that signalization is not warranted based on the particular circumstances of the intersection.
- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways.
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Result in inadequate parking capacity.
- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

In addition to the General Plan policies establishing standards of significance, the City entered into an annexation and development agreement with Sunset Development (developers of Bishop Ranch) that defines specific traffic performance requirements to minimize the impact to Bishop Ranch employees and visitors. These requirements are consistent with General Plan policies and may be applied to the Plan and Faria Preserve:

- Strive to maintain traffic LOS "C" or better as the standard at all intersections, with LOS "D" during no more than three hours of the day for the morning, noon, and afternoon peak hours.
- Accept LOS "D" during two-hour peak periods, with the possibility of intersections at or closely approximating the limits of LOS "D" only on arterial routes bordered by non-residential development where improvements to meet the City's standard would be prohibitively costly or disruptive.

The agreement stipulates that the City of San Ramon shall not change or approve land use designations, densities, or circulation systems in the City's outlying areas if it would cause (unless mitigated) the General Plan traffic service standards to be exceeded on the following streets and specific intersections:

- Bollinger Canyon Road from San Ramon Valley Boulevard to Alcosta Boulevard
- Camino Ramon from Bollinger Canyon Road to Crow Canyon Road
- Norris Canyon Road from San Ramon Valley Boulevard to Alcosta Boulevard
- Bollinger Canyon Road at Alcosta Boulevard, Bishop Drive, Camino Ramon, Sunset Drive, and San Ramon Valley Boulevard
- Camino Ramon at Bishop Drive and Executive Parkway
- Norris Canyon Road at Alcosta Boulevard, Camino Ramon, Bishop Drive, and San Ramon Valley Boulevard

4.10.3 Environmental Evaluation

With the exception of the 44 large-lot homes proposed in Neighborhood E of the NWSP Area, development proposed by the Faria Preserve represents all development permitted by the NWSP. As a result, approximately 95 percent of the new vehicle trips that would be generated by development of the NWSP Area would be attributed to the proposed Faria Preserve. Thus, while future development in the Western Plan Area would contribute to cumulative conditions, traffic-related impacts identified within the NWSP Area would result from development on the Faria Preserve Project Site alone. Impacts and mitigations are identified as such.

Impact Analysis Scenarios

Peak-hour traffic conditions are analyzed under the following scenarios:

- Existing
- Existing plus Project
- General Plan 2020 Buildout/Cumulative plus Project

The cumulative scenario traffic volumes were developed based on projections from the 2020 buildout scenario adopted in the City's General Plan and includes the General Plan development assumptions for the NWSP Area. Within the study area, the Traffic Analysis Zones (TAZ's) that represent the project contain fewer households than the proposed Project. Therefore, adjustments were required to accurately forecast cumulative plus project traffic volumes. To develop cumulative plus project projections, the following methodology was used:

1) Year 2020 traffic projections at the Plan entry approaches were summed to derive the total traffic volume from the General Plan in the study area;
2) The difference in TAZ traffic representing the Plan as included in the General Plan and the currently projected Plan traffic was determined; and
3) The difference in the General Plan projections and the Plan traffic estimates were added to the General Plan traffic volumes resulting in the cumulative plus Plan scenario.

Trip Generation

It is estimated that buildout of the proposed NWSP would generate nearly 7,800 trips per day on a weekday, as shown in Table 4.10-5. An estimated 721 trips would occur during the AM peak hour and an estimated 791 trips would occur during the PM peak hour.

Trip Distribution

Trips generated by buildout of the proposed Plan were assigned to the roadway network on the basis of the trip distribution and the likely travel patterns to and from the site, as shown in Table 4.10-6 and Figure 4.10-8. Traffic generated by development within the NWSP Area would generally be split evenly between the proposed Bollinger Canyon Road accesses and the San Ramon Valley Boulevard access. Approximately 54 percent of the trips generated by NWSP development would access the site

Table 4.10-5: Trip Generation

LAND USE		NUMBER OF UNITS	DAILY TRIP GENERATION	AM PEAK HOUR			PM PEAK HOUR		
				IN	OUT	TOTAL	IN	OUT	TOTAL
A[1] – Single-Family Detached Homes (Low Density)	Single Family Homes[2]	200	1,914	38	112	150	128	74	202
	Second Units	132	528	11	30	41	34	21	55
B[2] – Single Family Detached Homes (Medium Density)		200	1,914	38	112	150	128	74	202
C[3] – Attached Housing Unit		300	2,043	45	219	264	144	69	213
D[4] – Senior Housing Units (Multi-Family)		86	378	10	21	31	21	14	35
E[2] – Large Lot Homes (Medium Density)		44	421	8	25	33	28	16	44
TOTAL RESIDENTIAL			***7,198***	***150***	***519***	***669***	***483***	***268***	***751***
Church Facility[5]			450	40	30	70	14	18	32
Community Park, Sports Fields, and Rose Garden[6]			300	5	5	10	15	15	30
Educational Facility (e.g. Children's Museum)[7]			240	7	3	10	8	12	20
TOTAL TRIPS			***8,188***	***202***	***557***	***759***	***520***	***313***	***833***
Reduction for Internalization (5%)			409	10	28	38	26	16	42
TOTAL			7,779	192	529	721	494	297	791

DU = Dwelling Unit; SF = Square Feet

[1] Development A features 200 units on large lots which are capable of having second units. It was assumed thatc66 percentcof homes would contain second units. Trip generation for second units was assumed to be 4 vehicle trips/day (source: Abrams Associates).

[2] Trip generation rates taken from ITE (7th ed.) Trip Generation Manual, Single Family Detached Home (Code 210):

Daily –	T = 9.57 x (1000's of SF)	(50%-in / 50%-out)
AM Peak –	T = .75 x (1000's of SF)	(25%-in / 75%-out)
PM Peak –	T = 1.01 x (1000's of SF)	(63%-in / 37%-out)

[3] Trip generation rates taken from ITE (7th ed.) Trip Generation Manual, Residential Condominium/ Townhouse (Code 230):

Daily –	T = 6.81 x (DU)	(50%-in / 50%-out)
AM Peak –	T = .88 x (DU)	(17%-in / 83%-out)
PM Peak –	T = .71 x (DU)	(66%-in / 33%-out)

[4] Trip generation rates were based on studies of Rossmoor in Walnut Creek (source: Abrams Associates):

Daily –	T = 4.4 x (DU)	(50%-in / 50%-out)
AM Peak –	T = .36 x (DU)	(33%-in / 67%-out)
PM Peak –	T = .41 x (DU)	(59%-in / 41%-out)

[5] Trip generation rates based on studies of similar facilities in the area with church run pre schools (source: Abrams Associates):

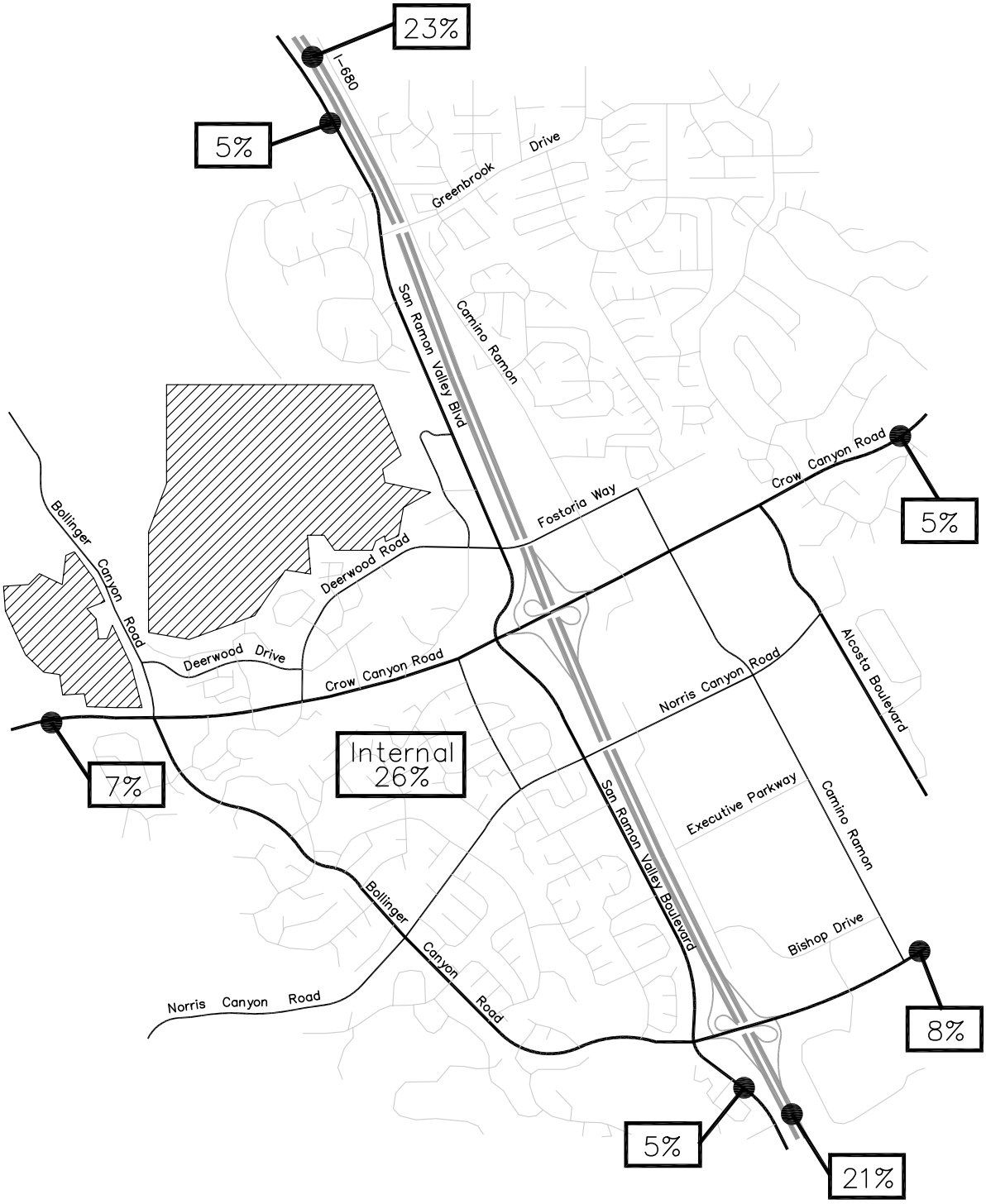
Daily –	450	(50%-in / 50%-out)
AM Peak –	70	(57%-in / 43%-out)
PM Peak –	32	(44%-in / 56%-out)

[6] Trip generation rates were based on studies of similar facilities in the area (source: Abrams Associates):

Daily –	300	(50%-in / 50%-out)
AM Peak –	10	(50%-in / 50%-out)
PM Peak –	30	(50%-in / 50%-out)

[7] Trip generation rates were based on studies of Lindsay Museum in Walnut Creek (source: Abrams Associates):

Daily –	240	(50%-in / 50%-out)
AM Peak –	10	(70%-in / 30%-out)
PM Peak –	20	(40%-in / 60%-out)



Source: Kimley-Horn and Associates, Inc. 2004

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Table 4.10-6: Trip Distribution

DESCRIPTION	PERCENT DISTRIBUTION
I-680 – North	23
I-680 – South	21
San Ramon Valley Boulevard – South	5
Crow Canyon Road – West	7
Crow Canyon Road – East	5
Bollinger Canyon Road – East	8
San Ramon Valley Boulevard – North	5
Internal to San Ramon	26

via Purdue Road to San Ramon Valley Boulevard, and 46 percent would access the NWSP Area via Bollinger Canyon Road. It is assumed that all of the Neighborhood E trips would utilize the Bollinger Canyon Road access.

The Existing-plus-Project (NWSP) traffic volumes, shown in Figure 4.10-9, were used in performing the operational analysis for the study intersections. Levels of service resulting from the intersection operational analysis for the Existing-plus-Project (NWSP) condition are summarized in Table 4.10-7 and compared with existing conditions. Level of service calculations are included in the Appendix J.

IMPACT TRAFFIC - 1

Impact Traffic-1: Decrease in LOS due to Traffic. Traffic generated by buildout of the NWSP would increase traffic volumes and delays at area intersections, and would result in the City's LOS standards being exceeded at three unsignalized intersections during peak hours. The three intersections are: San Ramon Valley Boulevard/Hooper Drive, San Ramon Valley Boulevard/Purdue Road and Bollinger Canyon Road/Norris Canyon Road.

This would be a *significant* impact (Faria Preserve).

As shown in Table 4.10-7, under Existing-plus-Project conditions, the LOS at the intersection of San Ramon Valley Boulevard/Hooper Drive would worsen from LOS D to a LOS E in the PM peak hour for the side street approach (Hooper Drive). As the LOS at this intersection would exceed the City's LOS criteria, this impact would be considered significant. The intersection does not meet peak hour warrants for the installation of a traffic signal. Until this intersection meets at least one of the warrants for the installation of a traffic signal, this intersection would remain stop-controlled. Hooper Drive accommodates relatively low traffic volumes, and signalization of this intersection would cause more traffic delay than it would improve. However, because it would operate at LOS E, the impact is considered significant and unavoidable until the intersection of San Ramon Valley Boulevard/Hooper Drive meets the traffic signal warrants and a signal is installed.

The intersection of San Ramon Valley Boulevard/Purdue Road would worsen from a LOS D or better in both peak hours to LOS E in the AM peak hour, and a LOS F in the PM peak hour for the side street approach (Purdue). The side-street stop control intersection at San Ramon Valley Boulevard/Purdue Road can operate at LOS D or better if a traffic signal is installed (see Mitigation Measure Traffic-1b). Signalization of this intersection is particularly important because it would serve as one of the primary access streets for the NWSP Area.

Table 4.10-7: Existing and Existing + Project Intersection Level of Service

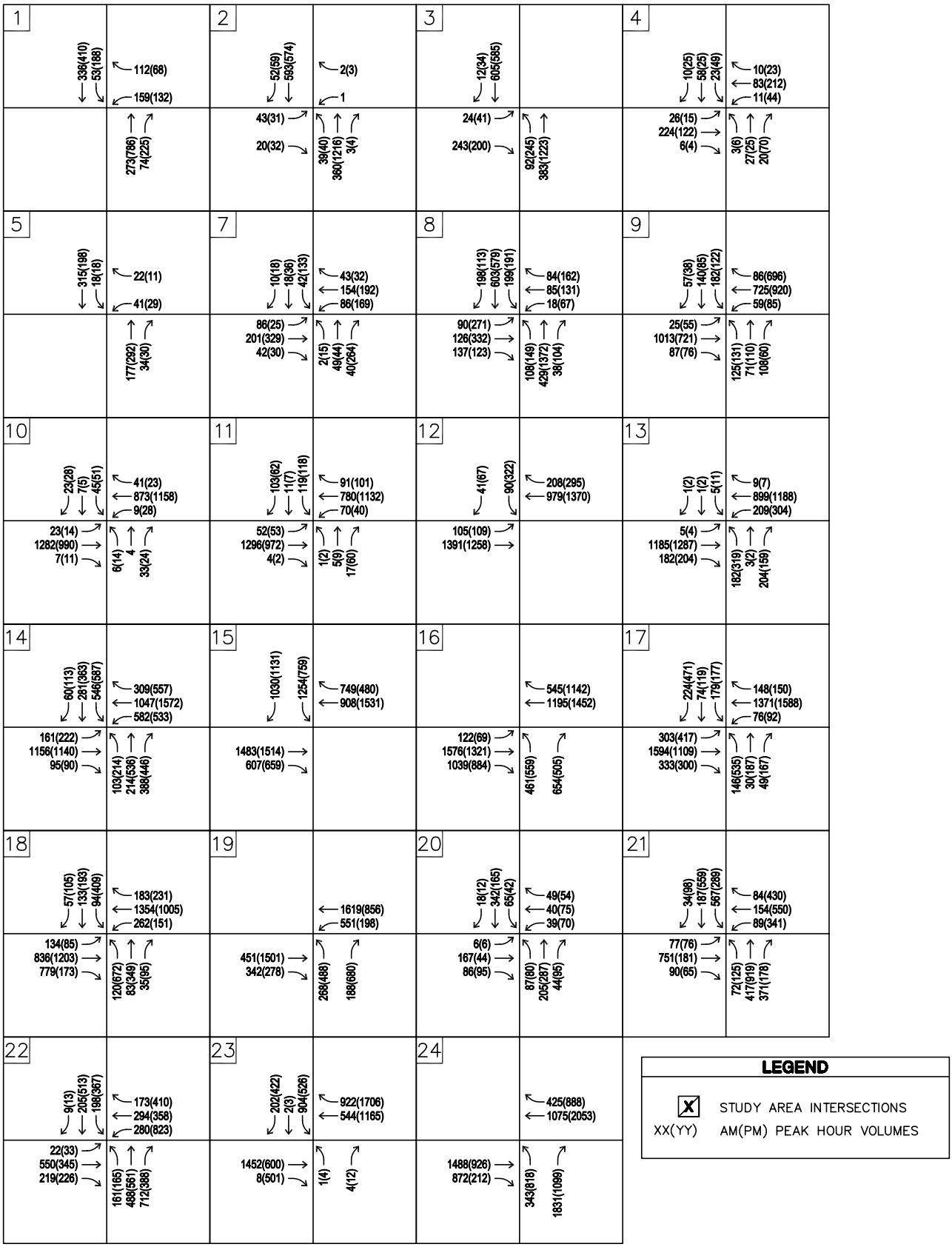
INT. #	NORTH-SOUTH STREET	EAST-WEST STREET	TYPE OF INTERSECTION CONTROL	EXISTING				EXISTING+ PROJECT			
				AM PEAK HOUR		PM PEAK HOUR		AM PEAK HOUR		PM PEAK HOUR	
				V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
1	San Ramon Valley Blvd.	Greenbrook Dr.	Signalized	0.28	A	0.52	A	0.29	A	0.52	A
2	San Ramon Valley Blvd.	Hooper Dr.	Side street stop	19.60	C	32.10	D	30.10	D	49.40	E
3	San Ramon Valley Blvd.	Purdue Rd.	Side street stop	18.10	C	31.70	D	37.60	E	741.50	F
4	Omega Rd.	Purdue Rd.	Side street stop	9.00	A	9.70	A	12.70	B	14.40	B
5	Bollinger Canyon Rd.	Deerwood Dr.	Side street stop	9.50	A	9.20	A	12.00	B	12.10	B
6	(Not Used)										
7	Omega Rd./Old Crow Canyon Rd.	Deerwood Rd.	All-way stop	9.75	A	17.72	C	9.80	A	18.05	C
8	San Ramon Valley Blvd.	Deerwood/Fostoria	Signalized	0.30	A	0.67	B	0.34	A	0.74	C
9	Bollinger Canyon Rd.	Crow Canyon Rd.	Signalized	0.47	A	0.44	A	0.54	A	0.54	A
10	Porter Dr.	Crow Canyon Rd.	Signalized	0.27	A	0.25	A	0.30	A	0.28	A
11	Deerwood Rd.	Crow Canyon Rd.	Signalized	0.36	A	0.36	A	0.39	A	0.44	A
12	Old Crow Canyon Rd.	Crow Canyon Rd.	Signalized	0.31	A	0.46	A	0.32	A	0.49	A
13	Twin Creeks Dr.	Crow Canyon Rd.	Signalized	0.48	A	0.66	B	0.52	A	0.69	B
14	San Ramon Valley Blvd.	Crow Canyon Rd.	Signalized	0.60	A	0.72	C	0.67	B	0.77	C
15	Southbound I-680 Ramps	Crow Canyon Rd.	Signalized	0.63	B	0.58	A	0.72	C	0.71	C
16	Northbound I-680 Ramps	Crow Canyon Rd.	Signalized	0.51	A	0.55	A	0.67	B	0.57	A
17	Crow Canyon Pl.	Crow Canyon Rd.	Signalized	0.48	A	0.73	C	0.53	A	0.74	C
18	Camino Ramon	Crow Canyon Rd.	Signalized	0.69	B	0.79	C	0.70	B	0.81	D
19	Alcosta Blvd.	Crow Canyon Rd.	Signalized	0.39	A	0.68	B	0.40	A	0.69	B
20	Bollinger Canyon Rd.	Norris Canyon Rd.	All-way stop	24.46	C	14.43	B	38.28	E	17.53	C
21	San Ramon Valley Blvd.	Norris Canyon Rd.	Signalized	0.73	C	0.79	C	0.74	C	0.81	D
22	San Ramon Valley Blvd.	Bollinger Canyon Rd.	Signalized	0.81	D	0.85	D	0.82	D	0.86	D
23	Southbound I-680 Ramps	Bollinger Canyon Rd.	Signalized	0.52	A	0.49	A	0.53	A	0.49	A
24	Northbound I-680 Ramps	Bollinger Canyon Rd.	Signalized	0.83	D	0.88	D	0.84	D	0.88	D
25	Purdue Rd.	Bollinger Canyon Rd.	EB & WB	-	-	-	-	-	-	-	-

[1] V/C: Volume to Capacity ratio

[2] LOS: Level of Service

[3] EB: Eastbound intersection approach & WB: Westbound intersection approach

[4] LOS at unsignalized intersections was estimated using the 2000 HCM methodology. This methodology measures LOS based on delay rather than V/C ratio. The assessed delay is for the worst intersection approach when the intersection is controlled by one, or two-way stop signs. The assessed delay is an average for the overall intersection approaches when controlled by all-way stop signs.



Source: Kimley-Horn and Associates, Inc. 2004

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Additionally, the all-way stop controlled intersection of Bollinger Canyon Road/Norris Canyon Road would change from LOS C to LOS E in the AM peak hour. The four-way stop controlled intersection at Bollinger Canyon Road/Norris Canyon Road would operate at LOS B if a traffic signal is installed (see Mitigation Measures Traffic-1c); this intersection meets peak hour volume warrants for signalization.

Because the City's LOS standard would be exceeded at these three intersections, the impact is considered significant.

Mitigation Measure Traffic-1a (Faria Preserve): Traffic signal at the intersection of San Ramon Valley Boulevard/Hooper Drive when warranted.

The City shall monitor the intersection of San Ramon Valley Boulevard/Hooper Drive to determine if it meets signalization warrants other than peak hour warrants (e.g. based on accident experience and daily traffic volumes) and install a signal at this intersection when it meets one of the warrants.

Level of Significance after Mitigation: *Less than significant* (Faria Preserve).

Mitigation Measure Traffic-1b (Faria Preserve): Traffic signal at the intersection of San Ramon Valley Boulevard/Purdue Road.

The City shall install a traffic signal at the intersection of San Ramon Valley Boulevard/Purdue Road.

Level of Significance after Mitigation: *Less than significant* (Faria Preserve).

Mitigation Measure Traffic-1c (Faria Preserve): Install a traffic signal at the intersection of Bollinger Canyon Road/Norris Canyon Road.

The City shall monitor the intersection of Bollinger Canyon Road/Norris Canyon Road to determine if it meets signalization warrants other than peak hour warrants (e.g. based on accident experience and daily traffic volumes) and install a signal at this intersection when it meets one of the warrants.

Level of Significance after Mitigation: *Less than significant* (Faria Preserve).

IMPACT TRAFFIC - 2

Impact Traffic-2: Effect on Pedestrian, Bicycle, and Transit Traffic. Implementation of the Plan would generate new pedestrian, bicycle, and transit trips, which would use the existing and planned circulation network in the study area. However, there would be sufficient capacities to accommodate these trips.

This would be a *less than significant* impact (Western Plan Area and Faria Preserve).

Development pursuant to the Plan would generate new pedestrian trips. The house of worship, community park, and educational facility components of the Plan would have the potential to generate new pedestrian trips from not only residences in the NWSP Area, but also from other nearby residential and adjoining neighborhoods. Although the NWSP Area is not located adjacent to

existing commercial areas, new residents could walk to nearby commercial businesses. Some residents would be expected to walk to and from bus stops on San Ramon Valley Boulevard and Crow Canyon Road.

There are some sidewalk gaps along the roadways leading to the NWSP Area. These include the undeveloped and private portion of Hooper Drive, one segment of Old Crow Canyon Road, the east side of San Ramon Valley Boulevard (at the Danville Town limit), and along most portions of Bollinger Canyon Road north of Crow Canyon Road. Nonetheless, walking to and from the NWSP Area to nearby destinations (e.g. commercial, retail, schools and parks) is possible through other existing facilities leading up to the Plan boundaries.

The proposed roadways within the NWSP Area would include sidewalks or paths on at least one side of the street. The proposed spine collector roadway would have sidewalks only on its south side; however, there would be no pedestrian-generating land uses on the north side of the spine collector, and pedestrians would be able to use the spine collector for passage. The proposed trail network would connect with East Bay Regional Park District's (EBRPD) Calaveras Trail and existing Mill Creek Hollow Park. The Plan would increase the capacity of pedestrian facilities and add to the network of pedestrian facilities in the NWSP Area, resulting in a beneficial effect. Given that the existing and proposed trails and sidewalks would have sufficient capacity to accommodate pedestrian trips that would be generated by the Plan, the Plan's impact on pedestrians would be less than significant.

The Plan would generate new bicycle trips within the NWSP Area and to and from offsite locations. Within the NWSP Area, the proposed lane width on the spine collector in the eastern portion of the NWSP Area would be wide enough to accommodate both vehicular and bicycle traffic, since there would be no parking on the spine collector; thus, the street could be designated as a Class III bicycle route. On the remaining collector and local streets in both portions of the NWSP Area, these streets would not be designated as bicycle routes; instead, bicycles would share the travel way with automobiles. The NWSP Area would be accessible from the City's bicycle system on Bollinger Canyon Road and San Ramon Valley Boulevard. Bicyclists could also access the Iron Horse Trail via Class II bike lanes on Fostoria Way to Camino Ramon, and on a Class III bike route on Fostoria Way to the Iron Horse Trail. Once on the Iron Horse Trail, bicyclists could access many parts of San Ramon. Connections to existing roadways as proposed in the Plan would adhere to the City's roadway standards and would not impair existing bikeways. While the Plan would increase traffic volumes on roadways, the roadways would continue to accommodate both bicyclists and motorists. For this reason, the impact on bicycle travel would be less than significant.

The Plan would generate additional transit ridership. Transit service (County Connection Route 121) is accessible from Purdue Road on San Ramon Valley Boulevard and from Bollinger Canyon Road on Crow Canyon Road. Route 121 provides service to the San Ramon Transit Center, where other routes provide service to BART. Presently, Route 121 and the other bus routes serving the San Ramon Transit Center have ample capacity for additional riders. It is expected that existing bus stops and facilities at the San Ramon Transit Center would be sufficient to serve the residents in the NWSP Area. Therefore, the Plan would have a Less than Significant transit impact.

Mitigation: None required.

IMPACT TRAFFIC - 3

Impact Traffic-3 (Cumulative): Decrease in LOS due to Traffic. Under the Cumulative-plus-Project Scenario, traffic generated by buildout of the NWSP, when combined with traffic generated by buildout of the General Plan, would increase traffic volumes and delays at area intersections, and would result in the City's LOS standards being exceeded at four unsignalized intersections during peak hours. The four intersections are: San Ramon Valley Boulevard/Hooper Drive, San Ramon Valley Boulevard/ Purdue Road, Bollinger Canyon Road/Norris Canyon Road and Omega Road/Old Crow Canyon Road.

This would be a *significant, cumulative* impact (Western Plan Area and Faria Preserve).

The traffic generated by the proposed NWSP at buildout would contribute to the cumulative traffic volumes in the study area that would be generated by existing and future developments. Analysis of the NWSP in 2020 cumulative conditions analyzes the incremental change between the proposed NWSP and the land uses approved in the General Plan for the NWSP Area. The existing General Plan allows for 754 dwelling units in the NWSP Area. The incremental change consists of an increase of 85 dwelling units between the General Plan adopted land uses and the proposed NWSP. Additionally, the NWSP includes additional second units that would be attached to single family homes and several non-residential uses, including a house of worship, a community park (with active sports fields), and an educational facility. The changes in land use would result in a net increase in peak hour traffic of 332 and 329 trips in the AM and PM peak hours respectively.

The trip distribution pattern used in the Existing-plus-Project scenario (see Table 4.10-6) was used to distribute the net increase of peak hour traffic. These trips are added to the traffic projections developed for the General Plan. Figure 4.10-10 illustrates the year 2020 traffic volumes at the study intersections. Intersections operational analysis under Cumulative-plus-Project was conducted using the turning movement volumes shown in Figure 4.10-10. CCTALOS software was used for evaluating signalized intersections, and the HCS software was used for unsignalized intersections. Level of service calculations are included in Appendix J.

Table 4.10-8 shows the intersection levels of service for the 2020 Cumulative-plus-Project scenario. Many of the study intersections experience an increase in volume to capacity ratio and associated change in intersection level of service compared with the Existing-plus-Project scenario. However, all of the study intersections would operate at LOS D or better with the traffic improvements adopted in the General Plan (General Plan traffic improvements are reflected in the Table 4.10-8 levels of service), except for the following four unsignalized intersections:

- The side-street stop controlled intersection of San Ramon Valley Boulevard/Hooper Drive would operate at LOS F in the PM peak hour for traffic turning from the minor street (Hooper Drive). Elaboration on conditions at this intersection is provided below.
- The unsignalized intersection of San Ramon Valley Boulevard/Purdue Road would operate at LOS F in the PM peak hour.
- The four-way stop controlled intersection of Bollinger Canyon Road/Norris Canyon Road would operate at LOS F during both peak periods.

Table 4.10-8: Cumulative Plus Project Intersection Levels of Service

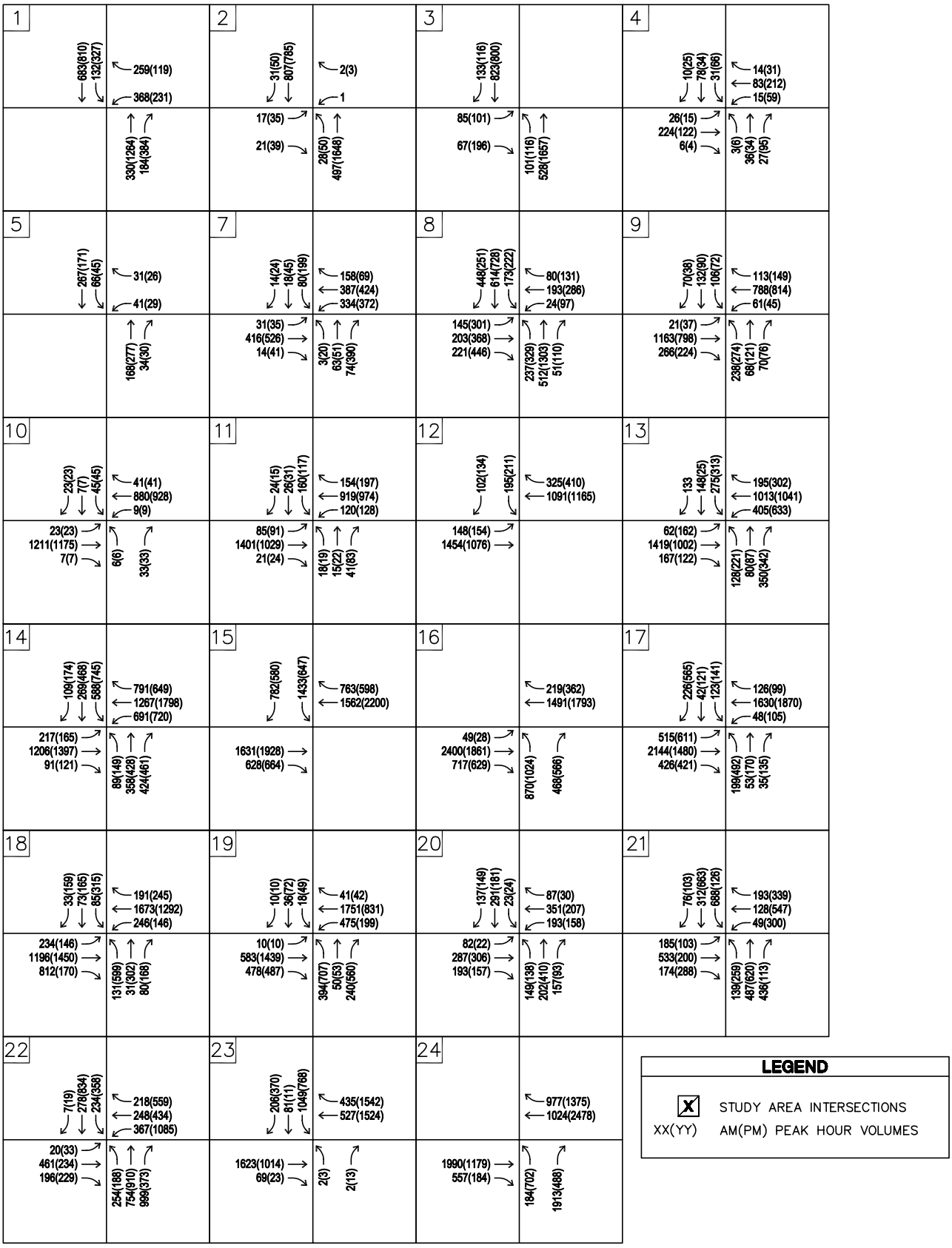
INT. #	NORTH-SOUTH STREET	EAST-WEST STREET	TYPE OF INTERSECTION CONTROL	2020 GP			
				AM PEAK HOUR		PM PEAK HOUR	
				V/C	LOS	V/C	LOS
1	San Ramon Valley Blvd.	Greenbrook Dr.	Signalized	0.59	A	0.87	D
2	San Ramon Valley Blvd.	Hooper Dr.	Side street stop	29.80	D	763.80	F
3	San Ramon Valley Blvd.	Purdue Rd.	Side street stop	1820.00	E	5095.00	F
4	Omega Rd.	Purdue Rd.	Side street stop	13.70	B	17.10	C
5	Bollinger Canyon Rd.	Deerwood Dr.	Side street stop	12.30	B	11.90	B
6	Not Used						
7	Omega Rd./Old Crow Canyon Rd.	Deerwood Rd.	All-way stop	29.00	D	141.62	F
8	San Ramon Valley Blvd.	Deerwood/Fostoria	Signalized	0.48	A	0.86	D
9	Bollinger Canyon Rd.	Crow Canyon Rd.	Signalized	0.66	B	0.52	A
10	Porter Dr.	Crow Canyon Rd.	Signalized	0.29	A	0.28	A
11	Deerwood Rd.	Crow Canyon Rd.	Signalized	0.49	A	0.43	A
12	Old Crow Canyon Rd.	Crow Canyon Rd.	Signalized	0.42	A	0.46	A
13	Twin Creeks Dr.	Crow Canyon Rd.	Signalized	0.78	C	0.85	D
14	San Ramon Valley Blvd.	Crow Canyon Rd.	Signalized	0.78	C	0.90	D
15	Southbound I-680 Ramps	Crow Canyon Rd.	Signalized	0.79	C	0.61	B
16	Northbound I-680 Ramps	Crow Canyon Rd.	Signalized	0.73	C	0.68	B
17	Crow Canyon Pl.	Crow Canyon Rd.	Signalized	0.60	A	0.81	D
18	Camino Ramon	Crow Canyon Rd.	Signalized	0.69	B	0.77	C
19	Alcosta Blvd.	Crow Canyon Rd.	Signalized	0.61	B	0.85	D
20	Bollinger Canyon Rd.	Norris Canyon Rd.	All-way stop	115.60	F	41.30	E
21	San Ramon Valley Blvd.	Norris Canyon Rd.	Signalized	0.75	C	0.78	C
22	San Ramon Valley Blvd.	Bollinger Canyon Rd.	Signalized	0.88	D	0.90	D
23	Southbound I-680 Ramps	Bollinger Canyon Rd.	Signalized	0.64	B	0.58	A
24	Northbound I-680 Ramps	Bollinger Canyon Rd.	Signalized	0.78	C	0.78	C
25	Purdue Rd.	Bollinger Canyon Rd.	EB & WB	14.00	B	12.60	B

[1] V/C: Volume to Capacity ratio

[2] LOS: Level of Service

[3] EB: Eastbound intersection approach & WB: Westbound intersection approach

[4] LOS at unsignalized intersections was estimated using the 2000 HCM methodology. This methodology measures LOS based on delay rather than V/C ratio. The assessed delay is for the worst intersection approach when the intersection is controlled by one, or two-way stop signs. The assessed delay is an average for the overall intersection approaches when controlled by all-way stop signs.



Source: Kimley-Horn and Associates, Inc. 2004

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- The four-way stop controlled intersection of Omega Road/Old Crow Canyon Road would operate at LOS F in the PM peak hour.

The San Ramon Valley Boulevard/Hooper Drive intersection does not meet peak hour warrants for the installation of a traffic signal. Until this intersection meets warrants for the installation of a traffic signal, this side-street stop controlled intersection would remain stop-controlled. Hooper Drive accommodates relatively low traffic volumes and signalization of this intersection would cause more traffic delay than it would improve. However, because it would operate at LOS F under cumulative-plus-project conditions, a significant and unavoidable impact would result until signalization is installed. Mitigation (Traffic-3a) would be required.

The San Ramon Valley Boulevard/Hooper Drive intersection does not require a traffic signal based on existing peak hour volume warrants, nor does it meet warrants in 2020 conditions or as a result of the project traffic. There are eleven warrants for determining the need for a traffic signal; however, only the peak hour volume warrant can be projected into the future. The City may consider the installation of a traffic signal at this intersection if, through monitoring, it meets other warrants such as accidents or 8-hour volume warrants. Currently, the installation of a traffic signal at this intersection is included in the City's 5-year Capital Improvement Program.

Signalization would be required at the San Ramon Valley Boulevard/Purdue Road and the Bollinger Canyon Road/Norris Canyon Road intersections to improve LOS. With signalization, the San Ramon Valley Boulevard/Purdue Road would operate at LOS D or better and the the Bollinger Canyon Road/Norris Canyon Road intersection would operate at a LOS B or better in the 2020 Cumulative-plus-Project scenario.

The all-way stop-controlled intersection of Old Crow Canyon Road/Deerwood Road/Omega Road would require installation of a traffic signal, based on a review of traffic volumes and queuing, particularly in the short segment between San Ramon Valley Boulevard and Old Crow Canyon Road. The impact would be less than significant with implementation of the mitigation measure.

Mitigation Measure Traffic-3a (Faria Preserve): Implement Mitigation Measure Traffic-1a.

The City shall implement Mitigation Measure Traffic-1a, which requires the City to monitor and install a signal at the intersection of San Ramon Valley Boulevard/Hooper Drive.

Level of Significance after Mitigation: *Less than significant* (Faria Preserve).

Mitigation Measure Traffic-3b (Faria Preserve): Implement Mitigation Measure Traffic-1b.

The City shall implement Mitigation Measure Traffic-1b, which requires the City to install a traffic signal at the intersection of San Ramon Valley Boulevard/Purdue Road.

Level of Significance after Mitigation: *Less than significant* (Faria Preserve).

Mitigation Measure Traffic-3c (Faria Preserve): Implement Mitigation Measure Traffic-1c.

The City shall implement Mitigation Measure Traffic-1c, which requires the City to monitor the intersection of Bollinger Canyon Road/Norris Canyon Road to determine if it meets signalization

warrants other than peak hour warrants (e.g. based on accident experience and daily traffic volumes) and install a signal at this intersection when it meets one of the warrants.

Level of Significance after Mitigation: *Less than significant* (Faria Preserve).

Mitigation Measure Traffic-3d (Faria Preserve): Install a traffic signal at the intersection of Old Crow Canyon Road/Deerwood Road/Omega Road.

The City shall monitor the intersection of Old Crow Canyon Road/Deerwood Road/Omega Road to determine if it meets signalization warrants other than peak hour warrants (e.g. based on accident experience and daily traffic volumes) and install a signal at this intersection when it meets one of the warrants.

Level of Significance after Mitigation: *Less than significant* (Faria Preserve).

IMPACT TRAFFIC - 4

Impact Traffic-4: Effect on Cumulative Pedestrian, Bicycle, and Transit Traffic. Implementation of the Plan would generate new pedestrian, bicycle, and transit trips that would add to the cumulative trips using the existing and planned transportation facilities in the study area. There would be sufficient capacities to accommodate all of these trips.

This would be a *less than significant* impact (Western Plan Area and Faria Preserve).

As describe above for Impact Traffic-2, the Plan would generate new pedestrian, bicycle, and transit trips. These trips would, in combination with pedestrian, bicycle, and transit trips generated by new developments elsewhere in the City, increase the use of existing and planned facilities. It is expected that all pedestrian, bicycle, and transit trips would be accommodated by the existing and planned facilities, and the cumulative impact would be less than significant.

Mitigation: None required.

References

Abrams Associates. 2004. Traffic Impact Study: Faria Ranch in the City of San Ramon. Prepared for The Castle Company, 12885 Alcosta Bld, Suite A, San Ramon, CA 94583. Prepared by Abrams Associates, 2815 Mitchell Drive, Suite 120, Walnut Creek, CA 94596. August 2004.

City of San Ramon, 2001. City of San Ramon 2020 General Plan Draft Environmental Impact Report. EIR Certified November 13, 2001.

City of San Ramon, 2002. City of San Ramon 2020 General Plan. Approved by Voters of the City of San Ramon on March 5, 2002.

Kimley-Horn and Associates, Inc. 2004. City of San Ramon Northwest Specific Plan Environmental Impact Report Transportation Element. Prepared by Kimley-Horne and Associates, Inc. December 2004

4.11 UTILITIES/SERVICE SYSTEMS

This section describes the existing and proposed conditions (including regulations) relating to utilities and service systems occurring in the Northwest Specific Plan Area (NWSP Area), and potential impacts to water supply, wastewater, and solid waste services that could occur with implementation of the NWSP and development of the Faria Preserve. Discussion of impacts and corresponding mitigation measures are provided together for the proposed NWSP and for the proposed Faria Preserve. This analysis is summarized from information obtained from utility providers in the NWSP Area and the Water Supply Assessment for the NWSP prepared by the East Bay Municipal Utility District (EBMUD).

4.11.1 Existing Setting

Northwest Specific Plan

Existing Water Provision

Portions of the NWSP Area are located outside of the current service area for EBMUD. Therefore, in order for water to be provided to the NWSP Area, annexation into the District's current service area is required. After the NWSP completes several land use and service provider approval steps in the City and with the Contra Costa County Local Agency Formation Commission (LAFCO), the NWSP Area would become eligible for water service. Since it is within EBMUD's Ultimate Service Boundary (USB), the NWSP Area is consistent with EBMUD policies regarding annexations and provisions of water service.

Water Supply

As shown in Figure 4.6-1 of the City of San Ramon 2020 General Plan Draft Environmental Impact Review (General Plan EIR) (City of San Ramon, 2001), the portions of the NWSP Area that are currently served by EBMUD are supplied water from its San Ramon Pressure Zone. The EBMUD service boundary follows the San Ramon City boundary. The southern portion of the NWSP Area is within the EBMUD San Ramon Pressure Zone (450-650 feet), while the northern portion of the site is within the Apollo Zone, although water is not currently provided to this northern area. EBMUD's water supply source is the Mokelumne River, the water of which is stored in Pardee Reservoir for delivery to the East Bay via the three parallel Mokelumne Aqueducts.

EBMUD has water rights to withdraw up to 325 million gallons per day (mgd) and up to 365,000 acre feet per year (af/y) from the Mokelumne River System, and an additional 150,000 af/y from the American River when its flows are above minimum flow levels. EBMUD is also in the process of developing its Freeport Regional Water Project (FRWP), which is anticipated to begin serving the District in 2010. The FRPW is a joint venture with the Sacramento County Water Agency and the City of Sacramento (SCWA) that includes construction of a new point of diversion from the Sacramento River near the town of Freeport. The FRWP will have the ability to divert up to 185 mgd, of which 85 mgd will be allocated to SCWA, and the remaining 100 mgd being delivered to EBMUD customers in dry years to reduce the need for rationing

Conditions that restrict EBMUD's ability to use its 325 mgd entitlement include:

- Upstream water use by prior right holders.
- Downstream water use by riparian and senior appropriators and other downstream obligations, including protection of public trust resources.
- Drought, or less than normal rainfall for more than a year.
- Emergency outage.

During periods of drought, runoff from the Mokelumne River is insufficient to supply the 325 mgd entitlement. EBMUD studies indicate that, with its current water supply and the water demands expected in 2030 and with dry-year supply deliveries from the FRWP, which are on schedule to begin occurring by 2010, multiple-dry year deficiencies would increase to approximately 37 percent during Year 3 of a three-year drought. (EBMUD, 2005).

As discussed under the Drought Management Program section in Chapter 3 of the Urban Water Management Plan (UWMP), EBMUD's system storage generally allows it to continue serving its customers during dry-year events. EBMUD imposes rationing based on the projected storage at the end of September. By imposing rationing in the first dry year of potential drought, EBMUD attempts to minimize rationing in subsequent years if a drought persists, while continuing to meet its current and subsequent-year fishery flow release requirements and obligations to downstream agencies.

The existing San Ramon Reservoir, located within the NWSP Area, contains 5 million gallons of potable water. There are a total of 29 million gallons in the San Ramon Pressure Zone, providing for more than adequate storage for existing and future growth (Kimley-Horn, 2004). EBMUD completed a study in 1995 which determined that its existing facilities are more than adequate to serve existing and future growth within the NWSP Area. This study was recently reviewed and the amount of storage was confirmed to be more than adequate, but deficits are projected for drought years (Kimley-Horn, 2004). However, the San Ramon Pressure Zone can only provide water to the 450 to 650 feet elevation zone. While an existing 200,000 gallon reservoir serves the "Apollo Zone" in the 650 to 850 foot elevation range, located at the north end of the NWSP Area, this reservoir is specifically intended to serve the domestic and fire-flow needs of 12 existing homes in the area. Recently completed transmission mains in Deerwood Avenue are seismic upgrade facilities consisting of 30-inch and 36-inch water mains which are not available for water service to the NWSP Area. The NWSP Area has a low elevation of around 600 feet and a high of around 1,000 feet. The Western Plan Area is below 650 feet in elevation and would not require a new water supply system. While some portions of the Faria Preserve Project Site are below 650 feet, all of the proposed residential, educational, and community facility uses – with the exception of part of Neighborhood D – would be above and elevation of 650 feet, and would require a new water supply system. The Faria Preserve proposes construction of two adjacent side-by-side water tanks within a 3.25 acre development site envelope along the westerly ridgeline located within the Faria Preserve Project Site. Alternative configurations and locations of the tanks within this envelope are described fully in Chapter 7, Alternatives.

The Faria Preserve also proposes construction of a pump station to connect the existing water delivery system, including the existing San Ramon Reservoir, to the new pressure zone system. The

preferred location for the new pump station is at the existing valve pit structure adjacent to the existing San Ramon Reservoir in the southeast corner of the site. Alternatively, the partially buried pump station could be located along Purdue Road near the easterly entrance to the Faria Preserve site. In conjunction with the construction of the new pressure zone infrastructure described above and its connection to the existing San Ramon Reservoir, an existing underground pipeline connecting Deerwood Road to the reservoir beneath the development footprint for the Faria Preserve will be relocated within the area being graded to accommodate Neighborhoods C and D. To allow continuing maintenance of the existing San Ramon Reservoir, the Faria Preserve includes as part of its planned roadway system an access road to serve the existing tank from the residential neighborhood being developed immediately to the north (Neighborhood D). These components of the water infrastructure system will be completed during grading operations.

Water Planning

The water consumption of EBMUD customers has remained relatively level in recent years in spite of population and EBMUD account growth. Between 1987 and 2004, consumption has ranged from a high of approximately 225 million gallons per day (mgd) in 2004 to a low of 170 mgd in 1989. Based on extensive forecasting in EBMUD's Water Supply Management Program (WSMP) and recent land use-based demand forecasting, the WSMP forecast for 2030 water demand of 281 mgd can be reduced to 232 mgd with successful water recycling and conservation programs that are in place. (EBMUD, 2005). Implementation of the NWSP would not change the EBMUD 2030 demand projection.

On July 29, 2004, the City of San Ramon requested that EBMUD prepare a Water Supply Assessment in accordance with Senate Bill 610 (SB 610). SB 610 amended existing California land use and water supply law by requiring that water retail providers like EBMUD demonstrate that sufficient and reliable supplies are available to serve large-scale developments prior to completion of the environmental review for such projects. Specifically, SB 610 requires that a Water Supply Assessment include an inventory of the water provider's total projected supplies and address whether those supplies would be available during normal, single-dry, and multiple-dry years during a 20-year projection, and also evaluate whether that projected available water would satisfy the demand of a proposed project; given present and planned future uses.

The Water Supply Assessment for the NWSP Area was prepared by EBMUD and approved by the EBMUD Board of Directors on October 12, 2004.

Presently, there is no water demand for the NWSP Area as it is currently open space. As summarized in the Water Supply Assessment (EBMUD, 2004), implementation of the NWSP would result in the average use of approximately 385 acre-feet of water per year, or approximately 345,000 gallons of water per day. Land use demand factors applied regionally over time account for this type of development within the District's USB; therefore, these additional demands are accounted for in the District's Urban Water Management Plan (UWMP). The Water Supply Assessment is provided in Appendix K.

Wastewater Treatment and Collection

Established in 1946, the Central Contra Costa Sanitary District (CCCSD) is an independent special district that collects and treats wastewater from much of central Contra Costa County. Wastewater is sent to CCCSD's wastewater treatment plant (WWTP) northeast of the Interstate 680/State Route 4 interchange in unincorporated Martinez. Following treatment, the effluent is discharged to Suisun Bay or further treated and returned to the community as recycled water.

Most of the NWSP Area is outside, but adjacent to, CCCSD's Sphere of Influence (SOI) and boundaries. However CCCSD can provide sewer service if annexation occurs and nearby sewer improvements are made by the project developer (CCCSD, 2004).

Existing Service Areas vs. Project Limits

Parcel 200-250-011 (9.62 acres within the Faria Preserve near Omega Road and Hooper Drive) is within CCCSD's SOI and boundaries. This property is within acceptable limits to be serviced by CCCSD.

Parcel 208-260-046 (12.57 acres surrounding the existing EBMUD water tank within the Faria Preserve) is within the SOI, but outside of CCCSD's boundaries. Annexation of this parcel to CCCSD would be required before service could be provided.

The remainder of the NWSP Area is outside of CCCSD's SOI and boundary. An SOI amendment by the Contra Costa LAFCO and annexation of this area to CCCSD would be required before service could be provided. The following factors would be taken into consideration by LAFCO and CCCSD in considering an SOI amendment and annexation:

1. CCCSD is the wastewater utility service provider closest to the subject property.
2. Wastewater from the subject property apparently would flow by gravity into CCCSD's sewer system.
3. CCCSD has completed several capacity studies for portions of the sewer system near the NWSP Area. These studies have determined that some segments of the existing sewer system along San Ramon Valley Boulevard, between Crow Canyon Road and Ridgeland Drive, may be deficient during extreme rain events at some point in the future. Improvements required to correct the deficiencies that would result from new development projects are included in the CCCSD Capital Improvement Plan (CIP). Developers of such projects pay fees, which are assessed on a fair share basis to all developers with projects included in the CIP. The actual fee amount is determined after CCCSD has reviewed the project's final sewer plan. Developers would be required to pay these fees at the time of connection to the sewer system, and the actual improvements would be constructed when deemed necessary to address the deficiency (Levitte, 2005).
4. CCCSD prefers to annex properties that are: a) developed but converting from septic system to public sewer service; or b) undeveloped, but have been approved for development by a land use planning agency. The subject property has not been developed, nor has it been approved for development by Contra Costa County or the City of San Ramon. However, development applications have been submitted to the City of San Ramon for a Vesting Tentative Map for the Faria Preserve. The annexation of any portion of the Western Plan Area will be considered at the time that a specific development application is submitted to the City.

Points of Connection

Wastewater generated by the proposed development in the NWSP Area would be sewered to existing sanitary sewer infrastructure in Purdue Road and Bollinger Canyon Road. The existing sewer infrastructure is part of the CCCSD's existing collection system that abuts the development area boundaries. Connection to CCCSD's existing sewer collection system would require annexation of the subject property into their District boundaries.

Future sewers could connect to CCCSD's existing collection system at several points abutting the NWSP Area boundaries, as shown on the accompanying sewer system map (Figure 4.11-1) and described as follows:

- 8-inch diameter sewer on Bollinger Canyon Road, north of Crow Canyon Road;
- 8-inch diameter sewers on Deer Terrace Court, Promontory Circle, Treasure Court, Daybreak Court, Destiny Lane, and Deerwood Road; and
- 8-inch diameter sewers on Omega Road and Hooper Drive.

Design Criteria

Table 4.11-1 presents the wastewater generation rates CCCSD uses to estimate the base wastewater flow from different land uses. For treatment plant capacity calculation purposes, an additional factor is added to account for groundwater infiltration. Other factors are added when calculating wet-weather wastewater generation and/or pipeline design. CCCSD's minimum sewer diameter is 8 inches.

Table 4.11-1: Base Wastewater Generation Rates by Land Use

LAND USE CATEGORY	UNITS	BASE WASTEWATER FLOW FACTOR: GALLONS PER DAY (GPD) PER UNIT
Residential, Single Family	Dwelling Unit	225
Residential, Multiple Family	Dwelling Unit	150
Commercial	Acre	1,000
High-Density Commercial	Acre	4,400
Industrial	Acre	1,000
Schools	Acre	430
Churches	Number	1,000

Notes: These unit flow factors were calibrated to observed flows at 39 flow meters. Estimated groundwater infiltration has been excluded. School and church factors were based on adjusted water consumption data. The high-density commercial factor was based on 100 gpd/1,000 square feet of office space (from water consumption records) and 44,000 square feet per acre (FAR = 1.0).

Source: CCCSD Standard Specifications, 1993.

Treatment Capacity

CCCSD is permitted to discharge up to 53.8 million gallons per day (mgd) of average dry weather flow (ADWF) effluent to Suisun Bay. In comparison, in 2004, CCCSD processed 43.5 mgd ADWF.

This effluent discharge limit should be sufficient to accommodate wastewater expected to be generated from currently planned growth within CCCSD's service area over the next 35 years, as well as a worst-case assumption of groundwater infiltration.

An evaluation of the WWTP concluded it has a "reliable" physical capacity of at least 53.8 mgd. An effluent discharge of that volume, therefore, can be accomplished without the need for construction of additional treatment plant facilities. Major treatment plant improvements (unrelated to dry-weather capacity) are planned over the next 10 years. These projects will improve wet-weather capacity, maintainability, reliability, operations efficiency, odor control, and seismic protection. Unforeseen circumstances or additional requirements imposed by regional, state, or federal regulatory agencies, however, could affect the future availability of sewer connections, which are issued on a first-come, first-served basis.

Buildout of the NWSP would result in an average wastewater contribution of approximately 185,447 gallons per day of sewage to the existing system (see Table 4-2 *Wastewater Contribution* in the NWSP).

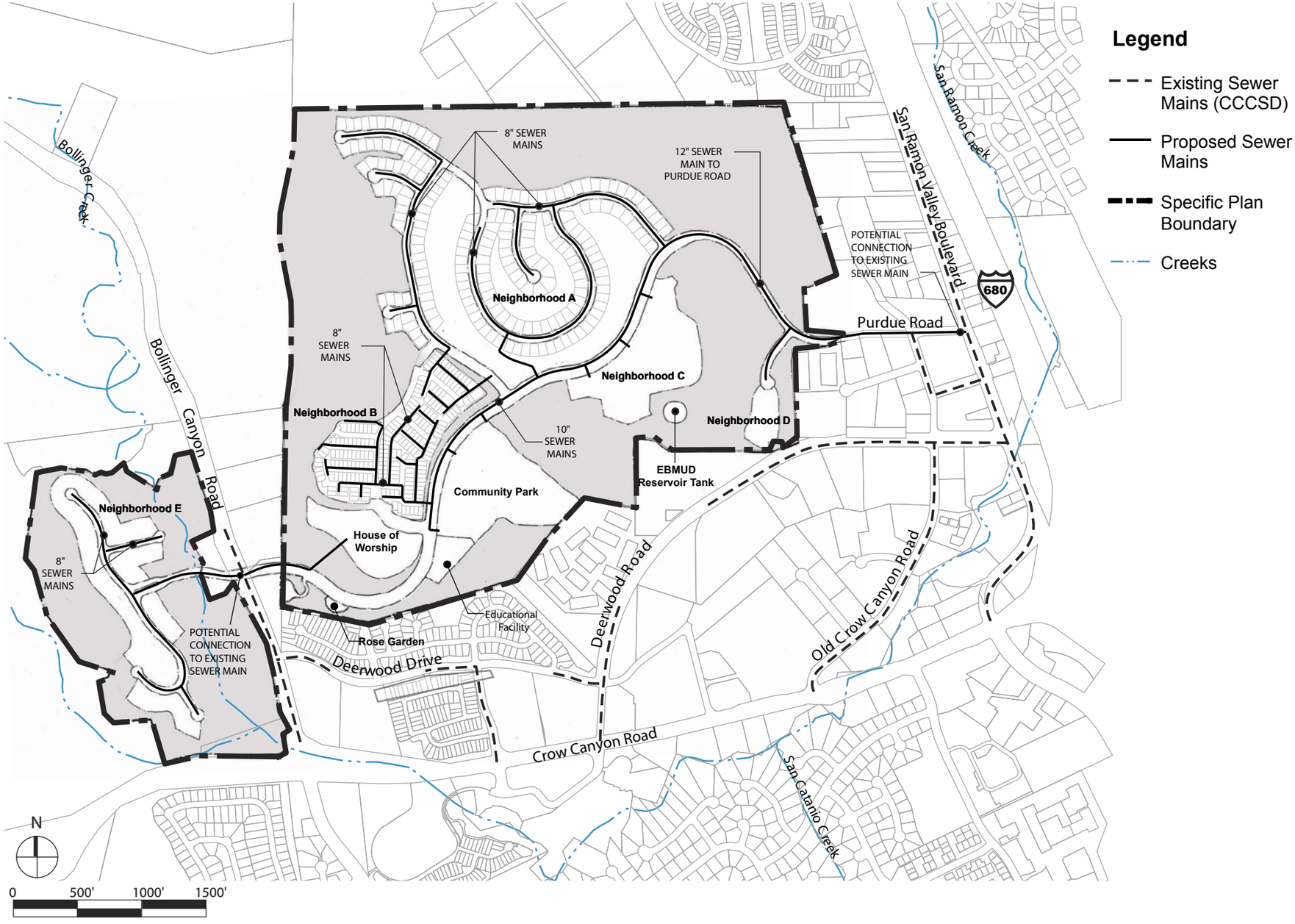
Currently, CCCSD has the available treatment capacity to accommodate the expected wastewater from the NWSP Area. However, as previously reported, studies by CCCSD indicate that some segments of the existing downstream sewer system along San Ramon Valley Boulevard, between Crow Canyon Road and Ridgeland Drive (including those near Purdue Road), would be deficient during extreme rain events (CCCSD, 2004a).

The sanitary sewer collection system for the NWSP Area is proposed to be a public system, constructed to CCCSD standards. The system would be primarily located within the development area and would flow northeast to Purdue Road (see Figure 4.11-1). Collectors within the main access loop would be located east of Bollinger Canyon Road. Sewer mains of 10-12 inches would convey wastewater from future development within the NWSP Area to the existing collection system.

The sanitary sewer system for the Western Plan Area (Neighborhood E, west of Bollinger Canyon Road) would be finalized depending on the final design of the neighborhood, which would be determined through the development application process. The sewer system may require pump facilities, depending on the final design of the neighborhood. Additionally, the proposed bridge crossing over Bollinger Creek may or may not be able to house a sewer line. If it is unsuitable for housing a sewer line, the sewer must cross under Bollinger Creek. Further design and environmental analysis would be required for the sewer infrastructure serving Neighborhood E at such time that a Development Application is filed.

Solid Waste

Franchised solid waste collection and disposal for the NWSP Area would be provided by Valley Waste Management (VWM). VWM provides green waste and recycling services to San Ramon. San Ramon has a 10-year contract with Republic Services of Northern California to send its waste to the



Source: EDAW, Inc. 2006

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company's Vasco Road Sanitary Landfill near Livermore. The City's contract with this facility has been extended to November 14, 2010. The Vasco Road Sanitary Landfill, owned and operated by Republic Services of Northern California, has a permitted maximum disposal of 2,518 tons/day and a remaining capacity of 12. 3 million cubic yards and has an estimated 10 years of remaining capacity (until 2015) (CIWMB, 2005). Vasco Road Sanitary Landfill has the expansion capacity to provide landfill services until 2022. Its owner, Republic Services of Northern California, also owns one other landfill site in Fairfield to accommodate overflow from the Vasco site.

Solid waste management is a major concern to California citizens, particularly since the passage of Assembly Bill 939 (AB 939), the Integrated Waste Management Act (1989). Under this Act, San Ramon has had to develop and implement a solid waste management program covering the period through the year 2005. The City has extended this program through 2006 and has chosen Waste Management as its future solid waste service provider. In addition, California Public Resources Code 41780A2 directs that cities and counties divert 50 percent of solid waste produced within their jurisdiction by January 1, 2000, through source reduction, recycling, and composting activities. AB 939 also established a solid waste management hierarchy for cities and counties: first, they must reduce the amount of waste generated; second, they must reuse materials to the greatest extent possible; and, finally, they must recycle materials instead of disposing of them at the landfill (City of San Ramon, 2002).

The City's solid waste diversion rate is 50 percent and goals for future diversion could exceed 50 percent. In 2003, San Ramon's reporting-year diversion rate was estimated at 49 percent followed by 50 percent in 2004 (Carrico, 2005).

Applicable Plans and Policies

The following section summarizes the applicable plans and policies concerning utilities and service systems that apply to the NWSP and the Faria Preserve.

City of San Ramon 2020 General Plan

The City of San Ramon 2020 General Plan (General Plan) (City of San Ramon, 2002) sets the overall land use and planning policy affecting development in the City, including the NWSP Area. The General Plan was approved by voter initiative in March 2002. The Growth Management, Land Use and Open Space and Conservation Elements of the General Plan contain the following goals and policies related to utilities and service systems.

Policies contained in the Growth Management Element of the General Plan:

3.2-I-3: Require new development to fund public facilities and infrastructure that is deemed necessary to mitigate the impact of that new development.

San Ramon implements the concept that new development pays its own way using two mechanisms. First, approval of a proposed project is in part based upon the developer's ability to fund the improvements that would directly mitigate the impact of the new development. Second, future

homeowners may be charged on-going assessment fees to pay the costs of maintaining common open areas and facilities associated with the new development.

3.2-I-4: Levy mitigation fees for public facilities and infrastructure improvements in proportion to a new development's impact.

In addition to direct project costs, San Ramon requires developers to pay citywide fees for a variety of services and infrastructure, based upon the concept that future residents would directly benefit from the improvements. The fees paid are used to provide parks, libraries, roadway improvements, creek studies and drainage mitigation, noise attenuation, child care, and street landscaping.

Policies contained in the Land Use Element of the General Plan:

4.7-I-1: Prepare a Northwest Specific Plan for the area delineated on the General Plan Diagram to guide the future development of these lands as compact urban neighborhoods offering a mix of housing types, including workforce housing, public and semipublic uses, and significant park and open space areas. This plan shall respond to the Smart Growth mandate of the General Plan and include as a minimum the following elements:

- Infrastructure program including roadway, sewer, water, electricity, and drainage access, design, and capacity.

Policies contained in the Public Facilities and Utilities Element of the General Plan:

7.5-G-1: Manage solid waste so that State diversion goals are exceeded and the best possible service is provided to the citizens and businesses of San Ramon.

7.5-I-1: Provide the best possible service for the collection of garbage, recyclables, and green waste at the lowest possible cost.

7.5-I-2: Provide and promote opportunities to reduce waste at home and in businesses, and make possible the safe disposal of hazardous materials.

Policies contained in the Open Space and Conservation Element of the General Plan:

8.7-I-2: Require new development to be equipped with water conservation devices, including the possibility of dual water systems.

8.7-I-3: Continue to implement and enforce provisions of the Water Conservation and Landscape Ordinance 218. This Ordinance establishes landscape design and development requirements for new and rehabilitated developments within the City.

8.7-I-4: Support the application of reclaimed water to reduce the demand on municipal water supplies. Water reclamation not only extends water supplies, it can also reduce wastewater disposal costs, save users' costs, save energy, and reduce the discharge of pollutants to the environment. The City supports only safe and practical applications of reclaimed water.

8.7-I-5: Work with DERWA (Dublin San Ramon Services District and EBMUD Recycled Water Authority) to encourage and promote water reclamation projects in the City of San Ramon.

In addition to the above policies, the General Plan requires "written verification, prior to project approval, from the approved service provider that adequate water quality, quantity, and distribution

would be available to serve the project." Therefore, new development cannot go forward if sufficient water supply is not available.

City of San Ramon 2020 General Plan EIR

In the General Plan EIR, the following impacts related to public facilities and utilities are identified:

Impact 4.6-a: New development under the proposed General Plan will increase the demand for public water and may exceed available supply (during drought years) or distribution capacity.

Impact 4.6-c: New development under the proposed General Plan may generate wastewater flows that exceed the collection and treatment capacity of the existing wastewater treatment plant.

Impact 4.6-d: New development under the proposed General Plan could result in the violation of wastewater treatment requirements of the San Francisco Bay Regional Water Quality Control Board (RWQCB).

Impact 4.6-e: New development under the proposed General Plan could generate additional amounts of solid waste that exceed available disposal capacity.

The General Plan EIR determined that each of these impacts would be reduced to a less than significant level through implementation of General Plan policies. Impact 4.6-a, which relates to the ability to supply adequate and high quality water under General Plan buildout, would be reduced to a less than significant level by a combination of compliance with performance standards for infrastructure and implementation of the following General Plan policies:

3.2-I-3: *Described above.*

3.2-I-4: *Described above.*

4.7-I-1: *Described above.*

8.7-I-2: *Described above.*

8.7-I-3: *Described above.*

8.7-I-4: *Described above.*

8.7-I-5: *Described above.*

The General Plan EIR determined that Impact 4.6-c relating to wastewater collection and treatment capacity would be reduced to a less than significant level with implementation of the following General Plan policy:

3.2-I-4: *Described above.*

The General Plan EIR concluded that approval of Central Contra Costa Sanitary District's discharge permit coupled with performance standards for infrastructure that require written verification of wastewater service from a service provider prior to approval of new development would reduce Impact 4.6-d to a less than significant level.

The General Plan EIR concluded that the combination of San Ramon's 1990 Source Reduction and Recycling Element and implementation of the following General Plan policies would reduce Impact 4.6-e to a less than significant level:

7.5-I-1: *Described above.*

7.5-I-2: *Described above.*

7.5-I-3: Establish a permanent community-serving recycling center at an accessible and convenient location.

7.5-I-6: Obtain input from the public to ensure that solid waste programs effectively address community needs and issues.

Applicable City Ordinances and Measures

The following City ordinances and measures are applicable to the NWSP Area, including the Faria Preserve Project Site.

Water Conservation and Landscape Ordinance (Ordinance No. 218)

In response to the need to conserve, the City of San Ramon adopted Water Conservation and Landscape Ordinance No. 218, which sets standard conditions of approval for all new and rehabilitated developments. Ordinance 218 requires that 80 to 90 percent of plants be restricted to drought tolerant species and that turf areas be limited to 25 percent of all irrigated areas of a development project. In addition, the type and amount of irrigation that can be installed and operated is regulated (City of San Ramon, 2002).

Faria Preserve

Because it is located within the NWSP Area, the existing utilities and service systems described above (including water provisions, wastewater treatment and collection, and solid waste) and General Plan policies, City ordinances and measures also apply to the Faria Preserve Project Site.

4.11.2 Thresholds of Significance

In accordance with Appendix G of the California Environmental Quality Act (CEQA) Guidelines, the proposed NWSP and Faria Preserve would have a significant impact on the environment, if either would:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects
- Have insufficient water supplies available to serve the project from existing entitlements and resources, or need new or expanded entitlements
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs
- Not comply with federal, state, and local statutes and regulations related to solid waste

The discussion regarding environmental effects of the proposed Plan on stormwater drainage facilities can be found in Chapter 4.7 Hydrology/Water Quality of this EIR. The components of the water infrastructure system will be completed during grading operations and therefore will not generate impacts that are any more pronounced or different in character than those associated with the grading required to implement the Faria Preserve project as described throughout this EIR. As such, they are not further described in this section.

4.11.3 Environmental Evaluation

The impact analysis focuses on potential effects to utilities associated with implementation of the proposed NWSP and the Faria Preserve. Evaluation was made with available information regarding utilities and projections of the changes that would occur as a result of the proposed projects.

IMPACT UTILITIES -1

Impact Utilities-1: Water Supply. Implementation of the proposed NWSP and Faria Preserve would increase residential land uses in the NWSP Area, resulting in an increase in demand for water. The demand for more water as a result of the implementation of NWSP and the Faria Preserve would not contribute to the exacerbation of poor drought year conditions, and the increase in demand for water is anticipated in EBMUD demand projections for the year 2030.

This would be a *less than significant* impact (Western Plan Area and Faria Preserve).

Implementation of the NWSP and the construction of the Faria Preserve would result in the average use of approximately 385 acre-feet of water per year, or approximately 345,000 gallons of water per day. The increased water demand created in the NWSP would not change the EBMUD 2030

demand projection of 281 mgd which can be reduced to 232 mgd with successful water recycling and conservation programs that are in place. The demand for more water as a result of the implementation of the NWSP and the Faria Preserve would not contribute to the exacerbation of poor drought year conditions. With dry-year supply deliveries from the, water reduction percentages during the first two years of a multiple dry year scenario would be less than the 25 percent level established by EBMUD policy. In the third year, the water reduction percentage would be 37 percent, which is less than the 50 percent limit specified by Section 10632 of the Water Code for the water shortage contingency analysis required to be included in the UWMP.

As described in this Chapter, there are several implementing policies contained in the General Plan regarding water conservation including: requiring new development to be equipped with water conservation devices, including the possibility of dual water systems; continuing to implement and enforce provisions of the Water Conservation and Landscape Ordinance 218; supporting the application of reclaimed water; and encouraging and promoting water reclamation projects in the City of San Ramon.

Implementation of these General Plan policies would ensure that impacts to water supply would be ***less-than-significant*** for both the Western Plan Area and Faria Preserve Project Site.

Although implementation of the General Plan policies would reduce any impacts to water supply to a less-than-significant level, the Faria Preserve Project Sponsor has proposed to include water conservation measures in the development of the project. Such measures may include:

- Installation of water efficient irrigation systems for residential units that include efficient sprinkler heads or drip irrigation.
- Installation of ultra-low flow toilets, as required by state law.
- Installation of drought-tolerant landscaping.
- Use of high efficiency clothes washing machines, if washing machines are installed.
- Submetering of multi-family and senior housing.
- Installation of evapotranspiration controllers in landscaping for residential units and common areas.
- Installation of drought-tolerant landscaping for residential units, and xeriscaped landscaping in common landscape.

IMPACT UTILITIES -2

Impact Utilities-2: Wastewater. Implementation of the proposed NWSP and Faria Preserve would result in an average wastewater contribution of approximately 185,447 gallons per day of sewage to the existing system.CCCSD has accounted for this increased contribution in its expansion plans.

This would be a *less than significant, cumulative* impact (Western Plan Area and Faria Preserve).

The CCCSD sewer system and the CCCSD WWTP serving the NWSP Area would have adequate capacity during times of dry weather to convey and treat the increased wastewater generated by the NWSP and Faria Preserve. As previously discussed, CCCSD is permitted to discharge up to 53.8 million gallons per day (mgd) of average dry weather flow (ADWF) effluent to Suisun Bay. This effluent discharge limit would be sufficient to accommodate wastewater expected to be generated from currently planned growth within CCCSD's service area over the next 35 years, as well as a worst-case assumption of groundwater infiltration. Additionally, major treatment plant improvements (unrelated to dry-weather capacity) are planned over the next 10 years. These improvements would improve wet-weather capacity, maintainability, reliability, operations efficiency, odor control, and seismic protection. However, studies have determined that some segments of the existing downstream sewer system along San Ramon Valley Boulevard, between Crow Canyon Road and Ridgeland Drive (including those near Purdue Road), would be deficient during extreme rain events. Improvements required to correct the deficiencies that would result from new development projects are included in the CCCSD Capital Improvement Plan (CIP). Developers of such projects pay fees, which are assessed on a fair share basis to all developers with projects included in the CIP. The actual fee amount is determined after CCCSD has reviewed the project's final sewer plan. CCCSD has confirmed that construction of the downstream improvements planned to correct future deficiencies, which have been evaluated in connection with the CIP, would not result in any significant impacts.

Mitigation Measure Utilities-2: The project sponsor shall pay fees that would provide a fair-share contribution toward the cost of constructing improvements and capacity upgrades needed to correct the deficiencies that would result from new development. These improvements are included in the CCCSD Capital Improvement Plan (CIP). The fee amount shall be determined after CCCSD has reviewed the final sewer plan for the project(s) and shall be paid prior to issuance of a building permit. Actual improvements would be constructed by CCCSD when deemed necessary to correct the deficiency.

Level of significance after mitigation: *Less than Significant* (Western Plan Area and Faria Preserve Project Site)

IMPACT UTILITIES -3

Impact Utilities-3: Wastewater Infrastructure Construction. Implementation of the proposed Faria Preserve would require construction of a connection between the new sanitary sewer collection system with the existing sewer main near the intersection of Purdue Road and San Ramon Valley Boulevard. Impacts from construction of this infrastructure could include disturbances related to noise, air quality (dust) and traffic. However, these construction-related impacts would be temporary.

This would Be a *less than significant* impact (Faria Preserve).

All construction related to the connection of the proposed sanitary sewer system with the existing system would take place along public roads or within existing easements currently held by CCCSD. Standard construction traffic control measures and implementation of BAAQMD dust control measures (Mitigation Measure Air Quality-1) would reduce temporary, construction-related air quality

impacts to a less-than-significant level. There would be no operational impacts related to the construction of such connections.

IMPACT UTILITIES -4

Impact Utilities-4: Solid Waste. Implementation of the proposed Specific Plan and Faria Preserve would increase residential and commercial land uses in the NWSP Area, resulting in an increase in solid waste generation. However, the estimated remaining capacity at the Vasco Road Sanitary Landfill until 2015, and expansion capabilities of the landfill to provide landfill services until 2040, when combined with City's solid waste diversion of greater than 50 percent, would ensure that sufficient capacity exists to accommodate solid waste generated by proposed land uses.

This would be a *less than significant* impact (Western Plan Area and Faria Preserve).

The NWSP and Faria Preserve would allow for a range of new residential development and various community facilities which would be completed by 2009. The increase in residential units and community facilities would generate increased numbers of people within the City boundaries and would increase the generation of solid waste.

Solid waste generated by land uses within the NWSP Area would be conveyed to the Vasco Road Sanitary Landfill with the rest of the City's waste. The Vasco Road Sanitary Landfill currently has an estimated remaining capacity to accept solid waste until the year 2015 and the expansion capacity to provide landfill services until 2040. Its owner, Republic Services of Northern California, also owns two other landfill sites in Richmond and Fairfield to accommodate overflow from the Vasco site. Given the estimated remaining capacity in the Vasco Road Sanitary Landfill, as well as the City's plan to set a diversion rate goal of more than 50 percent, and its actual diversion rate of 54 percent in 2004, sufficient capacity exists to accommodate solid waste that would be generated by the proposed land uses. Furthermore, the City's standard conditions of approval would require that proposed development comply with the City's solid waste management program.

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5. CUMULATIVE IMPACTS

CEQA Guidelines Section 15130 requires a discussion of the significant cumulative impacts associated with the proposed project. Cumulative impacts result from the combination of the project evaluated in the EIR together with other projects causing related impacts. CEQA Guidelines section 15130(b) requires the following:

> The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

CEQA requires a cumulative development scenario to consist of either a list of past, present, and probable future projects producing related or cumulative impacts, or a summary of projections contained in an adopted general plan or related planning document that evaluated regional or area-wide conditions contributing to the cumulative impact. The geographic area affected by the identified cumulative impacts, and an explanation of the basis of the geographic scope used in analyzing cumulative impacts, must be presented.

The Northwest Specific Plan Area (NWSP Area) and the proposed Faria Preserve community are located in the northwest corner of San Ramon immediately within the City's voter-approved Urban Growth Boundary (UGB). Significant development is not planned for the lands to the north and the west of the NWSP Area. Unless otherwise specified below, the geographic scope used in analyzing cumulative impacts in this Chapter is the San Ramon General Plan Planning Area as identified voter-approved City of San Ramon 2020 General Plan (General Plan). Cumulative impacts for the proposed NWSP and for the Faria Preserve are based on a summary of projections contained in the General Plan and the associated City of San Ramon 2020 General Plan Draft Environmental Impact Report (General Plan EIR), which are incorporated by reference for purposes of elaborating on these impacts, as summarized below. [1]

San Ramon 2020 General Plan Projections

The General Plan EIR contains a variety of projections on conditions within the city under General Plan build out conditions. Key projections are summarized in Tables 5-1 through 5-5.

[1] The General Plan is available on the web at: http://www.ci.san-ramon.ca.us/gprc/gprcindex.htm and the General Plan EIR is available on the web at: http://www.ci.san-ramon.ca.us/gprc/deir.htm.

Table 5-1: Buildout Population in San Ramon Planning Area (2020)

CURRENT POPULATION[1]	POPULATION RESULTING FROM UNITS ALREADY APPROVED/UNDERWAY/ PROGRAMMED	POPULATION RESULTING FROM NEW UNITS PROPOSED IN THE 2020 GENERAL PLAN	TOTAL AT BUILDOUT (2020)
50,555	34,365	11,100	96,020

[1] Estimate of Planning Area population reported in General Plan EIR, based on unit county and average household size of 2.81 in San Ramon as projected by the Association of Bay Area Governments (ABAG).

Source: Dyett & Bhatia, 2001 (in General Plan EIR.)

Table 5-2: Proposed General Plan Buildout Population and Growth Rate

	1980 POPULATION	2000 POPULATION	ANNUAL GROWTH RATE (%)	2020 POPULATION	ANNUAL GROWTH RATE (%)
San Ramon	20,245	50,555[1]	4.7	96,020[1]	3.3
Contra Costa County	803,732	941,900[2]	0.8	1,169,000[2]	1.1
Share of County (%)	2.5	5.4		8.2	

[1] Estimate of planning Area population reported in General Plan EIR based on unit count and average household size of 2.81 in San Ramon as projected by ABAG.

[2] 2000 projection by ABAG.

Source: ABAG, 2000; Dyett & Bhatia, 2001 (in General Plan EIR).

Table 5-3: Buildout Employment in San Ramon Planning Area (2020)

SECTOR	CURRENT EMPLOYMENT[1]	EMPLOYMENT RESULTING FROM FLOOR AREA ALREADY APPROVED/ UNDERWAY/PROGRAMMED	EMPLOYMENT RESULTING FROM ADDITIONAL FLOOR AREA PROPOSED IN THE 2020 GENERAL PLAN	TOTAL AT BUILDOUT (2020)
Office	32,235	8,415	5,190	45,840
Retail	4,965	805	1,060	6,830
Service	1,845	710	45	2,600
Light Industrial	1,010	0	0	1,010
Other	1,390	670	660	2,720
Total	**41,445**	**10,600**	**6,955**	**59,000**

[1] Estimate of Planning Area employment reported in General Plan EIR based on employee/floor area assumptions.

Source: Dyett & Bhatia, 2001 (in General Plan EIR).

Table 5-4: Proposed General Plan Buildout Employment and Growth Rate

	1980 EMPLOYMENT	2000 EMPLOYMENT	ANNUAL GROWTH RATE (%)	2020 EMPLOYMENT	ANNUAL GROWTH RATE (%)
San Ramon	5,329	41,445[1]	10.8	59,000[1]	1.8
Contra Costa County	201,237	360,090[2]	3.0	500,680[2]	1.7
Share of County (%)	2.6	11.5		11.8	

[1] Estimate of Planning Area employment reported in General Plan EIR based on employee/floor area assumptions.

[2] 2000 projection by ABAG.

Source: ABAG, 2000; Dyett & Bhatia, 2001 (in General Plan EIR).

Table 5-5: Buildout Jobs/Housing Balance in San Ramon Planning Area (2020)

	EXISTING (2000)	BUILDOUT (2020)
Jobs[1]	41,445	59,000
Employed Residents[2]	26,795	50,815
Jobs/Employed Residents	1.55	1.16

[1] Estimate of Planning Area employment reported in General Plan EIR based on employee/floor area assumptions.

[2] Assumes employed residents at 53 percent of population, as projected by the Association of Bay Area Governments.

Source: Dyett & Bhatia, 2001 (in General Plan EIR).

The NWSP and the Faria Preserve are both consistent with the General Plan land use designations. Unless specifically noted below, there have been no changes in the General Plan, the circumstances of its implementation, or new information since certification of the General Plan EIR and adoption of the General Plan that would affect the particular conclusions that impacts of this cumulative development would be less than significant. Additionally, there are no currently foreseeable projects that were not considered in the analysis of the General Plan EIR that would affect this conclusion. Therefore, cumulative impacts from the NWSP and the Faria Preserve were adequately addressed in the General Plan EIR. The following summary of potential cumulative effects generally is based on projections of impacts defined in the General Plan EIR.

Where the more detailed project review conducted for this EIR identified a potentially significant cumulative impact, that impact was first described in the particular chapter to which the impact relates along with the project-level impacts. Those potentially significant cumulative impacts are summarized in this section for convenience.

Aesthetics

The General Plan EIR considers the cumulative impact on visual quality and aesthetics in its discussion of Land Use and Growth Management. (General Plan EIR at 4-1 to 4-24). Buildout of

the General Plan could result in potential visual impacts relating to alteration of the scale and character of San Ramon (see General Plan EIR, p. 4-19). Aesthetic impacts could also result from development that may alter views of the City (General Plan EIR, p. 4-22). In addition, development pursuant to buildout of the General Plan would result in the loss of open space (General Plan EIR, p. 4-16).

Nearly 30 General Plan policies are cited as mitigation for the cumulative impacts on aesthetics, visual quality, and open space from General Plan buildout. These include establishment of the Urban Growth Boundary (Policy 4.6-I-1), clustering policies in particularly sensitive areas (Policy 4.6-I-7, 4.6-I-16), and expansion of the open space system, including through cooperation with East Bay Regional Parks District (Policy 8.4-I-1). The General Plan EIR concluded that the application of General Plan policies and associated implementing actions would effectively promote the smart growth mandate of the City and that, as a result of these policies, potential impacts on the visual character from General Plan buildout would be reduced to a less than significant level (General Plan EIR, pp. 4-20 to 4-22). Application of General Plan policies would reduce the potential impacts of development under the General Plan on views of San Ramon to a less than significant level (General Plan EIR, pp. 4-22 to 4-24). The General Plan EIR further concluded that application of General Plan policies, most notably the new voter-approved Urban Growth Boundary, would reduce impacts associated with the loss of open space to a less than significant level (General Plan EIR, p. 4-16).

The NWSP and the Faria Preserve are both consistent with the General Plan, and the regional and area-wide cumulative aesthetics impacts of the project have been adequately addressed in the General Plan EIR, since those impacts have been mitigated or avoided as a result of the General Plan EIR and the associated findings of approval for the General Plan. On that basis, it is concluded for purposes of this EIR that the aesthetic impacts of the cumulative development, including implementation of the NWSP and development of the Faria Preserve, are not significant. This conclusion is further supported by the fact that, as analyzed in Section 4.1, Aesthetics, the aesthetics impacts of the NWSP and the Faria Preserve community would not be considered significant when considered separately at the specific plan level (for the NWSP) and at the project level (for the Faria Preserve).

Air Quality

The General Plan EIR indicates that the existing population and projected population for the City are both greater than those used in the Bay Area 2000 Clean Air Plan, which is based on ABAG projections (General Plan EIR, pp. 4-97 to 4-98). Because the growth rate assumed in the General Plan is greater than the growth rate assumed in the Clean Air Plan emission inventory, population-based emissions will be higher than those assumed in the Clean Air Plan. On this basis, and applying the Bay Area Air Quality Management District's (BAAQMD) CEQA guidelines, the General Plan EIR concluded that this inconsistency with the applicable air quality plan would result in a significant and unavoidable air quality impact.

As discussed in Section 4.2, the 2000 Clean Air Plan has been superseded by the 2005 Ozone Strategy, but the growth rate assumed in the preparation of the 2005 strategy still did not include the growth contemplated under the 2020 General Plan. As a result, the conclusion of the General Plan

EIR that this will result in a significant and unavoidable air quality impact remains applicable to the present project on a cumulative level.

Section 4.2 also evaluates the air quality impacts on a project level, concluding that the operational period emissions from mobile and area sources will exceed the significance thresholds of the BAAQMD CEQA Guidelines for the Faria Preserve project. Given the relative scale of the Faria Preserve Project, and in light of this project-level impact, the Faria Preserve's contribution to the cumulative impact is considered to be cumulatively considerable.

> **Impact Air Quality-2 (Cumulative): Consistency with the 2005 Ozone Strategy.** The population and VMT projections used in the proposed Northwest Specific Plan are inconsistent with those of the 2005 Ozone Strategy.
>
> **This would be a *significant and unavoidable cumulative* impact (Western Plan Area and Faria Preserve).**

Biological Resources

The General Plan EIR concluded that development associated with buildout of the General Plan could adversely affect biological resources in the region by causing loss or degradation of sensitive wetlands, native grasslands, riparian habitats, oak woodlands, habitats supporting special-status plant or animal species, fragmentation of wildlife corridors, and introduction of non-native invasive plant species (General Plan EIR, pp. 4-140 to 4-143).

Several General Plan policies are cited as mitigation for potential biological resources impacts resulting from General Plan buildout. These include policies ensuring that proposed rural development pays particular attention to sensitive habitats and species (Policy 4.6-I-8), requirements for open space maintenance plans (Policy 8.3-I-4), and providing assistance in restoration of habitat on private property (Policy 8.4-I-9). The General Plan EIR concluded that, with the application of specified General Plan policies and associated implementing actions, the impacts to biological resources from development under the General Plan would be reduced to a less-than-significant level.

Consistent with the General Plan, the NWSP and the Faria Preserve community are designed to protect significant amounts of open space for resource conservation purposes. Both are subject to policies and standards for the protection of ridgelines, including restrictions on grading and development. In addition, the owners of the Faria Preserve have proposed to record permanent conservation easements to preserve approximately 144 acres of off-site open space. The protected off-site open space would promote objectives and policies embodied in the General Plan, including protection of habitat for plant and animal species. The Faria Preserve project also calls for the creation of a riparian and wildlife corridor of approximately 8.9 acres, which would be located along an existing drainage swale and within Neighborhood A. The corridor would be improved and maintained consistent with the Biological Mitigation/Enhancement and Monitoring Plan approved by the Army Corps of Engineers to help support adjoining wetlands areas, provide for wildlife movements, and enhance stormwater filtration. A mix of riparian vegetation would be planted throughout the corridor to support wetland features.

The NWSP and the Faria Preserve are consistent with the General Plan. The regional and area-wide cumulative biological impacts of the project have been adequately addressed in the General Plan EIR since those impacts have been mitigated or avoided as a result of the General Plan EIR and the associated findings of approval for the General Plan. The NWSP and the Faria Preserve incorporate design features that implement the policies of the General Plan with respect to biological resource protection and mitigation, as described above. It is therefore concluded for purposes of this EIR that the biological impacts of the cumulative development are not significant. This conclusion is further supported by the fact that, as analyzed in Chapter 4.3, Biological Resources, the biological impacts of the NWSP and the Faria Preserve community would not be considered significant when considered separately at the specific plan level (for the NWSP) and at the project level (for the Faria Preserve).

Cultural Resources

The General Plan EIR noted that development that occurs outside urban areas may adversely affect archaeological, cultural and historic resources either during the construction phases or once inhabited (General Plan EIR, pp. 4-154 to 4-156). According to the General Plan EIR, the possibility of identifying Native American and historical cultural resources in the Planning Area warrants the need for further archival and field study at the time projects are developed to ensure avoidance or mitigation of potential impacts.

The General Plan EIR identifies General Plan policies calling for the identification and preservation of archaeological, paleontological, and historic resources that are found within the San Ramon Planning Area (Policy 8.8-G-1). It also requires that new development analyze and avoid or mitigate potential impacts to such resources (Policy 8.8-I-1). Current City policy requires that grading in an area cease where evidence or prehistoric or historic artifacts or remains exist or are uncovered. The General Plan EIR concluded that these General Plan policies would ensure that impacts to cultural resources resulting from buildout of the General Plan would be reduced to a less-than-significant level.

Consistent with the General Plan's relevant policies, a site-specific cultural resources assessment was performed for the Faria Preserve Project Site, as described in Section 4.4. Both the site-specific assessment and subsequent confirmation work by EDAW identified no sensitive cultural resources on the Faria Preserve Project Site. A site-specific inventory will be required on the Western Plan Area prior to groundbreaking on any development proposal. The NWSP and the Faria Preserve are consistent with the General Plan. In light of these measures consistent with the General Plan policies described in the General Plan EIR, regional and area-wide cumulative cultural resources impacts of the project have been adequately addressed in the General Plan EIR since those impacts have been mitigated or avoided as a result of the General Plan EIR and the associated findings of approval for the General Plan. It is therefore concluded for purposes of this EIR that the cultural resources impacts of the cumulative development are not significant. This conclusion is further supported by the fact that, as analyzed in Chapter 4.4, Cultural Resources, the cultural resources impacts of the NWSP and the Faria Preserve community would not be considered significant when considered separately at the specific plan level (for the NWSP) and at the project level (for the Faria Preserve).

Geology and Soils

The General Plan EIR determined that buildout of the General Plan has the potential to result in significant impacts from seismic effects (and resulting liquefaction, ground failure, and structural damage), from subsidence, land sliding, settlement, soil expansion and erosion. Several General Plan policies are cited as mitigation for these impacts, including prohibition on structures intended for human occupancy within 50 feet of active fault traces (Policy 9.1-I-2), independent review of applicant-submitted geology reports in seismically hazardous areas (Policy 9.1-I-3), geologic and engineering studies of critical structures (Policy 9.1-I-4), geotechnical field review during the construction phase (Policy 9.1-I-5), and preparation of a soils report as part of development review (Policy 9.1-I-6), which would reduce these impacts to a less than significant level.

The Faria Preserve community implements these policies through preparation of detailed geotechnical and soils reports, which have been independently reviewed by consultants working for the City. The Faria Preserve's Geologic Hazards Evaluation and Preliminary Geotechnical Engineering Study includes plans for the repair and avoidance of geologic hazards, mitigation techniques to address landslide potential, erosion-control best management practices, and drainage techniques to control water during grading. Such detailed geotechnical and soils analysis will be required of the development in the Western Plan Area pursuant to the mitigation set forth in Chapter 4.5 of this EIR, Geology/Soils. The Faria Preserve Vesting Tentative Map also places all structures intended for human occupancy at least 50 feet away from the identified Calaveras Fault trace running through the Faria Preserve Project Site.

The NWSP and the Faria Preserve are consistent with the General Plan. Regional and area-wide cumulative geology impacts of the project have been adequately addressed in the General Plan EIR since those impacts have been mitigated or avoided as a result of the General Plan EIR and the associated findings of approval for the General Plan. In addition, as a result of the detailed geologic study and planning conducted in connection with the Faria Preserve and the General Plan policies requiring such study in connection with other existing and future planned development (including within the remainder of the NWSP), geologic impacts from implementation of the NWSP and development of the Faria Preserve together with other existing and planned future development are not significant. This conclusion is further supported by the fact that, as analyzed in Chapter 4.5, Geology/Soils, the geologic impacts of the NWSP and the Faria Preserve community would not be considered significant when considered separately at the specific plan level (for the NWSP) and at the project level (for the Faria Preserve).

Hazards

The General Plan EIR concluded that buildout of the General Plan has the potential to increase hazards associated with wildland fires, including by placing development in hillside grassland areas such as the NWSP Area. The General Plan EIR determined that potential impacts from wildland fire risks would be reduced to a less than significant level through compliance with General Plan policies, including completion of fire modeling for new development adjacent to high fire risk areas to determine which measures are most appropriate to minimize fire hazard (Policy 9.4-I-2).

The NWSP and the Faria Preserve are consistent with the General Plan. In compliance with recommendations from the General Plan EIR, developers in the NWSP (including the Faria

Preserve) would be required to prepare an Open Space Management Plan, which must include the fire modeling described in the General Plan EIR along with the resulting proposed measures best suited to minimize fire hazard given the particular features of the NWSP site. Regional and area-wide cumulative hazards impacts of the project have been adequately addressed in the General Plan EIR since those impacts have been mitigated or avoided as a result of the General Plan EIR and the associated findings of approval for the General Plan. It is therefore concluded for purposes of this EIR that the hazards impacts of the cumulative development are not significant. This conclusion is further supported by the fact that, as analyzed in Chapter 4.6, Hazards, the potential impacts of the NWSP and the Faria Preserve community relating to hazards would not be considered significant when considered separately at the specific plan level (for the NWSP) and at the project level (for the Faria Preserve).

Hydrology, Flooding and Water Quality

The General Plan EIR concluded that development under the General Plan could adversely affect hydrology, flooding and water quality (General Plan EIR, pp. 4-144 to 4-153). Several General Plan policies are cited as mitigation for these impacts, including continuing participation in the Contra Costa Clean Water Program (CCCWP) (Policy 8.7-I-6), preparation of project level hydrologic studies (Policy 9.3-I-2), construction, funding and maintenance of detention basins (Policy 9.3-I-3), control of construction-related erosion with revegetation or other methods (Policy 9.1-I-10), implementation of open space and creek protection measures (Policies 8.3-I-3, 8.3-I-4, 8.3-I-10, and 8.3-I-11), and adoption of flood control measures (Policies 9.3-G-1, 9.3-I-1, 9.3-I-2, 9.3-I-4 and 9.3-I-5). The General Plan EIR concluded that these General Plan policies would ensure that impacts to hydrology, flooding and water quality resulting from buildout of the General Plan would be reduced to less than significant levels.

The NWSP and the Faria Preserve are consistent with the General Plan. Consistent with the General Plan's relevant policies, development of the NWSP and Faria Preserve would be in accordance with the CCCWP, would be based on appropriate hydrologic studies and the implementation of detention basins, would incorporate erosion controls, implement open space and creek protection measures, and ensure adequate flood protection. In light of these measures consistent with the General Plan policies described in the General Plan EIR, regional and area-wide cumulative hydrology, flooding and water quality impacts of the project have been adequately addressed in the General Plan EIR, since those impacts have been mitigated or avoided as a result of the General Plan EIR and the associated findings of approval for the General Plan. It is therefore concluded for purposes of this EIR that the impacts of the cumulative development are not significant. This conclusion is further supported by the fact that, as analyzed in Chapter 4.7, Hydrology and Water Quality, the hydrology and water quality impacts of the NWSP and the Faria Preserve community would not be considered significant when considered separately at the specific plan level (for the NWSP) and at the project level (for the Faria Preserve).

Land Use Policy & Plan Consistency

The General Plan EIR noted that buildout consistent with the General Plan could result in permanent alteration of views throughout the City, loss of open space, and permanent alteration of the scale and character of the city (General Plan EIR, pp. 4-1 to 4-24). Various General Plan policies

– including those relating to open space preservation (e.g. Policy 4.6-I-5), the Urban Growth Boundary (Policy 4.6-I-1), and use of design standards to ensure preservation of natural landscapes and pedestrian-scaled environments (e.g. Policies 4.6-I-22, 4.8-I-5, and 4.8-I-8) – were cited in the General Plan EIR as mitigation for these potential impacts, (General Plan EIR, pp. 4-1 to 4-24). The General Plan EIR also concluded that buildout consistent with the General Plan could result in loss of ridgelines and hillsides from open space to urban uses, and create inconsistencies with existing scale, style, and character of existing development in the surrounding area (General Plan EIR, pp. 4-58 to 4-61). General Plan policies such as the preparation of a NWSP (with required elements, including a workforce housing component and a ratio of 75% community-serving uses and open space to 25% residential development), and coordination with East Bay Regional Park District are cited as mitigation for these impacts. The General Plan EIR concluded that with implementation of these General Plan policies, impacts relating to land use and open space would be mitigated to a less than significant level.

The NWSP and the Faria Preserve are consistent with the General Plan. The NWSP and the Faria Preserve implement the policies identified in the General Plan and the General Plan EIR for avoidance of land use impacts, which include providing 25% affordable housing, and implementing a ratio of 75% community-serving uses, open space, trails and required connections to 25% residential development, among other features. Regional and area-wide cumulative land use impacts of the project have been adequately addressed in the General Plan EIR since those impacts have been mitigated or avoided as a result of the General Plan EIR and the associated findings of approval for the General Plan. It is therefore concluded for purposes of this EIR that the land use impacts of the cumulative development are not significant. This conclusion is further supported by the fact that, as analyzed in Chapter 4.8, Land Use and Policy Consistency, the potential impacts of the NWSP and the Faria Preserve community relating to land use would not be considered significant when considered separately at the specific plan level (for the NWSP) and at the project level (for the Faria Preserve).

Noise

The General Plan EIR noted that buildout consistent with the General Plan would result in increased noise levels, primarily due to vehicular traffic and construction activities (General Plan EIR, pp. 4-101 to 4-109). The General Plan EIR further noted that development in the NWSP Area may be subjected to ambient noise levels up to 65 dBA LDN, which is 5 dBA greater than the "normally acceptable" threshold (General Plan EIR, p. 4-105). Various General Plan policies – including the requirement to undertake a project level noise study and include noise attenuation measures for projects that would have noise exposure greater than the "normally acceptable" level (Policies 10.1-I-2 and 10.1-I-4), and to reduce the noise impacts of new development and increased traffic through appropriate means (Policies 10.1-I-6, 10.1-I-8, 10.1-I-9 and 10.1-I-10), were concluded to reduce these impacts to a less than significant level, particularly in consideration of the marginal contribution of the 2020 General Plan to future noise levels. This conclusion of less than significant impacts also applied to the NWSP Area, where noise levels of up to 65 dBA were anticipated to occur.

The NWSP and Faria Preserve would implement the policies identified in the General Plan and the General Plan EIR through the conduct of appropriate noise studies and the implementation of noise attenuation measures. Regional and area-wide cumulative noise impacts of the project have been

adequately addressed in the General Plan EIR since those impacts have been mitigated or avoided as a result of the General Plan EIR and the associated findings of approval for the General Plan. It is therefore concluded for purposes of this EIR that the noise impacts of the cumulative development are not significant. This conclusion is further supported by the fact that, as analyzed in Chapter 4.9, Noise, the potential impacts of the NWSP and the Faria Preserve community relating to land use would not be considered significant when considered separately at the specific plan level (for the NWSP) and at the project level (for the Faria Preserve).

As described more fully in Chapter 4.9 of this EIR, Noise, the cumulative scenario for evaluation of potential impacts relating to noise relies in significant part on traffic volumes developed as part of the cumulative traffic scenario. The cumulative traffic scenario volumes are based on projections from the 2020 buildout scenario in the General Plan. Resulting cumulative noise impact conclusions are presented in greater detail in Chapter 4.9.

Traffic and Circulation

The General Plan EIR noted that buildout consistent with the General Plan would result in increased traffic levels, although no significant intersection impacts were identified as measured by the criteria of significance (General Plan EIR, pp. 4-25 to 4-52). The General Plan EIR further concluded that intersection congestion can remain within City standards due to the City's plans to add capacity on key existing roadways and to build new roadways to provide adequate capacity.

As described more fully in Chapter 4.10 of this EIR, Traffic and Circulation, a project-level traffic study has been prepared for the NWSP and Faria Preserve. The cumulative scenario for evaluation of potential impacts to traffic and circulation relies on traffic volumes developed based on projections from the 2020 buildout scenario adopted in the General Plan. Adjustments were made as described in Chapter 4.10 to reflect the meeting of the 25% affordable workforce housing policy (and resulting 10% density bonus) as well as the inclusion of second units on some single family residences to facilitate the meeting of affordable housing objectives. Resulting cumulative impact conclusions are presented in detail in Chapter 4.10. All impacts were determined to be less than significant after mitigation.

Further supporting the conclusion that all potential cumulative traffic impacts and circulation impacts have been adequately mitigated with the measures described above is the conclusion in the General Plan EIR regarding growth in San Ramon relative to other cities in the Tri-Valley. As noted in the General Plan EIR, the 2000 Update of the Contra Costa Countywide Comprehensive Transportation Plan (2000 CTP) states that, by 2020, the Tri-Valley will see a 53 percent increase in housing units and a 60 percent increase in jobs from existing conditions. This growth in both housing and employment will maintain the jobs/housing balance in the Tri-Valley. In San Ramon, growth to the year 2020, while substantial, does not comprise a disproportionate amount of that growth forecast for the Tri-Valley. In addition, buildout of the General Plan would add more residents than employees to San Ramon, resulting in a significantly improved jobs/housing balance: as of 2002, there were 1.55 jobs for every housing unit; by 2020 that ratio is expected to be down to 1.16 (General Plan EIR, p. 6-6). Implementation of the NWSP and development of the Faria Preserve will help achieve this more favorable ratio.

Impact Traffic-3 (Cumulative): Decrease in LOS due to Traffic. Under the Cumulative-plus-Project Scenario, traffic generated by buildout of the NWSP, when combined with traffic generated by buildout of the General Plan, would increase traffic volumes and delays at area intersections, and would result in the City's LOS standards being exceeded at four unsignalized intersections during peak hours. The four intersections are: San Ramon Valley Boulevard/Hooper Drive, San Ramon Valley Boulevard/ Purdue Road, Bollinger Canyon Road/Norris Canyon Road and Omega Road/Old Crow Canyon Road.

This would be a *significant, cumulative* impact (Western Plan Area, Faria Preserve).

Mitigation Measure Traffic-3a (Cumulative) (Faria Preserve): Implement Mitigation Measure Traffic-1a. The City shall implement Mitigation Measure Traffic-1a, which requires the City to monitor and install a signal at the intersection of San Ramon Valley Boulevard/Hooper Drive.

Level of Significance after Mitigation: *Less than significant* (Faria Preserve).

Mitigation Measure Traffic-3b (Cumulative) (Faria Preserve): Implement Mitigation Measure Traffic-1b. The City shall implement Mitigation Measure Traffic-1b, which requires the City to install a traffic signal at the intersection of San Ramon Valley Boulevard/Purdue Road.

Level of Significance after Mitigation: *Less than significant* (Faria Preserve).

Mitigation Measure Traffic-3c (cumulative) (Faria Preserve): Implement Mitigation Measure Traffic-1c. The City shall implement Mitigation Measure Traffic-1c, which requires the City to monitor the intersection of Bollinger Canyon Road/Norris Canyon Road to determine if it meets signalization warrants other than peak hour warrants (e.g. based on accident experience and daily traffic volumes) and install a signal at this intersection when it meets one of the warrants.

Level of Significance after Mitigation: *Less than significant* (Faria Preserve).

Mitigation Measure Traffic-3d (cumulative) (Faria Preserve): Install a traffic signal at the intersection of Old Crow Canyon Road/Deerwood Road/Omega Road. The City shall monitor the intersection of Old Crow Canyon Road/Deerwood Road/Omega Road to determine if it meets signalization warrants other than peak hour warrants (e.g. based on accident experience and daily traffic volumes) and install a signal at this intersection when it meets one of the warrants.

Level of Significance after Mitigation: *Less than significant* (Faria Preserve).

Utilities / Service Systems

The General Plan EIR considers the cumulative impact on utility and service system providers from General Plan buildout. For purposes of evaluating cumulative impacts relating to utility and service system provision, the relevant geographic area is the service area of the relevant provider rather than the San Ramon General Plan Planning Area.

Buildout of the General Plan along with other development served by common providers would increase the demand for water production and distribution, wastewater collection, treatment and disposal, solid waste disposal, storm drain collection and disposal services, police, fire, public

education, parks and recreation facilities. The General Plan EIR concluded that General Plan buildout has the potential to increase water demand so as to exceed available supply (during drought years) or distribution capacity, to deplete groundwater recharge, to generate wastewater flows exceeding treatment capacity, to result in violations of wastewater treatment requirements, and generate solid waste in excess of available disposal capacity, (General Plan EIR, pp. 4-76 to 4-92).

Several General Plan policies -- including the requirement that the NWSP include an infrastructure program including roadway, sewer, water, electricity and drainage access, design, and capacity (Policy 4.7-I-1), enforcement of the City's landscape ordinance (Policy 8.7-I-3), requirements for water conservation devices (Policy 8.7-I-2), and payment of mitigation fees to fund improvements (Policy 3.2-I-4) -- would reduce these impacts to a less than significant level.

With respect to provision of water, implementation of the NWSP and construction of the Faria Preserve will contribute towards demand for water from EBMUD. Implementation of the NWSP and development of the Faria Preserve would not change EBMUD's demand projections for 2030. As described in Chapter 4.11, required reductions during dry year scenarios (including multiple dry year) are less than then limit specified for water shortage contingency analysis required in an Urban Water Management Plan.

With respect to sewer service, studies have determined that some segments of the existing downstream sewer system along San Ramon Valley Boulevard, between Crow Canyon Road and Ridgeland Drive (including those near Purdue Road), would be deficient during extreme rain events.

Impact Utilities-2: Wastewater (cumulative). Implementation of the proposed Specific Plan and Faria Preserve would result in an average wastewater contribution of approximately 185,447 gallons per day of sewage to the existing system. This could contribute to the deficiency of segments of the downstream sewer system during extreme rain events. Improvements required to correct the deficiencies that would result from new development projects are included in the CCCSD Capital Improvement Plan (CIP). Developers of such projects pay fees, which are assessed on a fair share basis to all developers with projects included in the CIP. The actual fee amount is determined after CCCSD has reviewed the project's final sewer plan. CCCSD has confirmed that construction of the downstream improvements planned to correct future deficiencies, which have been evaluated in connection with the CIP, would not result in any significant impacts.

> **This would be a *less than significant, cumulative* impact (Western Plan Area and Faria Preserve).**
>
> **Mitigation Measure Utilities-1 (cumulative):** To further ensure that the above impact remains less than significant, Mitigation Measure Utilities-2 requires that the project sponsor pay fees that would provide a fair-share contribution toward the cost of constructing improvements and capacity upgrades needed to correct the deficiencies that would result from new development.
>
> **Level of significance after mitigation: *Less than significant* (Western Plan Area and Faria Preserve Project Site)**

The NWSP and Faria Preserve are consistent with the General Plan. Regional and area-wide cumulative public services and utilities impacts of the project in all other respects aside from those

identified above have been adequately addressed through the combination of the General Plan EIR and the mitigation described above. On the basis of the analysis in the General Plan EIR and the analysis in this EIR, the impacts from cumulative development related to provision of public services and utilities are not significant after mitigation.

Other Impacts

The General Plan EIR evaluated impacts in several additional areas, including: agriculture, parks and recreation, schools and community facilities, public safety, and telephone, cable and energy services. All of these impacts were found to be less than significant at the General Plan level with the application of General Plan policies and appropriate mitigation measures. Based on the conclusions of the General Plan EIR, all other cumulative impacts of the NWSP and Faria Preserve are determined to be less than significant.

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6. OTHER CEQA-REQUIRED DISCUSSIONS

As required by CEQA, this chapter provides discussion of the following CEQA-mandated discussions: growth inducement and significant irreversible environmental changes that would result from implementation of the Northwest Specific Plan (NWSP) and the Faria Preserve development.

6.1 GROWTH INDUCEMENT

An EIR must discuss the 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 (CEQA Guidelines, Section 15126.2(d)). Projects that would remove obstacles to population growth, such as an expansion of a wastewater treatment plant, are also considered when discussing growth inducement. Increases in population may also tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects.

The NWSP proposes development of a maximum of 830 housing units, an educational facility, a community park, and a house of worship, all of which are assumed to be constructed by 2020. Residential growth in the NWSP Area would be approximately 2,330 persons by 2020[1]. An additional population growth of approximately 25,000 persons by 2020 could be accommodated by the likely development of other housing sites in San Ramon, consistent with the Housing Element. The growth envisioned by the NWSP and the other housing units identified in the Housing Element would result in a year 2020 population of 80,700.

The Housing Element leads to the achievement of housing goals of the City of San Ramon 2020 General Plan, adopted in 2002, and provides for an adequate number of sites and infrastructure to meet San Ramon's share of regional housing needs, as identified by the Association of Bay Area Governments (ABAG) and required by the California State Department of Housing and Community Development (HCD). The housing opportunity area identified in the NWSP contributes to the Housing Element's identified housing opportunity sites to meet regional housing needs.

The growth resulting from implementation of the NWSP would occur over a period of at least 44 months, based the schedule proposed for the Faria Preserve community. However, there is no set time schedule for the implementation of the NWSP, and the timing and phasing of development within the NWSP Area would depend primarily on market demand, financial feasibility and the availability of construction financing.

Because the growth envisioned by the NWSP is included within City and regional projections for development through the year 2020, service providers are anticipating the growth and would be able to adjust to the increase in demand for services over time. As described in Chapter 4-11:

[1] This population projection is based on the same average household size (2.81 persons) assumed for current household size in the San Ramon 2020 General Plan Housing Element..

Utilities/Service Systems, East Bay Municipal Utility District incorporates the development projections made by the NWSP in evaluating future water demand and supply.

The NWSP provides for the integration of residential and non-residential uses the northwest section of San Ramon. Implementation of the Plan would result in the development of approximately 830 new residences, and would provide several public and community serving facilities, including a community park and memorial rose garden, a house of worship, an educational facility, extensive open space areas and public trails. The proposed community park and trail facilities within the NWSP Area would be constructed and dedicated for public use, in conjunction with planned housing and related public facility development. Higher density multi-family units and senior housing would be located in the southeasterly corner of the NWSP Area, north of Deerwood Road and existing apartment and office uses.

In conclusion, although the NWSP would accommodate additional growth in San Ramon, this growth would fill existing and future demands for housing, and would balance housing growth with community needs. Thus, the NWSP would not result in significant growth outside the City's urban limit line. In addition, because the growth anticipated with implementation of the NWSP is consistent with regional plans and projections, service providers are aware of this anticipated growth, and are expected to accommodate it without significant hardship. Furthermore, the comparative environmental impacts of the development envisioned by the NWSP are less than impacts that would be associated with this amount of development in another area in San Ramon.

Since build-out of the Faria Preserve would constitute the majority of residential development that would be allowed by the NWSP, and all of the non-residential uses proposed by the NWSP, the above discussion of growth-inducement is applicable to the proposed Faria Preserve community.

6.2 Significant Irreversible Environmental Changes which would be caused by the Proposed Project

"Significant irreversible environmental changes" include the use of nonrenewable natural resources during the initial and continued phases of the project, should this use result in the unavailability of these resources in the future. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with projects. Irretrievable commitments of these resources are required to be evaluated in an EIR to assure that such current consumption is justified (CEQA Guidelines, Section 15126.2(c)).

Natural resources include minerals, energy, land, water, forestry, and biota. Nonrenewable resources are those resources that cannot be replenished by natural means, including oil, natural gas, and iron ore. Renewable natural resources are those resources that can be replenished by natural means, including water, lumber, and soil.

Although implementation of the NWSP would use both renewable and nonrenewable natural resources for project construction, this use would not increase the overall rate of use of any natural resource, or result in the substantial depletion of any nonrenewable natural resource.

The NWSP is not anticipated to result in irreversible damage from environmental accidents, such as an accidental spill or explosion of a hazardous material. During the construction of individual projects, equipment would be using various types of fuel. In the State of California, the storage and use of hazardous substances are strictly regulated and enforced by various local and regional agencies. The enforcement of these existing regulations would preclude credible significant project impacts related to environmental accidents.

The NWSP is proposing the development of a previously inaccessible area, yet an area that is proposed in the General Plan for future development. As noted in chapter 4.2, Air Quality, the existing air quality conditions where the NWSP Area is located results in a significant unavoidable impact for any proposed development. Pursuant to CEQA, a Statement of Overriding Considerations would be required by the City of San Ramon, prior to project approval.

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7. ALTERNATIVES

The proposed Northwest Specific Plan (NWSP) and Faria Preserve development have been described and analyzed in the previous chapters with an emphasis on potentially significant impacts and recommended mitigation measures to avoid these impacts. The State CEQA Guidelines also require the description and comparative analysis of a range of reasonable alternatives that have been developed to avoid or substantially lessen one or more of the significant effects identified for the project analyzed in the EIR.

This analysis does not provide a detailed evaluation of alternative sites. Per Section 15126.6(f)(2) of the State CEQA Guidelines, the key question to ask when considering whether alternative locations should be analyzed in an EIR is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR. With the exception of Impact Noise-8, the consideration of alternative sites for proposed development would not avoid the significant unavoidable impacts that would result from the project.

In addition, construction-related impacts (e.g., potential noise, air quality, and hazardous materials) would exist at other areas of the City of San Ramon or the region. These types of construction-related impacts are most appropriately mitigated to less-than-significant levels with the implementation of construction-related measures and best management practice, as outlined in this Draft EIR, and should not drive the consideration of alternative locations.

The following discussion is intended to inform the public and decision-makers of alternatives that could be developed and the positive and negative aspects of those alternatives. For each alternative, the relative impacts that would occur are noted in comparison to the proposed project. The alternatives presented in this section have been developed in consideration of the significant and less-than-significant impacts identified in Chapter 4 of this document. For purposes of discussing alternatives in this chapter, "project" refers collectively to both the NWSP and the Faria Preserve.

The implementation of the proposed NWSP and Faria Preserve would result in significant impacts related to air quality and noise. Impacts related to noise could either be reduced or avoided through implementation of one of the other four development alternatives, when compared to the proposed NWSP. The "No Project/No Development Alternative" would reduce or avoid all significant impacts identified here.

Noise and air quality impacts identified in this EIR have the potential to occur with any development scenario in the San Ramon area, and would not be substantially changed (i.e., reduced or increased) by a different land use scenario. For these issue areas, the most appropriate and feasible mitigation is the implementation of the measures recommended in this EIR. For these reasons, these issue areas are not addressed by the alternatives presented in this chapter.

The five alternatives that are discussed in this chapter are:

- Alternative 1: No Project/No Development Alternative

- Alternative 2: Reduced Development Footprint with Limited Fill of Riparian Corridor to Accommodate Connector Road
- Alternative 3: Alternative Access without Fill of Riparian Corridor Maintaining Original Project Densities
- Alternative 4: Looped Internal Access with Conversion of Neighborhood A to High (Condominium) Density
- Alternative 5: Balanced Cut/Fill, Single-Family Residential Reduced Footprint

In addition, this chapter includes a discussion of three alternative sites for the East Bay Municipal Utilities District (EBMUD) water tanks proposed as part of the Faria Preserve development.

In Sections 7.1 through 7.5, each alternative is first described, and is then analyzed in consideration of the proposed Northwest Specific Plan and Faria Preserve development, according to whether it would have a mitigating or adverse effect. Section 7.6 summarizes these findings and presents a conclusion about which alternative is environmentally superior. Section 7.7 provides a discussion and summary comparison of the alternative EBMUD water tank sites.

7.1 ALTERNATIVE 1: NO PROJECT ALTERNATIVE

As directed by the State CEQA Guidelines (Section 15126.6(e)(3)(A)), when a project is the revision to an existing land use or regulatory plan, the "No Project" alternative is the continuation of the existing plan. Development would continue to occur in the NWSP Area according to the existing City of San Ramon 2020 General Plan (General Plan) land use and zoning regulations. Land use designations for Alternative 1 are illustrated in Figure 4.8-1 which is provided on page 4.8-2 of Chapter 4.

Because the General Plan calls for development in the NWSP Area to occur only pursuant to an adopted Northwest Specific Plan, it is assumed for purposes of this "No Project Alternative" analysis that where no NWSP is approved, no additional development would occur in the NWSP Area.

7.1.1 Aesthetics

Neither the project nor the No Project Alternative would result in significant unavoidable impacts with respect to aesthetics. The project could have impacts related to a scenic vista and the visual character and quality of the site and its surroundings, but implementation of General Plan policies would ensure that these impacts are less than significant. The NWSP could affect views from I-680, a State Scenic Highway, but the preservation of major ridge lines and prominent portions of the NWSP Area in a natural state would ensure that these impacts are less than significant. Under Alternative 1, there would be no development in the NWSP Area and thus no impacts on aesthetics. However, since market demand for housing would still remain, and since the City of San Ramon would still be obligated to supply its fair share of regional housing, it could be anticipated that comparable development would occur elsewhere, with attendant impacts.

7.1.2 Air Quality

The project could result in significant and unavoidable air quality impacts due to vehicular emissions of NOx that could exceed levels recommended by the BAAQMD to be considered significant for CEQA purposes. Under Alternative 1, there would be no development in the NWSP Area and thus no impacts on air quality. However, since market demand for housing would still remain, and since the City of San Ramon would still be obligated to supply its fair share of regional housing, it could be anticipated that comparable development would occur elsewhere, with attendant impacts.

7.1.3 Biological Resources

Neither the project nor the No Project Alternative would result in significant unavoidable impacts with respect to biological resources. The proposed project would result in less than significant impacts related to conversion of sensitive habitats to developed uses, impacts to special-status plant species, impacts to special-status animal species, impacts to wildlife corridors, colonization from invasive species used in landscaping, and impacts to jurisdictional waters of the United States and riparian habitat. Under Alternative 1, there would be no development in the NWSP Area and thus no impacts on biological resources. However, since market demand for housing would still remain, and since the City of San Ramon would still be obligated to supply its fair share of regional housing, it could be anticipated that comparable development would occur elsewhere, with attendant impacts.

7.1.4 Cultural Resources

Neither the project nor the No Project Alternative would result in significant unavoidable impacts with respect to cultural resources. Under Alternative 1, there would be no development in the NWSP Area and thus no impacts on cultural resources. However, since market demand for housing would still remain, and since the City of San Ramon would still be obligated to supply its fair share of regional housing, it could be anticipated that comparable development would occur elsewhere, with attendant impacts.

7.1.5 Geology/Soils

Neither the project nor the No Project Alternative would result in significant unavoidable impacts with regard to geologic and soils resources. Because of the proximity to possible seismic events on the Calaveras Fault, regional seismic events, settlement, expansive soils, landslides and the erosion or loss of topsoil, the project could result in human exposure to these events or loss of property due to these events. After mitigation, this is considered less than significant. . Under Alternative 1, there would be no development in the NWSP Area and thus there would be no impacts on geology and soils. However, since Alternative 1 would not allow correction of existing landslide problems on the Faria Preserve Project Site, somewhat increased impacts would be anticipated as a result. Substantial erosion that has occurred on the slopes and degraded the quality of some of the hillsides would remain unrepaired. Also, since market demand for housing would still remain, and since the City of

San Ramon would still be obligated to supply its fair share of regional housing, it could be anticipated that comparable development would occur elsewhere, with attendant impacts.

7.1.6 Hazards

Neither the project nor the No Project Alternative would result in significant unavoidable impacts with regard to hazards issues. Construction of 830 homes (786 of which would be in the Faria Preserve) in an area with flammable brush and grass could result in potentially significant impacts related to increased risk of fire, which would be reduced to a less than significant level through the adoption and implementation of an Open Space Management Plan including specific measures to reduce potential fire hazards, such as buffers between homes. Under Alternative 1, there would be no development in the NWSP Area and thus no impacts from hazards. However, since market demand for housing would still remain, and since the City of San Ramon would still be obligated to supply its fair share of regional housing, it could be anticipated that comparable development would occur elsewhere, with attendant impacts.

7.1.7 Hydrology/Water Quality

Neither the project nor the No Project Alternative would result in significant unavoidable impacts with respect to hydrology and water quality. Compliance with the construction-related NPDES discharge permit, including preparation and implementation of a stormwater pollution prevention plan, the design and construction of appropriately sized detention basins, streambed protection and other design measures, would reduce these impacts to less than significant levels for the project. Under Alternative 1, there would be no development in the NWSP Area and thus no impacts on hydrology and water quality. However, since market demand for housing would still remain, and since the City of San Ramon would still be obligated to supply its fair share of regional housing, it could be anticipated that comparable development would occur elsewhere, with attendant impacts.

7.1.8 Land Use Plan and Policy Consistency

The project would not result in significant unavoidable impacts with respect to land use plan and policy consistency. Under Alternative 1, there would be no development within the NWSP Area, which would result in a failure to fully utilize the development potential of the NWSP Area under the voter-approved General Plan, which in turn would result in an inconsistency with land use plans and policies. In addition, under Alternative 1, no affordable housing would be constructed, thus impeding the City's ability to meet its quantified housing objectives, including development of targeted "Opportunity Sites" such as the NWSP Area.

7.1.9 Noise

Neither the project nor the No Project Alternative would result in significant unavoidable impacts with respect to noise, including from exposure of existing noise-sensitive land uses to short-term

construction noise, exposure of existing off-site noise-sensitive land uses to new stationary- and area-noise sources, increased noise generated by project-related traffic, exposure of existing land uses to noise levels in excess of normally acceptable standards, increased noise levels due to increased daily traffic volumes, and exposure of on-site land uses to noise levels generated by off-site commercial and industrial sources. Limitations on the hours of construction and noise reduction features in the design of the project, such as setbacks, noise barriers, and sound-reducing construction techniques, would reduce these impacts to a less than significant level for the project. Under Alternative 1, there would be no development in the NWSP Area and thus no impacts on noise.

7.1.10 Traffic and Circulation

Neither the project nor the No Project Alternative would result in significant unavoidable impacts with respect to traffic and circulation. The proposed project would have less than significant impacts to traffic and circulation after mitigation, since otherwise unacceptable levels of service at certain unsignalized intersections would be mitigated through traffic improvements (primarily the construction of signals). Under Alternative 1, there would be no development in the NWSP Area and thus no impacts on traffic and circulation. However, since market demand for housing would still remain, and since the City of San Ramon would still be obligated to supply its fair share of regional housing, it could be anticipated that comparable development would occur elsewhere, with attendant impacts.

7.1.11 Utilities/Service Systems

Neither the project nor the No Project Alternative would result in significant unavoidable impacts with respect to utilities and service systems. The proposed project would result in less than significant impacts related to increased demand for water supply, wastewater treatment, and solid waste disposal, which would be mitigated by implementation of water conservation measures, contributions to necessary wastewater infrastructure, and a recycling plan, respectively. Under Alternative 1, there would be no development in the NWSP Area and thus no impacts on utilities and service systems. However, since market demand for housing would still remain, and since the City of San Ramon would still be obligated to supply its fair share of regional housing, it could be anticipated that comparable development would occur elsewhere, with attendant impacts.

Ability of Alternative 1 to Satisfy the Project Purpose

Implementation of Alternative 1 for the Faria Preserve cannot fully meet the stated Project purpose, primarily because it does not fulfill the policies stated in the General Plan by supplying critically needed housing and public facilities. Alternative 1 also fails to provide the affordable housing resources critically needed in the community and called for in the Housing Element.

Implementation of Alternative 1 is considered infeasible because it eliminates all development potential in the NWSP Area. This option has fewer environmental effects, but fails to address the basic Project objectives of: (1) providing a range of housing types as required by the General Plan, (2) providing a sufficient number of housing units generating sales revenues needed to support the

substantial cost of infrastructure; and (3) providing community facilities and affordable housing, as mandated by the General Plan. Following is a summary of the significant planning program and environmental impacts unique to Alternative 1:

Alternative 1 cannot provide the range of housing products and aggregate number of affordable units identified in the Housing Element. This No Project Alternative cannot deliver the 238 affordable very-low, low- and moderate-income units proposed by the NWSP and identified in the City's Housing Element as needed to meet current and future regional fair share needs within the community. Consequently, Alternative 1 would fail to address a significant objective of the NWSP and Faria Preserve.

Alternative 1 cannot provide any of the major public facilities called for in the General Plan and identified in the Faria Preserve, including the community park, educational use, house of worship and public trail system. Ongoing implementation of the General Plan over the past several years has relied upon future development of the Faria Preserve Project Site to provide critically needed public park, trail, education and related facilities in order to support both current and future residents of the City. Failure to provide these facilities would adversely affect the quality and adequacy of services to local residents, based on defined threshold standards contained in the General Plan and General Plan EIR.

Finally, although Alternative 1 avoids direct grading impacts within the westerly swale area north of the required east-west collector street, it fails to mitigate underlying landslide activity, resulting in continued off-setting of the drainage swale, significant erosion of displaced soils, degradation of water quality and wetland/riparian habitats, and potential resulting risks to proposed and existing downstream improvements. Alternative 1 leaves the westerly drainage swale in an unimproved condition, whereby existing active landslides will continue to cause significant erosion and impacts on downstream facilities through mudflows, or other slope failures. Existing landslides extend along both the east and west slopes of the interior valley containing the drainage swale. The geotechnical analysis of this area indicates that the visible surface landslides are underlain by deeper, more extensive landslides which extend from the edge of the adjoining ridgelines to below the drainage swale. Avoidance of development within this area, as contemplated in Alternative 1, would forego repair of these landslides. The existing detention basin located at the lower end of this valley could therefore be subject to damage or destruction in the event of a major landslide. Landslide repairs and maintenance issues would be avoided through implementation of the development-funded slide repair contemplated in the Faria Preserve.

7.2 Alternative 2: Reduced Development Footprint with Limited Fill of Riparian Corridor to Accommodate Connector Road

Under Alternative 2, the number of units on the Faria Preserve Project Site (Neighborhoods A-D) would be reduced from 786 in the proposed project to 609, primarily by reducing development in the riparian corridor. Only limited fill of the riparian corridor would occur in order to accommodate a roadway (with associated utility corridors) connecting the eastern and western portions of the Faria

Preserve Project Site. Densities would be increased somewhat in order to minimize the resulting loss of units. Neighborhood A would be reduced from 200 to 74 units, Neighborhood B would be reduced from 200 to 149 units, and Neighborhoods C and D would remain unchanged. Neighborhood E on the Chang and Panetta properties would remain unchanged, with 44 single family homes and four (4) second units. The overall number of affordable units in the project would be reduced by 73 (from 238 to 165). The alternative is illustrated in Figure 7-1.

Alternative 2 would not permit a balanced grading plan, and would result in an estimated 3,360,000 cubic yards of excess dirt that would need to be off-hauled. The earthwork imbalance represented by Alternative 2 would therefore have adverse traffic, air quality, noise and disruption impacts within the local and regional environments. These significant impacts cannot be avoided or adequately mitigated. The 3,360,000 cubic yards of off-haul required for Alternative 2 represents roughly 168,000 truck loads of material moving over local streets and possibly Interstate 680, leading to a disposal site. Assuming that loading equipment can fill six trucks per hour, and a total of 10 such loaders could be utilized simultaneously to fill 480 trucks in an 8-hour work day, off-haul operations would continue for 350 consecutive work days, weather permitting. This translates into a period of approximately 14 months of uninterrupted work days, during which local and regional streets would be subjected to 960 average daily truck trips. It is estimated that the off-hauling of materials would add between $34,000,000 and $40,000,000 (at a unit price of $10-$12 per cubic yard for off-haul) to the cost of Alternative 2, without any offsetting revenues, making the project economically infeasible.

Alternative 2 reflects a reduced development footprint and an attempt to avoid any fill in the main corridor, with the exception of limited fill necessary to accommodate a roadway to connect the eastern and western neighborhoods. Elimination of this roadway would likely require a connection through some other portion of the Faria Preserve Project Site. As a result of avoidance of the westerly drainage swale and concentration of the project footprint, Alternative 2 does not provide the flat, graded areas required to accommodate the park, educational site, and house of worship sites required by the General Plan.

7.2.1 Aesthetics

Neither the project nor Alternative 2 would result in significant unavoidable impacts with respect to aesthetics. The project could have impacts related to a scenic vista and the visual character and quality of the site and its surroundings, but implementation of General Plan policies would ensure that these impacts are less than significant. The NWSP could affect views from I-680, a State Scenic Highway, but the preservation of major ridge lines and prominent portions of the area in a natural state would ensure that these impacts are less than significant. Alternative 2 would reduce the total amount of development on the project site, specifically reducing aesthetics impacts from development of the riparian corridor and the adjacent slopes, and would therefore reduce the less than significant aesthetics impacts to some degree.

7.2.2 Air Quality

The project could result in significant and unavoidable air quality impacts due to vehicular emissions of NOx that could exceed levels recommended by the BAAQMD to be considered significant for

CEQA purposes. Since Alternative 2 has a somewhat reduced unit count, which in turn would reduce anticipated vehicular emissions, it would reduce this impact somewhat. However, the potential reduction would not be sufficient to reduce this impact to a less than significant level.

Alternative 2 would require the off hauling of 3,360,000 cubic yards of material, estimated to occur at a rate of 9600 cubic yards per day (480 trucks each holding 20 cubic yards). The BAAQMD CEQA guidelines generally do not evaluate the emissions from construction equipment in determining the significance of construction emissions, focusing instead on the application of control measures for particulates. However, the NOx and other emissions from the loading and off-hauling of such large quantities of dirt under this alternative would be substantial, particularly considering the extended time period over which that activity would occur, resulting in a new significant and unavoidable construction period air pollution impact as compared to the project.

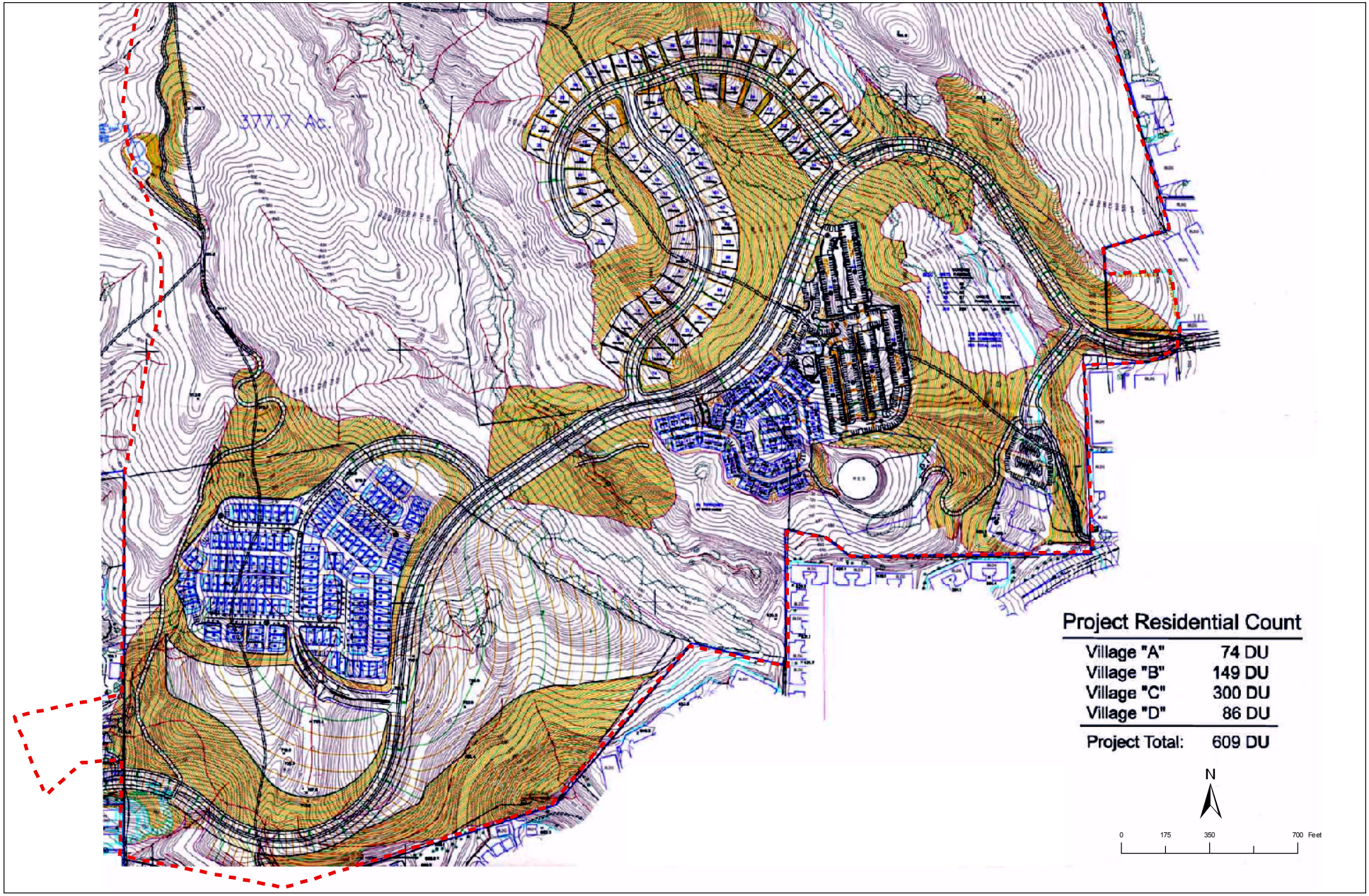
All other air quality impacts of both the project and Alternative 2 would be less than significant, including less than significant impacts from short-term construction emissions, local mobile sources of CO, exposure of sensitive receptors to toxic air contaminants, and objectionable odors.

7.2.3 Biological Resources

Neither the project nor Alternative 2, the Reduced Development Footprint with Limited Fill of Riparian Corridor to Accommodate Connector Road Alternative, would result in significant unavoidable impacts with respect to biological resources. Both the project and Alternative 2 could result in less than significant impacts related to conversion of sensitive habitats to developed uses, impacts to special-status plant species, impacts to special-status animal species, impacts to wildlife corridors, colonization from invasive species used in landscaping, and impacts to jurisdictional waters of the United States and riparian habitat. Alternative 2 would reduce the total amount of development on the project site, and would also result in reduced grading and filling in the riparian corridor. It would therefore reduce the extent of less than significant biological resources impacts to some degree.

7.2.4 Cultural Resources

Neither the project nor Alternative 2 would result in significant unavoidable impacts with respect to cultural resources. Alternative 2 would reduce the total amount of development on the project site, and would also result in reduced grading and filling of the site. As a result, the potential for encountering unanticipated cultural resources would be reduced somewhat, decreasing the likelihood of less than significant cultural resources impacts to some degree.



Source: The Huffman-Broadway Group, Inc., 2005

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7.2.5 Geology/Soils

Neither the project nor Alternative 2 would result in significant unavoidable impacts with regard to geologic and soils resources. Because of the proximity to possible seismic events on the Calaveras Fault, regional seismic events, settlement, expansive soils, landslides and the erosion or loss of topsoil, the project could result in human exposure to these events or loss of property due to these events. After mitigation, this is considered less than significant. Alternative 2 would reduce the total amount of development on the project site, and would also result in reduced grading and filling of the site. As a result, the potential for increasing exposure to geologic and soils hazards would be reduced somewhat, decreasing the less than significant geology/soils impacts to some degree. However, since the alternative would not allow correction of existing landslide problems on the site, somewhat increased impacts would be anticipated as a result.

7.2.6 Hazards

Neither the project nor Alternative 2 would result in significant unavoidable impacts with regard to hazards issues. Construction of 653 homes (609 of which would be in the Faria Preserve) in an area with flammable brush and grass could result in potentially significant impacts related to increased risk of fire, which would be reduced to a less than significant level through the adoption and implementation of an Open Space Management Plan including specific measures to reduce potential fire hazards, such as buffers between homes. Alternative 2 would reduce the total amount of development on the project site. As a result, the potential for increasing exposure to fire hazards would be reduced somewhat, decreasing the less than significant hazards impacts to some degree.

7.2.7 Hydrology/Water Quality

Neither the project nor the Reduced Development Footprint with Limited Fill of Riparian Corridor to Accommodate Connector Road Alternative would result in significant unavoidable impacts with respect to hydrology. Compliance with the construction-related NPDES discharge permit, including preparation and implementation of a stormwater pollution prevention plan, the design and construction of appropriately sized detention basins, streambed protection and other design measures, would reduce these impacts to less than significant levels for both the project and Alternative 2. This alternative would reduce the total amount of development on the project site, and would also result in reduced grading and filling of the site. As a result, the potential for hydrology impacts would be reduced somewhat, decreasing the less than significant hydrology and water quality impacts to some degree.

7.2.8 Land Use Plan and Policy Consistency

The project would not result in significant unavoidable impacts with respect to land use plan and policy consistency. Alternative 2 would reduce the total amount of development on the project site. This would result in a failure to fully utilize the development potential of the site under the voter-

approved General Plan, which in turn would result in an inconsistency with land use plans and policies. Reduction in the overall number of units would reduce the number of affordable units that could be provided. Such reduction in the number of potential affordable units may impede the City's ability to meet the quantified objectives identified in its certified Housing Element, including full development of Opportunity Sites such as the NWSP Area, which is targeted for development of 830 units (755 plus a 10% density bonus). As a result of reduction in development of the westerly drainage swale and concentration of the project footprint, Alternative 2 would not provide the major public facilities required by the General Plan, including a community park, educational facility, and house of worship and public trail system. Impacts relating to land use plan and policy consistency would therefore be increased.

7.2.9 Noise

Neither the project nor Alternative 2 would result in significant unavoidable impacts with respect to noise, including from exposure of existing noise-sensitive land uses to short-term construction noise, exposure of existing off-site noise-sensitive land uses to new stationary- and area-noise sources, increased noise generated by project-related traffic, exposure of existing land uses to noise levels in excess of normally acceptable standards, increased noise levels due to increased daily traffic volumes, and exposure of on-site land uses to noise levels generated by off-site commercial and industrial sources. Limitations on the hours of construction and noise reduction features in the project design such as setbacks, noise barriers, and sound-reducing construction techniques would reduce these remaining impacts to a less than significant level for both the project and Alternative 2.

7.2.10 Traffic and Circulation

Neither the project Alternative 2 would result in significant unavoidable impacts with respect to traffic and circulation. Both the project and Alternative 2 would have less than significant impacts to traffic and circulation after mitigation, since otherwise unacceptable levels of service at certain unsignalized intersections would be mitigated through traffic improvements (primarily the construction of signals) under both the project and Alternative 2. This alternative would reduce the total amount of development on the project site, with a corresponding reduction in traffic generation. As a result, the traffic levels would be reduced somewhat, decreasing the less than significant traffic and circulation impacts to some degree. The required off-hauling of excavated dirt, however, would substantially increase construction period traffic impacts.

7.2.11 Utilities/Service Systems

Neither the project nor the Reduced Development Footprint with Limited Fill of Riparian Corridor to Accommodate Connector Road Alternative would result in significant unavoidable impacts with respect to utilities and service systems. The project would result in less than significant impacts related to increased demand for water supply, wastewater treatment, and solid waste disposal, which would be mitigated by implementation of water conservation measures, contributions to necessary wastewater infrastructure, and a recycling plan, respectively. Alternative 2 would reduce the total

amount of development on the project site, with a corresponding reduction in project population and resulting demand for utilities and service systems. As a result, the demand for utilities and service systems would be reduced somewhat, decreasing the less than significant utilities and service system impacts to some degree.

Ability of Alternative 2 to Satisfy the Project Purpose

Implementation of Project Alternative 2 for the Faria Preserve community cannot fully meet the stated Project purpose, primarily because it does not fulfill the policies stated in the General Plan by supplying critically needed housing, and due to the substantially increased per-unit costs and the costs of off-hauling excavated materials. The following is a summary of the ways in which Alternative 2 fails to meet the Project purpose.

Alternative 2 fails to provide the maximum possible market rate and affordable housing resources critically needed in the community and called for in the Housing Element. Alternative 2 would reduce by 177 the number of total housing units within the Faria Preserve, and reduce by 73 the number of affordable units within Faria (reducing overall NWSP affordable units from 238 to 165). No feasible opportunity exists within the context of building height limitations and site constraints to further increase the density of the Faria Preserve in order to recover the units eliminated by the condensed footprint of Alternative 2. These planned housing resources have been identified by the California Department of Housing and Community Development as critical components of the Housing Element, which are necessary in order to meet the City's regional fair share of housing needs over the next several years.

Alternative 2 cannot provide any of the major public facilities called for in the General Plan and identified in the Faria Preserve, including the community park, educational use, house of worship and public trail system. The condensed development footprint results in elimination of key public facilities identified in the City's General Plan. Ongoing implementation of the General Plan over the past several years has relied upon future development of the Faria Preserve Project Site to provide critically needed public park, trail, education and related facilities in order to support both current and future residents of the City. Failure to provide these facilities would adversely affect the quality and adequacy of services to local residents, based on defined threshold standards contained in the General Plan and General Plan EIR.

Although Alternative 2 avoids direct grading impacts within the westerly swale area north of the required east-west collector street, it fails to mitigate underlying landslide activity, resulting in continued off-setting of the drainage swale, significant erosion of displaced soils, degradation of water quality and wetland/riparian habitats, and potential resulting risks to proposed and existing downstream improvements. Alternative 2 leaves the westerly drainage swale in an unimproved condition, whereby existing active landslides will continue to cause significant erosion and impacts on downstream facilities through mudflows, or other slope failures. Existing landslides extend along both the east and west slopes of the interior valley containing the drainage swale. The geotechnical analysis of this area indicates that the visible surface landslides are underlain by deeper, more extensive landslides which extend from the edge of the adjoining ridgelines to below the drainage swale. Avoidance of development within this area, as contemplated in Alternative 2, would forego repair of these landslides. Avoidance of development within the area above the westerly swale, as

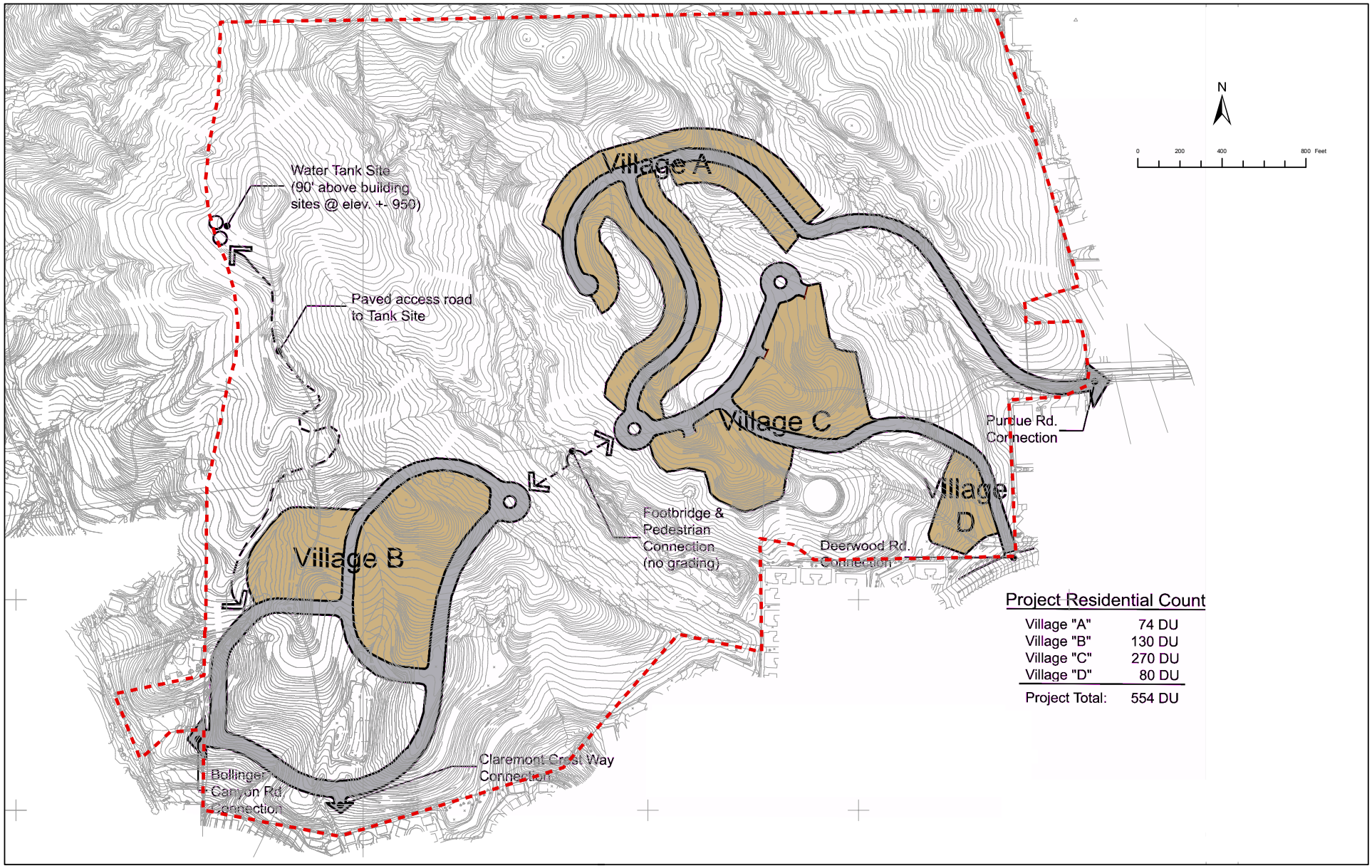
called for in Alternative 2, adversely affects the viability of water delivery for fire-flow, by separating remaining development areas from the designated water reservoir site. The water delivery system which is required to meet both domestic and fire flow requirements for any development of the Faria Preserve Project Site consists of one or more pump stations connecting to the existing EBMUD water storage tank located at the southeast corner of the Faria Preserve Project Site, coupled to a set of two new tanks to be located along the westerly ridgeline just above elevation 950. Elimination of residential development within the westerly drainage swale, as contemplated in Alternative 2, requires that a new roadway be constructed either north from Neighborhood B or west from Neighborhood A, adding additional earthwork and in addition, potentially significant aesthetic impacts could be brought about through grading of the prominent westerly ridgeline, necessary to achieve vehicular access north to the tanks from Neighborhood B.

7.3 Alternative 3: Alternative Access without Fill of Riparian Corridor Maintaining Original Project Densities

Under Alternative 3, the number of units in the Faria Preserve Project would be reduced from 786 in the proposed project to 554, primarily by reducing development in the riparian corridor, similar to Alternative 2. Only limited fill of the riparian corridor would occur in order to accommodate a pedestrian footbridge (with associated utilities) connecting the eastern and western portions of the Faria Preserve Project site. This alternative would maintain the original project densities, with an additional loss of units as compared to Alternative 2. Neighborhood A would be reduced from 200 to 74 units, Neighborhood B would be reduced from 200 to 130 units, Neighborhood C would be reduced from 300 to 270 units, and Neighborhood D would be reduced from 86 to 80 units. Neighborhood E on the Chang and Panetta properties would remain unchanged, with 44 single family homes and twelve (12) second units. The overall number of affordable units in the project would be reduced by 86 (from 238 to 152). The alternative is illustrated in Figure 7-2.

As a result of avoidance of the westerly drainage swale as well as the concentration of the project footprint, Alternative 3 would not provide the large, flat, graded areas required to accommodate the park, educational site, and house of worship sites required by the General Plan.

Alternative 3 would not permit a balanced grading plan, and would result in an estimated 3,500,000 cubic yards of excess dirt that would need to be off-hauled. The earthwork imbalance represented by Alternative 3 would therefore result in adverse traffic, air quality, noise and disruption impacts within the local and regional environments. These are very significant effects which cannot be avoided or adequately mitigated. The 3,500,000 cubic yards of off-haul required for Alternative 3 represents roughly 175,000 truck loads of material moving over local streets and possibly Interstate 680, leading to a disposal site. Assuming that loading equipment can fill six trucks per hour, and a total of 10 such loaders could be utilized simultaneously to fill 480 trucks in an 8-hour work day, off-haul operations would continue for 365 consecutive work days, weather permitting. This translates into a period of approximately 15 months of uninterrupted work days, during which local and



Source: The Huffman-Broadway Group, Inc., and Richard T. Loewke, AICP, 2005

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regional streets would be subjected to 960 average daily truck trips. The off hauling of materials would add an estimated $35,000,000 to $42,000,000 (at a unit price of $10-$12 per cubic yard for off-haul) to the cost of Alternative 3, without any offsetting revenues, making the project economically infeasible.

7.3.1 Aesthetics

Neither the project nor Alternative 3 would result in significant unavoidable impacts with respect to aesthetics. The project could have impacts related to a scenic vista and the visual character and quality of the site and its surroundings, but implementation of General Plan policies would ensure that these impacts are less than significant. The NWSP could affect views from I-680, a State Scenic Highway, but the preservation of major ridge lines and prominent portions of the area in a natural state would ensure that these impacts are less than significant. Alternative 3 would reduce the total amount of development on the project site and would avoid development in the riparian corridor and the adjacent slopes. In avoiding development of those areas, this alternative would reduce the less than significant aesthetics impacts to some degree.

7.3.2 Air Quality

The project could result in significant and unavoidable air quality impacts due to vehicular emissions of NOx that could exceed levels recommended by the BAAQMD to be considered significant for CEQA purposes. Since Alternative 3 has a reduced unit count, which in turn would reduce anticipated vehicular emissions, it would reduce this impact somewhat. However, the potential reduction would not be sufficient to reduce this impact to a less than significant level.

Alternative 3 would require the off hauling of 3,500,000 cubic yards of material, estimated to occur at a rate of 9600 cubic yards per day (480 trucks each holding 20 cubic yards). The BAAQMD CEQA guidelines generally do not evaluate the emissions from construction equipment in determining the significance of construction emissions, focusing instead on the application of control measures for particulates. However, the NOx and other emissions from the loading and off-hauling of such large quantities of dirt under this alternative would be substantial, particularly considering the extended time period over which that activity would occur, resulting in a new significant and unavoidable construction period air pollution impact as compared to the project.

All other air quality impacts of both the project and Alternative 3 would be less than significant, including less than significant impacts from short-term construction emissions, local mobile sources of CO, exposure of sensitive receptors to toxic air contaminants, and objectionable odors.

7.3.3 Biological Resources

Neither the project nor Alternative 3 would result in significant unavoidable impacts with respect to biological resources. Both the project and Alternative 3 would result in less than significant impacts related to conversion of sensitive habitats to developed uses, impacts to special-status plant species, impacts to special-status animal species, impacts to wildlife corridors, colonization from invasive species used in landscaping, and impacts to jurisdictional waters of the United States and riparian

habitat. Alternative 3 would reduce the total amount of development on the project site, and would also avoid grading and filling in the riparian corridor. It would therefore reduce the extent of less than significant biological resources impacts to some degree.

7.3.4 Cultural Resources

Neither the project nor Alternative 3 would result in significant unavoidable impacts with respect to cultural resources. Alternative 3 would reduce the total amount of development on the project site, and would also avoid grading and filling of the site. As a result, the potential for encountering unanticipated cultural resources would be reduced somewhat, decreasing the likelihood of less than significant cultural resources impacts to some degree.

7.3.5 Geology/Soils

Neither the project nor Alternative 3 would result in significant unavoidable impacts with regard to geologic and soils issues. Because of the proximity to possible seismic events on the Calaveras Fault, regional seismic events, settlement, expansive soils, landslides and the erosion or loss of topsoil, the project could result in human exposure to these events or loss of property due to these events. After mitigation, this is considered less than significant. . Alternative 3 would reduce the total amount of development on the project site, and would also avoid grading and filling of the site. As a result, the potential for increasing exposure to geologic and soils hazards would be reduced somewhat, decreasing the less than significant geology/soils impacts to some degree. However, since the alternative would not allow correction of existing landslide problems on the site, somewhat increased impacts would be anticipated as a result.

7.3.6 Hazards

Neither the project nor Alternative 3 would result in significant unavoidable impacts with regard to hazards issues. Construction of 598 homes (554 of which would be in the Faria Preserve) in an area with flammable brush and grass could result in potentially significant impacts related to increased risk of fire, which would be reduced to a less than significant level through the adoption and implementation of an Open Space Management Plan including specific measures to reduce potential fire hazards, such as buffers between homes. Alternative 3 would reduce the total amount of development on the project site. As a result, the potential for increasing exposure to fire hazards would be reduced somewhat, decreasing the less than significant hazards impacts to some degree.

7.3.7 Hydrology/Water Quality

Neither the project nor Alternative 3 would result in significant unavoidable impacts with respect to hydrology and water quality. Compliance with the construction-related NPDES discharge permit, including preparation and implementation of a stormwater pollution prevention plan, the design and construction of appropriately sized detention basins, streambed protection and other design

measures, would reduce these impacts to less than significant levels for both the project and Alternative 3. This alternative would reduce the total amount of development on the project site, and would also avoid grading and filling of the site. As a result, the potential for hydrology and water quality impacts would be reduced somewhat, decreasing the less than significant hydrology and water quality impacts to some degree.

7.3.8 Land Use Plan and Policy Consistency

The project would not result in significant unavoidable impacts with respect to land use plan and policy consistency. Alternative 3 would reduce the total amount of development on the project site. This would result in a failure to fully utilize the development potential of the site under the voter-approved General Plan, which in turn would result in an inconsistency with land use plans and policies. Reduction in the overall number of units would reduce the number of affordable units that could be provided. Such reduction in the number of potential affordable units may impede the City's ability to meet the quantified objectives identified in its certified Housing Element, including full development of Opportunity Sites such as the NWSP Area, which is targeted for development of 830 units (755 plus a 10% density bonus). As a result of reduction in development of the westerly drainage swale, Alternative 3 cannot provide the major public facilities required by the General Plan, including a community park, educational facility, house of worship, and public trail system. Impacts relating to land use plan and policy consistency would therefore be increased.

7.3.9 Noise

Neither the project nor Alternative 3 would result in significant unavoidable impacts with respect to noise, including from exposure of existing noise-sensitive land uses to short-term construction noise, exposure of existing off-site noise-sensitive land uses to new stationary- and area-noise sources, increased noise generated by project-related traffic, exposure of existing land uses to noise levels in excess of normally acceptable standards, increased noise levels due to increased daily traffic volumes, and exposure of on-site land uses to noise levels generated by off-site commercial and industrial sources. Limitations on the hours of construction, and noise reduction features in the project design such as setbacks, noise barriers, and sound-reducing construction techniques would reduce these impacts to a less than significant level for both the project and Alternative 3.

7.3.10 Traffic and Circulation

Neither the project nor Alternative 3 would result in significant unavoidable impacts with respect to traffic and circulation. Both the project and Alternative 3 would have less than significant impacts to traffic and circulation after mitigation, since otherwise unacceptable levels of service at certain unsignalized intersections would be mitigated through traffic improvements (primarily the construction of signals) under both the project and Alternative 3. This alternative would reduce the total amount of development on the project site, with a corresponding reduction in traffic generation. As a result, the traffic levels would be reduced somewhat, decreasing the less than

significant traffic and circulation impacts to some degree. The required off-hauling of excavated dirt, however, would substantially increase construction period traffic impacts.

7.3.11 Utilities/Service Systems

Neither the project nor Alternative 3 would result in significant unavoidable impacts with respect to utilities and service systems. The project would result in less than significant impacts related to increased demand for water supply, wastewater treatment, and solid waste disposal, which would be mitigated by implementation of water conservation measures, contributions to necessary wastewater infrastructure, and a recycling plan, respectively. Alternative 3 would reduce the total amount of development on the project site, with a corresponding reduction in project population and resulting demand for utilities and service systems. As a result, the demand for utilities and service systems would be reduced somewhat, decreasing the less than significant utilities and service system impacts to some degree.

Ability of Alternative 3 to Satisfy the Project Purpose

Implementation of Project Alternative 3 for the proposed Faria Preserve community cannot fully meet the stated Project purpose, primarily because it does not fulfill the policies stated in the General Plan by supplying critically needed housing, and due to the substantially increased per-unit costs and the costs of off-hauling excavated materials. The following is a summary of the ways in which Alternative 3 fails to meet the Project purpose.

Alternative 3 fails to provide the market rate and affordable housing resources critically needed in the community and called for in the Housing Element. As compared to the proposed project, Alternative 3 would reduce by 232 the number of total housing units within the Faria Preserve, and reduce by 86 the number of affordable units. No feasible opportunity exists within the context of building height limitations and site constraints to further increase the density of the Faria Preserve in order to recover the units eliminated by the condensed footprint of Alternative 3. These planned housing resources have been identified by the California Department of Housing and Community Development as critical components of the Housing Element, which are necessary in order to meet the City's regional fair share of housing needs over the next several years.

Alternative 3 cannot provide any of the major public facilities called for in the General Plan and identified in the Faria Preserve, including the community park, educational use, house of worship and public trail system. The condensed development footprint results in elimination of key public facilities identified in the City's General Plan. Ongoing implementation of the General Plan over the past several years has relied upon future development of the Faria Preserve Project Site to provide critically needed public park, trail, education and related facilities in order to support both current and future residents of the City. Failure to provide these facilities would adversely affect the quality and adequacy of services to local residents, based on defined threshold standards contained in the General Plan and General Plan EIR.

Alternative 3 avoids direct grading impacts within the westerly swale area north of the pedestrian footbridge crossing, but fails to mitigate underlying landslide activity, resulting in continued off-setting of the drainage swale, significant erosion of displaced soils, degradation of water quality and

wetland/riparian habitats, and potential resulting risks to existing downstream improvements. Alternative 3 leaves the westerly drainage swale in an unimproved condition, whereby existing active landslides will continue to cause significant erosion and impacts on downstream facilities through mudflows, or other slope failures. Existing landslides extend along both the east and west slopes of the interior valley containing the drainage swale. The geotechnical analysis of this area indicates that the visible surface landslides are underlain by deeper, more extensive landslides which extend from the edge of the adjoining ridgelines to below the drainage swale. Avoidance of development within this area, as contemplated in Alternative 3, would forego repair of these landslides. The existing detention basin located at the lower end of this valley could therefore be subject to damage or destruction in the event of a major landslide, as could the utility lines carried over the swale on the pedestrian bridge.

Avoidance of development within the area above the westerly swale, as called for in Alternative 3, adversely affects the viability of water delivery for fire-flow, by separating remaining development areas from the designated water reservoir site. The water delivery system which is required to meet both domestic and fire flow requirements for any development of the Faria Preserve Project Site consists of one or more pump stations connecting to the existing EBMUD water storage tank located at the southeast corner of the Faria Preserve Project Site, coupled to a set of two new tanks to be located along the westerly ridgeline just above elevation 950. Elimination of residential development within the westerly drainage swale, as contemplated in Alternative 3, requires that a new roadway be constructed either north from Neighborhood B or west from Neighborhood A, adding between $500,000 and $750,000 in supplemental grading, utility and roadway improvement costs, as compared to the Faria Preserve. In addition, additional aesthetic impacts would result from grading of the prominent westerly ridgeline, which would be necessary to achieve vehicular access north to the tanks from Neighborhood B.

Significant new neighborhood impacts would be created by the roadway connections south into existing neighborhoods, inconsistent with the General Plan. Avoidance of the east-west through street internally within the Faria Preserve eliminates impacts to the riparian corridor, but introduces new impacts to the existing neighborhoods to the south. These include a significant volume of additional traffic generated on local streets in the developed neighborhoods to the south of the Faria Preserve community at two locations. The exposure of existing neighborhoods to such new Project traffic would be in direct conflict with policies adopted in the General Plan.

7.4 Alternative 4: Looped Internal Access with Conversion of Neighborhood A to High (Condominium) Density

Under Alternative 4, the riparian corridor would generally be avoided as with Alternatives 2 and 3, but densities would be increased on the remainder of the site, and an increased number of total units would be constructed, in order to maintain overall project economics. As compared to the proposed project, the total number of units in the Faria Preserve Project would be increased from 786 to 926, primarily by modifying the product mix in Neighborhood A from 200 single-family residential units to 390 stacked condominium units. No fill or grading of the riparian corridor

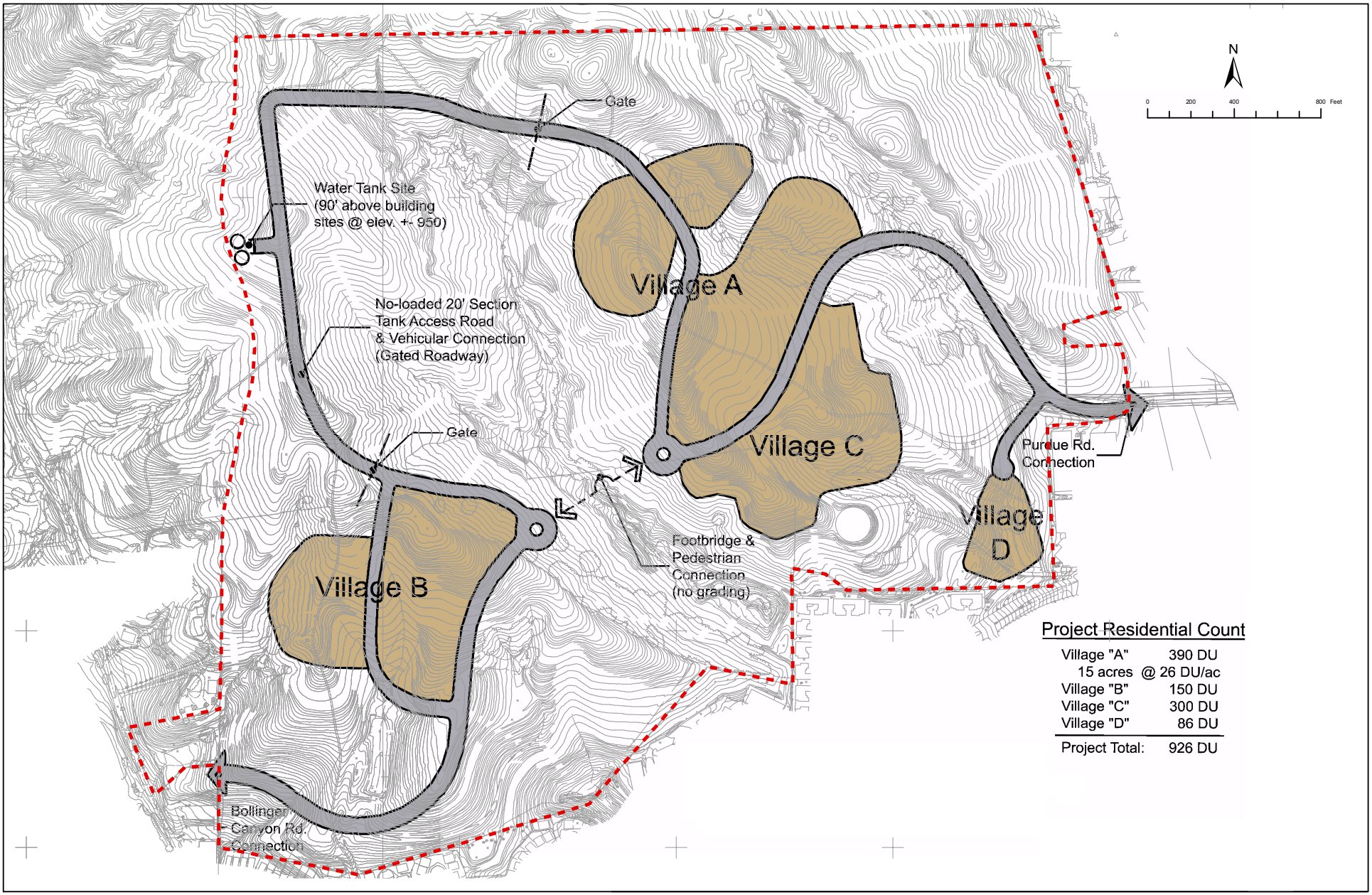
would occur, and a pedestrian bridge would connect the eastern and western portions of the site. In order to provide secondary access and utility connections, a looped internal access road would be constructed along the ridgelines that would connect the eastern and western portions of the site. Under this alternative, Neighborhood A would be increased from 200 to 390 units, Neighborhood B would be reduced from 200 to 150 units, and Neighborhoods C and D would remain unchanged at 300 units and 86 units, respectively. Neighborhood E on the Chang and Panetta properties would remain unchanged, with 44 single family homes and twelve (12) second units. The overall number of affordable units in the project would remain unchanged. The alternative is illustrated in Figure 7-3.

As a result of avoidance of the westerly drainage swale and the substantially reduced project footprint, Alternative 4 does not provide large, flat areas required to accommodate the park, educational site, and house of worship sites required by the General Plan.

This alternative would not permit a balanced grading plan, and would result in an estimated 3,800,000 cubic yards of excess dirt that would need to be off-hauled. The earthwork imbalance represented by Alternative 4 would have adverse traffic, air quality, noise and disruption impacts within the local and regional environments. These are significant impacts which cannot be avoided or adequately mitigated. The 3,800,000 cubic yards of off-haul required for Alternative 3 represents roughly 190,000 truck loads of material moving over local streets and possibly Interstate 680, leading to a disposal site. Assuming that loading equipment can fill six trucks per hour, and a total of 10 such loaders could be utilized simultaneously to fill 480 trucks in an 8-hour work day, off-haul operations would continue for 396 consecutive work days, weather permitting. This translates into a period of approximately 16 months of uninterrupted work days, during which local and regional streets would be subjected to 960 average daily truck trips. The off hauling of materials would add an estimated $38,000,000 to $46,000,000 (at a unit price of $10-$12 per cubic yard for off-haul) to the cost of Alternative 4, without any offsetting revenues, making the project economically infeasible.

7.4.1 Aesthetics

Neither the project nor the Looped Internal Access with Conversion of Neighborhood A to High (Condominium) Density Alternative would result in significant unavoidable impacts with respect to aesthetics. The project could have impacts related to a scenic vista and the visual character and quality of the site and its surroundings, but implementation of General Plan policies would ensure that these impacts are less than significant. The NWSP could affect views from I-680, a State Scenic Highway, but the preservation of major ridge lines and prominent portions of the area in a natural state would ensure that these impacts are less than significant. Alternative 4 would avoid development in the riparian corridor and the adjacent slopes, but would increase densities on the remainder of the site and thereby increase the total amount of development on the project site. In avoiding development of the riparian corridor, this alternative would reduce the less than significant aesthetics impacts to some degree. However, the increase in density and total amount of development could increase the impacts with respect to aesthetics to some extent. In addition, the looped internal access road that would be constructed along the ridgelines that would connect the eastern and western portions of the site would increase impacts to aesthetics.



Source: The Huffman-Broadway Group, Inc., and Richard T. Loewke, AICP, 2005

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7.4.2 Air Quality

The project could result in significant and unavoidable air quality impacts due to vehicular emissions of NOx that could exceed levels recommended by the BAAQMD to be considered significant for CEQA purposes. Since Alternative 4 has a somewhat increased unit count, which in turn would increase anticipated vehicular emissions, it would increase this impact somewhat.

Alternative 4 would require the off hauling of 3,800,000 cubic yards of material, estimated to occur at a rate of 9600 cubic yards per day (480 trucks each holding 20 cubic yards). The BAAQMD CEQA guidelines generally do not evaluate the emissions from construction equipment in determining the significance of construction emissions, focusing instead on the application of control measures for particulates. However, the NOx and other emissions from the loading and off-hauling of such large quantities of dirt under this alternative would be substantial, particularly considering the extended time period over which that activity would occur, resulting in a new significant and unavoidable construction period air pollution impact as compared to the project.

All other air quality impacts of both the project and Alternative 4 would be less than significant, including less than significant impacts from short-term construction emissions, local mobile sources of CO, exposure of sensitive receptors to toxic air contaminants, and objectionable odors.

7.4.3 Biological Resources

Neither the project nor the Looped Internal Access with Conversion of Neighborhood A to High (Condominium) Density Alternative would result in significant unavoidable impacts with respect to biological resources. Both the project and Alternative 4 would result in less than significant impacts related to conversion of sensitive habitats to developed uses, impacts to special-status plant species, impacts to special-status animal species, impacts to wildlife corridors, colonization from invasive species used in landscaping, and impacts to jurisdictional waters of the United States and riparian habitat. Alternative 4 would increase the total amount of development on the project site, but would avoid grading and filling in the riparian corridor. It would therefore reduce the extent of less than significant biological resources impacts to some degree.

7.4.4 Cultural Resources

Neither the project nor the Looped Internal Access with Conversion of Neighborhood A to High (Condominium) Density Alternative would result in significant unavoidable impacts with respect to cultural resources. Alternative 4 would increase the total amount of development on the project site, but would avoid grading and filling of the site. As a result, the potential for encountering unanticipated cultural resources would be reduced somewhat, decreasing the likelihood for less than significant cultural resources impacts to some degree.

7.4.5 Geology/Soils

Neither the project nor the Looped Internal Access with Conversion of Neighborhood A to High (Condominium) Density Alternative would result in significant unavoidable impacts with regard to geologic and soils issues. Because of the proximity to possible seismic events on the Calaveras Fault, regional seismic events, settlement, expansive soils, landslides and the erosion or loss of topsoil, the project could result in human exposure to these events or loss of property due to these events. After mitigation, this is considered less than significant. Alternative 4 would increase the total amount of development on the project site, but would avoid grading and filling of the site. As a result, the potential for increasing exposure to geologic and soils hazards would be reduced somewhat, decreasing the less than significant geology/soils impacts to some degree. However, since the alternative would not allow correction of existing landslide problems on the site, somewhat increased impacts would be anticipated as a result.

7.4.6 Hazards

Neither the project nor the Looped Internal Access with Conversion of Neighborhood A to High (Condominium) Density Alternative would result in significant unavoidable impacts with regard to hazards issues. Construction of 970 homes (926 of which would be in the Faria Preserve)in an area with flammable brush and grass could result in potentially significant impacts related to increased risk of fire, which would be reduced to a less than significant level through the adoption and implementation of an Open Space Management Plan including specific measures to reduce potential fire hazards, such as buffers between homes. Alternative 4 would increase the total amount of development on the project site. As a result, this alternative would increase potential exposure to fire hazards, increasing the less than significant hazards impacts somewhat.

7.4.7 Hydrology/Water Quality

Neither the project nor the Looped Internal Access with Conversion of Neighborhood A to High (Condominium) Density Alternative would result in significant unavoidable impacts with respect to hydrology and water quality. Compliance with the construction-related NPDES discharge permit, including preparation and implementation of a stormwater pollution prevention plan, the design and construction of appropriately sized detention basins, streambed protection and other design measures, would reduce these impacts to less than significant levels for both the project and Alternative 4. This alternative would increase the total amount of development on the project site, but would reduce grading and filling of the site. As a result, the potential for hydrology impacts would be reduced somewhat, decreasing the less than significant hydrology and water quality impacts to some degree.

7.4.8 Land Use Plan and Policy Consistency

The project would not result in significant unavoidable impacts with respect to land use plan and policy consistency. Alternative 4, however, would increase the total amount of development on the

project site, and thereby fully utilize the development potential of the site under the voter-approved General Plan Update. It would, like the project, meet the General Plan's requirements relating to the provision of affordable housing to meet the City's share of the regional need. However, as a result of reduction in development of the westerly drainage swale, Alternative 4 cannot provide the major public facilities required by the General Plan, including a community park, educational facility, and house of worship and public trail system. In addition, Alternative 4 would avoid not provide the mix of housing types called for in the General Plan. Impacts relating to land use plan and policy consistency would therefore be increased.

7.4.9 Noise

Neither the project nor Alternative 4 would result in significant unavoidable impacts with respect to noise, including from exposure of existing noise-sensitive land uses to short-term construction noise, exposure of existing off-site noise-sensitive land uses to new stationary- and area-noise sources, increased noise generated by project-related traffic, exposure of existing land uses to noise levels in excess of normally acceptable standards, increased noise levels due to increased daily traffic volumes, and exposure of on-site land uses to noise levels generated by off-site commercial and industrial sources. Limitations on the hours of construction and garbage collections, and noise reduction features in the project design such as setbacks, noise barriers, and sound-reducing construction techniques would reduce these impacts to a less than significant level for both the project and Alternative 4.

7.4.10 Traffic and Circulation

Neither the project nor the Looped Internal Access with Conversion of Neighborhood A to High (Condominium) Density Alternative would result in significant unavoidable impacts with respect to traffic and circulation. Both the project and Alternative 4 would have less than significant impacts to traffic and circulation after mitigation, since otherwise unacceptable levels of service at certain unsignalized intersections would be mitigated through traffic improvements (primarily the construction of signals) under both the project and Alternative 4. However, this alternative would increase the total amount of development on the project site, with a corresponding increase in traffic generation. As a result, the traffic levels would be increased somewhat, increasing the less than significant traffic and circulation impacts to some degree. The required off-hauling of excavated dirt would substantially increase construction period traffic impacts.

7.4.11 Utilities/Service Systems

Neither the project nor the Looped Internal Access with Conversion of Neighborhood A to High (Condominium) Density Alternative would result in significant unavoidable impacts with respect to utilities and service systems. The project would result in less than significant impacts related to increased demand for water supply, wastewater treatment, and solid waste disposal, which would be mitigated by implementation of water conservation measures, contributions to necessary wastewater infrastructure, and a recycling plan, respectively. Alternative 4 would increase the total amount of

development on the project site, with a corresponding increase in project population and resulting demand for utilities and service systems. As a result, the demand for utilities and service systems would be increased somewhat, increasing the less than significant utilities and service system impacts to some degree.

Ability of Alternative 4 to Satisfy the Project Purpose

Implementation of Alternative 4 for the Faria Preserve cannot fully meet the stated Project purpose, primarily because it does not fulfill the policies stated in the General Plan by supplying a range of housing types, and due to the decreased per-unit revenues and the costs of off-hauling excavated materials. The following is a summary of the ways in which Alternative 4 fails to meet the Project purpose.

Alternative 4 would not provide a range of housing types as called for in the General Plan. By eliminating single family residential homes in Neighborhood A and substituting an increased number of stacked condominium units, Alternative 4 would fail to provide a range of housing types covering all market segments as provided for in the General Plan.

Alternative 4 cannot provide any of the major public facilities called for in the General Plan and identified in the Faria Preserve, including the community park, educational use, house of worship and public trail system. The condensed development footprint results in elimination of key public facilities identified in the City's General Plan. Ongoing implementation of the General Plan over the past several years has relied upon future development of the Faria Preserve Project Site to provide critically needed public park, trail, education and related facilities in order to support both current and future residents of the City. Failure to provide these facilities would adversely affect the quality and adequacy of services to local residents, based on defined threshold standards contained in the General Plan and General Plan EIR.

Alternative 4 avoids direct grading impacts within the westerly swale area north of the pedestrian footbridge crossing, but fails to mitigate underlying landslide activity, resulting in continued off-setting of the drainage swale, significant erosion of displaced soils, degradation of water quality and wetland/riparian habitats, and potential resulting risks to existing downstream improvements. Alternative 4 leaves the westerly drainage swale in an unimproved condition, whereby existing active landslides will continue to cause significant erosion and impacts on downstream facilities through mudflows, or other slope failures. Existing landslides extend along both the east and west slopes of the interior valley containing the drainage swale. The geotechnical analysis of this area indicates that the visible surface landslides are underlain by deeper, more extensive landslides which extend from the edge of the adjoining ridgelines to below the drainage swale. Avoidance of development within this area, as contemplated in Alternative 4, would forego repair of these landslides. The existing detention basin located at the lower end of this valley could therefore be subject to damage or destruction in the event of a major landslide, as could the utility lines carried over the swale on the pedestrian bridge. Repair costs could exceed $1,500,000 in the event the exposed utility systems and detention basin were severely damaged. Major landslide repairs and maintenance issues would be avoided through implementation of the development-funded slide repair contemplated in the Faria Preserve.

Avoidance of development within the area above the westerly swale, as called for in Alternative 4, adversely affects the viability of water delivery for fire-flow, by separating remaining development areas from the designated water reservoir site. The water delivery system which is required to meet both domestic and fire flow requirements for any development of the Faria Preserve Project Site consists of one or more pump stations connecting to the existing EBMUD water storage tank located at the southeast corner of the Faria Preserve Project Site, coupled to a set of two new tanks to be located along the westerly ridgeline just above elevation 950. Elimination of residential development within the westerly drainage swale, as contemplated in Alternative 4, is compensated for by a new looped ridgeline roadway be constructed north from Neighborhood B and west from Neighborhood A, connecting near the northwest corner of the Site and adding between $500,000 and $750,000 in supplemental grading, utility and roadway improvement costs, as compared to the Faria Preserve. In addition, potentially significant aesthetic impacts would be brought about through grading of the prominent westerly ridgeline, necessary to achieve vehicular access north to the tanks from Neighborhood B.

Significant new grading and visual impacts created by the loop roadway would be inconsistent with the General Plan. The looping roadway connection between Neighborhoods B and A in Alternative 4 avoids impacts to the riparian corridor, but introduces new impacts to the ridgeline. These include additional the generation of additional cut material (further exacerbating the off-haul requirements), and scarring of the visually prominent and protected ridgeline, in contradiction of policies adopted in the General Plan.

7.5 Alternative 5: Balanced Cut/Fill, Single-Family Residential Reduced Footprint

Under the Balanced Cut/Fill, Single-Family Residential Reduced Footprint Alternative, development in the riparian corridor would be avoided, and the project would have a balanced grading plan. The combination of these two constraints would significantly reduce the number of units in the Faria Preserve Project, from 786 to 255. An emergency access public trail and water line easement would be constructed across the riparian corridor, and would be the only connection between the eastern and western portions of the site. Under this alternative, Neighborhood A would be reduced from 200 to 74 units, Neighborhood B would be reduced from 200 to 92 units, Neighborhood C would remain unchanged, and Neighborhood D would be eliminated. Neighborhood E on the Chang and Panetta properties would remain unchanged, with 44 single family homes and twelve (12) second units. All of the affordable units would be eliminated.

Alternative 5 is a reduced development scenario which attempts to maximize single-family detached housing within a limited footprint adjoining the westerly and easterly site access points, off Bollinger Canyon Road and Purdue Road, respectively. A total of 169 single-family homes are identified within redesigned Neighborhoods A and B, in addition to 86 stacked condominium units in Neighborhood C (as per the project). Like the proposed project, Alternative 5 balances grading cut and fill volumes, in an effort to avoid the adverse environmental and fiscal effects of off-haul. Alternative 5 avoids impact to the westerly drainage swale by localizing Neighborhoods A and B development in smaller areas, by avoiding circulation connections between the eastern and western portions of the site, and by eliminating all land-intensive community facilities, such as parks,

churches and educational uses. Avoidance of the westerly drainage swale eliminates opportunities to create the large, flat, graded areas required to accommodate the park, educational site, and house of worship sites required by the General Plan. The alternative is illustrated in Figure 7-4.

7.5.1 Aesthetics

Neither the project nor the Balanced Cut/Fill, Single-Family Residential Reduced Footprint Alternative would result in significant unavoidable impacts with respect to aesthetics. The project could have impacts related to a scenic vista and the visual character and quality of the site and its surroundings, but implementation of General Plan policies would ensure that these impacts are less than significant. The NWSP could affect views from I-680, a State Scenic Highway, but the preservation of major ridge lines and prominent portions of the area in a natural state would ensure that these impacts are less than significant. Alternative 5 would significantly reduce the total amount of development on the project site, specifically avoiding aesthetics impacts from development of the riparian corridor and the adjacent slopes, and would therefore reduce the less than significant aesthetics impacts.

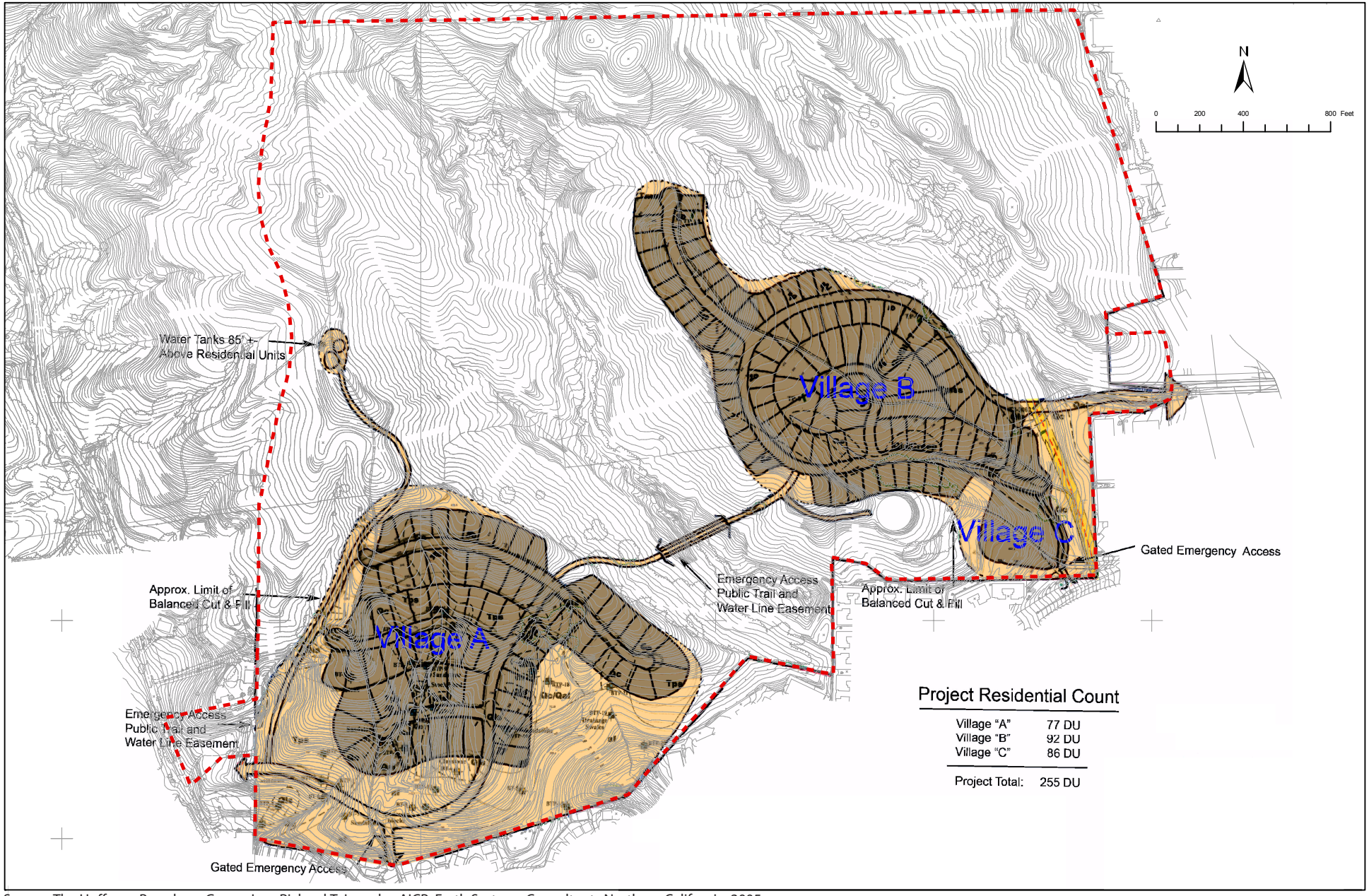
7.5.2 Air Quality

The project could result in significant and unavoidable air quality impacts due to vehicular emissions of NOx that could exceed levels recommended by the BAAQMD to be considered significant for CEQA purposes. Since Alternative 5 has a significantly reduced unit count (from 786 to 255), which in turn would reduce anticipated vehicular emissions, it would reduce this impact. However, the potential reduction would not be sufficient to reduce this impact to a less than significant level. In addition, because Alternative 5 would have a balanced grading plan, this alternative would avoid the adverse environmental and fiscal effects of off-haul.

All other air quality impacts of both the project and Alternative 5 would be less than significant, including less than significant impacts from short-term construction emissions, local mobile sources of CO, exposure of sensitive receptors to toxic air contaminants, and objectionable odors.

7.5.3 Biological Resources

Neither the project nor the Balanced Cut/Fill, Single-Family Residential Reduced Footprint Alternative would result in significant unavoidable impacts with respect to biological resources. Both the project and Alternative 5 would result in less than significant impacts related to conversion of sensitive habitats to developed uses, impacts to special-status plant species, impacts to special-status animal species, impacts to wildlife corridors, colonization from invasive species used in landscaping, and impacts to jurisdictional waters of the United States and riparian habitat. Alternative 5 would substantially reduce the total amount of development on the project site, and would also avoid development in the riparian corridor. It would therefore reduce the extent of less than significant biological resources impacts.



Source: The Huffman-Broadway Group, Inc., Richard T. Loewke, AICP, Earth Systems Consultants Northern California, 2005

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7.5.4 Cultural Resources

Neither the project nor the Balanced Cut/Fill, Single-Family Residential Reduced Footprint Alternative would result in significant unavoidable impacts with respect to cultural resources. This alternative would significantly reduce the total amount of development on the project site, and would also avoid development in the riparian corridor. As a result, the potential for encountering unanticipated cultural resources would be reduced, decreasing the likelihood of less than significant cultural resources impacts.

7.5.5 Geology/Soils

Neither the project nor Alternative 5 would result in significant unavoidable impacts with regard to geologic and soils issues. Because of the proximity to possible seismic events on the Calaveras Fault, regional seismic events, settlement, expansive soils, landslides and the erosion or loss of topsoil, the project could result in human exposure to these events or loss of property due to these events. After mitigation, this is considered less than significant. Alternative 5 would significantly reduce the total amount of development on the project site, and would also balance grading cut and fill volumes on the site. As a result, the potential for increasing exposure to geologic and soils hazards would be reduced, decreasing the less than significant geology/soils impacts. However, since the alternative would not allow correction of existing landslide problems on the site, somewhat increased impacts would be anticipated as a result.

7.5.6 Hazards

Neither the project nor the Balanced Cut/Fill, Single-Family Residential Reduced Footprint Alternative would result in significant unavoidable impacts with regard to hazards issues. Construction of 299 homes (255 of which would be in the Faria Preserve) in an area with flammable brush and grass could result in potentially significant impacts related to increased risk of fire, which would be reduced to a less than significant level through the adoption and implementation of an Open Space Management Plan including specific measures to reduce potential fire hazards, such as buffers between homes. Alternative 5 would significantly reduce the total amount of development on the project site. As a result, the potential for increasing exposure to fire hazards would be reduced, decreasing the less than significant hazards impacts.

7.5.7 Hydrology/Water Quality

Neither the project nor the Balanced Cut/Fill, Single-Family Residential Reduced Footprint Alternative would result in significant unavoidable impacts with respect to hydrology and water quality. Compliance with the construction-related NPDES discharge permit, including preparation and implementation of a stormwater pollution prevention plan, the design and construction of appropriately sized detention basins, streambed protection and other design measures, would reduce these impacts to less than significant levels for both the project and Alternative 5. This alternative

would significantly reduce the total amount of development on the project site, and would also balance grading cut and fill volumes on the site. As a result, the potential for hydrology and water quality impacts would be reduced, decreasing the less than significant hydrology and water quality impacts.

7.5.8 Land Use Plan and Policy Consistency

The project would not result in significant unavoidable impacts with respect to land use plan and policy consistency. Alternative 5 would reduce the total amount of development on the project site as compared to the proposed project. This would result in a failure to fully utilize the development potential of the site under the voter-approved General Plan, which in turn would result in an inconsistency with land use plans and policies. Reduction in the overall number of units would reduce the number of affordable units that could be provided. Such reduction in the number of potential affordable units may impede the City's ability to meet the quantified objectives identified in its certified Housing Element, including full development of Opportunity Sites such as the NWSP Area, which is targeted for development of 830 units (755 plus a 10% density bonus). As a result of reduction in development of the westerly drainage swale, Alternative 5 cannot provide the major public facilities required by the General Plan, including a community park, educational facility, and house of worship and public trail system. Impacts relating to land use plan and policy consistency would therefore be increased.

7.5.9 Noise

Neither the project nor Alternative 5 would result in significant unavoidable impacts with respect to noise, including from exposure of existing noise-sensitive land uses to short-term construction noise, exposure of existing off-site noise-sensitive land uses to new stationary- and area-noise sources, increased noise generated by project-related traffic, exposure of existing land uses to noise levels in excess of normally acceptable standards, increased noise levels due to increased daily traffic volumes, and exposure of on-site land uses to noise levels generated by off-site commercial and industrial sources. Limitations on the hours of construction, and noise reduction features in the project design such as setbacks, noise barriers, and sound-reducing construction techniques would reduce these impacts to a less than significant level for both the project and Alternative 5.

7.5.10 Traffic and Circulation

Neither the project nor Alternative 5 would result in significant unavoidable impacts with respect to traffic and circulation. Both the project and Alternative 5 would have less than significant impacts to traffic and circulation after mitigation, since otherwise unacceptable levels of service at certain unsignalized intersections would be mitigated through traffic improvements (primarily the construction of signals) under both the project and Alternative 5. This alternative would significantly reduce the total amount of development on the project site, with a corresponding reduction in traffic generation. As a result, the traffic levels would be reduced, decreasing the less than significant traffic and circulation impacts.

7.5.11 Utilities/Service Systems

Neither the project nor the Balanced Cut/Fill, Single-Family Residential Reduced Footprint Alternative would result in significant unavoidable impacts with respect to utilities and service systems. The project would result in less than significant impacts related to increased demand for water supply, wastewater treatment, and solid waste disposal, which would be mitigated by implementation of water conservation measures, contributions to necessary wastewater infrastructure, and a recycling plan, respectively. Alternative 5 would significantly reduce the total amount of development on the project site, with a corresponding reduction in project population and resulting demand for utilities and service systems. As a result, the demand for utilities and service systems would be reduced, decreasing the less than significant utilities and service system impacts.

Ability of Alternative 5 to Satisfy the Project Purpose

Implementation of Alternative 5 for the Faria Preserve cannot fully meet the stated Project purpose, primarily because it does not fulfill the policies stated in the General Plan by supplying critically needed housing. The following is a summary of the ways in which Alternative 5 fails to meet the Project purpose.

Alternative 5 reduces the aggregate development yield to 255 units for the Faria Preserve Project Site (and 299 for the NWSP). This option has fewer environmental effects, but fails to address the basic Project objectives of: (1) providing a range of housing types as required by the General Plan, (2) providing a sufficient number of housing units generating sales revenues needed to support the substantial cost of infrastructure; and (3) providing community facilities and affordable housing, as mandated by the General Plan. Following is a summary of the significant planning program and environmental impacts unique to Alternative 5:

Alternative 5 has significantly reduced the total number of housing units over which to spread the same total public infrastructure costs, rendering the Faria Preserve economically infeasible. Alternative 5 would reduce the total number of housing units by two-thirds, from 786 (project) to 255. The smaller number of single-family homes (169) would be insufficient to absorb the substantial cost of public infrastructure required to facilitate development of the Faria Preserve Project Site, including (a) the collector roadway system, (b) the on-site detention basins, (c) the water pumping, storage and delivery system, and (d) the sanitary sewer trunk line improvements. Consequently, the per-unit capital facility cost burden for the Faria Preserve would increase well beyond the threshold of feasibility.

Alternative 5 cannot provide the range of housing products and aggregate number of affordable units identified in the Housing Element. This reduced development alternative of 255 total units cannot deliver the 238 affordable very-low, low- and moderate-income units identified in the City's Housing Element as needed to meet current and future regional fair share needs within the community. Consequently, Alternative 5 would fail to address a significant objective of the NWSP and the Faria Preserve.

Alternative 5 cannot provide any of the major public facilities called for in the General Plan and identified in the Faria Preserve, including the community park, educational use, house of worship and public trail system. The extremely condensed development footprint results in elimination of key public facilities identified in the City's General Plan. Ongoing implementation of the General Plan over the past several years has relied upon future development of the Faria Preserve Project Site to provide critically needed public park, trail, education and related facilities in order to support both current and future residents of the City. Failure to provide these facilities would adversely affect the quality and adequacy of services to local residents, based on defined threshold standards contained in the General Plan and General Plan EIR.

Alternative 5 avoids direct grading impacts within the westerly swale area north of the pedestrian footbridge crossing, but fails to mitigate underlying landslide activity, resulting in continued off-setting of the drainage swale, significant erosion of displaced soils, degradation of water quality and wetland/riparian habitats, and potential resulting risks to existing downstream improvements. Alternative 5 leaves the westerly drainage swale in an unimproved condition, whereby existing active landslides will continue to cause significant erosion and impacts on downstream facilities through mudflows, or other slope failures. Existing landslides extend along both the east and west slopes of the interior valley containing the drainage swale. The geotechnical analysis of this area indicates that the visible surface landslides are underlain by deeper, more extensive landslides which extend from the edge of the adjoining ridgelines to below the drainage swale. Avoidance of development within this area, as contemplated in Alternative 5 would forego repair of these landslides. Summary of Project Alternatives and Comparative Impacts

This section provides a summary of the alternatives considered in this evaluation and the comparative benefits and drawbacks of each of the alternatives. Table 7-1 summarizes the main features of the proposed project, and Table 7-2 provides a comparison of impacts of the alternatives and the proposed project. In most cases, this analysis is qualitative rather than quantitative. If any of these alternatives were pursued, additional environmental review would be required to quantify the anticipated impacts and to recommend appropriate mitigation measures consistent with the level of impact.

This EIR is required to identify the environmentally superior alternative among those alternatives considered. If the Noo Project alternative is the environmentally superior alternative, the EIR must also identify an environmentally superior alternative among the other alternatives considered (State CEQA Guidelines, Section 15126.6(e)(2)).

Based on the available information, Alternative 1, the No Project Alternative is considered the environmentally superior alternative. As summarized above, the No Project Alternative would not result in the significant and unavoidable air quality and noise impacts that would result from the project and any of the other development alternatives discussed in this chapter. Among the other alternatives considered, Alternative 5 would be the environmentally superior alternative, because it would not add to the significant, unavoidable air quality impact, and it would avoid a significant, unavoidable impact related to noise, due to the elimination of Neighborhood D. It would also, unlike some other alternatives, further reduce impacts related to aesthetics, hazards, traffic and utilities.

Table 7-1: Faria Preserve Project Alternatives Summary

ALTERNATIVE	DESCRIPTION	GRADING OF RIPARIAN CORRIDOR	UNIT YIELD (DU)*
Proposed Project	Total of four distinct residential neighborhoods with range of densities and housing products, along with major community park, church site and educational use site	Yes; grading to stabilize hillside and accommodate enhanced habitat	786
1	No Project - No Development	None	0
2	Reduced Development Footprint with Limited Fill of Riparian Corridor to Accommodate Connector Road	Limited (for roadway)	609
3	Alternative Access without Fill of Riparian Corridor Maintaining Original Project Densities	None	554
4	Looped Internal Access with Conversion of Neighborhood A to High (Condominium) Density	None	926
5	Balanced Cut / Fill, Single-Family Residential Reduced Footprint	None	255
*Totals do not include the 44 single family homes (and 4 second units) proposed for the Chang and Panetta properties.			

Table 7-2: Comparison of Impacts for NWSP and Alternatives

ALTERNATIVE →	PROPOSED PROJECT	1	2	3	4	5
Ability to Reduce Environmental Impacts						
Aesthetics	LTS	-	-	-	+	-
Air Quality	SU	-	SU+	SU+	SU+	=
Biological Resources	LTS	-	-	-	-	-
Cultural Resources	LTS	-	-	-	-	-
Geology/Soils	LTS	+	+	+	+	+
Hazards	LTS	-	-	-	+	-
Hydrology/Water Quality	LTS	-	-	-	-	-
Land Use Plan & Policy Consistency	LTS	+	+	+	+	+
Noise	SU	-	=	=	=	-
Traffic and Circulation	LTS	-	-	-	+	-
Utilities/Service Systems	LTS	-	-	-	+	-
Ability to Meet Project Objectives	Meets	No	No	No	No	No

Key:
LTS = Impacts would be less than significant
SU = Impacts would be significant and unavoidable
SU+ = There would be additional significant and unavoidable impacts to those described for the Proposed Project
"-" = Impacts identified for Proposed Project would be reduced in the Alternative
"+" = Impacts identified for Proposed Project would be greater in the Alternative
"=" = Impacts identified for Proposed Project would be equal to those in the Alternative

However, Alternative 5 cannot provide the range of housing products and aggregate number of affordable units identified in the City's Housing Element. This reduced development alternative of 255 total units cannot deliver the 226 affordable very-low, low- and moderate-income units identified in the City's Housing Element as needed to meet current and future regional fair share needs within the community. Consequently, Alternative 5 would fail to address a significant objective of the Faria Preserve. Also, Alternative 5 cannot provide any of the major public facilities called for in the

General Plan and identified in the Faria Preserve, including the community park, educational use, house of worship and public trail system. Failure to provide these facilities would adversely affect the quality and adequacy of services to local residents, based on defined threshold standards contained in the General Plan and General Plan EIR.

7.6 ALTERNATIVES CONSIDERED BUT REJECTED AS INFEASIBLE OR OTHERWISE NOT ANALYZED IN DETAIL

This section discusses the six alternatives to the project ((a)-(e) below) that were considered, but were not analyzed further because they did not meet project objectives, were found to be infeasible for technical, environmental or social reasons, were found not to reduce project impacts, or because they would result in greater impacts than the project. This section does not consider "other use" alternatives, i.e., a habitat reserve alternative or an agricultural alternative, because, as stated in the CEQA Guidelines Section 15126.6(f), alternatives should be limited to those that meet most of the project objectives, and an alternative that developed uses other than a residential development with associated public uses on the project site would not meet the objectives of the project.

(a) Alternative Development Scenarios for the Chang and Panetta Properties

Since approximately 95 percent of the proposed development in the NWSP area is anticipated to occur on the Faria Preserve site, the primary alternatives addressed in detail below are comprised principally of alternative development scenarios for the Faria Preserve. The proposed development levels of the "Chang" and "Panetta" properties (collectively, 44 single family homes, which would include four affordable second units) are at the maximum levels authorized under the voter-approved General Plan and it is considered politically infeasible that these development levels would be increased. Since only 5 percent of the overall NWSP development would occur on the Chang and Panetta properties, a reduction of development levels on these properties would not substantially reduce impacts.

Regarding the specific significant and unavoidable impacts identified for the project, vehicular NOx emissions are substantially above the BAAQMD's emissions thresholds and even the complete elimination of development on the Chang and Panetta properties would not offer the potential to reduce these impacts to a less than significant level. The anticipated significant and unavoidable noise impacts from exterior noise levels are limited to the effects of traffic noise from I-680 on portions of Neighborhood D. Since the Chang and Panetta properties are located some distance from I-680 in an area with minimal traffic noise, they do not contribute to this impact. As a result, other than the "No Project" alternative, specific consideration of alternative development scenarios for the Chang and Panetta properties is not included in this Chapter.

The effects of reducing development levels on the Chang and Panetta properties would be similar to the effects of reducing development levels on the Faria property, particularly with regard to traffic related or other impacts that correlate in large measure to overall development levels. As a result, to the extent that the specific Faria alternatives analyzed in detail represent points on a spectrum of potential development levels, similar results could be obtained by shifting some of this reduction to the Chang and Panetta properties. Thus, for program-level purposes, the evaluation of alternatives to the NWSP as a whole, as set forth in this chapter, represents a reasonable level of analysis.

(b) Off-site Development on a Single Parcel within the City of San Ramon

An alternative was considered that would have located the proposed development of residential uses and associated public facilities on another property within the City of San Ramon. To this end, the Project Sponsor examined potential alternative sites within the City of San Ramon's Urban Growth Boundary. All properties with appropriate General Plan designation are incapable of accommodating the project. Nearly all sufficiently sized properties currently have recorded final maps or tentative maps, are constructed or under construction, have active applications with pending action before the City, or have severe development constraints that restrict their development potential. Additionally, properties located in a natural landscape similar to the project location would pose similar biological and topographical constraints to development.

No off-site project alternative is available to meet the basic objectives of the proposed Project. The City's Certified 2004 Housing Element identifies the project site as a critical resource for delivery of targeted affordable and market rate housing, as part of its quantified fair share of the defined regional need. The Housing Element Analysis relies on the project site to provide an increasing percentage of the City's affordable housing stock over the next several years. The analysis contained in the Housing Element demonstrates the City's dependence on all of the remaining available Housing Opportunity Sites, including the project site, to deliver critically needed affordable and market rate housing in the coming years. No additional sites are identified to compensate for a reduction of units below that proposed in the project. The delivery of affordable housing resources has been identified by the California Department of Housing and Community Development as a critical component of the certified San Ramon Housing Element, which is necessary in order to meet the City's regional fair share of housing needs over the next several years.

The defined "Opportunity Sites" as listed in the Housing Element include an aggregate total of 2,714 acres in addition to the project site. Of the non-mixed use sites identified, no other currently undeveloped residential Opportunity Site provides the acreage needed to accommodate 830 housing units, including 226 units affordable to families of very-low, low and moderate income. Other sites are either considerably smaller or significantly more constrained by steep hillsides, wetlands, biological resources and/or other environmental limitations.

Likewise, no off-site alternative can provide the major public facilities called for in the General Plan and identified in the project, including the community park, educational facilities, house of worship and a public trail system connecting the City to public open spaces. Neither the higher density mixed use sites nor the dispersed hillside properties located on the westerly side of San Ramon provide the usable land resources necessary to deliver the major public facilities included in the project. The public park, educational use, church and related community facilities included in the project are identified in the General Plan as critically needed to support both current and future residents of San Ramon. City standards require over 25 acres of relatively flat, usable space to accommodate these facilities, which must be located within convenient access to established neighborhoods west of Interstate 680, according to the City's General Plan. Failure to provide these facilities would adversely affect the quality and adequacy of services to local residents, based on defined threshold standards contained in the General Plan and General Plan EIR.

Transfer of the housing and public facilities included in the project to an off-site alternative location would result in loss of open space and significant grading impacts to environmentally sensitive

properties. Properties currently identified in the Housing Element Opportunity Site inventory include several smaller sites in the Westside and Bollinger Canyon sub-areas. These are small to medium sized, isolated sites of between 8 and 330 acres, which are severely constrained by adverse slope, access and related environmental factors. While the project could be broken into several smaller off-site components, the collective 830 units and major public facilities of the Faria Preserve Project could not be accommodated through more aggressive grading of these remaining Opportunity Sites. The project's proposed grading of the Faria Preserve site, on the other hand, already has been voter approved. Further expansion of these various off-site properties into adjoining areas of designated open space preserve would lead to loss of wetland and other habitat resources comparable to, or greater than, that identified in any of the on-site alternatives.

Finally, since the total development levels under this alternative would need to be comparable to that of the project in order to meet project objectives, this alternative would not substantially lessen or avoid impacts that are primarily population-driven, which includes the significant and unavoidable air quality impact from vehicular NOx emissions that exceed the significance guidelines established by the BAAQMD.

(c) **Off-Site Development on Multiple Parcels within the City of San Ramon**

This alternative is similar to the previous alternative in that it would involve development of residential and associated public uses at multiple alternative locations throughout the City of San Ramon. As discussed for the previous alternative, all of the other potential locations for such development are already relied upon in the voter-approved General Plan as the location for development necessary to meet San Ramon's housing and other goals. Fragmenting the development also would limit the ability to plan for coordinated residential and public use improvements. In addition, since the overall level of development under this alternative would need to be comparable to that of the project in order to meet project objectives, this alternative would not substantially lessen or avoid impacts that are primarily population-driven, which includes the significant and unavoidable air quality impact from vehicular NOx emissions that exceed the significance guidelines established by the BAAQMD.

(d) **Development of the Full Faria Ranch Property, Including the Western Parcels (Pre-General Plan Update Conceptual Alternative A).**

This alternative would have included development of the entire Faria Ranch, including the western 159 acre area, most of which is now proposed to be preserved with the recordation of a conservation easement. Development of the entire Faria Ranch was discussed in a conceptual alternative presented at the June 1, 2004 Northwest Specific Plan Planning Commission study session. Four areas of estate lots would have been included along the sides of Bollinger Canyon Road (one area to the west and three to the east).

The voter-approved General Plan did not include the western Faria parcel within the Urban Growth Boundary, and did not modify the proposed land uses in that area in a way that would permit increased residential development. Thus, this alternative is now considered politically infeasible.

Additionally, that portion of the Faria Preserve Project Site that is proposed to be retained and protected by a conservation easement lies adjacent to potential "core habitat" for the Alameda

whipsnake on the property located immediately to the north. Thus, potential impacts to this listed species from the development of this area would likely be greater than the level of impact for the project.

Finally, since the total development levels under this alternative would need to be comparable to that of the project in order to meet project objectives, this alternative would not substantially lessen or avoid impacts that are primarily population-driven, which includes the significant and unavoidable air quality impact from vehicular NOx emissions that exceed the significance guidelines established by the BAAQMD.

(e) **No Project - Development Consistent with Existing Plans**

The CEQA Guidelines state that one of the "no project" alternatives in an environmental impact report on a planning-level action (such as the adoption of a specific plan) should contain a reasonable forecast of development that would like occur if the plan were not adopted and development were instead undertaken consistent with existing plans. Here, the NWSP has been developed to implement the voter-approved General Plan, and the project therefore reflects a reasonable development scenario consistent with existing plans. As a result, repeating the analysis of the resulting impacts in the alternatives section would not increase the information available to the decision-makers regarding the project.

7.7 ALTERNATIVE EBMUD WATER TANK SITES

The Faria Preserve Vesting Tentative Map (VTM) identifies a proposed location (Tank Site A3) for a new East Bay Municipal Utility District (EBMUD) reservoir, which would consist of the two water tanks required to provide water to the homes on the upper elevations of the Faria Preserve Project Site). Located on the western (Bollinger Canyon-facing) slope of the ridgeline on the western edge of the Faria Preserve Project Site, these two above-ground, steel tanks would extend approximately 30 feet above grade, to an elevation of approximately 980 feet (see Figure 3-9 for water tank location proposed by Faria Preserve VTM). The environmental impacts of the proposed water tank location, as shown on the Faria Preserve VTM, were assessed in the Chapter 4 as part of the Faria Preserve Subdivision.

Three other tank sites (Tank Site A2, Tank Site A4, and Tank Site A4 (Buried)) have been identified as alternate locations for construction of water tanks. These alternate tank sites, and the tank site proposed with the Faria VTM, are depicted on Figure 7-5.

The site envelope within which all four of the tank locations are situated in is approximately 3.25 acres, and is located along the ridgeline on the western edge of the Faria Preserve Project Site. A hiking trail that would connect the Faria Preserve to the East Bay Regional Park District (EBRPD) trail on Bollinger Canyon Road is proposed to be aligned along this ridgeline.

The site envelope consists entirely of non-native annual grassland; none of the proposed tank alternatives would constitute a significant impact to biological resources. Grading required for Tank Sites A2, A4, and A4 (Buried) would require the realignment of the proposed EBMUD trail. Additionally, a preliminary geotechnical feasibility study (Earth Systems, 2005), found both Site A2

and Site A3 to be viable locations for the water tanks, though it was recommended that a design level geotechnical study be performed once the layout details of the tank site(s) have been finalized.

The only potential impact that would vary substantially among the tank sites under consideration is related to Visual/Aesthetics impacts. The section below provides an assessment of the possible visual and aesthetics impacts of the three alternative water tank sites compared to the tank site (Tank Site A3) proposed with the Faria Preserve VTM.

Tank Site A2

Tank Site A2 would be located along the eastern slope of the ridgeline, facing away from Bollinger Canyon and toward the proposed Faria Preserve development. The two tanks would be made of steel and would rise 43.5 feet above the foundation pad. The bottom of the tanks would be surrounded by an eight-foot tall retaining wall, proposed to reduce the visual impact of the cut slope necessary to create the tank pad.

Tank Site A2 would likely be visible from portions of Neighborhoods A and B. Topographic maps show that it is likely that some homes would have a very prominent view of the tanks. The tanks would likely be visible in views from points further away, as well, from which this ridgeline could be a portion of a wider scenic vista (some ridgelines to the north are tall enough to warrant protection by Ordinance 197). While there would be no significant impacts to natural resources caused by this alternative, placing the tanks in site A2 would create a disturbance in the visual character of the western ridgeline on the Faria Preserve Project Site.

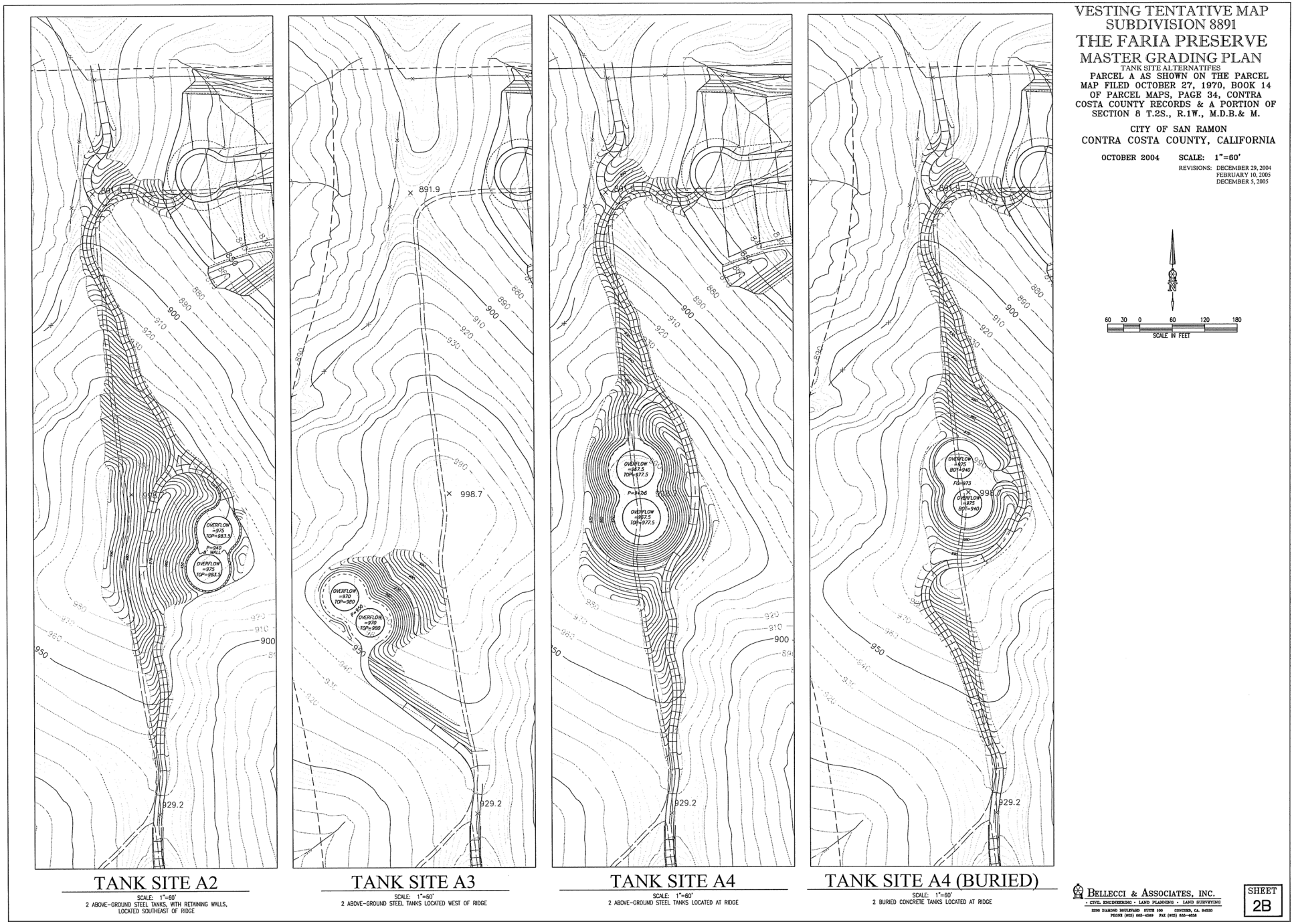
Tank Site A4

Tank Site A4 would be located along the ridgeline's peak. The two steel tanks would rise thirty feet above the foundation pad, but recessed grading of the peak would result in approximately only eight feet of the tanks being visible from the immediate vicinity. Grading for Tank Site A4 would be such that the tanks would not be prominent in medium to long-range views from other locations in the Faria Preserve and from other viewpoints in San Ramon.

This alternative would require a more substantial amount of grading within the proposed site envelope, which would in turn result in a more substantial alteration of the existing landscape character in the immediate vicinity. The tanks' protrusion from the ridgeline's peak would likely not appear to be a substantial disturbance to a scenic vista, particularly in medium- to long-range views.

Tank Site A4 (Buried)

Tank Site A4 (Buried) would be located along the ridgeline's peak, but would be recessed into the ground. The concrete tanks would be buried at the ridge and would rise approximately two feet above grade along the ridgeline. Based on existing topography and taking into account the development proposed for the Faria Preserve Project Site, the buried tanks would not be prominently visible along the ridgeline.



Source: Bellecci and Associates, Inc., 2005

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Tank Site A4 is the location preferred by EBMUD (Kirkpatrick, 2005). As such, visual simulations have been prepared, using the two viewpoints in the Aesthetics analysis (Section 4.2) in which the top of the Faria Preserve westerly ridge is visible. Viewpoint 2 (Bollinger Canyon Road at Crow Canyon Road) and Viewpoint 5 (Norris Canyon Road near Bollinger Canyon Road) are revised here to demonstrate the visibility of tanks located at Tank Site A4 (Buried). As demonstrated in Figures 7-6 and 7-7, the tanks as they would appear in this alternative would not be visible from these two nearby intersections.

This alternative would represent the least disturbance to a scenic vista and the existing visual character and would therefore be the environmentally preferred alternative for tank sites.

References

Earth Systems Consultants, 2005. Preliminary Geotechnical Feasibility Study, Faria Preserve Proposed Tank Site, March 2005

Kirkpatrick, William R., 2005. Northwest Specific Plan/Faria Development Project – Site Selection for Major Facilities to Serve the Plan and Development Area. Letter from East Bay Municipal Utility District to City of San Ramon dated September 7, 2005.

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Existing view from Bollinger Canyon Road at Crow Canyon Road

Visual simulation of proposed project with alternate tank site

Source: Environmental Vision, 2005

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Existing view from Norris Canyon Road near Bollinger Canyon Road

Visual simulation of proposed project with alternate tank site

Source: Environmental Vision, 2005

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8. APPENDICES

The following documents are included here as appendices to the EIR:

Appendix A
Notice of Preparation (City of San Ramon, 2004)

Appendix B
Conceptual Biological Mitigation/Enhancement and Monitoring Plan for the Faria Ranch Project, San Ramon, Contra Costa, California (The Huffman-Broadway Group, Inc., Revised December 2005)

Appendix C
Air Quality Modeling Results (EDAW, 2006)

Appendix D
Alameda Whipsnake (Masticophis lateralis euryxanthus) Habitat Assessment for the Faria Ranch and the Freitas Ranch, San Ramon, California (EnviroNet, 2000)

Appendix E
Alameda Whilpsnake Habitat Assessment, Faria Ranch Residential Subdivision, City of San Ramon, California (Swaim Biological, Inc., 2005)

Appendix F
Investigation of the Presence of Wetlands and other Waters of the United States on the Faria Ranch Project Site, Contra Costa County, California (The Huffman-Broadway Group, Inc., Revised October 2005)

Appendix G
Correspondence from Jane M. Hicks, United States Army Corps of Engineers to Robert Perrera, The Huffman-Broadway Group, Inc., amending Faria Preserve wetlands delineation (April 24, 2006)

Appendix H
Alquist Priolo Zone Peer Review, Gilpin Geosciences, Inc (July 3, 2006)

Appendix I
AM Peak and PM Peak Traffic Volumes and Counts (Kimley-Horn, 2004)

Appendix J
AM Peak and PM Peak Intersection Level of Service Analysis Results (Kimley-Horn, 2004)

Appendix K
Water Supply Assessment (EBMUD, 2004)

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Appendix A

Notice of Preparation

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CITY OF SAN RAMON

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P.O. BOX 5148
SAN RAMON, CALIFORNIA 94583
PHONE: (925) 973-2500
WEB SITE: www.sanramon.ca.gov

June 10, 2004

State Clearinghouse
1400 Tenth Street, Suite 222
Sacramento, CA 95814

Subject: Submittal of a Notice of Preparation (NOP) of an Environmental Impact Report to State Clearinghouse; Northwest Specific Plan

To Whom It May Concern:

In accordance with California State Clearinghouse procedures, the City of San Ramon is submitting, by Certified Mail delivery, to the State Clearinghouse fifteen (15) copies of the Notice of Preparation (NOP) of an Environmental Impact Report for the Crow Canyon Specific Plan Project for distribution to the appropriate state agencies and for assignment of a State Clearinghouse (SCH) number. We have also enclosed one (1) copy of this letter to be date stamped received and to be returned in the enclosed self-addressed stamped envelope along with our SCH number.

The required 30 day review period for the Notice of Preparation (NOP) of an Environmental Impact Report will be from June 14, 2004 to July 14, 2004.

Thank you for your assistance in this matter. If you have any questions, please feel free to contact me directly at (925) 973-2566.

Sincerely,

Debbie Chamberlain
Senior Planner

NOTICE OF PREPARATION

FROM: City of San Ramon
Planning Division
P.O. Box 5148
San Ramon, CA 94583

SUBJECT: **Notice of Preparation of an Environmental Impact Report**

Project Title: The City of San Ramon is preparing the Northwest Specific Plan (NWSP) for the northwest sector of the City of San Ramon. The land use program will provide for development in the area east of Bollinger Canyon Road for up to 715 housing units, an educational/community facility, a park and a site for a house of worship. In the area west of Bollinger Canyon Road, up to 40 housing units may be developed for a maximum of 755 housing units in the Specific Plan Area. As an additional incentive for providing 25% workforce housing, the development limit of 755 units may be exceeded by up to 10%, for a total of 830 housing units.

Project Description: Approximately 346 acres located west of Interstate 680, and generally bounded by Bollinger Canyon Road to the west, Town of Danville/open space to the north and residential development to the South. (See attached Figures 1 and 2).

Lead Agency:

Agency Name City of San Ramon

Street Address 2222 Camino Ramon, P.O. Box 5148

City/State/Zip San Ramon, CA 94583

Contact Debbie Chamberlain, Senior Planner

Consulting Firm (if applicable)

Firm Name EDAW

Street Address 150 Chestnut Street

City/State/Zip San Francisco, CA 94111

Contact Adena Friedman

The City of San Ramon will be the Lead Agency and will prepare an environmental impact report for the project identified above. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, and the potential environmental effects are contained in the attached materials. A copy of the Initial Study (is __ is not _X__) attached.

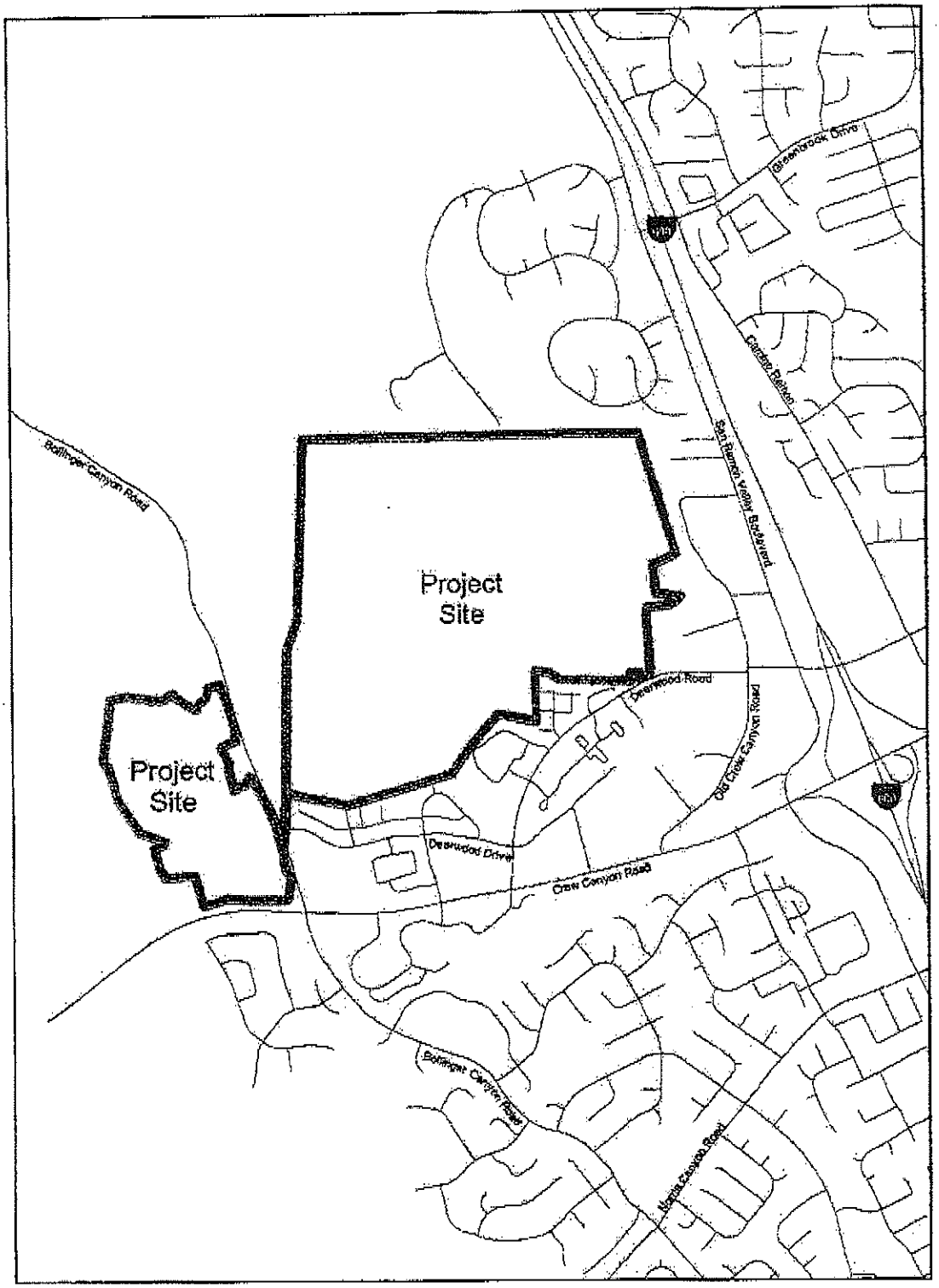
Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice. Debbie Chamberlain, Senior Planner at the address shown above. We will need the name for a contact person in your agency.

Date: 6.10.04

Signature Debbie Chamberlain
Title Senior Planner
Telephone (925) 973-2566

NOP cover - NWSP 6.03

Figure 2: Local Vicinity Map



NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT

Northwest Specific Plan
City of San Ramon
June 2004

1. Project Title

Northwest Specific Plan Project

2. Lead Agency Name and Address

City of San Ramon
Planning Services Division
2226 Camino Ramon
San Ramon, CA 94583

3. Contact Person and Phone Number

Debbie Chamberlain
Senior Planner
(925) 973-2566

4. Project Location

Approximately 346 acres located west of Interstate 680, and generally bounded by Bollinger Canyon Road to the west, Town of Danville/open space to the north and residential development to the South.

5. Project Sponsor's Name and Address

City of San Ramon
Planning Services Division
2226 Camino Ramon
San Ramon, CA 94583

6. General Plan Designation

Rural Conservation; Hillside Residential; Medium Density; Multiple Family High Density; Public/Semi-Public and Park

7. Zoning

Pre-zoned for Agriculture with a Resource Conservation Overlay District.

8. Description of the Proposed Project

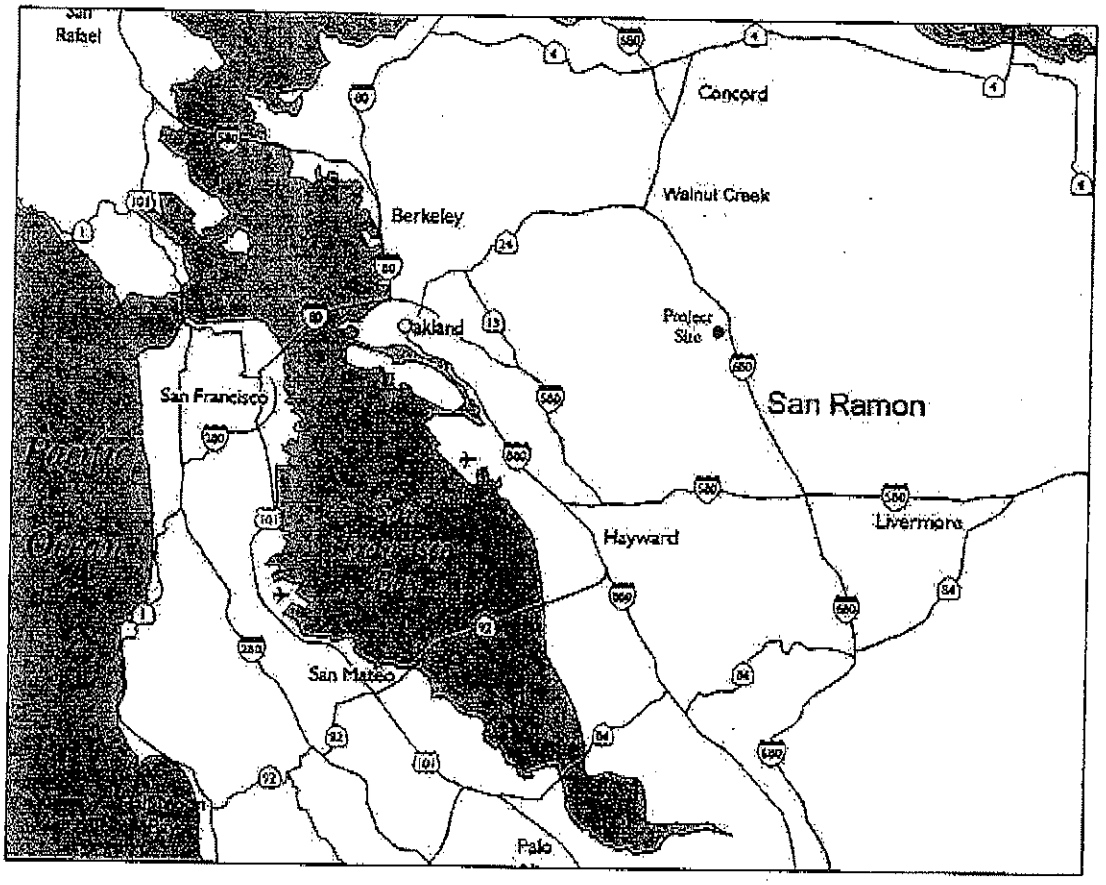
Pursuant to the 2020 General Plan, as adopted by the voters of the City of San Ramon on March 5, 2002, the City of San Ramon is preparing the Northwest Specific Plan (NWSP) for the northwest sector of the City of San Ramon. The land use program will provide for

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Debbie Chamberlain	6.10.04
Signature	Date
Debbie Chamberlain	Senior Planner
Printed Name	Title

Figure I: Regional Vicinity Map



Appendix B

Conceptual Biological Mitigation/Enhancement and Monitoring Plan for the Faria Ranch Project

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Biological Mitigation/Enhancement and Monitoring Plan

for the

FARIA RANCH PROJECT

San Ramon, Contra Costa County, California

Prepared for:

CLAREMONT HOMES, INC.
194 Francisco Lane, Suite 202
Fremont, CA 94539
Mike Conley
Executive Vice President

Prepared by:

THE HUFFMAN-BROADWAY GROUP, INC.
828 Mission Avenue
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Contact: Terry Huffman, Ph.D.

Revised December 2005

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This report should be cited as: The Huffman-Broadway Group, Inc. 2005. Conceptual Biological Mitigation/Enhancement and Monitoring Plan for the Faria Ranch Project, Contra Costa County, California December 2005. San Rafael, California. Prepared for Claremont Homes, Inc., Fremont, CA. 31pp. plus attachments.

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1.0 PROJECT DESCRIPTION

The Faria Ranch property is a 450-acre site in unincorporated Contra Costa County, contiguously located north and west of the current City of San Ramon boundaries. The project development area is comprised of approximately 291 acres within the Faria Ranch property. The project applicant (Claremont Homes) proposes a combination of open space, trails, community park, educational use, house of worship, and residential uses on the site.

The San Ramon General Plan establishes development policy with which any future development project on the approximately 291 acre Faria Ranch property must be consistent. The Faria Ranch is located within the northwesterly portion of the City's Planning Area Boundary, and future land uses on the site will also be subject to the proposed Northwest Specific Plan program. The Northwest Specific Plan is intended to implement a range of land use, housing, public facility, resource convention and related policies embodied in the General Plan, and will be used to further test the consistency of development plans for the Faria Ranch. A Vesting Tentative Subdivision Map application (the Faria Ranch VTM) has been submitted to the City of San Ramon, and is being processed concurrently with the Northwest Specific Plan. As called for in the adopted General Plan and draft Specific Plan, the Faria Ranch VTM contemplates development of a wide range of housing types, including a total of 786 single and multi-family dwelling units, along with a 13.2 acre community park, a 6.1 acre house of worship and a 1.6-acre educational facility. Consistent with the City's adopted Resource Conservation Element policies, the Faria Ranch VTM preserves 75% of the overall site area for open space and public facility uses. These uses include the foregoing active use facilities, as well as extensive natural and improved oak woodland and wetland/riparian habitat areas (which also serve as a wildlife movement corridor). The proposed project land use summary is shown in Figure 3.

The Faria Ranch is part of a larger ownership which continues north and west beyond the Urban Grown Boundary, and includes approximately 159 additional acres along both sides of Bollinger Canyon Road. This remaining acreage outside the Northwest Specific Plan boundaries is not subject to annexation to the City of San Ramon and therefore not part of the Faria Ranch VTM. Note, however, that the current Faria Ranch VTM application includes recordation of a conservation easement over 137 acres within the Faria Remainder Parcel, as well as additional acreage within the 291-acre development site.. This conservation easement is an exclusive feature of the Faria Ranch VTM, which is tied to the larger number of dwelling units and greater development footprint of the proposed Project. The development Grading footprint for the proposed project includes an area of approximately 192 acres, of which 73 acres are allocated to residential structures. Consistent with voter-approved Resource Conservation Element policy, the Project allocates up to 25% of the approximately 291 acre site area to accommodate a total of 786 dwelling units, while preserving additional valuable habitat resources surrounding the proposed Project as a permanent open space buffer. Areas intended to be dedicated to conservation easement to be managed as open space unto perpetuity total 146 acres and include the 137 acre area along both sides of Bollinger Canyon Road and an 8.9 acre Riparian and Wildlife Corridor that is incorporated into the development plan for the project.

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Situated within the City's Sphere of Influence and Planning Area Boundaries, the Faria Ranch is entirely within the voter-approved San Ramon Urban Grown Boundary. The General Plan directs that these 290 acres to be annexed to the City of San Ramon. According to the Growth Management Element of the General Plan, the UGB was established for the purpose of "limiting future growth to areas of infill and land that is contiguous to developed areas within the City".

1.1 Biological Resources and Impacts

The project development site contains six habitat types according to the California Wildlife Habitat Relationships System: annual grassland (267.5 acres), valley foothill riparian (4.26 acres), and valley foothill hardwood (17.97 acres), with small areas of fresh emergent marsh (0.22 acre), chaparral (0.08 acre), and eucalyptus habitat (1.09 acres).

Valley foothill riparian habitat occurs along drainages where dominant vegetation consists of trees such as arroyo willow (*Salix lasiolepis*) and California laurel (*Umbellularia californica*), and understory vegetation along stream banks such as Himalaya berry (*Rubus discolor*), and willow herb (*Epilobuim sp.)*. Portions of streambeds contain vegetation such as rabbit foot grass (*Polypogon monspeliensis*) and spiny cocklebur (*Xanthium spinosum*). The riparian corridors are heavily used by cattle, and stream banks are broken down by numerous trails and crossings. Willows and other streamside vegetation is rubbed and browsed during the heat of the day. Weedy and unpalatable plants such as hoary nettle (*Urtica dioica ssp. holosericea*) and milk thistle (*Silibum marianum*) have colonized portions of the stream corridor.

A few small depressions within the grassland support seasonally-saturated soils and growth of fresh emergent marsh vegetation such as species of rush (*Juncus* sp.), rabbitsfoot grass (*Polypogon monspeliensis*), curly dock *(Rumex crispus*), spiny cocklebur and swamp timothy (*Crypsis schoenoides*). Wetland habitats are very limited in extent and greatly disturbed by grazing animals as evidenced by the introduced and poisonous dog-fennel (*Anthemis cotula*) in these areas.

Areas potentially subject to Corps jurisdiction on the project site include a few small depressions and other areas within the grassland community where saturated soils and wetlands can form and primarily unvegetated habitats along creeks and drainages. These latter areas comprise a portion of the valley foothill riparian and hardwood habitats defined by the WHRS criteria. The potential jurisdictional areas are classified by Cowardin et. al (1979) as palustrine emergent wetlands and riverine intermittent streambed habitats. The location of these areas, totaling 0.48 acres, are shown in the wetland delineation of Figure 4. These wetlands serve the functions of flood flow alteration, groundwater recharge, sediment stabilization, sediment/toxicant retention, nutrient removal/ transformation, production export, and wildlife habitat.

Wetlands

Impacts to wetlands and waters of the U.S. would be potentially significant if appropriate mitigation was not implemented for all regulated wetlands as required by state and federal regulations. Approximately 0.39 acre of wetlands and waters of the U.S. under Corps jurisdiction will be filled to accommodate the proposed development with consequent loss of the

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function provided by these areas unless mitigated. The linear length of drainages filled by the project would total 5,055 feet, with the longest one measuring 3,021 feet in length. Impacted wetland areas and waters of the U.S. are shown in Figure 5.

Valley Foothill Riparian Habitat

In addition to the loss of jurisdictional wetlands, the proposed project grading plan requires the filling of a canyon that would impact valley foothill riparian habitat. The grading for the project would impact approximately 4.20 acres of riparian habitat (see Figure 6). The 4.20 acres of impacted riparian habitat includes 0.23 acre of impacted jurisdictional areas which are located within drainage corridors. Riparian vegetation that would be affected is primarily arroyo willow and California bay.

Valley Foothill Hardwood Habitat

Project construction would result in the loss of approximately 61 percent (11.06 acres) of the valley foothill hardwood (oak woodland) habitat on the site (see Figure 6). A substantial number of trees consisting of valley oaks, coast live oaks, and California buckeye, would be removed as cuts and fills are graded to prepare the area of the canyons for residential development. The project would require the removal of 514 trees as documented in the project tree report (Hort Science April 2003), however, a number of these trees are currently in poor health or a state of decline. Because of their location relative to proposed grading and associated site improvements, these trees would be directly impacted by the project. A total of 190 trees within 50 feet of the development footprint were recommended for preservation, along with all trees in the remaining open spaces of the property.

Indirect project impacts on oak trees not directly affected could occur unless appropriate precautions are taken. The impacts could result from increased soil compaction in the root zone of the trees, summer watering within the root zone, and excessive pruning to allow development of structures and open up views.

Alameda Whipsnake

Based on studies of the site by EnviroNet (EnviroNet 2000), habitat for the federally-listed threatened Alameda whipsnake (*Masticophis laterallis euyxanthus*) does not occur at Faria Ranch. However, according to more recent habitat assessment evaluations by Swaim Biological, Inc., extensive chaparral and scrub habitat occurring immediately adjacent to and north of the Faria Ranch property provides potential core habitat for the species. Alameda whipsnake has not been documented on the Faria Ranch property or the adjacent undeveloped property to the north. It is unknown whether the adjacent areas are occupied by the whipsnake, but any whipsnakes that may occupy these habitat would include portions of the Faria Ranch within their home range. If such areas are occupied, impacts to foraging individuals within grasslands of the Faria Ranch development site are possible during construction of the project.

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1.2 Responsible Parties

Property Owner	Applicant	Authorized Agent
Mike Conley, EVP	Mike Conley, EVP	Terry Huffman, Ph.D.
Claremont Homes, Inc.	Claremont Homes, Inc.	The Huffman-Broadway Group, Inc.
194 Francisco Lane, Ste. 202	194 Francisco Lane, Ste. 202	700 Larkspur Landing Circle, Suite 100
Fremont, CA 94539	Fremont, CA 94539	Larkspur, CA 94939
(510) 623-6320	(510) 623-6320	(415) 925-2000

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2.0 MITIGATION GOALS

2.1 Regulatory Requirements

With respect to areas subject to Corps jurisdiction, General condition 19 of the Corps' nationwide permit regulations (33 C.F.R. §330) requires permittees to avoid and minimize impacts to aquatic resources to the maximum extent practicable; and, when necessary, provide compensatory mitigation to ensure adverse effects are minimal. Appropriate forms of compensatory mitigation include wetland creation, restoration, enhancement, and preservation. Compensatory mitigation at a minimum 1:1 ratio is required for all wetland impacts requiring pre-construction notification to the Corps. The permit regulations identify vegetated buffers as a valuable component of compensatory mitigation plans. To encourage their use, the Corps may allow mitigation credit for vegetated buffers provide they do not comprise more than 1/3 of the remaining compensatory mitigation acreage after the permanently filled wetlands have been replaced on a one-to-one acreage basis. Actual replacement acreage proposed in this plan would exceed this guideline.

An additional goal of the mitigation plan is to compensate for loss of 4.20 acres of riparian habitat resulting from the filling of a riparian canyon and to compensate for impacts to valley foothill hardwood habitats (oak woodlands), both in terms of planting of replacement trees to mitigate for the removal of mature trees on the property, and in terms of compensation for 11.06 acres of impacts to oak woodland habitat. Trees are to be replaced according to the City of San Ramon Tree Preservation Ordinance, however, this ordinance does not specify tree replacement ratios. Therefore, the goal of the tree mitigation is to replace trees at ratios typical of other communities. Typical replacement ratios in other communities in California would require replanting of trees less than 24 inches in diameter at a 2:1 ratio and trees greater than 24 inches in diameter at a 3:1 ratio. For Faria Ranch the applicant has recommended replacement of mature trees removed at the 2.5:1 ratio (2.5 trees planted for every tree removed). Compensation for riparian habitats would be accomplished to achieve at least a 1.44:1 replacement (1.44 acres of habitat created for every acre impacted), and oak woodland habitats would be mitigated at a ratio of just over 4:1

2.2 Restoration Goals

The proposed project would impact 0.39 acre of jurisdictional wetlands and waters of the U.S. on the project site. One of the goals of this compensatory mitigation plan is to replace aquatic functions provided by the 0.39 acre of jurisdictional wetlands that would be permanently lost as a result of the proposed project; and to maintain aquatic functions in preserved and mitigated wetlands areas.

Additional restoration goals are to replace the habitat value of the 4.20 acres of impacted riparian corridor and 11.06 acres of oak woodland. Compensation for riparian habitat would occur within the 8.9 acre Riparian and Wildlife Corridor, and compensation for oak woodland would occur within approximately 45 acres set aside for planting of replacement oak trees in areas that would remain undisturbed within the 291-acre development site. Creation of oak woodland within

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designated mitigation sites will provide locations for planting of trees to mitigate for loss of approximately 514 trees from wooded habitats during construction of the project. Furthermore, a goal of the mitigation plan is to ensure that impacts do not occur to the Alameda whipsnake. The Alameda whipsnake has not been documented on Faria Ranch, however, chaparral providing potential core habitat suitable for the whipsnake does occur on adjacent property located to the north of Faria Ranch.

2.3 Specifics of Wetland Restoration Goals

2.3.1 Target Functions

Wetland functions can be divided into three general categories: habitat, hydrology, and water quality. Habitat functions include vegetation, wildlife, and sensitive species support. Hydrologic functions include erosion/accretion, flood flow attenuation, and groundwater recharge/discharge. Water quality functions include pollutant removal, retention, and transformation.

As described above, the proposed project would impact 0.39 acre of palustrine emergent wetlands and ephemeral drainages. These wetlands support a relatively diverse assemblage of native plants and provide habitat for local wildlife. They do not support any state- or federal-listed threatened or endangered species. Wetlands on site also perform important hydrologic functions. They accumulate sediment, attenuate flood flows, and recharge groundwater. Wetlands on site also perform natural water quality functions, although there are no significant sources of pollutants in the contributing drainage basin.

Implementation of the compensatory mitigation plan would maintain and enhance wetland functions on the project site. Wetlands would continue to provide habitat for native plants and wildlife, accumulate sediment, attenuate flood flows, recharge groundwater, and perform water quality functions.

Implementation of the compensatory mitigation plan would maintain and enhance the wildlife function of the valley foothill riparian and hardwood habitats at the site.

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2.3.2 Target Physical and Biological Characteristics of Wetlands

Palustrine emergent and scrub-shrub wetlands are defined by the following characteristics:

Parameter	Characteristics
Hydrology	• Supplied by rainfall, surface water, groundwater in any combination • Outflow typically restricted
Topography	• Basins or topographic depressions • Low-lying areas
Soils	• Variable • Often contain impervious layers (e.g., hard pan, clay) • High organic content
Vegetation	• Dominated by emergent herbaceous plants (e.g., sedges, grasses) and scrub-shrub (e.g. willows)

Wetlands and waters on the Faria Ranch site have these characteristics. Although the proposed project would modify conditions at the proposed mitigation site, it would not result in alterations to the underlying hydrology, topography, soils, and vegetation. For these reasons, the proposed compensatory mitigation plan is expected to successfully create palustrine emergent and scrub-shrub wetlands.

2.4 Target Habitat Types and Acreages

Construction of the project would result in the permanent loss of 0.39 acre of palustrine emergent wetlands and ephemeral drainages at the project site. Construction would also eliminate 4.20 acres of valley foothill riparian habitat (including 0.23 acres of jurisdictional areas) and 11.06 acres of valley foothill hardwood habitat. The project would also result in the removal of approximately 514 trees from wooded areas of the site. To offset these losses, the applicant proposes to implement the following measures (see Figure 4):

1. Set aside 137 acres within the Faria Ranch remainder parcel into an open space preserve subject to conservation easement and managed by a third party.

2. Set aside an 8.9 acre Riparian and Wildlife Corridor with an average width of 200 feet that will allow creation of wetland and riparian habitats to compensate for habitat losses resulting from the project. This area would be preserved by conservation easements and managed by a third party.

3. Preserve 0.09 acres of wetlands and riverine intermittent streambed and 6.91 acres of valley foothill hardwood habitat not impacted by the proposed project.

4. Create 1.15 acres of palustrine emergent and palustrine scrub-shrub wetland habitat along the Riparian and Wildlife Corridor.

5. Create 6.06 acres of valley foothill riparian habitat along the Enhance Westerly Riparian and Wildlife Corridor. This includes 4.91 acres of forested habitat beyond the 1.15 acres

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of jurisdictional wetlands. The riparian vegetation would consist of willows and California bay trees near the creek and coast live oak and valley oaks further up the riparian area slopes.

6. Develop a vegetated buffer within the 8.9 acre riparian corridor to maintain and enhance aquatic functions in the wetland mitigation/preservation area. The vegetated buffer will include a 4.91 acre planted riparian corridor adjacent to the stream and wetlands and a 2.82 acre, 30 foot wide area around the perimeter of the riparian canopy and beyond the rear of homes that would not be planted with trees, and will remain as a mowed or disked grassland area that will serve as a firebreak.

7. Create approximately 45 acres of valley foothill hardwood habitat within designated mitigation sites at various undisturbed locations within the property through planting of coast live oak and valley oak trees.

8. Plant coast live oak and valley oak trees within the 45 acres of tree replacement mitigation area to compensate for the 514 trees removed by construction of the project. Replacement trees will be primarily coast live oak and valley oak and will total 1,606 trees (accounts for expected survival of 80% of plantings).

9. Provide for long-term "in perpetuity" habitat/species protection through a conservation easement and funding of a long term protection program over approximately 146 acres.

The applicant believes these measures will successfully compensate for functions lost as a result of the proposed project.

2.5 Site Protection

It is important in protecting mitigation sites to have the ability for legal protection from land use changes through an "in perpetuity" conservation easement. A total of approximately 146 acres within the Faria Ranch property will be protected from future development by a conservation easement in accordance with California Civil Code Sections 815 – 816. Claremont Homes will be the Grantor. The Grantee will be a Corps- and CDFG-approved entity or organization authorized under Civil Code Section 815.3 to hold conservation easements as the Grantee.[1] The Corps and CDFG will be established as third-party beneficiaries to ensure that the area remains as an open space wetland preserve in perpetuity. Areas protected by conservation easement and managed by a third party will include the 8.9-acre Riparian and Wildlife Corridor and approximately 137 acre area along both sides of Bollinger Canyon Road within the Faria remainder parcel.

---

[1] 815.3. Only the following entities or organizations may acquire and hold conservation easements:
(a) Tax-exempt nonprofit organization qualified under Section 501 (c)(3) of the Internal Revenue Code and qualified to do business in this state which has as its primary purpose the preservation, protection, or enhancement of land in its natural, scenic, historical, agricultural, forested, or open-space condition or use.
(b) The state or any city, county, city and county, district, or other state or local governmental entity, if otherwise authorized to acquire and hold title to real property and if the conservation easement is voluntarily conveyed. No local governmental entity may condition the issuance of an entitlement for use on the applicant's granting of a conservation easement pursuant to this chapter.

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2.6 Timing

The wetland mitigation plan will be implemented concurrently with construction of the proposed project. For these reasons, there will be minimal temporal loss of wetland functions. It is estimated that the wetland mitigation area will be fully functional within approximately two years of construction commencement.

Creation of valley foothill riparian and valley foothill hardwood habitat will also be implemented concurrently with construction of the proposed project. Planted oak trees would not be expected to reach maturity for a period of 5 to 10 years.

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3.0 PROPOSED MITIGATION SITE

3.1 Location and Size

The proposed mitigation site for wetland and riparian habitats occupies the western portion of the 291-acre Faria Ranch parcel, in a 8.9 acre area referred to as the Riparian and Wildlife Corridor. This open space area will allow the creation of wetland and riparian habitats necessary to compensate for habitat losses resulting from the project (see Figure 7), and provide a location for a portion of replacement trees. Additional mitigation sites proposed for compensation of oak woodland habitats and planting of replacement trees are within an approximately 45-acre on-site area shown in Figure 8.

As described above in Section 2.4, the mitigation program will involve nine components: setting aside 137 acres in the remainder parcel for open space, setting aside 8.9 acres for an open space preserve and habitat creation efforts; preservation of 0.09 acres of Corps jurisdictional area and 6.91 acres of valley foothill hardwood habitat not impacted by the proposed project; creation of 1.15 acre of palustrine emergent and palustrine scrub-shrub wetlands and 4.91 acres of additional valley foothill riparian habitat along the Riparian and Wildlife Corridor; development of a vegetated buffer within the 8.9 acre riparian corridor to maintain and enhance aquatic functions in the wetland mitigation/enhancement area; creation of approximately 45 acres of valley foothill hardwood habitat at designated locations around the property; planting of 1,606 coast live oak and valley oak trees to compensate for trees removed by construction of the project; and establishment of long-term "in perpetuity" habitat/species protection through a conservation easement and funding of a long-term protection program.

With the exception of a 30 foot firebreak around the perimeter of the vegetated buffer and to the rear of homes that will be planted with grasses and mowed (2.82 acres as shown in Figure 7), the vegetated buffer will be a 4.91 acre area planted with riparian and oak woodland species. This 4.91 acre forested area in combination with the 1.15 acre stream corridor will create a valuable riparian corridor totaling 6.06 acres (see Figure 7).

3.2 Present and Proposed Uses

The mitigation site is currently within a canyon that will be filled by the proposed project grading. Construction activities for the project would impact 0.39 acre of palustrine emergent wetland habitat and ephemeral drainages, an additional 3.97 non-wetland acres of riparian habitat (4.20 acres – 0.23 acres) within the corridor, and 11.06 acres of valley foothill hardwood habitat (loss of 514 trees). The remaining 0.09 acres if wetlands and intermittent riverine streambed and 6.91 acres of valley foothill hardwood habitat would not be impacted by the proposed project, allowing them to be preserved.

The Riparian and Wildlife Corridor has been designed to provide on-site replacement habitat to compensate for the unavoidable fill of existing jurisdictional areas within the easterly and westerly drainages on the Faria property, and to provide for the creation of a riparian habitat to mitigate for on-site losses of this habitat type. The proposed 8.9 acres of habitat created within the corridor include 1.15 acres of wetlands, 4.91 acres of forested riparian habitat and a surrounding 2.82 acre grassland firebreak, and provides a continuous drainage and wildlife

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movement corridor which connects to permanent open space and park lands to the north and south of the corridor. The corridor width averages 200 feet providing for movement of animal species between on-site open space and additional undeveloped lands to the north, and additional open space, community and neighborhood parks to the south. The 30-foot fire break at the perimeter of the riparian corridor (at the rear of homes) will be mowed or disked annually.

Additional planting of replacement oak trees will be accomplished at locations shown in Figure 8 totaling 45 acres.

3.3 Ownership

Property Owner	Applicant
Mike Conley, EVP	Mike Conley, EVP
Claremont Homes, Inc.	Claremont Homes, Inc.
194 Francisco Lane, Ste. 202	194 Francisco Lane, Ste. 202
Fremont, CA 94539	Fremont, CA 94539
(510) 623-6320	(510) 623-6320

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4.0 MITIGATION PLAN

4.1 Overview

The goals of the compensatory wetland mitigation plan are to replace aquatic functions provided by the 0.39 acre of jurisdictional wetlands permanently lost as a result of the proposed project; and maintain and enhance aquatic functions on the project site. Additionally, a goal of the compensatory mitigation is to provide an 8.9 acre open space area in which to provide compensatory mitigation for wetland and riparian habitats impacted by project. Approximately 45 acres of valley foothill hardwood habitat creation is intended to compensate for losses to oak woodland habitats and to provide sites for planting of replacement trees to mitigate for mature trees eliminated by the project. Specific measures to be implemented include the following (see Figure 4):

- Set aside the 137 acres within the Faria Ranch remainder parcel into an open space preserve subject to conseration easement and managed by a third party.

- Set aside an 8.9 acre open space preserve (Riparian and Wildlife Corridor) subject to conservation easement and managed by a third party. Habitats within the open space corridor will include a created stream with several wetland pools within the stream, and a riparian canopy along the stream edge and along both sides of the corridor. The corridor will average 200 feet wide and will connect to open space lands to the north, and protected open space and parks to the south. At both the upper and lower roadway crossings at both the north and south ends of the corridor, arched (soft-bottomed) culverts with 6-foot minimum clearance will be installed to provide for drainage and promote wildlife movement. A 30-foot mowed or disked firebreak will be included to the rear of homes at the perimeter of the corridor (firebreak to consist of 2.82 acres).

- Preserve 0.09 acres of wetlands and riverine intermittent streambed and 6.91 acres of valley foothill hardwood habitat not impacted by the proposed project.

- Create 1.15 acres of palustrine emergent and palustrine scrub-shrub wetland habitat along the Riparian and Wildlife Corridor, compensating for impacts to wetland jurisdictional areas at a ratio of nearly 3:1.

- Create 6.06 acres of valley foothill riparian habitat along the Riparian and Wildlife Corridor. This includes 4.91 acres of forested habitat beyond the 1.15 acres of jurisdictional wetlands, and compensates for impacts to riparian habitat at a ratio of 1.44:1.

- Develop a vegetated buffer within the 8.9 acre riparian corridor to maintain and enhance aquatic functions in the wetland mitigation/preservation area. The vegetated buffer will include a 4.91 acre planted riparian corridor adjacent to the stream and a 2.82 acre, 30 foot wide area around the perimeter of the riparian canopy and beyond the rear of homes that would not be planted with trees, and will remain as a mowed or disked grassland area that will serve as a firebreak.

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- Create approximately 45 acres of valley foothill hardwood habitat within designated mitigation sites at various locations within the property through planting of coast live oak and valley oak trees. This provides for compensation of impacts to oak woodland habitats at a ratio of just over 4:1.

- Plant coast live oak and valley oak trees within 45 acres of tree replacement mitigation area to compensate for the 514 trees removed by construction of the project. Replacement trees will be primarily coast live oak and valley oak and will total 1,606 trees (container stock or acorns, as appropriate) to achieve a 2.5:1 replacement ratio (planting of 1,606 trees will result in 1,285 replacement trees, assuming an 80% survival of the plantings).

- Provide construction worker training, pre-construction surveys, and exclusionary fencing and biological monitors during construction to reduce use of the project area by the Alameda whipsnake.

- Provide for long-term "in perpetuity" habitat/species protection through a conservation easement and funding of a long term protection program over approximately 146 acres.

- Install permanent fencing along the outer edge of the preserve to prohibit motor vehicle, bicycle, and pedestrian traffic in the wetland mitigation area.

- Develop and implement a 5-year monitoring and maintenance program.

4.2 Expected Success

The proposed mitigation site within the Riparian and Wildlife Corridor will support conditions conducive to wetland development and creation of riparian habitats. Although the mitigation wetlands will be created on fill, the substrate will consist of soils transported from elsewhere on the site. Wetland hydrology will be supplied from stormwater runoff. The planned topography of the new corridor with a central stream channel, soils, and restricted outflow allow surface inundation and/or soil saturation throughout the year and a subsequent predominance of hydrophytic vegetation at desired locations. The proposed enhancement area would include three wetland pools within the stream that will create hydrologic conditions conducive to the development of additional vegetated wetland habitat. The creation of an average 200-foot-wide vegetated buffer around the wetlands will maintain and enhance their aquatic functions. For these reasons, the compensatory wetland mitigation plan is expected to be 100% successful.

As the native soils at the site support valley foothill riparian and hardwood habitat types, these same soils, once redistributed at the site as part of project grading, would be expected to support replacement plantings of these trees as part of the implementation of the mitigation plan.

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4.3 Schedule

If all permits are issued, initial grading of the mitigation site will begin in Spring/Summer 2006. Construction monitoring will commence at that time and will continue throughout implementation of the mitigation.

A schedule for implementation of the Mitigation Plan follows.

Activity	Date
Site grading	Spring/Summer 2006
Planting	September-October 2006

4.4 Construction Monitoring

During project construction, a Wetland Mitigation Specialist will perform monitoring to ensure the mitigation plan is followed properly and verify compliance with local, state, and federal permit requirements. All subcontractors will be required to follow all required Best Management Practices (BMPs) to minimize adverse water quality impacts. Remedial measures will be proposed for any activities that are out of compliance with applicable requirements. Monitoring to ensure protection of mature trees to be preserved in undeveloped portions of the site is also included (see Section 4.8).

4.5 Erosion Control

During project construction, the contractor will use hay bales, straw wattles, silt fences, gravel bags, and/or other materials to prevent sediments from entering wetlands adjacent to the proposed mitigation site. The contractor will be responsible for implementing these erosion control measures. Areas immediately adjacent to the mitigation site will be staked or fenced using orange construction fencing or silt fencing to prevent damage by construction equipment. Sterile straw will be placed on bare soil areas following construction.

Several erosion control features are included in the mitigation plan to mitigate potential erosion impacts within the enhanced riparian corridor subsequent to construction. One element of the erosion control plan will be to stabilize banks (typically 2:1 with max 3:1 slopes) using straw wattles and hydroseeding using mix of native aggressive and drought-tolerant grasses such as *Nassella pulchra, Achillea millefolium, Lupinus albifrons, Eschscholzia californica* and *Trifolium hirtum,* including a tackifier. Similar strategies will be employed in oak woodland mitigation/tree replacement areas to control erosion subsequent to construction.

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4.6 Site Preparation for Wetland Mitigation (Riparian and Wildlife Corridor)

4.6.1 Soils/Topography

The topsoil (i.e., upper 4 to 6 inches) of the 0.16 acre of wetlands filled by the proposed project will be excavated and stockpiled on site. Removal of wetland topsoil from these wetlands will not occur until wetland plants have ceased flowering. This material will be used as topsoil in the wetland pools to be created within the overall mitigation area.

Preparation of the enhanced riparian corridor and wetland mitigation area will involve the use of a backhoe and loaders to contour the area to desired elevations necessary for wetland development along a central stream channel and growth of mature trees within the vegetated buffer. These areas will be cleared of all ruderal vegetation prior to project implementation. The wetland mitigation area will be graded to include a low flow channel and also blend into overall topography. All slopes and other newly excavated surfaces will be first rough-graded to create micro topography. The mitigation area will then be fine graded to provide appropriate wetland topography and hydrology. A two-inch layer of the stockpiled wetland topsoil will be added in the area of the central stream corridor as part of the fine grading process. The addition of the topsoil adds hydric soil to the created wetland habitat, which contains seeds and rhizomes from wetland plant species that occurred in the wetlands filled by the project. Some topographic relief will be created in areas adjoining created wetlands through the grading of 2-3 foot mounds that will add variety to the upland terrain and buffer the wetland from nearby residential uses.

Three wetland pool areas will be graded as shown in Figure 7. Wetland Area #1 will consist of two pools within a wetland area totaling 0.37 acre at approximately elevation 805 feet. Wetland area #2 will consist of two pools within a 0.38 acre wetland area at approximately elevation 765 feet, and Wetland Area #3 is one pool within a 0.072 acre wetland area at approximately elevation 730 feet.

It is anticipated that hydric soil development will take place rapidly (i.e., within 2 years) because hydric topsoil from impacted wetlands will be used as topsoil in the wetland mitigation area, soils will be exposed to storm water and natural spring water flows, and the proposed project will augment flows to the mitigation site.

4.6.2 Hydrology

Hydrologic input for the Riparian and Wildlife Corridor will originate from upstream sources within the watershed as with the existing situation. From a hydrologic standpoint, the goal of the mitigation plan is to create low-lying, poor draining areas within a central stream corridor conducive to palustrine emergent and palustrine scrub-shrub wetland development. Grading of redistributed soil material will create a series of shallow depressional areas that accumulate storm water within the stream and they will provide for wetland hydrology and growth of wetland vegetation. These areas will be over excavated to accommodate a minimum of 2 inches of topsoil excavated from impacted on-site wetlands. Topsoil will be applied prior to the rainy season (no later than by the end of October). After initial grading and topsoil placement, the sides of the site will be gently sloped to blend into the wetland mitigation and preservation area.

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Once complete, the mitigation site will have ponded areas where ponding and soil saturation in the upper 12 inches of the soil occur.

At both upper and lower roadway crossings at both the north and south ends of the Riparian and Wildlife Corridor, arched (soft-bottomed) culverts with 6 foot minimum clearance (from high point of arch to soil bottom) will be installed to provide for drainage and also to promote movement of wildlife through the corridor area. Groupings of natural looking rocks will be provided at various locations within the stream corridor to dissipate stream energy and help maintain water quality.

4.6.3 Vegetation

Given hydrologic and edaphic conditions at the mitigation site, it is anticipated that emergent wetland vegetation will generate naturally with little intervention. We expect the mitigation site to revegetate naturally due to the presence of a seed source in the wetland topsoil and suitable wetland hydrology. Based on similar revegetation efforts on-site, natural revegetation is expected to be complete within two years.

Natural regeneration of wetland vegetation will be augmented by plantings of arroyo willow around the three wetland pools, and California bay to form a stream canopy. Arroyo willow will be planted around the several created pools to create palustrine emergent scrub-shrub habitat (total of 1.15 acres of created jurisdictional wetlands consisting of palustrine emergent and palustrine scrub-shrub wetlands). California bay trees will be planted along the low flow channel of the stream in those locations where wetlands are not created to ensure a continuous riparian canopy along the stream. Additional plantings of coast live oak and valley oak in adjacent areas within the remaining 4.91 acres of forested open space will be completed to compensate for loss of riparian habitat. An understory of shrubs will be planted throughout the 4.91 acres, with species including red elderberry (*Sambucus mexicana)*, ocean spray (*Holodiscus discolor)* and coyote bush (*Baccharis pilularis)*.

The Wetland Mitigation Specialist will supervise site preparation to ensure the mitigation site is adequately graded to support wetland plants along the new stream corridor. Topsoil will be placed within the created wetland areas no later than the end of October 2006. Based on similar revegetation efforts conducted by The Huffman-Broadway Group, Inc., it is anticipated that revegetation efforts will show quick progress toward established success criteria. If natural revegetation appears unsuccessful within 3 growing seasons (i.e., less than 30% absolute plant cover[2]) or unsuccessful within 5 years (i.e., less than 75% absolute plant cover[3]), seed will be collected from adjacent wetland areas and spread over the mitigation site. If an off-site seed source is used, this will be accomplished so as not to destroy or significantly disrupt the donor site. All native seed collection will be taken from donor sites within nearby wetland habitats. A seed mixture of wetland species currently found on adjacent wetland areas will be used if revegetation from natural seed sources is poor. Follow-up inspections would be made on an as-necessary basis to ensure proper plant growth.

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[2] As compared to reference wetland habitat.

[3] Cover as compared to pre-disturbance conditions during late spring – early summer prior to excavation and fill activity.

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4.6.4 Irrigation

The amount of water received by the mitigation site, which will be the same as that prior to project construction (or more due to increased stormwater runoff from the development), is considered sufficient to allow for the development of palustrine emergent and palustrine scrub-shrub wetlands. Irrigation of tree plantings within the newly established riparian corridor and oak tree replacement areas at other locations within the site is proposed if necessary (see Section 4.9).

4.7 Water Quality Benefits

The proposed Riparian and Wildlife Corridor includes a stream with wetland areas constructed within zones of flat topography graded at several different elevations. As noted in Section 4.6.2, the goal of the mitigation plan is to create low-lying, poor draining areas within a central stream corridor conducive to palustrine emergent and palustrine scrub-shrub wetland development. The construction of the mitigation area will include placement of stockpiled wetland topsoil and grading to create a series of shallow areas that accumulate storm water within the stream to provide for wetland hydrology and the growth of wetland vegetation. Groupings of rocks will dissipate stream energy through the system of pools and associated wetlands, subjecting stormwater runoff to treatment through natural chemical and organic processes.

In addition to creating intended biological habitat, this wetland construction provides significant opportunities to improve the quality of stormwater runoff from the surrounding developed area. Wetlands in general help maintain and improve water quality by intercepting surface water runoff before it reaches downstream receiving waters, removing or retaining nutrients, processing organic wastes, and reducing sediment loads. Surface water flowing through the constructed mitigation area will be intercepted in the pools and associated wetlands and slowed down, allowing sediment particles and other contaminants to filter or settle out from stormwater. Wetland plants in the mitigation area would be expected to play a role in nutrient removal and transformation. Soils used in the Riparian and Wildlife Corridor will encourage biological and chemical activity that supports degradation and transformation of contaminants in water. All of these processes are expected to work together to improve the quality of stormwater before flowing off-site to downstream receiving waters.

A Stormwater Management Plan (SWMP) and Stormwater Pollution Prevention Plan (SWPPP) for the Faria development is expected to more fully address how stormwater will be managed and how water quality will be protected both during and after construction. In the meantime, the Biological Mitigation/Enhancement and Monitoring Program, with its proposed Riparian and Wildlife Corridor and associated wetland features, promises to provide identifiable benefits to water quality and stormwater management for the Faria property.

4.8 Wetland and Protected Species Training

Prior to site mobilization and construction, the Project Wetland Scientist will provide environmental training to all contractor and subcontractor staff who will be onsite to ensure that the wetland and protected species protective measures specified in the mitigation plan and permit

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conditions are adhered to during project construction. No contractor or subcontractor personnel, including the project engineer, construction site manager, grade checker, vehicle and equipment operators, and laborers, will be allowed to work onsite unless they have received site-specific training. Training will include a discussion of project objectives, project map orientation, an onsite tour of project landscape features, protective measures for wetlands and protected species, sediment and erosion control, and actions to take in case an inadvertent impact to wetlands occurs.

Before any construction activities begin on the project, a herpetologist permitted by the USFWS to work with the Alameda whipsnake will conduct a training session for all construction personnel. At a minimum, the training will include a description of the natural history of the Alameda whipsnake, and its habitat. Training shall include the general measures that are being implemented to conserve whipsnakes as they relate to the project and the boundaries (work area) within which the project may be accomplished. Training sessions will be repeated for all new employees before they access the project site. Sign up sheets identifying attendees and the contractor/company they represent will be maintained.

4.9 Tree Replacement Program

Replacement of mature trees will be accomplished through the planting of 1,606 trees within designated tree replacement sites to achieve a 2.5;1 tree replacement ratio (as 514 trees would be removed, the planting of 1,606 trees wil result in 1,285 replacement trees, assuming an 80% survival of the plantings). Within the open space preserve, some replacement plantings will be conducted in the 4.91 acres of uplands constituting the forested portion of the vegetated wetland buffer (no tree plantings will occur within the 30 foot wide firebreak). Most of the replacement plantings are proposed within the 45 acres of oak woodland mitigation located at various locations around the property as shown in Figure 8. Establishment of oak trees within these areas will not only provide replacement of the trees removed by the project at the prescribed ratios, but will provide sufficient replacement oak woodland habitat to replace the 11.06 acres of impacted woodland at a ratio of approximately 4:1.

All replacement planting will be accomplished through the planting of native tree species whose propagules (seed, cuttings, etc.) are collected from oak woodlands in the project area prior to construction. The container sizes utilized for planting will include treepots, depots and leach tubes specifically designed for habitat restoration purposes. Oak plantings will include both container stock and acorns as appropriate. The species selected for planting at specific locations will be based on the soils, hydrology and aspect of each planting site. However, the slopes within the preserve and areas planted along the site perimeter will be dominated by coast live oak and valley oak.

Each replacement tree will be planted in fall when conditions are most favorable for tree establishment. The trees will be fitted with a 4-foot high rigid plastic tree shelter that will serve to enhance tree growth, conserve water and provide protection against browse. A shallow 3-foot-wide basin will be established around each planting to help retain rainfall and irrigation. Each basin will be filled with a 3-inch thick layer of woodchip mulch to control weeds, conserve soil moisture and provide an even soil temperature around the plants.

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Each tree will be irrigated immediately following installation and thereafter as needed until the start of winter rains. After initial irrigation, little, if any, irrigation will be required under normal rainfall conditions. Weeds will be controlled around each planting (including use of woodchip mulch) until the plants are established approximately three years following installation. Weeds that become established within a 4-foot diameter area around the plants will be controlled with the use of contact herbicides at least once per year during the plant establishment period. Some or all of plantings that suffer mortality will be replaced yearly with either container stock or acorns during the plant establishment period to help ensure that performance criteria are achieved.

4.10 Protection Plan for Trees During Construction

Mitigation to replace trees removed during construction is included in the mitigation plan described above. Attention is also to be given to protect trees not slated for removal and ensure they are not damaged during construction activities. Recommendations for tree protection have been prepared by Hort Science (2003) as part of a tree survey report prepared for the property. These recommendations include design recommendations, recommendations for pre-construction treatment, and recommendations for tree protection during construction. The recommendations which will be implemented are summarized in Table 1.

4.11 Alameda Whipsnake Mitigation

In addition to the worker training described in Section 4.7, the following precautions will be undertaken to ensure that impacts to the Alameda whipsnake do not occur.

- A herpetologist permitted by the USFWS to work with Alameda whipsnakes will survey all areas proposed for construction no earlier than 48 hours before the onset of activities. If any life stages of Alameda whipsnake are found, the approved biologist will contact the USFWS to determine if moving any such of these life-stages is appropriate.

- A biological monitor will shall conduct regular visits during initial ground disturbing activities including grading and construction. The biological monitor will have the authority to halt all project activities at any time if Alameda whipsnakes are encountered.

- The project proponent will place and maintain a temporary erosion control (exclusionary) fence along the western and northern edges of the property during construction. The exclusionary fence to be constructed and maintained during construction is expected to prevent use of the development area by whipsnakes.

In addition, the dedication of a 137-acre conservation easement area on the Faria remainder parcel will mitigate habitat impacts of the proposed development related to the Alameda whipsnake. This parcel, proposed for conservation easements, is immediately adjacent to extensive chaparral habitats on adjacent property to the north that provides significant potential core habitat area for the Alameda whipsnake. By setting aside this area into perpetuity, the

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project will protect areas anticipated to be used as a foraging area for whipsnakes that may occupy the core habitat areas on the adjacent property.

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TABLE 1. RECOMMENDATIONS FOR TREE PROTECTION PLAN

Design Recommendations	
1.	A Tree Protection Zone (TPZ) shall be established around each tree. For design purposes the TPZ shall be defined at the edge of the dripline. No grading, excavation, construction or storage of materials shall occur within that zone. When trunks are accurately located and development plans refined, the Consulting Arborist will identify specific Tree Protection Zones for each tree.
2.	No underground services including utilities, sub-drains, water or sewer shall be placed in the Tree Protection Zone.
3.	Tree Preservation Notes, prepared by the Consulting Arborist, should be included on all plans.
4.	Any herbicides placed under paving materials must be safe for use around trees and labeled for that use.
5.	Irrigation systems must be designed so that no trenching will occur within the Tree Protection Zone.
Pre-construction treatments and recommendations	
1.	The construction superintendent shall meet with the Consulting Arborist before beginning work to discuss work procedures and tree protection.
2.	Fence all trees to be retained to completely enclose the Tree Protection Zone prior to demolition, grubbing or grading. Fences shall be 6 ft. chain link or equivalent as approved by consulting arborist. Fences are to remain until all grading and construction is completed.
3.	Pruning trees along the driveway to provide clearance to construction vehicles and equipment may be required. All pruning shall be completed by a Certified Arborist or Tree Worker and adhere to the *Tree Pruning Guidelines* of the International Society of Arboriculture. Brush shall be chipped and spread beneath the trees within the Tree Protection Zone.
Recommendations for tree protection during construction	
1.	No grading, construction, demolition or other work shall occur within the Tree Protection Zone. Any modifications must be approved and monitored by the Consulting Arborist.
2.	Any root pruning required for construction purposes shall receive the prior approval of, and be supervised by, the Consulting Arborist.
3.	Supplemental irrigation shall be applied as determined by the Consulting Arborist.
4.	If injury should occur to any tree during construction, it should be evaluated as soon as possible by the Consulting Arborist so that appropriate treatments can be applied.
5.	No excess soil, chemicals, debris, equipment or other materials shall be dumped or stored within the Tree Protection Zone.
6.	Any additional tree pruning needed for clearance during construction must be performed by a Certified Arborist and not by construction personnel.
7.	As trees withdraw water from the soil, expansive soils may shrink within the root area. Therefore, foundations, footings and pavements on expansive soils near trees should be designed to withstand differential displacement.
(Hort Science, Inc. 2003)	

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4.12 Documentation of As-Built Conditions

Following site construction, a baseline conditions report will be prepared, which will include a copy of as-built plans and a thorough description of the status of the mitigation site, with particular attention to any adjustments made to the final mitigation grading plan. A post construction as-built topographic survey with a 0.5 ft. contour interval will be completed using a licensed surveyor.

4.13 Responsible Parties

Property Owner	Applicant
Mike Conley, EVP	Mike Conley, EVP
Claremont Homes, Inc.	Claremont Homes, Inc.
194 Francisco Lane, Ste. 202	194 Francisco Lane, Ste. 202
Fremont, CA 94539	Fremont, CA 94539
(510) 623-6320	(510) 623-6320

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5.0 MONITORING PLAN

5.1 Wetland Monitoring

5.1.1 Success Criteria

The following three criteria need to be satisfied before the mitigation can be determined a success.

1. Criterion for Target Habitat

The mitigation project will successfully create 1.15 acre of palustrine emergent and palustrine scrub-shrub wetlands, and maintain 7.73 acre of vegetated buffer around the wetland mitigation/preservation area (a 4.91 acre forested area and a 2.82 acre mowed or disked firebreak).

a. Acreage

The following specific habitat acreages will result from the mitigation project:

1. Creation of 1.15 acre of palustrine emergent or palustrine scrub shrub wetlands habitat; and
2. Creation of 7.73 acres of vegetated buffer habitat around the wetland mitigation area consisting of 4.91 acre of vegetated (forested) habitat and an additional 2.82 acres in a grassland firebreak.

b. Areal Extent

Successful habitat creation/preservation will be determined by meeting the required areal coverage of vegetation for palustrine emergent wetland habitats as follows: emergent wetland habitat dominated by OBL, FACW and/or FAC wetland plant species similar to existing on-site wetlands.

2. Criterion for Target Hydrologic Regime

The created wetlands will be sustained by flooding throughout the year. The primary sources of water will be overflows from storm water runoff. These hydrologic conditions are the same as those that currently exist at the mitigation site.

3. Criterion for Target Wetland Acreage

The following jurisdiction areas will be created and preserved:

1. Create 1.15 acre of palustrine emergent or palustrine scrub-shrub wetlands.

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5.1.2 Methods for Evaluating Success

This section contains the methodology that will be used to collect data in order to evaluate success with the aforementioned criteria. The results of monitoring will indicate the extent to which the mitigation area is developing suitable wetland habitat. If all success criteria are met and the trend characteristics show positive progress toward meeting all success criteria, it can be assumed project impacts are being gradually mitigated below the "minimal impacts" threshold established in the nationwide permit regulations (33 C.F.R. §330). Sampling methodology for each of the three success criteria are provided as follows.

1. Target Habitat Criterion

Habitat criteria success will be monitoring through the use of an on-site survey to determine size of habitat and percent coverage of wetland vegetation for emergent wetland habitats. The methods used are as follows:

a. Habitat Size

Geographic extent of habitat will be determined using a GIS grade global positioning sampling instrument (GPS). The GPS unit will be used to collect location data for the bound of each habitat type. Data will be taken at 3-second intervals as the observer carrying the GPS unit walks the boundary.

b. Areal Cover Allowable for Emergent Vegetated

A random sampling design will be used to sample vegetation cover within the wetland being created. Vegetation will be sampled during April and August of each year. For each sampling period 25% of the created wetland will be selected for field sampling using a random number generator.

Data obtained will be used to provide estimates of individual species cover and total vegetation cover (emergent wetland habitat) compared to bare ground (wetland habitat), which is either inundated and/or saturated. Representative photographs of each sample grid will be taken during each monitoring period.

2. Target Functions Criterion

To document changes in functions at the mitigation sites, baseline monitoring will evaluate existing functions of the site prior to implementation of the mitigation plan. Additional functional assessments within the mitigation site would occur during annual monitoring. Wetland functions will be evaluated following an approach similar to that described by the U.S. Army Corps of Engineers, New England Division, *The Highway Methodology Workbook Supplement - Wetland Functions and Values, A Descriptive Approach.*

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The approach consists of the following steps:

1. Locate distinctive landscape geomorphology within the study area.

2. Identify distinctive hydrologic sub basins.

3. Determine if particular functions and values are present and why, for both the rainy and dry seasons.

4. Determine what functions and values are principal and why, for both the rainy and dry seasons.

A monitoring form indicating functions and values to be monitored for is included in the Appendix.

3. Target Wetland Hydrological Regime Criterion

Hydrology will be monitored using the 1987 Corps methodology and relevant Corps guidance documents, whereby field observations will be made at approximate seven day intervals during the rainy season until the wetland hydrology criterion is met. This information will be recorded within the hydrology data portion of the wetland data form used for Criterion 4, below.

4. Target Wetlands Acreage Criterion

Wetland habitat in the acreage amounts required will be determined using the 1987 Corps methodology. The appendix contains an example field data sheet. Baseline habitat conditions for areas to be restored as wetlands will be documented using the Corps' 1987 methodology. Wetland habitats within a 250-foot area of the mitigation site will be evaluated in the same manner. This information will be used as a comparison to the results achieved from the restoration efforts.

5.1.3 Final Grading Plan Check

Within six weeks following the completion of mitigation site construction, the Wetland Mitigation Specialist will prepare marked up "baseline" plans showing any field adjustments to the final site map. The site map will include as-built topographic survey as well planted vegetation and land use features extending 100 feet outside the border of the graded site. An as-built grading plan with habitat feature mapping will be submitted as part of a report, describing the status of the completed mitigation site. This report will describe any deviations from the original plan. In addition, the report will identify the location of permanent photo points to be used in subsequent monitoring, and will include photographs of as-built conditions.

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5.1.4 Selection of Reference Habitats

Within six weeks following the completion of mitigation site construction, the Wetland Mitigation Specialist will locate permanent reference points within the existing nearby wetlands, which are similar to those created in the mitigation area. Baseline data will be collected at these selected existing wetland habitat reference points to provide a reference against which the mitigation site's performance toward achieving the success criteria during the monitoring period will be compared. On-site photographs and mapping depicting the locations of the habitat reference sites will be incorporated into the annual mitigation monitoring reports.

5.1.5 Monitoring

The Wetland Mitigation Specialist will implement a monitoring plan to evaluate habitat development (type and acreage), geographic extent of vegetated wetland habitat, wetland hydrology, and the presence of wetlands.

A minimum of 5 years of mitigation monitoring will be conducted by the Wetland Mitigation Specialist to determine mitigation success as described above and recommend any actions required to achieve success. Final inspections of the mitigation areas will be conducted during the last year of scheduled monitoring (Year 5) to determine whether success has been achieved.

The objective of monitoring is to determine if the success criteria have been met and to identify actual and potential problems that may affect the success of mitigation efforts. This will be accomplished by collecting data to determine the success and, if not, the need for improvement of the mitigation effort.

5.2 Habitat Monitoring

5.2.1 Success Criteria

The following criteria need to be satisfied before the mitigation can be determined a success.

a. Acreage

The following specific habitat acreages will result from the mitigation project:

1. Preservation of 0.09 acres of Corps jurisdictional area and 6.91 acres of valley foothill hardwood habitat;
2. Creation of 6.06 acres of riparian corridor within the Riparian and Wildlife Corridor (includes the 1.15 acres of created wetlands, see criteria 3-2 in section 5.1.1 above) and an additional 4.91 acres of forested riparian habitat
3. Create 45 acres of oak woodland habitat at various locations as represented in Figure 8.

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b. Number of replacement trees

The following specific criteria will apply to replacement trees for the mitigation project:

1. Establishment of 1,285 coast live oak and valley oak trees with a height of at least 5 feet.

The success criterion for restoration sites will be the establishment of the number of trees required in accordance with the mitigation ratios proposed. Approximately 1,285 trees will need to be established to compensate loss of 514 native trees at a 2.5:1 ratio. The total number of trees proposed for planting (1,606) is 20 percent greater than the number of trees that need to be established to mitigate project impacts. Planting of these additional trees allows for a moderate level of plant mortality (20%) and will help ensure that the final success criterion is achieved within a reasonable time period. Assuming 80% survival, 1,285 replacement trees will result.

A tree will be considered established when it reaches a height of 5 feet. At 5 feet, the trees will be tall enough to withstand moderate deer browse and will have developed a root system that is adequate to withstand adverse site conditions which could include drought, periodic fire and root girdling by small mammals.

5.2.2 Methods for Evaluating Success

The objective of monitoring is to determine if the success criteria have been met and to identify actual and potential problems that may affect the success of mitigation efforts. This will be accomplished by collecting data to determine the success and, if not, the need for improvement of the mitigation effort.

The Mitigation Specialist will implement a monitoring plan to evaluate habitat development (type and acreage), geographic extent of woodland habitat, and the success of plantings of replacement trees. A minimum of 5 years of mitigation monitoring will be conducted to determine mitigation success as described above and recommend any actions required to achieve success. Final inspections of the mitigation areas will be conducted during the last year of scheduled monitoring (Year 5) to determine whether success has been achieved.

The planted trees will be monitored annually until the success criterion (1,285 trees at least 5-feet tall) is achieved. Monitoring will be required for a minimum of five years to ensure that the trees survive a minimum of two years beyond the 3-year plant establishment period. A qualified biologist will conduct monitoring each spring that will include an observation of the mortality status of each tree and a measurement of tree height. It is estimated that it will require at least five years to reach the success criterion depending upon individual site and weather conditions.

The Geographic extent of mitigation woodland habitat will be determined using a GIS grade global positioning sampling instrument (GPS). The GPS unit will be used to collect location data for the bound of each habitat area. Data will be taken at 3-second intervals as the observer carrying the GPS unit walks the boundary.

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6.0 MAINTENANCE

The primary purposes of long-term maintenance are to ensure that mitigation sites are functioning according to their design, meeting established hydrologic objectives, and that vegetation is establishing with minimum competition from invasive plants and anthropogenic disturbance (e.g., public access, trash build-up). Long-term maintenance will include periodic inspections for erosion, vandalism, and removal of trash.

Maintenance inspections will be conducted annually during Years 1 to 5 to ensure that the mitigation areas are being properly maintained. During this period, the Wetland Mitigation Specialist will evaluate wetland plant establishment and ensure that corrective actions are taken to prevent erosion or damage to the mitigation site. Maintenance activities will include on-site inspections for the need for and implementation of repair of facilities due to vandalism, weed control, trash removal, and erosion control. A record of maintenance activities by date will be submitted as part of the annual mitigation monitoring report. The appendix contains an example field data collection form.

Preserved wetland areas will be avoided when taking corrective measures. Any wetland areas inadvertently damaged shall be restored under the supervision of the mitigation team. Maintenance activities are described in detail below.

1. Inspection for Vandalism

- Annual maintenance visits conducted during the 5-year maintenance period will also include inspection for any evidence of vandalism. The site will also be monitored for signs of excessive or uncontrolled human disturbance such as off-road vehicle use, presence of brush and litter, human foot traffic beyond use prior to project construction, and excess runoff water entering the property. Presence of disturbance will be recorded along with suggested remedial action.

2. Weed Control

Aggressive non-native invasive weed species have the potential to colonize the site once grading is completed. Wetland creation areas will be weeded annually (during the 5-year success monitoring period) of undesirable species to encourage the success of the native plant material and to discourage ruderal or weedy species from establishing populations in the mitigation areas. Weeding will be done by hand, unless the weed infestation is so severe that spraying in necessary. Spraying will be accomplished in accordance with the following standards: herbicides will be used only by a licensed applicator. A biological monitor will accompany sprayers to prevent impacts to non-target native vegetation that is to be retained. Weeds will only be sprayed using EPA-approved pre- and post-emergent herbicides such as Rodeo, which is recommended for use in wetlands.

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3. *Trash Removal*

The mitigation sites will be inspected annually to remove any accumulated trash or litter, such as Styrofoam, or other waste.

4. *Erosion Control*

The site will be inspected annually during the rainy season (December - May) for signs of erosion. If it is determined that erosion is occurring, measures will be taken to divert or slow runoff prior to remedial actions.

5. *Maintenance Records*

Documentation of all maintenance activities will be required annually during the 5-year monitoring period. A record of maintenance activities by date will be submitted yearly to the Corps and RWQCB as part of the annual mitigation monitoring report. All annual reports will include information on the frequency and dates of observations, what was observed, maintenance activities, summary of repairs and any recommended follow-up maintenance actions that may be required.

6.1 Annual Reports

The yearly monitoring results for the annual monitoring periods (April and August) will be compared statistically, as appropriate, with results from (a) reference sites, and (b) previous years, to evaluate site progress and success. Analysis for comparative change in habitat acreage and attainment of the three success criteria will be conducted using field observation data obtained from the habitat monitoring, hydrology monitoring and determination of presence of wetlands using Corps methodology. This analysis will be accomplished using the database program Microsoft Access or a similar program to create various graphical comparisons showing mean change.

Monitoring reports will be submitted to the Corps and RWQCB on an annual basis during the month of December (2007, 2008, 2009, 2010, and 2011) or until mitigation success is achieved. The first annual monitoring report will be submitted following the first full year of plant growth, which is assumed to be year 2007. These reports will provide technical findings as to the attainment of mitigation success and/or progress toward achievement of final success (see Appendix).

Annual monitoring reports will be submitted by January 15. A final report summarizing the mitigation project, evaluating the site's overall performance, and describing the long term management and protection plan will be prepared and submitted 60 days prior to the end of monitoring. Monitoring will cease when the site has met all the success criteria or by mutual agreement of the Corps and RWQCB.

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6.2 Schedule

The mitigation site will be maintained during a 5-year plant monitoring and plant establishment period. The plant establishment period and associated maintenance will be extended if significant plant replacement is required due to low plant survivorship (below 75% relative cover for wetlands or significant mortality (20% of tree plantings)[4]) after Year 5. Maintenance monitoring in order to take corrective actions will begin after development of the wetland habitat is complete, and tree plantings have been accomplished. The following table defines the maintenance schedule.

Type of Maintenance	Year 1	Year 2	Year 3	Year 4	Year 5
Vandalism Inspection	*Annual*	*Annual*	*Annual*	*Annual*	*Annual*
Weed Control	*Annual*	*Annual*	*Annual*	*Annual*	*Annual*
Trash Removal	*Annual*	*Annual*	*Annual*	*Annual*	*Annual*
Erosion Control	*Annual*	*Annual*	*Annual*	*Annual*	*Annual*
Mosquito Abatement Inspection	*Monthly During the Rainy Season*	*Monthly During the Rainy Season*	*Monthly During the Rainy Season*	*Monthly During the Rainy Season*	*Monthly During the Rainy Season*
Record Keeping	*Annual*	*Annual*	*Annual*	*Annual*	*Annual*

Monitoring to determine the successful attainment of the performance criteria shall be tied to the actual implementation date of the mitigation effort rather than to predetermined years. It is anticipated that grading will commence in Spring to Summer of 2006, with implementation of the mitigation success monitoring taking place appropriately, thereafter. The proposed monitoring schedule is outlined below:

ACTION	TIMING
• Final Grade Plan Check and preparation of Technical Report.	Within six weeks following the completion of site construction and ten weeks following completion of construction.
• Conduct site monitoring and prepare Technical Analysis Report to determine wetland mitigation success (to be submitted annually, see below).	April & August 2007, 2008, 2009, 2010, and 2011
• Conduct hydrology monitoring.	Weekly during rainy seasons until criteria is met for monitoring year following construction for Years 2007, 2008, 2009, 2010, and 2011.
• Conduct monitoring of tree plantings	May of 2007, 2008, 2009, 2010, and 2011.
• Submission of an annual compliance monitoring report to include data sheets, photo documentation and a report summarizing monitoring results.	January 15, 2007, 2008, 2009, 2010, and 2011.

[4] Cover as compared to pre-disturbance conditions during late spring – early summer prior to excavation and fill activity.

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6.3 Responsible Parties

Property Owner	Applicant
Mike Conley, EVP	Mike Conley, EVP
Claremont Homes, Inc.	Claremont Homes, Inc.
194 Francisco Lane, Ste. 202	194 Francisco Lane, Ste. 202
Fremont, CA 94539	Fremont, CA 94539
(510) 623-6320	(510) 623-6320

6.4 Conservation Easement

A total of approximately 146 acres within the Faria Ranch property will be protected from future development by a conservation easement in accordance with California Civil Code Sections 815 – 816. Claremont Homes will be the Grantor. The Grantee will be a Corps- and CDFG-approved entity or organization authorized under Civil Code Section 815.3 to hold conservation easements as the Grantee.[5] The Corps and CDFG will be established as third-party beneficiaries to ensure that the area remains as an open space wetland preserve in perpetuity. Areas protected by conservation easement and managed by a third party will include the 8.9-acre Riparian and Wildlife Corridor and an approximately 137 acre area along both sides of Bollinger Canyon Road within the Faria remainder parcel. The conservation easement allows for protection against land use changes other than for conservation purposes.

[5] 815.3. Only the following entities or organizations may acquire and hold conservation easements:
(a) Tax-exempt nonprofit organization qualified under Section 501 (c)(3) of the Internal Revenue Code and qualified to do business in this state which has as its primary purpose the preservation, protection, or enhancement of land in its natural, scenic, historical, agricultural, forested, or open-space condition or use.
(b) The state or any city, county, city and county, district, or other state or local governmental entity, if otherwise authorized to acquire and hold title to real property and if the conservation easement is voluntarily conveyed. No local governmental entity may condition the issuance of an entitlement for use on the applicant's granting of a conservation easement pursuant to this chapter.

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7.0 COMPLETION OF MITIGATION

7.1 Notification of Completion

When mitigation success has been achieved a letter requesting a release from further mitigation monitoring will be submitted to the Corps and RWQCB together with the final monitoring report requesting a release from further monitoring.

7.2 Agency Confirmation

Upon submission of the aforementioned final report and notification, representatives from the Corps and RWQB will be allowed the opportunity to conduct a site inspection, and upon determining that mitigation success has been achieved will provide a letter of release from further mitigation requirements.

7.3 Contingency Measures

7.3.1 Initiating Procedures

If an annual performance criterion is not met for all or any portion of the mitigation project in any monitoring year beyond the first three years, or if the final success criteria are not met at the end of Year 5, the Wetland Mitigation Specialist shall prepare an analysis of the cause(s) of failures and, if determined necessary by the Corps and RWQCB, propose remedial actions to be implemented.

Should the restoration plan fail to meet the established success criteria, remedial measures will be undertaken. The precise corrective measures can only be established after the causes of failure are determined or estimated. Remedial measures will generally consist of review of the maintenance and monitoring reports for possible determination of the causes for lack of wetland establishment, study of possible contributing factors, and adjustment of those factors as feasible. Analysis of the cause of site failures will be made and remedial actions will be recommended to correct the problem if a performance criterion or a final success criterion is not met. The potential causes for failure will be assessed on a site-specific basis. A report discussing the additional studies conducted, the results of the analysis of contributing factors, and outlining remediation measures and proposed revegetation measures will be prepared and submitted to the Corps and RWQCB for approval prior to implementation of any additional restoration efforts or remediation action. Remedial action would most likely be taken to correct unforeseen deficiencies in the establishment of wetland and open water sediment/soil, hydrology, vegetation and other biotic conditions. Mitigation monitoring will continue until the Corps and RWQCB determines that all success criteria for the mitigation site have been met.

7.3.2 Alternative Location for Contingency Mitigation

Alternative mitigation sites have not been considered at the present time since the proposed mitigation site appears to be fully suitable for restoration. Alternative mitigation site planning will begin if it becomes apparent that the long-term success criteria for the sites will not be achieved in a timely fashion as described in the above success criteria.

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7.3.3 Funding Mechanism

The applicant is financially committed to supporting the mitigation/monitoring program outlined in this document and to funding any remedial actions required to meet the success criteria monitored. The applicant will be financially responsible to correct unforeseen deficiencies in the restoration of wetland vegetation associated with mitigation requirements. The applicant will allocate adequate budget for implementation, maintenance, and monitoring of the mitigation plan. The budget has been based on costs estimated by qualified wetland consultants.

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8.0 REFERENCES

EnviroNet 2000. Alameda Whipsnake (*Masticophis laterallus euryxanthus*) Habitat Assessment for the Faria Ranch and the Freitas Ranch, San Ramon, California, April 18, 2000.

Hort Science 2003. Tree Survey Report and Addendum, Faria Ranch, San Ramon, California.

Swaim Biological, Inc. Alameda Whipsnake Habitat Assessment, Faria Ranch Residential Subdivision Project, City of San Ramon, California. December, 2005.

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Appendix C

Air Quality Modeling Results

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URBEMIS 2002 For Windows 8.7.0

File Name: C:\Documents and Settings\sacramento\Desktop\SR NWSPor.urb
Project Name: San Ramon Northwest Specific Plan
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	71.53	10.93	24.01	0.10	0.08

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	62.05	64.84	681.72	0.53	80.37

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	133.58	75.78	705.73	0.63	80.45

URBEMIS 2002 For Windows 8.7.0

File Name: C:\Documents and Settings\sacramento\Desktop\SR NWSPor.urb
Project Name: San Ramon Northwest Specific Plan
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Winter)

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	69.11	10.63	5.16	0.00	0.02

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	63.74	97.87	743.07	0.46	80.37

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	132.85	108.49	748.23	0.46	80.39

URBEMIS 2002 For Windows 8.7.0

File Name: C:\Documents and Settings\sacramento\Desktop\SR NWSPor.urb
Project Name: San Ramon Northwest Specific Plan
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Winter)

AREA SOURCE EMISSION ESTIMATES (Winter Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.81	10.63	5.16	0	0.02
Hearth	0.00	0.00	0.00	0.00	0.00
Landscaping - No winter emissions					
Consumer Prdcts	43.05	-	-	-	-
Architectural Coatings	25.25	-	-	-	-
TOTALS(lbs/day,unmitigated)	69.11	10.63	5.16	0.00	0.02

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	35.54	54.68	414.58	0.26	45.04
Condo/townhouse general	17.09	26.30	199.38	0.12	21.66
Secondary Units (Mobile h	1.67	2.57	19.52	0.01	2.12
Congregate care (Assisted	3.17	4.87	36.93	0.02	4.01
Children's Museum (Librar	1.54	2.31	17.78	0.01	1.85
Place of worship with day	2.82	4.24	32.65	0.02	3.38
City park	1.92	2.89	22.22	0.01	2.31
TOTAL EMISSIONS (lbs/day)	63.74	97.87	743.07	0.46	80.37

Does not include correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2010 Temperature (F): 40 Season: Winter

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
Single family housing	184.50	9.09 trips/dwelling unit	444.00	4,035.96
Condo/townhouse general	11.90	6.47 trips/dwelling unit	300.00	1,941.00
Secondary Units (Mobile h	12.50	3.80 trips/dwelling unit	50.00	190.00
Congregate care (Assisted	2.20	4.18 trips/dwelling unit	86.00	359.48
Children's Museum (Librar		9.12 trips/1000 sq. ft.	25.00	228.00
Place of worship with day		3.21 trips/1000 sq. ft.	133.00	426.93
City park		21.59 trips/acres	13.20	284.99
		Sum of Total Trips		7,466.36
		Total Vehicle Miles Traveled		52,852.77

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.70	1.10	98.70	0.20
Light Truck < 3,750 lbs	15.20	2.00	96.00	2.00
Light Truck 3,751- 5,750	16.20	1.20	98.10	0.70
Med Truck 5,751- 8,500	7.30	1.40	95.90	2.70
Lite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	1.60	68.80	31.20	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	1.40	7.10	85.70	7.20

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Children's Museum (Library)				5.0	2.5	92.5
Place of worship with daycare				3.0	1.5	95.5
City park				5.0	2.5	92.5

URBEMIS 2002 For Windows 8.7.0

File Name: C:\Documents and Settings\sacramento\Desktop\SR NWSPor.urb
Project Name: San Ramon Northwest Specific Plan
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.81	10.63	5.16	0	0.02
Hearth - No summer emissions					
Landscaping	2.42	0.30	18.85	0.10	0.06
Consumer Prdcts	43.05	-	-	-	-
Architectural Coatings	25.25	-	-	-	-
TOTALS(lbs/day,unmitigated)	71.53	10.93	24.01	0.10	0.08

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	33.06	36.21	382.50	0.30	45.04
Condo/townhouse general	16.86	17.41	183.95	0.14	21.66
Secondary Units (Mobile h	1.88	1.70	18.01	0.01	2.12
Congregate care (Assisted	3.46	3.23	34.07	0.03	4.01
Children's Museum (Librar	1.47	1.54	15.50	0.01	1.85
Place of worship with day	3.67	2.82	28.32	0.02	3.38
City park	1.64	1.93	19.38	0.02	2.31
TOTAL EMISSIONS (lbs/day)	62.05	64.84	681.72	0.53	80.37

Does not include correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2010 Temperature (F): 85 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
Single family housing	184.50	9.09 trips/dwelling unit	444.00	4,035.96
Condo/townhouse general	11.90	6.47 trips/dwelling unit	300.00	1,941.00
Secondary Units (Mobile h	12.50	3.80 trips/dwelling unit	50.00	190.00
Congregate care (Assisted	2.20	4.18 trips/dwelling unit	86.00	359.48
Children's Museum (Librar		9.12 trips/1000 sq. ft.	25.00	228.00
Place of worship with day		3.21 trips/1000 sq. ft.	133.00	426.93
City park		21.59 trips/acres	13.20	284.99
		Sum of Total Trips		7,466.36
		Total Vehicle Miles Traveled		52,852.77

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.70	1.10	98.70	0.20
Light Truck < 3,750 lbs	15.20	2.00	96.00	2.00
Light Truck 3,751- 5,750	16.20	1.20	98.10	0.70
Med Truck 5,751- 8,500	7.30	1.40	95.90	2.70
Lite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	1.60	68.80	31.20	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	1.40	7.10	85.70	7.20

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Children's Museum (Library)				5.0	2.5	92.5
Place of worship with daycare				3.0	1.5	95.5
City park				5.0	2.5	92.5

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On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	48.06	10.93	24.01	0.10	0.08

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	62.05	64.84	681.72	0.53	80.37

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	110.10	75.78	705.73	0.63	80.45

URBEMIS 2002 For Windows 8.7.0

File Name: C:\Documents and Settings\sacramento\Desktop\SR NWSPor.urb
Project Name: San Ramon Northwest Specific Plan
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Winter)

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	45.64	10.63	5.16	0.00	0.02

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	54.7 ~~63.74~~	81.1 ~~97.87~~	743.07	0.46	80.37 79.84

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	109.38	108.49	748.23	0.46	80.39

100.34 91.77

Based on EMFAC2002 modeling to determine reductions from 2010 to 2012

URBEMIS 2002 For Windows 8.7.0

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AREA SOURCE EMISSION ESTIMATES (Winter Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.81	10.63	5.16	0	0.02
Hearth	0.00	0.00	0.00	0.00	0.00
Landscaping - No winter emissions					
Consumer Prdcts	43.05	-	-	-	-
Architectural Coatings	1.77	-	-	-	-
TOTALS(lbs/day,unmitigated)	45.64	10.63	5.16	0.00	0.02

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
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City park	1.92	2.89	22.22	0.01	2.31
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OPERATIONAL (Vehicle) EMISSION ESTIMATES

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EMFAC Version: EMFAC2002 (9/2002)

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Congregate care (Assisted	2.20	4.18 trips/dwelling unit	86.00	359.48
Children's Museum (Librar		9.12 trips/1000 sq. ft.	25.00	228.00
Place of worship with day		3.21 trips/1000 sq. ft.	133.00	426.93
City park		21.59 trips/acres	13.20	284.99
		Sum of Total Trips		7,466.36
		Total Vehicle Miles Traveled		52,852.77

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.70	1.10	98.70	0.20
Light Truck < 3,750 lbs	15.20	2.00	96.00	2.00
Light Truck 3,751- 5,750	16.20	1.20	98.10	0.70
Med Truck 5,751- 8,500	7.30	1.40	95.90	2.70
Lite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	1.60	68.80	31.20	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	1.40	7.10	85.70	7.20

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Children's Museum (Library)				5.0	2.5	92.5
Place of worship with daycare				3.0	1.5	95.5
City park				5.0	2.5	92.5

URBEMIS 2002 For Windows 8.7.0

File Name: C:\Documents and Settings\sacramento\Desktop\SR NWSPor.urb
Project Name: San Ramon Northwest Specific Plan
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.81	10.63	5.16	0	0.02
Hearth - No summer emissions					
Landscaping	2.42	0.30	18.85	0.10	0.06
Consumer Prdcts	43.05	-	-	-	-
Architectural Coatings	1.77	-	-	-	-
TOTALS(lbs/day,unmitigated)	48.06	10.93	24.01	0.10	0.08

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	33.06	36.21	382.50	0.30	45.04
Condo/townhouse general	16.86	17.41	183.95	0.14	21.66
Secondary Units (Mobile h	1.88	1.70	18.01	0.01	2.12
Congregate care (Assisted	3.46	3.23	34.07	0.03	4.01
Children's Museum (Librar	1.47	1.54	15.50	0.01	1.85
Place of worship with day	3.67	2.82	28.32	0.02	3.38
City park	1.64	1.93	19.38	0.02	2.31
TOTAL EMISSIONS (lbs/day)	62.05	64.84	681.72	0.53	80.37

Does not include correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2010 Temperature (F): 85 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
Single family housing	184.50	9.09 trips/dwelling unit	444.00	4,035.96
Condo/townhouse general	11.90	6.47 trips/dwelling unit	300.00	1,941.00
Secondary Units (Mobile h	12.50	3.80 trips/dwelling unit	50.00	190.00
Congregate care (Assisted	2.20	4.18 trips/dwelling unit	86.00	359.48
Children's Museum (Librar		9.12 trips/1000 sq. ft.	25.00	228.00
Place of worship with day		3.21 trips/1000 sq. ft.	133.00	426.93
City park		21.59 trips/acres	13.20	284.99
		Sum of Total Trips		7,466.36
		Total Vehicle Miles Traveled		52,852.77

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.70	1.10	98.70	0.20
Light Truck < 3,750 lbs	15.20	2.00	96.00	2.00
Light Truck 3,751- 5,750	16.20	1.20	98.10	0.70
Med Truck 5,751- 8,500	7.30	1.40	95.90	2.70
Lite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	1.60	68.80	31.20	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	1.40	7.10	85.70	7.20

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Children's Museum (Library)				5.0	2.5	92.5
Place of worship with daycare				3.0	1.5	95.5
City park				5.0	2.5	92.5

URBEMIS 2002 For Windows 8.7.0

ile Name: C:\Documents and Settings\sacramento\Desktop\FariaPreserveor.urb
roject Name: Faria Preserve Master Planned Development
roject Location: San Francisco Bay Area
n-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

REA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	45.59	10.36	22.43	0.09	0.07

PERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	58.77	61.26	643.82	0.50	75.91

UM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	104.36	71.61	666.25	0.59	75.98

URBEMIS 2002 For Windows 8.7.0

File Name: C:\Documents and Settings\sacramento\Desktop\FariaPreserveor.urb
Project Name: Faria Preserve Master Planned Development
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Winter)

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	43.34	10.08	4.92	0.00	0.02

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	60.22	92.45	701.99	0.44	75.91

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	103.56	102.52	706.91	0.44	75.93

URBEMIS 2002 For Windows 8.7.0

File Name: C:\Documents and Settings\sacramento\Desktop\FariaPreserveor.urb
Project Name: Faria Preserve Master Planned Development
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Winter)

AREA SOURCE EMISSION ESTIMATES (Winter Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.77	10.08	4.92	0	0.02
Hearth	0.00	0.00	0.00	0.00	0.00
Landscaping - No winter emissions					
Consumer Prdcts	40.90	-	-	-	-
Architectural Coatings	1.67	-	-	-	-
TOTALS(lbs/day,unmitigated)	43.34	10.08	4.92	0.00	0.02

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	32.01	49.26	373.50	0.23	40.57
Condo/townhouse general	17.09	26.30	199.38	0.12	21.66
Secondary Units (Mobile h	1.67	2.57	19.52	0.01	2.12
Congregate care (Assisted	3.17	4.87	36.93	0.02	4.01
Children's Museum (Librar	1.54	2.31	17.78	0.01	1.85
Place of worship with day	2.82	4.24	32.65	0.02	3.38
City park	1.92	2.89	22.22	0.01	2.31
TOTAL EMISSIONS (lbs/day)	60.22	92.45	701.99	0.44	75.91

Does not include correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2010 Temperature (F): 40 Season: Winter

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
Single family housing	162.50	9.09 trips/dwelling unit	400.00	3,636.00
Condo/townhouse general	11.90	6.47 trips/dwelling unit	300.00	1,941.00
Secondary Units (Mobile h	12.50	3.80 trips/dwelling unit	50.00	190.00
Congregate care (Assisted	2.20	4.18 trips/dwelling unit	86.00	359.48
Children's Museum (Librar		9.12 trips/1000 sq. ft.	25.00	228.00
Place of worship with day		3.21 trips/1000 sq. ft.	133.00	426.93
City park		21.59 trips/acres	13.20	284.99
		Sum of Total Trips		7,066.40
		Total Vehicle Miles Traveled		49,917.82

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.70	1.10	98.70	0.20
Light Truck < 3,750 lbs	15.20	2.00	96.00	2.00
Light Truck 3,751- 5,750	16.20	1.20	98.10	0.70
Med Truck 5,751- 8,500	7.30	1.40	95.90	2.70
Lite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	1.60	68.80	31.20	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	1.40	7.10	85.70	7.20

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Children's Museum (Library)				5.0	2.5	92.5
Place of worship with daycare				3.0	1.5	95.5
City park				5.0	2.5	92.5

URBEMIS 2002 For Windows 8.7.0

File Name: C:\Documents and Settings\sacramento\Desktop\FariaPreserveor.urb
Project Name: Faria Preserve Master Planned Development
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.77	10.08	4.92	0	0.02
Hearth - No summer emissions					
Landscaping	2.25	0.28	17.51	0.09	0.05
Consumer Prdcts	40.90	-	-	-	-
Architectural Coatings	1.67	-	-	-	-
TOTALS(lbs/day,unmitigated)	45.59	10.36	22.43	0.09	0.07

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	29.79	32.62	344.60	0.27	40.57
Condo/townhouse general	16.86	17.41	183.95	0.14	21.66
Secondary Units (Mobile h	1.88	1.70	18.01	0.01	2.12
Congregate care (Assisted	3.46	3.23	34.07	0.03	4.01
Children's Museum (Librar	1.47	1.54	15.50	0.01	1.85
Place of worship with day	3.67	2.82	28.32	0.02	3.38
City park	1.64	1.93	19.38	0.02	2.31
TOTAL EMISSIONS (lbs/day)	58.77	61.26	643.82	0.50	75.91

Does not include correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2010 Temperature (F): 85 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
Single family housing	162.50	9.09 trips/dwelling unit	400.00	3,636.00
Condo/townhouse general	11.90	6.47 trips/dwelling unit	300.00	1,941.00
Secondary Units (Mobile h	12.50	3.80 trips/dwelling unit	50.00	190.00
Congregate care (Assisted	2.20	4.18 trips/dwelling unit	86.00	359.48
Children's Museum (Librar		9.12 trips/1000 sq. ft.	25.00	228.00
Place of worship with day		3.21 trips/1000 sq. ft.	133.00	426.93
City park		21.59 trips/acres	13.20	284.99
		Sum of Total Trips		7,066.40
		Total Vehicle Miles Traveled		49,917.82

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.70	1.10	98.70	0.20
Light Truck < 3,750 lbs	15.20	2.00	96.00	2.00
Light Truck 3,751- 5,750	16.20	1.20	98.10	0.70
Med Truck 5,751- 8,500	7.30	1.40	95.90	2.70
Lite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	1.60	68.80	31.20	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	1.40	7.10	85.70	7.20

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Children's Museum (Library)				5.0	2.5	92.5
Place of worship with daycare				3.0	1.5	95.5
City park				5.0	2.5	92.5

Changes made to the default values for Land Use Trip Percentages

The Trip Rate and/or Acreage values for Single family housing
have changed from the defaults 9.57/133.33 to 9.09/162.5
The Trip Rate and/or Acreage values for Condominium/townhouse general
have changed from the defaults 6.9/18.75 to 6.47/11.9
The Trip Rate and/or Acreage values for Mobile home park
have changed from the defaults 4.99/8.33 to 3.80/12.5
The Trip Rate and/or Acreage values for Congregate care (Assisted Living) Facility
have changed from the defaults 2.02/5.38 to 4.18/2.2

Changes made to the default values for Area

The hearth option switch changed from on to off.
The landscape year changed from 2005 to 2012.
The residential Arch. Coatings ROG emission factor changed from 0.0185 to 0.0013.
The nonresidential Arch. Coatings ROG emission factor changed from 0.0185 to 0.0013.

Changes made to the default values for Operations

The pass by trips option switch changed from on to off.
The operational emission year changed from 2005 to 2010.

Title : Contra Costa County Avg 2010 Summer Default Title
Version : Emfac2002 V2.2 Apr 23 2003
Run Date : 05/12/06 18:32:01
Scan Year: 2010 -- Model Years: 1965 to 2010
Season : Summer
Area : Contra Costa County Average
I/M Stat : I and M program in effect
Emissions: Tons Per Day

	LDA-NCAT	LDA-CAT	LDA-DSL	LDA-TOT	LDT1-NCA	LDT1-CAT	LDT1-DSL	LDT1-TOT	LDT2-NCA	LDT2-CAT	LDT2-DSL	LDT2-TOT	MDV-NCAT	MDV-CAT	MDV-DSL	MDV-TOT	LHDT1-NC	LHDT1-CA	LHDT1-DS	LHDT1-TO	LHDT2-NC	LHDT2-CA	LHDT2-DS	LHDT2-TO	MHDT-NC	MHDT-CA	MHDT-DS	MHDT-TO	HHDT-NC	HHDT-CAT
Vehicles	4445	307614	1408	313467	1838	120375	1832	124045	1168	133152	1039	135357	499	70085	1540	72101	66	5728	1199	6993	0	1069	879	1949	143	1185	3632	4960	39	403
VMT/1000	44	17146	26	17216	30	4022	46	4097	19	4426	51	4478	8	2345	47	2401	0	303	72	375	0	49	41	90	1	49	204	254	0	25
Trips	17866	3191720	7556	3217130	7515	752041	10863	770420	4779	836844	6463	848077	2098	440242	9970	452010	2176	189410	15090	206686	7	35361	11058	46425	6522	54125	101655	162502	1760	18427
Reactive Organic Gas Emissions																														
Run Exh	0.28	1.68	0.01	1.96	0.18	0.58	0.01	0.76	0.12	0.62	0	0.74	0.06	0.45	0	0.52	0	0.02	0.03	0.05	0	0.01	0.02	0.03	0.01	0.03	0.06	0.1	0.01	0.09
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0.01	0	0	0	0	0	0	0	0	0	0
Start Ex	0.09	1.7	0	1.79	0.04	0.45	0	0.48	0.02	0.56	0	0.58	0.01	0.4	0	0.41	0.01	0.07	0	0.08	0	0.02	0	0.02	0.08	0.07	0	0.12	0.03	0.08
Total Ex	0.36	3.38	0.01	3.75	0.22	1.02	0.01	1.24	0.14	1.18	0	1.32	0.07	0.85	0	0.93	0.02	0.1	0.03	0.14	0	0.04	0.02	0.06	0.08	0.1	0.06	0.22	0.03	0.18
Diurnal	0.65	0.65	0	0.7	0.02	0.19	0	0.21	0.01	0.17	0	0.19	0	0.1	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hot Soak	0.05	0.45	0	0.5	0.02	0.12	0	0.15	0.01	0.12	0	0.14	0	0.07	0	0.07	0	0	0	0.01	0	0	0	0	0	0	0	0.01	0	0
Running	0.31	1.6	0	1.91	0.07	0.79	0	0.86	0.04	0.8	0	0.84	0.01	0.44	0	0.45	0.01	0.09	0	0.1	0	0.05	0	0.05	0.03	0.11	0	0.14	0.01	0.08
Resting	0.03	0.31	0	0.34	0.01	0.09	0	0.1	0.01	0.08	0	0.09	0	0.05	0	0.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0.8	6.39	0.01	7.2	0.34	2.22	0.01	2.56	0.22	2.38	0	2.58	0.09	1.5	0	1.59	0.03	0.2	0.03	0.25	0	0.09	0.02	0.11	0.09	0.22	0.06	0.37	0.04	0.25
Carbon Monoxide Emissions																														
Run Exh	3.47	49.77	0.02	53.27	2.35	17.95	0.04	20.33	1.49	16.62	0.02	20.14	1.08	10.53	0.03	11.64	0.07	0.31	0.09	0.47	0	0.17	0.07	0.24	0.16	0.48	0.43	1.07	0.23	1.23
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05	0	0.05	0	0.01	0	0.01	0	0.02	0.01	0.03	0	0
Start Ex	0.58	17.61	0	18.19	0.25	5.45	0	5.7	0.16	6.11	0	6.27	0.11	3.9	0	4.01	0.1	0.85	0	0.75	0	0.22	0	0.22	0.45	1.67	0	1.51	0.49	1
Total Ex	4.05	67.38	0.02	71.46	2.6	23.4	0.04	26.04	1.65	24.74	0.02	26.41	1.19	14.43	0.03	15.66	0.17	1	0.09	1.27	0	0.41	0.07	0.47	0.61	1.98	0.44	2.61	0.72	2.23
Oxides of Nitrogen Emissions																														
Run Exh	0.22	4.81	0.04	5.07	0.14	1.77	0.07	1.98	0.09	2.08	0.05	2.82	0.06	1.84	0.07	1.98	0	0.09	0.33	0.43	0	0.03	0.24	0.27	0	0.13	1.76	1.89	0.01	0.36
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.03	0.03	0	0	0
Start Ex	0.03	1.4	0	1.43	0.01	0.35	0	0.36	0.01	0.71	0	0.71	0	0.42	0	0.43	0	0.31	0	0.31	0	0.07	0	0.07	0.01	0.15	0	0.16	0.01	0.17
Total Ex	0.24	6.21	0.04	6.49	0.15	2.12	0.07	2.34	0.1	3.39	0.05	3.54	0.08	2.27	0.07	2.41	0	0.4	0.34	0.74	0	0.1	0.24	0.34	0.01	0.28	1.79	2.08	0.02	0.52
Carbon Dioxide Emissions (000)																														
Run Exh	0.03	7.53	0.01	7.56	0.02	2.19	0.02	2.22	0.01	2.42	0.01	2.44	0.01	1.76	0.02	1.78	0	0.32	0.04	0.37	0	0.05	0.02	0.08	0	0.04	0.34	0.38	0	0.02
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0.26	0	0.26	0	0.07	0	0.09	0	0.08	0	0.08	0	0.06	0	0.06	0	0.01	0	0.01	0	0	0	0	0	0	0	0	0	0
Total Ex	0.03	7.79	0.01	7.82	0.02	2.28	0.02	2.3	0.01	2.5	0.01	2.53	0.01	1.82	0.02	1.84	0	0.33	0.04	0.38	0	0.05	0.02	0.08	0	0.04	0.34	0.38	0	0.02
PM10 Emissions																														
Run Exh	0	0.21	0	0.22	0	0.05	0	0.06	0	0.12	0	0.12	0	0.06	0	0.07	0	0	0	0.01	0	0	0	0	0	0	0.06	0.06	0	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0.02	0	0.02	0	0.01	0	0.01	0	0.01	0	0.01	0	0.01	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Ex	0	0.23	0	0.24	0	0.06	0	0.06	0	0.14	0	0.14	0	0.07	0	0.07	0	0.01	0	0.01	0	0	0	0	0	0	0.06	0.06	0	0
TireWear	0	0.15	0	0.15	0	0.04	0	0.04	0	0.04	0	0.04	0	0.02	0	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BrakeWr	0	0.24	0	0.24	0	0.06	0	0.06	0	0.06	0	0.06	0	0.03	0	0.03	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0
Total	0	0.62	0	0.63	0	0.15	0	0.15	0	0.24	0	0.24	0	0.12	0	0.13	0	0.01	0.01	0.02	0	0	0	0.01	0	0	0.06	0.07	0	0
Lead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOx	0	0.08	0	0.08	0	0.02	0	0.02	0	0.02	0	0.02	0	0.02	0	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fuel Consumption (000 gallons)																														
Gasoline	3.78	809.07	0	812.85	2.4	235.64	0	238.04	1.53	260.02	0	262.15	0.84	168.54	0	169.38	0.14	34.36	0	34.49	0	5.62	0	5.62	0.36	4.33	0	4.68	0.2	2.1
Diesel	0	0	0.93	0.93	0	0	1.58	1.58	0	0	1.08	1.08	0	0	1.63	1.63	0	0	3.73	3.73	0	0	2.19	2.19	0	0	30.56	30.56	0	0

HHDT-DSL	HHDT-TOT	LHV-NCAT	LHV-CAT	LHV-DSL	LHV-TOT	SBUS-NCA	SBUS-CAT	SBUS-DSL	SBUS-TOT	UB-NCAT	UB-CAT	UB-DSL	UB-TOT	MH-NCAT	MH-CAT	MH-DSL	MH-TOT	MCY-NCAT	MCY-CAT	MCY-DSL	MCY-TOT	ALL-TOT 2	ALL-TOT 2012		plan summer	plan winter	project summer	project winter
4213	4695	0	0	0	0	21	291	2944	3256	18	277	360	655	418	10259	838	11515	7040	2816	0	9856	888809	888809					
918	936	0	0	0	0	1	12	118	131	2	33	43	78	5	141	12	158	47	25	0	73	29988	29742					
21320	41527	0	0	0	0	83	1165	11775	13023	71	1109	1441	2620	42	1026	84	1152	14079	5631	0	19709	5781260	5754290					
0.34	0.44	0	0	0	0	0.01	0.01	0.05	0.06	0.02	0.07	0.04	0.14	0.03	0.07	0	0.1	0.19	0.06	0	0.25	5.14	4.27					
0.03	0.03	0	0	0	0	0	0	0.01	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0.06	0.06					
0	0.1	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0.03	0.01	0	0.04	3.65	2.99					
0.38	0.57	0	0	0	0	0.01	0.01	0.06	0.08	0.02	0.08	0.04	0.14	0.03	0.07	0	0.1	0.22	0.07	0	0.29	8.85	7.32					
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.02	0	0.03	1.22	1.1					
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.89	0.81					
0	0.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.03	0.02	0	0.05	4.81	3.98					
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0.01	0.6	0.57					
0.38	0.67	0	0	0	0	0.01	0.02	0.06	0.08	0.02	0.08	0.04	0.15	0.03	0.07	0	0.11	0.27	0.12	0	0.39	16.07	13.78	0.857499	62.05	63.74	58.77	60.22
																									53.20773	54.65695	50.39518	51.63856
1.39	2.84	0	0	0	0	0.14	0.12	0.32	0.58	0.4	0.51	0.16	1.06	0.75	1.8	0.01	2.56	2.42	0.43	0	2.86	117.06	98.15					
0.21	0.21	0	0	0	0	0	0.02	0.05	0.07	0	0	0	0	0	0	0	0	0	0	0	0	0.36	0.36					
0	1.49	0	0	0	0	0.01	0.04	0	0.05	0.01	0.08	0	0.06	0	0.01	0	0.02	0.12	0.07	0	0.19	39.47	32.39					
1.59	4.54	0	0	0	0	0.15	0.18	0.38	0.69	0.4	0.56	0.16	1.13	0.75	1.82	0.01	2.58	2.55	0.5	0	3.05	155.69	130.8					
6.87	7.23	0	0	0	0	0	0.03	1.26	1.3	0.01	0.12	0.93	1.06	0.02	0.22	0.1	0.35	0.07	0.03	0	0.1	24.47	19.85					
0.63	0.65	0	0	0	0	0	0	0.14	0.14	0	0	0	0	0	0	0	0	0	0	0	0	0.81	0.8					
0	0.17	0	0	0	0	0	0	0	0	0	0.01	0	0.01	0	0	0	0	0.01	0	0	0.01	3.89	3.21					
7.5	8.04	0	0	0	0	0	0.03	1.4	1.44	0.01	0.13	0.93	1.07	0.02	0.22	0.1	0.35	0.07	0.03	0	0.11	29.94	23.97	0.828265	64.84	97.87	61.26	92.45
																									53.70473	81.06233	50.73954	76.57313
1.47	1.48	0	0	0	0	0	0.01	0.2	0.21	0	0.03	0.12	0.15	0	0.11	0.02	0.13	0.01	0	0	0.01	16.61	17.14					
0.03	0.03	0	0	0	0	0	0	0.01	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0.04	0.04					
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.49					
1.5	1.52	0	0	0	0	0	0.01	0.2	0.21	0	0.03	0.12	0.15	0	0.11	0.02	0.13	0.01	0	0	0.01	17.35	17.68					
0.13	0.14	0	0	0	0	0	0	0.05	0.05	0	0	0.02	0.02	0	0	0	0	0	0	0	0	0.74	0.74					
0.01	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01					
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05	0.05					
0.15	0.15	0	0	0	0	0	0	0.05	0.05	0	0	0.02	0.02	0	0	0	0	0	0	0	0	0.8	0.8					
0.02	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.29	0.29					
0.01	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.41	0.41					
0.16	0.18	0	0	0	0	0	0	0.05	0.05	0	0	0.02	0.02	0	0	0	0.01	0	0	0	0	1.51	1.5	0.993377	80.37	80.37	75.91	75.91
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		79.83775	79.83775	75.40728	75.40728
0.01	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.17	0.17					
0	2.29	0	0	0	0	0.1	1.11	0	1.22	0.25	2.91	0	3.16	0.51	11.23	0	11.74	1.21	0.61	0	1.82	1567.48	1595.4					
134.83	134.83	0	0	0	0	0	0	18.26	18.26	0	0	11.22	11.22	0	0	1.75	1.75	0	0	0	0	207.75	208.84					

Title : Contra Costa County Avg 2012 Summer Default Title
Version : Emfac2002 V2.2 Apr 23 2003 ** WIS Enabled **
Run Date : 08/12/06 18:38:14
Scen Year: 2012 -- Model Years: 1967 to 2012
Season : Summer
Area : Contra Costa County Average
I/M Stat : I and M program in effect
Emissions: Tons Per Day

	LDA-NCAT	LDA-CAT	LDA-DSL	LDA-TOT	LDT1-NCA	LDT1-CAT	LDT1-DSL	LDT1-TOT	LDT2-NCA	LDT2-CAT	LDT2-DSL	LDT2-TOT	MDV-NCA	MDV-CAT	MDV-DSL	MDV-TOT	LHDT1-NC	LHDT1-CA	LHDT1-DS	LHDT1-TO	LHDT2-NC	LHDT2-CA	LHDT2-DS	LHDT2-TO	MHDT-NC	MHDT-CA
Vehicles	2798	505773	1060	509631	1267	122652	1509	125448	835	135126	929	136889	372	71456	1396	73225	42	5561	1179	6783	0	1045	844	1889	102	1130
VMT/1000	26	16914	19	16959	20	4062	36	4118	13	4443	26	4483	6	2358	40	2405	0	282	67	349	0	46	38	84	1	46
Trips	11038	3172310	5508	3188850	5145	764112	8759	778016	3340	846135	5689	855165	1533	447143	8651	457327	1398	183692	14831	200122	2	34550	10618	45171	4653	51622
Reactive Organic Gas Emissions																										
Run Exh	0.17	1.37	0	1.55	0.13	0.5	0.01	0.64	0.08	0.55	0	0.64	0.05	0.41	0	0.46	0	0.02	0.02	0.04	0	0.01	0.02	0.03	0	0.02
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0.01	0	0	0	0	0	0
Start Ex	0.05	1.36	0	1.42	0.02	0.37	0	0.4	0.02	0.48	0	0.5	0.01	0.35	0	0.36	0.01	0.08	0	0.07	0	0.02	0	0.02	0.04	0.08
Total Ex	0.23	2.74	0	2.97	0.15	0.88	0.01	1.04	0.1	1.03	0	1.14	0.06	0.76	0	0.82	0.01	0.09	0.02	0.12	0	0.03	0.02	0.05	0.04	0.08
Diurnal	0.03	0.58	0	0.61	0.01	0.18	0	0.19	0.01	0.17	0	0.17	0	0.09	0	0.09	0	0	0	0	0	0	0	0	0	0
Hot Soak	0.03	0.42	0	0.45	0.02	0.12	0	0.13	0.01	0.12	0	0.13	0	0.07	0	0.07	0	0	0	0.01	0	0	0	0	0	0
Running	0.19	1.39	0	1.58	0.04	0.73	0	0.78	0.03	0.76	0	0.79	0.01	0.42	0	0.42	0.01	0.09	0	0.1	0	0.05	0	0.05	0.02	0.11
Resting	0.02	0.3	0	0.31	0.01	0.09	0	0.1	0.01	0.09	0	0.09	0	0.05	0	0.05	0	0	0	0	0	0	0	0	0	0
Total	0.49	5.42	0	5.92	0.24	1.99	0.01	2.23	0.15	2.17	0	2.33	0.07	1.38	0	1.46	0.02	0.19	0.02	0.23	0	0.08	0.02	0.1	0.07	0.2
Carbon Monoxide Emissions																										
Run Exh	2.12	41.49	0.02	43.63	1.64	15.44	0.03	17.12	1.07	16.45	0.02	17.54	0.62	9.5	0.03	10.34	0.05	0.23	0.06	0.36	0	0.12	0.06	0.18	0.11	0.37
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05	0	0.05	0	0.01	0	0.01	0	0.01
Start Ex	0.36	14.65	0	15	0.17	4.64	0	4.81	0.11	5.37	0	5.48	0.08	3.46	0	3.54	0.06	0.57	0	0.64	0	0.19	0	0.19	0.31	0.94
Total Ex	2.48	56.14	0.02	58.64	1.82	20.08	0.03	21.93	1.18	21.82	0.02	23.01	0.9	12.95	0.03	13.88	0.11	0.85	0.09	1.05	0	0.32	0.06	0.38	0.43	1.32
Oxides of Nitrogen Emissions																										
Run Exh	0.13	3.87	0.03	4.03	0.1	1.49	0.05	1.64	0.06	2.29	0.04	2.39	0.04	1.58	0.06	1.69	0	0.08	0.25	0.33	0	0.03	0.19	0.21	0	0.1
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0.02	1.18	0	1.2	0.01	0.3	0	0.31	0	0.63	0	0.63	0	0.38	0	0.39	0	0.31	0	0.31	0	0.07	0	0.07	0	0.14
Total Ex	0.14	5.06	0.03	5.23	0.1	1.79	0.05	1.95	0.07	2.91	0.04	3.02	0.05	1.97	0.06	2.08	0	0.39	0.26	0.65	0	0.09	0.19	0.28	0.01	0.24
Carbon Dioxide Emissions (000)																										
Run Exh	0.02	7.64	0.01	7.66	0.01	2.28	0.01	2.31	0.01	2.51	0.01	2.53	0	1.82	0.02	1.84	0	0.3	0.04	0.34	0	0.05	0.02	0.07	0	0.03
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0.25	0	0.26	0	0.08	0	0.08	0	0.08	0	0.08	0	0.06	0	0.06	0	0.01	0	0.01	0	0	0	0	0	0
Total Ex	0.02	7.89	0.01	7.91	0.01	2.36	0.01	2.38	0.01	2.59	0.01	2.61	0	1.88	0.02	1.9	0	0.31	0.04	0.35	0	0.05	0.02	0.07	0	0.04
PM10 Emissions																										
Run Exh	0	0.23	0	0.23	0	0.06	0	0.06	0	0.13	0	0.14	0	0.07	0	0.07	0	0	0	0.01	0	0	0	0	0	0
Idle Exh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Start Ex	0	0.02	0	0.02	0	0.01	0	0.01	0	0.01	0	0.01	0	0.01	0	0.01	0	0	0	0	0	0	0	0	0	0
Total Ex	0	0.25	0	0.25	0	0.08	0	0.07	0	0.15	0	0.15	0	0.08	0	0.08	0	0.01	0	0.01	0	0	0	0	0	0
TireWear	0	0.15	0	0.15	0	0.04	0	0.04	0	0.04	0	0.04	0	0.02	0	0.02	0	0	0	0	0	0	0	0	0	0
BrakeWr	0	0.23	0	0.23	0	0.06	0	0.06	0	0.06	0	0.06	0	0.03	0	0.03	0	0	0	0	0	0	0	0	0	0
Total	0	0.63	0	0.64	0	0.15	0	0.16	0	0.25	0	0.25	0	0.13	0	0.13	0	0.01	0.01	0.02	0	0	0	0.01	0	0
Lead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOx	0	0.08	0	0.08	0	0.02	0	0.02	0	0.03	0	0.03	0	0.02	0	0.02	0	0	0	0	0	0	0	0	0	0
Fuel Consumption (000 gallons)																										
Gasoline	2.34	817.58	0	819.91	1.69	244.77	0	246.46	1.1	269.5	0	270.6	0.64	195.2	0	195.84	0.09	32.06	0	32.15	0	5.32	0	5.32	0.25	4.04
Diesel	0	0	0.67	0.67	0	0	1.24	1.24	0	0	0.91	0.91	0	0	1.39	1.39	0	0	3.45	3.45	0	0	2	2	0	0

MHDT-DSI	MHDT-TO	HHDT-NC/	HHDT-CA	HHDT-DSI	HHDT-TO	LHV-NCA	LHV-CAT	LHV-DSL	LHV-TOT	SBUS-NC/	SBUS-CA	SBUS-DSI	SBUS-TO	UB-NCAT	UB-CAT	UB-DSL	UB-TOT	MH-NCAT	MH-CAT	MH-DSL	MH-TOT	MCY-NCA	MCY-CAT	MCY-DSL	MCY-TOT	ALL-TOT
3579	4811	28	343	4143	4514	0	0	0	0	18	307	3010	3333	16	293	362	671	272	11442	971	12684	5786	3165	0	8931	869809
196	242	0	20	627	647	0	0	0	0	1	12	121	134	2	35	43	80	3	158	14	175	37	28	0	65	20742
100343	156618	1260	15647	20968	37874	0	0	0	0	62	1229	12040	13331	65	1172	1446	2683	27	1145	97	1209	11530	6329	0	17859	5754290
0.06	0.08	0	0.08	0.28	0.35	0	0	0	0	0	0.01	0.05	0.06	0.02	0.07	0.04	0.13	0.02	0.06	0	0.08	0.15	0.08	0	0.21	4.27
0	0	0	0	0.03	0.03	0	0	0	0	0	0	0.01	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0.08
0	0.1	0.02	0.06	0	0.08	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0.03	0.01	0	0.04	2.99
0.06	0.18	0.02	0.13	0.32	0.46	0	0	0	0	0.01	0.01	0.06	0.08	0.02	0.09	0.04	0.14	0.02	0.06	0	0.08	0.18	0.07	0	0.25	7.32
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.02	0	0.03	1.1
0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.81
0	0.13	0.01	0.08	0	0.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.02	0.02	0	0.04	3.98
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0.01	0.57
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.49
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0	4.29	0.14	1.68	0	1.81	0	0	0	0	0.08	1.17	0	1.25	0.23	3.06	0	3.29	0.33	12.49	0	12.82	0.96	0.69	0	1.65	1595.4
29.39	29.39	0	0	138.02	138.02	0	0	0	0	0	0	18.67	18.67	0	0	11.09	11.09	0	0	2.02	2.02	0	0	0	0	208.84

Appendix D

Alameda Whipsnake Habitat Assessment for the Faria Ranch and the Freitas Ranch

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EnviroNet
CONSULTING

April 18, 2000
Project No. 6154.5

Mr. Mike Conley
Claremont Homes
46752 Mission Blvd., Ste E
Fremont, CA 94539-7949

Re: Alameda whipsnake (*Mastocophis laterlis euryxanthus*) Habitat Assessment for the Faria Ranch and the Freitas Ranch, Contra Costa County, California (Plate 1)

Dear Mr. Conley:

EnviroNet Consulting is pleased to present the results of a habitat assessment that was conducted on the 450 acre Faria Ranch and the 117 acre Freitas Ranch on April 10, 2000. The purpose of this assessment was to determine if the four critical habitat requirements of the Alameda whipsnake are present.

Project Understanding

No trapping of the Alameda whipsnake was conducted, but the habitat requirements to support the Alameda whipsnake, developed by Swaim and McGinnis (1992) for the California Department of Fish & Game, were assessed at the project sites. Swaim and McGinnis set up 22 trap sites in Alameda and Contra Costa Counties at which there was potential for Alameda whipsnake occurrence. Over 50,000 trap days revealed the presence of the Alameda whipsnake on 10 of the 22 sites. The four critical habitat requirements of the Alameda whipsnake, concluded from the study, were determined to be: 1. open canopy chaparral, or coastal scrub communities, 2. rock outcrops and talus with deep crevices and abundant rodent burrows, 3. moderate populations of northwestern fence lizard in association with another lizard species, and 4. southern facing slopes. If all four of the habitat requirements are present then the Alameda whipsnake may be present.

RECEIVED
APR 24 2000
BY:

PACIFIC NORTHWEST ENVIRONET GROUP, INC.
3601 REGIONAL PARKWAY, STE. A • SANTA ROSA, CA 95403
FAX 707/544-5769 TEL 707/546-9461

Background

The Alameda whipsnake was listed as threatened under the Federal Endangered Species Act on December 5, 1997. The Alameda whipsnake is considered a subspecies of the California whipsnake, which is widely distributed. The Alameda whipsnake is a deep green color with two bold lateral orange stripes that are approximately one scale thick, which is about twice the thickness of the orange stripes on all other species of whipsnakes, and can grow to a length of up to 6 feet.

The Alameda whipsnake is thought to occupy open chaparral habitat in the mountains of Contra Costa, Alameda, and northeastern Santa Clara counties. The suppression of fire has created mature stands of chaparral which prohibit the passage of light and heat. These mature stands create a dark understory which prevents cold blooded reptiles, such as the whipsnake, from sufficiently heating their body temperature to active levels. For this reason, southern exposure slopes of open chaparral are important to the whipsnake, since the southern exposure gets maximum light exposure and the open canopy allows light to pass without leaving the snakes vulnerable to predators.

The rock outcrops and rodent holes create an area for nightly protection and winter hibernation protecting whipsnakes from both predators and the weather.

The Alameda whipsnake feeds almost exclusively on lizards, with its preferred prey being the northwestern fence lizard (*Sceloporous occidentalis*). Moderate populations of the northwestern fence lizard and one other species of lizard must be present to support the Alameda whipsnake.

Methods

A site visit was conducted of both ranches on April 10, 2000. The weather was clear and sunny with the temperature reaching about 22°C. Transects were walked by two biologists to survey for the habitat requirements. After completion of the transects, the entire perimeter of both of the properties was also walked to determine the property boundaries and adjacent habitats. The Freitas Ranch was walked starting in the northwest traveling south and ending in the northeast corner of the property. The Faria Ranch transects were walked starting in the southeast corner of the property traveling north. After numerous transects were walked, the last transect finished in the southwest corner of the Faria Ranch property. Areas of potential habitat characteristics or special concern were treated with extra care and time.

Faria Ranch

The Faria ranch consists of 450 acres of rolling grazed, open, annual grassland located off Bollinger Canyon Road (Plate B). The dominant vegetation is Italian ryegrass, foxtail brome, slender oats, lupines, yellow star thistle (*Centaure solstitalis*), and live and valley oaks which are located in the drainages. The property's rolling hills have slopes facing many different direction, including the southern facing slopes required by the Alameda whipsnake.

During the site visit three lizards were observed, two northwestern fence lizards and one northern alligator lizard (*Gerrhonotus coeruleus*). One northwestern fence lizard was located on a fence post on the northern edge of the property, while the other was observed in a wood pile in one of the riparian areas. The northern alligator lizard was seen in the same riparian area on the trunk of a dead oak.

No rock outcrops were present on the site and only one small area of rodent holes were present. The rodent holes covered an area that was only about 1/4 acre on the top of a hillside in the southwestern portion of the property.

There are three areas on the property that exhibit partial characteristics of chaparral (Plate C). The vegetation consisted of sage (*Salvia* spp.), ocean spray (*Holodiscus discolor*), and coyote brush (*Baccharis pilularis*). The three areas are approximately 60m x 100m each and located on a grade of approximately 80%. The three slopes are southwesterly (230°), westerly (280°) and easterly (100°) facing. No lizards or rock outcrops were seen in any of the three areas.

The boundary in the northwestern portion of the property comes within 50 feet of southern facing chaparral habitat (Plate C). The chaparral habitat outside of the property boundaries was not surveyed, but it is southern facing chaparral which fulfills 2 of the 4 whipsnake habitat requirements. Grasslands and oak savannahs immediately adjacent to whipsnake habitat could be used for short periods of time by the whipsnake. Therefore the whipsnake may be present in these areas for short periods of time, but the habitat does not appear suitable for long term residence. The presence of cattle on the property has disturbed much of the vegetation and riparian areas. This disturbance would likely decrease the presence of the whipsnake.

Summary

The Faria Ranch is a grazed, open annual grassland. The grazing activities have altered the vegetation on the property from natural vegetation to invasive exotic species. The project site habitat assessment has revealed that only two of the four critical habitat requirements are present in any area. Although the project site has southern facing slopes, no rock outcrops or rodent burrows are available

to the whipsnake. The majority of the property is not chaparral except for three small areas that exhibit some chaparral vegetation. Only one of these small patches is a south facing slope, but neither lizards or rock outcrops were present at the time of the site visit. Only three lizards of two species were seen during the site visit. The low population of lizards would not be sufficient enough to support a population of Alameda whipsnake. The grassland in the northwest corner of the property may have short term Alameda whipsnake use because it comes within 50 feet of the southern facing chaparral habitat. This use would be short term and would probably be infrequent.

Conclusion

The Faria Ranch and Freitas Ranch exhibit similar characteristics. They are both grazed open annual grassland with the dominant vegetation being invasive exotics, possess little or no rock outcrops or rodent holes, and have low populations of northwestern fence lizard. Faria Ranch does possess southern facing slopes, but does not possess the other habitat requirements needed to support the Alameda whipsnake. No more than two of the four critical habitat requirements were present in any area on either property. The comparative habitat assessment performed by Swaim and McGinnis for the 22 study sites, concluded that all four critical habitat requirements need to be present to support the Alameda whipsnake. Based on these findings, the two properties do not possess adequate and necessary habitat features that are critical to Alameda whipsnake survival. Therefore, presence of the Alameda whipsnake is unlikely.

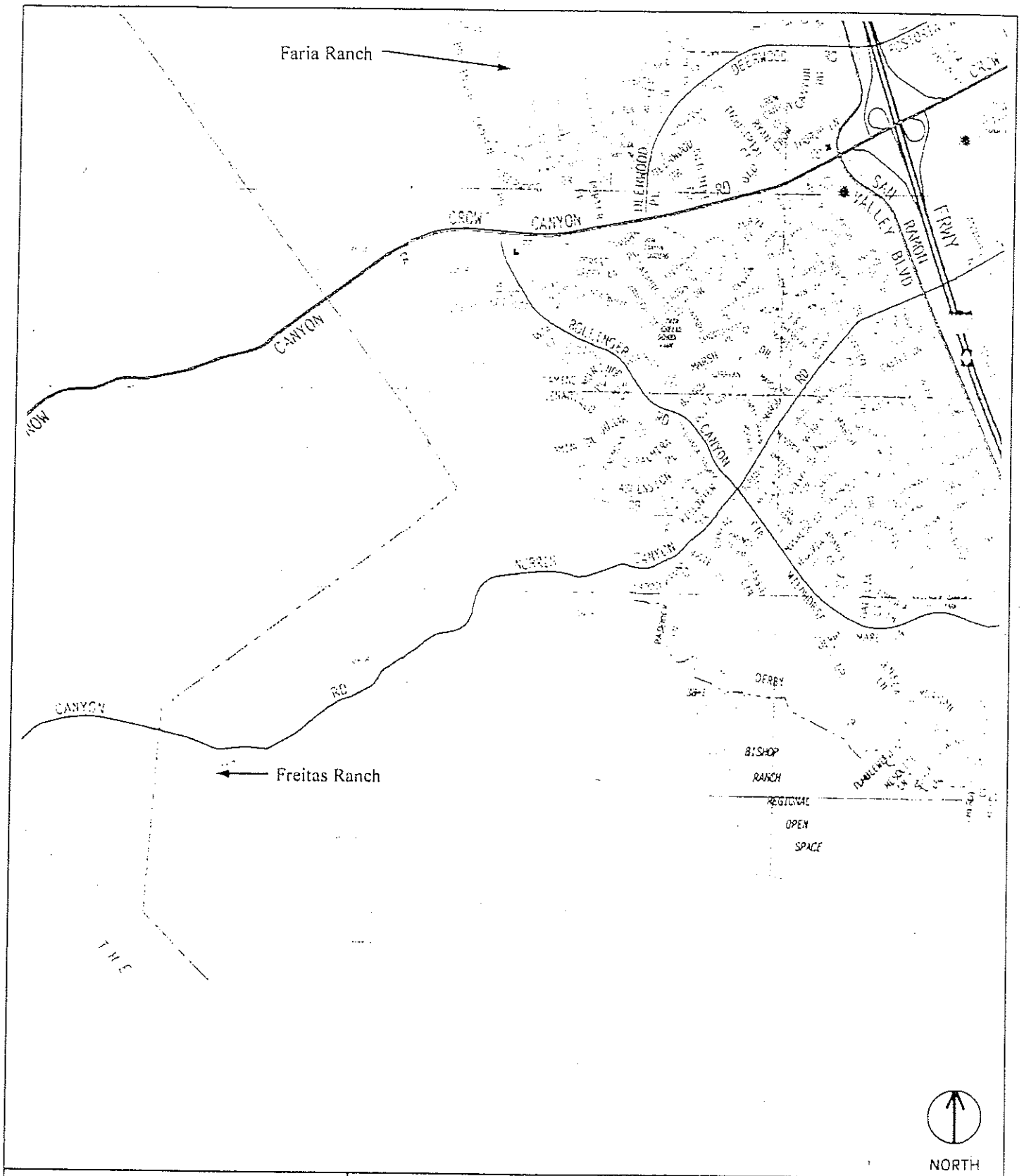
Sincerely,
EnviroNet Consulting

Greg Martinelli
Biologist

Darren Wiemeyer
Biologist

Enclosures:

Plate 1:	Site Plan
Plate A:	Site Photos
Plate B:	Site Photos
Plate C:	Site Photos



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Site Location Map

Faria and Freitas Ranches
San Ramon, California

PLATE 1

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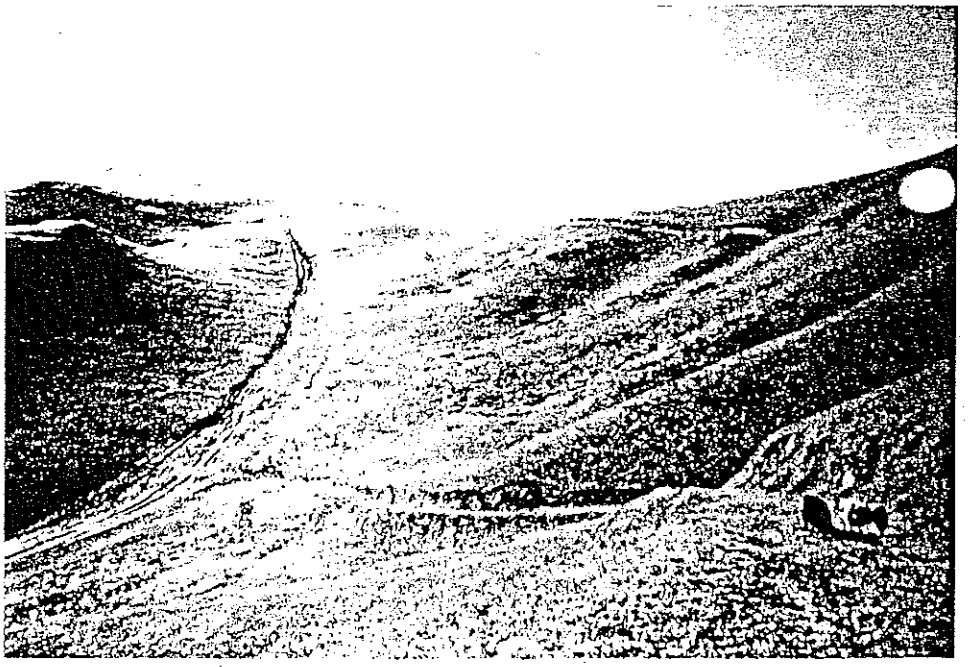

Freitas Ranch - Northern facing grazed, open annual grassland

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Site Photos

Freitas Ranch
San Ramon, California

PLATE
A

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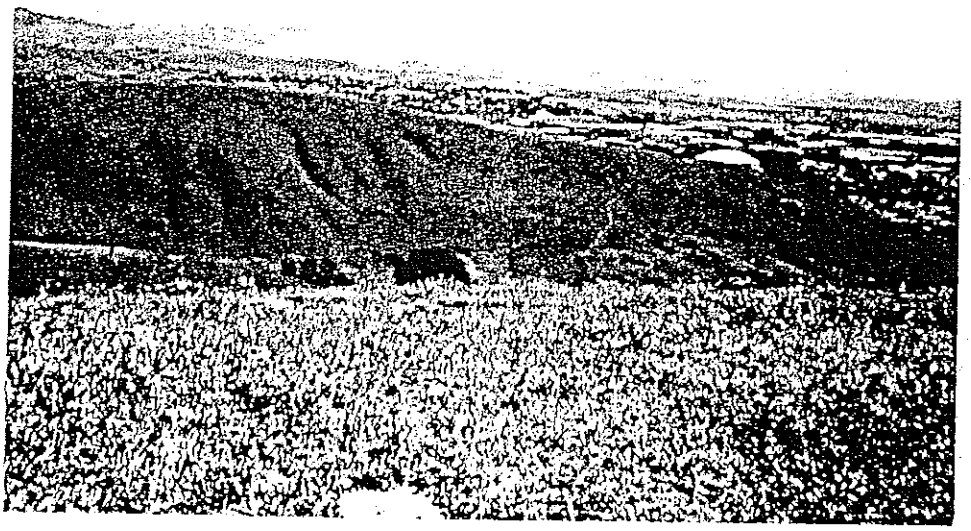
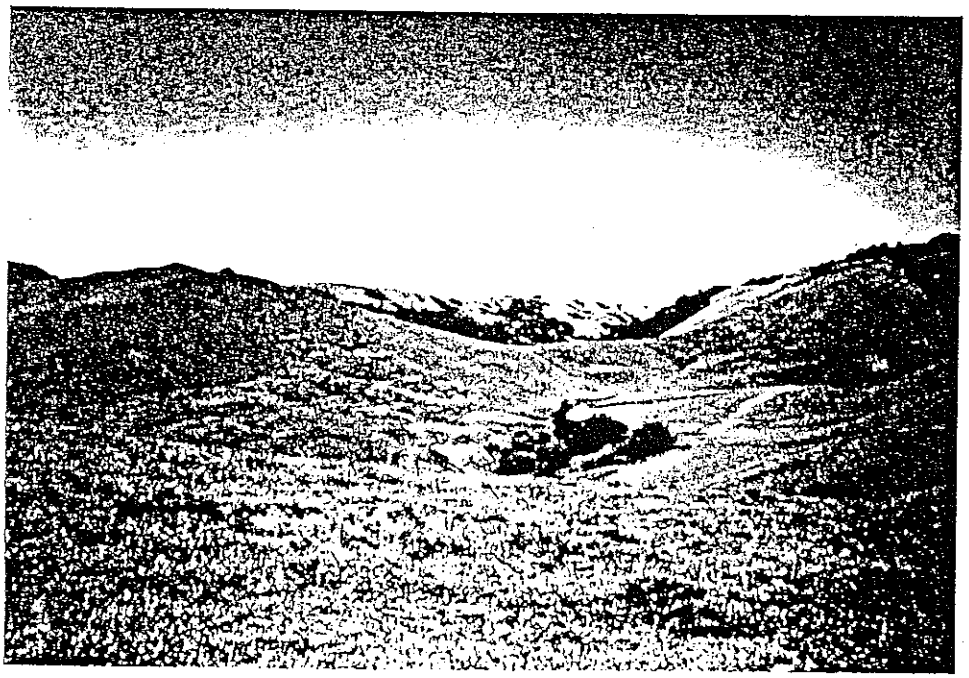


Faria Ranch - Typical habitat; grazed, open annual grassland



Faria Ranch - Typical habitat; grazed, open annual grassland

EnviroNet

Site Photos

Faria Ranch
San Ramon, California

PLATE
B

Drawn by:	File Name:		Job Number:		Date:
EJP	61545c		6154.5		April 17, 2000

Adjacent property - Southern facing chaparral

Faria Ranch - small patch of chaparral (typical of three)

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Site Photos

Faria Ranch
San Ramon, California

PLATE
C

Drawn by:	File Name:		Job Number:		Date:
EJP	61545c		6154.5		April 17, 2000

Appendix E

Alameda Whipsnake Habitat Assessment, Faria Ranch Residential Subdivision

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ALAMEDA WHIPSNAKE HABITAT ASSESSMENT
FARIA RANCH RESIDENTIAL SUBDIVISION PROJECT
CITY OF SAN RAMON, CONTRA COSTA COUNTY, CALIFORNIA

Prepared for:

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700 Larkspur Landing Circle, Suite 100
Larkspur, California 94939
(415) 925-2000

Prepared by:

SBI (Swaim Biological Inc.)
4435 First Street, PMB 312
Livermore, CA 94551
(925) 455-8770

December 20, 2005

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1.3 ALAMEDA WHIPSNAKE ECOLOGY 1
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2.2 HABITAT ASSESSMENT 3
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Figure 2. Nearest AWS Observations to Project Site 5
Figure 3. Site Location 6

1.0 INTRODUCTION

1.1 Report Purpose

This report provides an assessment of the potential for the Alameda whipsnake (*Masticophis lateralis euryxanthus*) to occur on Faria Ranch. This land is divided into two parcels: to the east is the approximately 291 acre proposed Faria Ranch Residential Subdivision Project site, and to the west is the approximately 159 acre remainder parcel of which 137 acres will be placed under conservation easement as part of the proposed development (Figure 1). The Alameda whipsnake is a both a State and Federally listed threatened species.

1.2 Project Location

The project area site is located adjacent to the City of San Ramon, Contra Costa County, California (Figure 1). The project is within the city's Urban Growth boundary and is approximately ¼ mile north and west of the intersection of Crow Canyon Road and Interstate 680. It is bordered to the south and east by residential and commercial development and to the north and west by undeveloped lands. The project site is situated on privately owned property in T2S, R1W, Sections 4,5, 8 and 9 of the Diablo 7.5-minute USGS quadrangle.

Nearly the entire property is within the newly proposed critical habitat for the Alameda whipsnake (U. S. Fish and Wildlife Service, 2005). Only a small portion along the far eastern edge and the south eastern edge are not in the proposed critical habitat.

1.3 Alameda Whipsnake Ecology

In order to provide a context for the conclusions of the habitat assessment, a summary of the information known about habitat use by the Alameda whipsnake is provided below.

The Alameda whipsnake is a slender, fast moving, diurnal snake with a narrow neck and relatively broad head. The dorsal color is sooty-black with yellow-orange dorso-lateral stripes. The anterior portion of the stripes and ventral surface of the snake are heavily pigmented with orange-rufous coloration. Adults reach up to five feet in length.

The Alameda whipsnake is associated with chaparral, Diablan sage scrub, northern coyote brush scrub, and riparian scrub communities and the adjacent mosaic of grassland and wood habitats found in Alameda and Contra Costa Counties. Swaim (1994) found that the home ranges of six radio-equipped whipsnakes were centered in scrub communities. Within those home ranges, Alameda whipsnakes had one or more "core areas" or areas of concentrated use. Habitat in the areas of concentrated use was open or partially open canopy scrub on slopes with northeast, east, southeast, south, or southwest aspect. Rock outcrops and talus were also abundant within the core areas of the Alameda whipsnake. There was also a high degree of spatial overlap of home ranges and core areas of five individuals monitored at Tilden Regional Park. Overlap of home ranges may occur in areas where resources, such as food are abundant (Mace et al. 1983; Gregory et al. 1987; Hiscocks and Perrin 1988) and specific habitat requirements are met.

Although "core areas" had certain parameters, the range of habitat use by individual AWS and AWS populations is much broader. AWS use all aspects, a wide range of canopy cover and types of vegetation, and areas without rock outcrops.

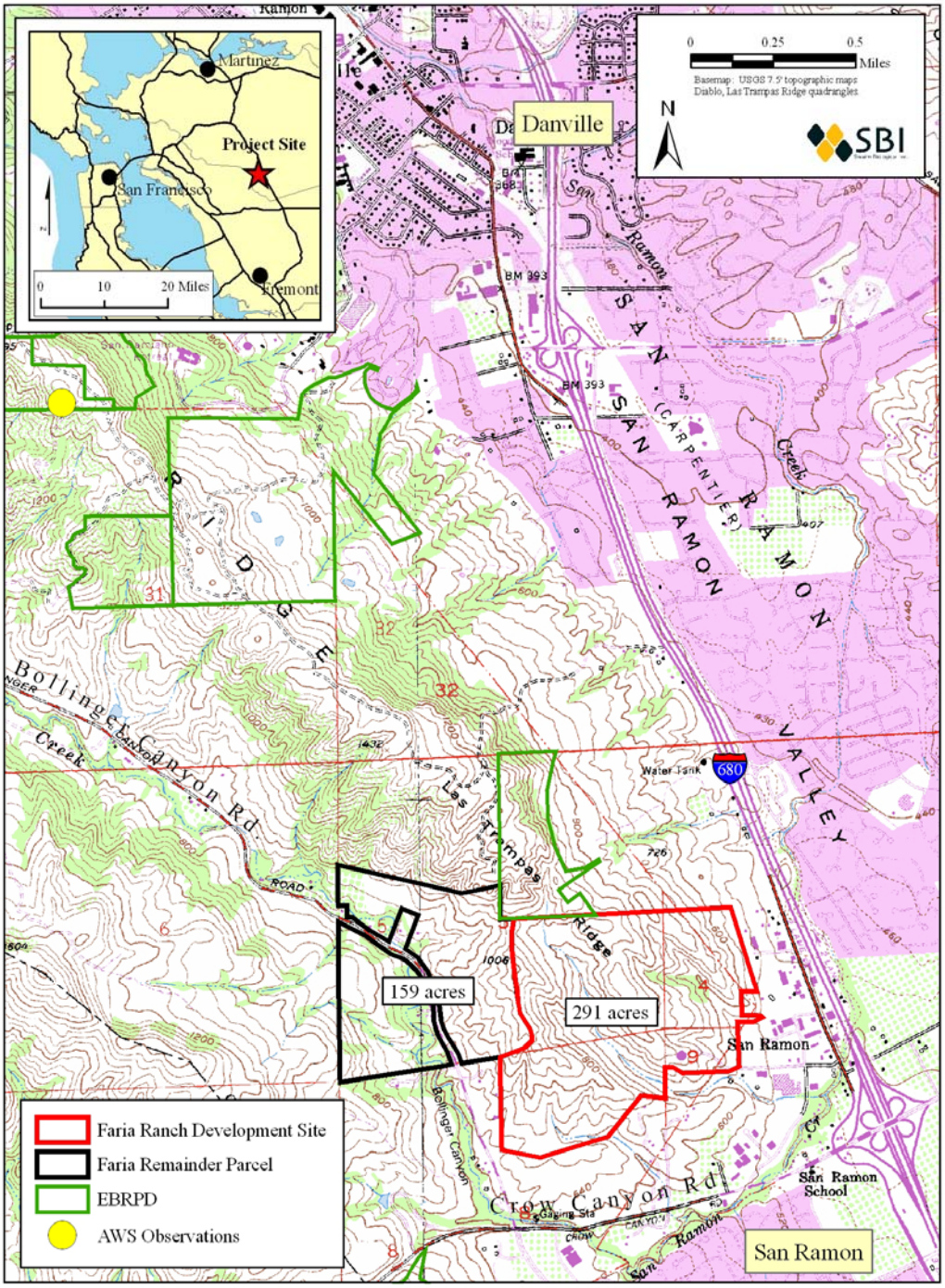

Figure 1. Regional Location

Studies of Alameda whipsnakes equipped with radio transmitters and existence of observations of free-ranging whipsnakes outside of scrub have shown that they also utilize grassland and oak woodland/savanna adjacent to chaparral and scrub communities (Swaim 1994, Swaim Biological Consulting 2000a, 2000b, 2002, 2003). Grassland habitats were used by male whipsnakes most extensively during the mating season in spring (Swaim 1994). Rock outcrops in and near scrub are an important feature of high quality whipsnake habitat because they provide cover and promote lizards, which are important prey for the Alameda whipsnake (Stebbins 1985, Swaim 1994, Harry Greene, pers. Comm.). Although most radio locations were within 100 feet of scrub, whipsnakes also ranged into the surrounding grassland for distances of greater than 500 feet (Swaim 1994). A recent review of whipsnake locality data revealed many observations of whipsnakes at locations over 500 feet from scrub and ranging up to approximately four miles.

The frequency of use of non-scrub habitats is probably highest in open xeric habitats adjacent to scrub, especially when rock outcrops and drainages with riparian vegetation are present. At a minimum the function of the use of non-scrub habitats is related to foraging, mate-searching, and dispersal. Non-scrub habitats that are within the general mosaic of scrub/grassland /woodland in the range of the AWS are also essential for gene flow because of the patchy and dynamic nature of scrub and chaparral habitats.

Although telemetry data to date (Swaim 1994) has provided a great deal of information regarding habitat use by the Alameda whipsnake, it has several limitations. All of the telemetry data is biased toward the habitat use, needs/patterns of the largest of adults (4+ feet). Little information is available for smaller adults, juveniles and hatchlings, which may be more likely to use non-scrub habitats for dispersal and foraging. Another limiting factor of the Swaim (1994) telemetry data is sample size. Only five individuals (two female, three male) were monitored for periods greater than approximately three months.

2.0 METHODS

2.1 AWS Distribution

Information on distribution of the AWS in the project area was gathered from sources including the California Natural Diversity Database (CNDDB), the California Academy of Sciences (CAS), Museum of Vertebrate Zoology, and other knowledgeable biologists working in the San Francisco Bay Area.

2.2 Habitat Assessment

A brief field assessment of the 291 acre proposed residential subdivision site was conducted on November 16, 2005 to determine the types of habitat present on the site and in the vicinity of the project site. We also used 2004 color aerial photographs to determine the types of habitat present in the vicinity of this parcel (approximately one mile).

No site visit of the 159 acre remainder parcel was conducted, but it was viewed from the project site. Aerial photos of this area were reviewed to determine the suitability of habitat for AWS.

3.0 RESULTS

3.1 AWS Distribution

The observations of AWS closest to the project site are from East Bay Regional Park District Property, Las Trampas Ridge Regional Park (Figure 2). There are records from approximately two miles northwest of the site (Swaim 1994) and four miles northwest of the site (EBRPD, pers communication).

3.2 Habitat Assessment

The dominant habitats on the 291 acre proposed residential subdivision parcel include non-native annual grassland, oak woodland, and riparian vegetation in the drainages. There are two small patches of diablan sage scrub on the site (Figure 3). Both are less than ¼ acre in size. One is on the southeast facing slope of a drainage on the eastern portion of the site and the other is on a southwest facing slope of a drainage on the western portion of the site. No rock outcrops were found on the parcel.

Habitats on the 159 acre remainder parcel include non-native annual grassland, oak woodland, riparian vegetation along Bollinger Canyon Creek, an orchard, and ornamental trees associated with buildings on the property. This site is bisected by Bollinger Canyon Road.

Several patches of chaparral and scrub habitat are present just north of the project area on EBRPD property (Figure 3). More extensive areas of chaparral are present just to the north of the proposed mitigation area. None of these have been specifically surveyed by trapping, but are expected to support high densities of AWS based the presence of high quality habitat and direct connection to areas where AWS have been documented.

4.0 CONCLUSION

Due to the presence of the extensive patches of high quality core type scrub and chaparral habitat (south-facing, rocky, open canopy) in close proximity north of the site, it is very likely that AWS would occur on the residential subdivision site and on the conservation easement site. Alameda whipsnakes that occupy the extensive scrub and chaparral habitats to the north would be expected to include portions of the Faria Ranch within their home ranges. In addition, juvenile and hatchling whipsnakes would be expected to disperse onto the site. The presence of riparian vegetation in the drainages increases the potential for whipsnakes to use the site, because it creates an edge of cover for AWS to travel along.

Approximately 98 acres of the 159 acre remainder parcel is north and east of Bollinger Canyon Road. This portion of the mitigation area generally has more value for the

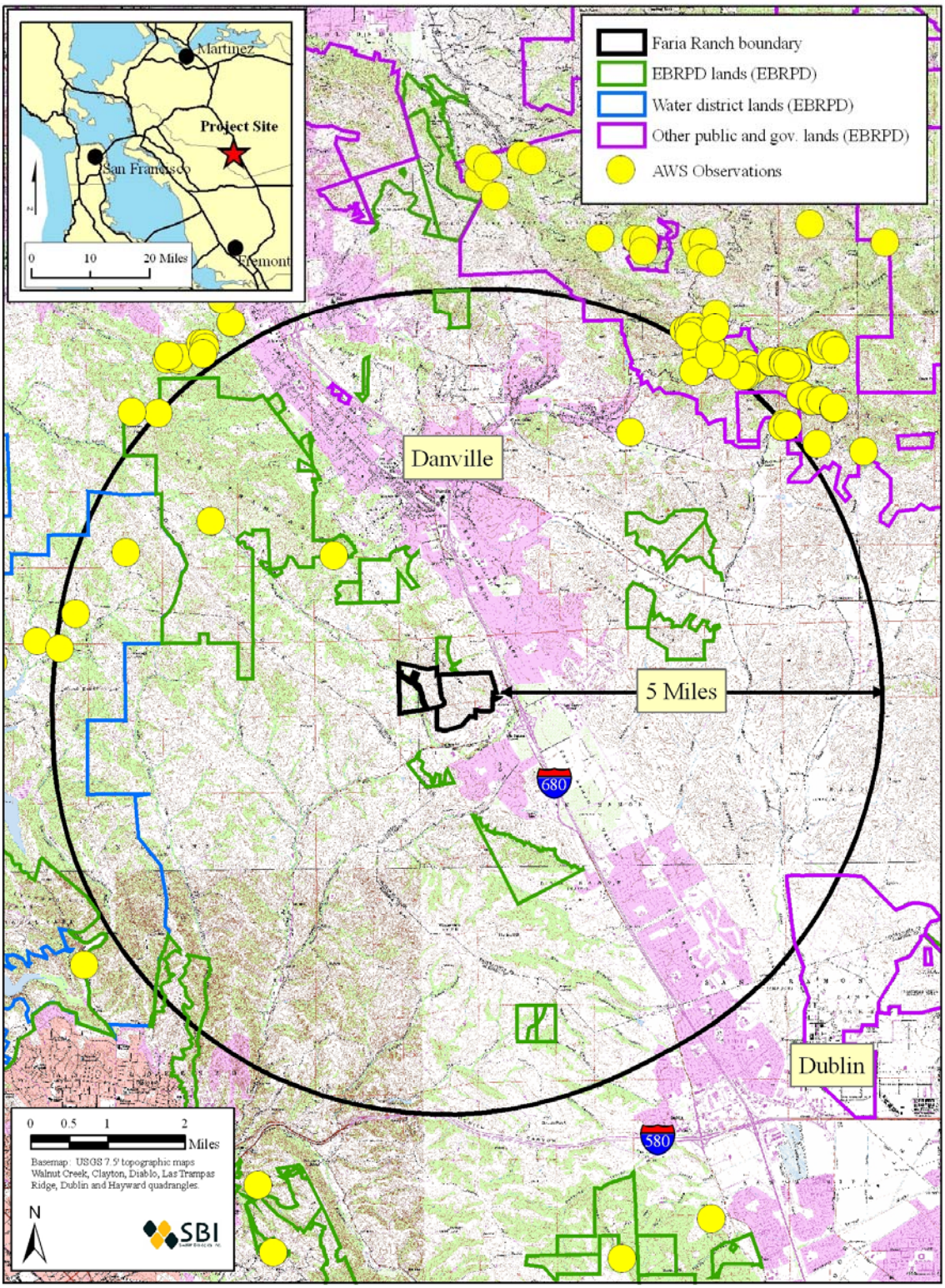

Figure 2. Nearest AWS Observations to Project Site

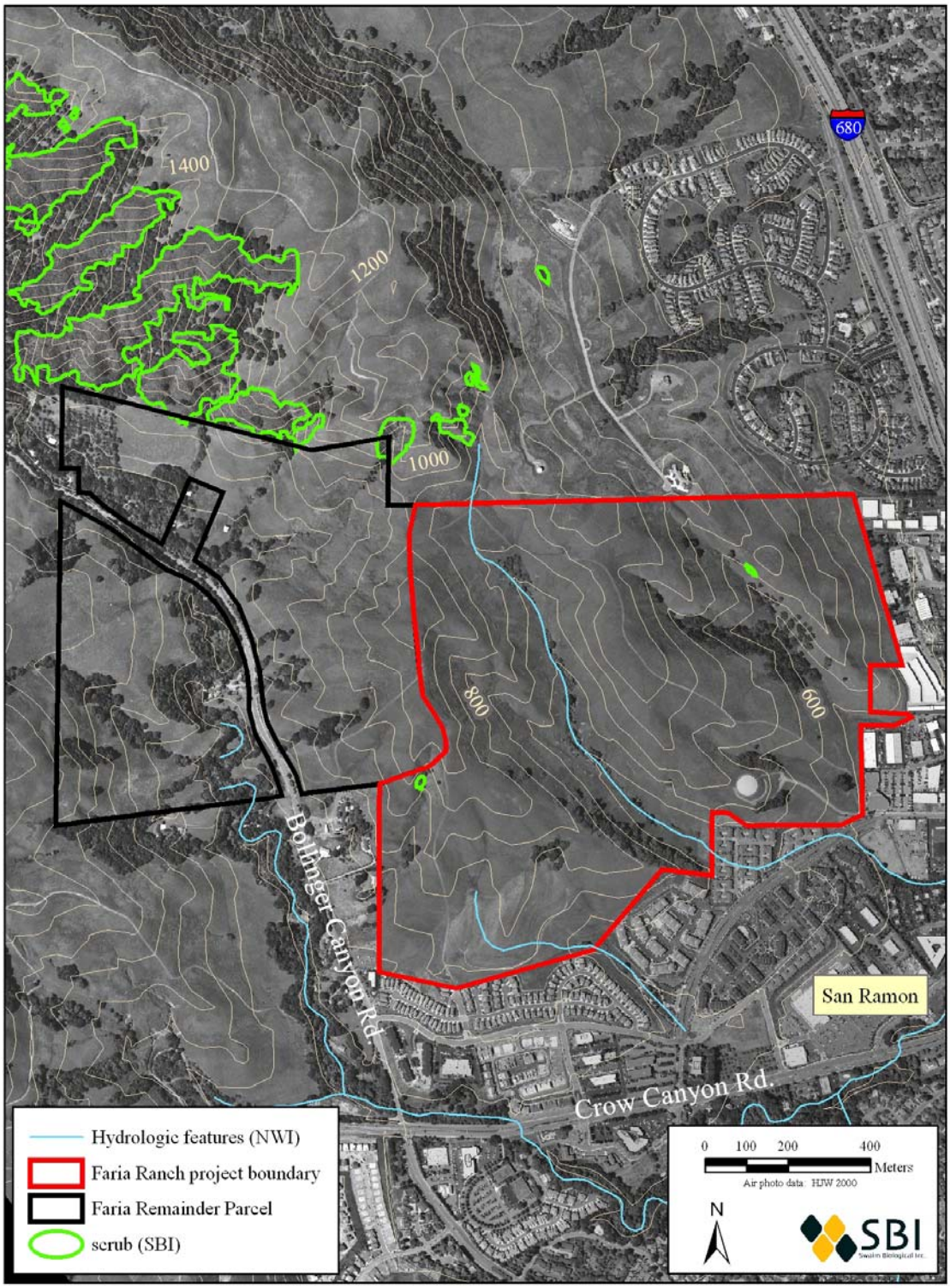

Figure 3. Site Location

AWS than the project site, due to close proximity of far more extensive chaparral stands just to the north and the presence of the riparian vegetation associated with Bollinger Creek (Figure 3). The mitigation habitat is also far more contiguous with undeveloped land when compared to the proposed project site. Approximately ½ of the northern boundary of the proposed project area is adjacent to residential development.

5.0 RECOMMENDATIONS

Due to the loss of potential AWS habitat and the potential for take of AWS during construction, a mitigation and monitoring plan should be prepared for the project. Standard take avoidance measures would include exclusionary fencing prior to construction, environmental training for construction personnel, a preconstruction survey, and monitoring during construction.

The conservation easement over the 137 acre area would be an appropriate part of a mitigation package due to its higher value for the AWS as compared to the project site for the reasons stated above. Additional mitigation opportunities and value for AWS in the vicinity would include scrub habitat restoration on the portion north and east of Bollinger Canyon Road.

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Appendix F

Investigation of the Presence of Wetlands and other Waters of the United States on the Faria Ranch Project Site

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ATTACHMENT 5

INVESTIGATION OF THE PRESENCE OF WETLANDS AND OTHER WATERS OF THE UNITED STATES ON THE FARIA RANCH PROJECT SITE CONTRA COSTA COUNTY, CALIFORNIA

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This report should be cited as: The Huffman-Broadway Group, Inc. 2005. Investigation of the Presence of Wetlands and Other Waters of the United States on the Faria Ranch Project Site, Contra Costa County, California. Prepared for Claremont Homes, Inc., Fremont, California. November 2002, Revised October 2005. 15 pp. plus attachments.

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1.0 INTRODUCTION

1.1 Scope of Work

At the request of Claremont Homes, The Huffman-Broadway Group, Inc. (HBG) conducted an investigation of the geographic extent of wetlands and other waters of the United States subject to U.S. Army Corps of Engineers (Corps) jurisdiction on the Faria Ranch project site in Contra Costa County, California. The investigation was conducted in accordance with Code of Federal Regulations (CFR) definitions of jurisdictional waters, the Corps' 1987 wetland delineation manual, and supporting guidance documents.

1.2 Definition of Wetlands and Other Waters of the U.S.

Section 404 of the Federal Clean Water Act authorizes the Corps to regulate activities that discharge dredged or fill material to wetlands and other waters of the United States. As described at 33 CFR § 328.3(a), the term "waters of the United States" encompass the following resources:

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, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
    i. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
    ii. From which fish or shellfish 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 above paragraphs (1)-(4);
6. The territorial seas; and
7. Wetlands adjacent to waters identified in above paragraphs (1-6) except waters that are themselves wetlands.

The Corps defines wetlands as: "sites that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" [(33 CFR § 328.3(b)]. Implicit in the definition is the need for a site to meet certain water, soil, and vegetation criteria to

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qualify as a jurisdictional wetland. These criteria and the methods used to determine whether they are met are described in the Corps' 1987 wetland delineation manual.

Under Section 10 of the Rivers and Harbors Act of 1899, the Corps also regulates the construction of structures in, over, or under; excavation of material from; or deposition of material into Anavigable waters.@ Consistent with above paragraph (1), the Corps defines navigable waters as "those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce" (33 CFR § 329.4). A determination of navigability, once made by the Corps, applies laterally over the entire surface of the water body, and is not extinguished by later actions or events which impeded or destroy navigable capacity. Based on this provision, the Corps also has the discretion to regulate activities in historically navigable waters. Historically navigable waters are areas that were navigable in the past, but are no longer navigable as a result of artificial modifications, such as levees, dikes, and dams

1.3 Delineation Criteria

As described at 33 CFR § 328 and § 329, the geographic limits of Corps jurisdiction are defined in the following manner.

1) Territorial Seas: The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. Generally, when the shore directly contacts the open sea, the line on the shore reached by the ordinary low tides comprises the baseline from which the distance of three geographic miles is measured.

2) Tidal Waters of the United States: The landward limits of jurisdiction in tidal waters extends to the high tide line or, when adjacent non-tidal waters of the United States are present, to the limits of jurisdiction for such non-tidal waters. The term "high tide line" means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

3) Non-Tidal Waters of the United States: In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or when adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands. The term "adjacent" means bordering, contiguous, or neighboring. Wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like are "adjacent wetlands." The term "ordinary high water mark" means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation,

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the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

4) Wetlands:

The Corps' 1987 wetland delineation manual identifies the key diagnostic criteria for determining the presence of wetlands. These include:

1) Wetland Hydrology: Inundation or saturation to the surface during the growing season.

2) Hydric Soils: Soils classified as hydric or that possess characteristics associated with reducing soil conditions.

3) Predominance of Wetland Vegetation: Vegetation classified as facultative, facultative wet, or obligate according to its tolerance of saturated (i.e., anaerobic) soil conditions.

Specific criteria used to determine the presence or absence of wetland hydrology, soil, and vegetation conditions are as follows:

(a) Wetland Hydrology

The 1987 manual states that wetland hydrology conditions occur when a: "site is inundated either permanently or periodically at mean water depths less than or equal to 6.6 feet, or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation." Whether or not a site meets this criterion is determined by the presence of diagnostic indicators of wetland hydrology, which include the following:

Primary Indicators	**Secondary Indicators**
Watermarks	Oxidized Rhizospheres Associated with Living Roots
Drift Lines	Water-Stained Leaves
Water-Borne Sediment Deposits	FAC-Neutral Test
Drainage Patterns Within Wetlands	Local Soil Survey Data

A March 8, 1992 Corps memorandum entitled *Clarification and Interpretation of the 1987 Manual* provides further clarification:

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"Areas which are seasonally inundated and/or saturated to the surface for a consecutive number of days for more than 12.5 percent of the growing season are wetlands, provided the soil and vegetation parameters are met. Areas wet between 5 percent and 12.5 percent of the growing season in most years may or may not be wetlands. Sites saturated to the surface for less than 5 percent of the growing season are non-wetlands."

In the San Francisco Bay Area, which has a year-round growing season, 5% of the growing season is equal to 18.25 days.

(b) Hydric Soils

The 1987 manual states that the diagnostic environmental characteristics indicative of wetland soil conditions are met where "soils are present and have been classified as hydric, or they possess characteristics that are associated with reducing soil conditions." According to the manual, indicators of soils developed under reducing conditions may include:

1. Organic soils (Histosols);
2. Histic epipedons;
3. Sulfidic material;
4. Aquic or peraquic moisture regime;
5. Reducing soil conditions;
6. Soil colors (chroma of 2 or less);
7. Soil appearing on hydric soils list; and
8. Iron and manganese concretions

A February 20, 1992 Corps memorandum entitled *Regional Interpretation of the 1987 Manual* states that Athe most recent version of National Technical Committee for Hydric Soils (NTCHS) hydric soil criteria will be used (to make hydric soil determinations). At this writing, criteria published in the June 1991 Hydric Soils of the United States are current. These soil criteria specify at least 15 consecutive days of saturation or 7 days of inundation (flooding or ponding) during the growing season in most years.@

The NTCHS defines a hydric soil as a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile (Hurt et al. 1998). The most recent version of the NTCHS=s hydric soils criteria identifies those soils that are likely to meet this definition. These include:

1. All Histosols except Folists, or

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2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Aquisalids, Pachic subgroups, or Cumulic subgroups that are:

   a. somewhat poorly drained with a water table equal to 0.0 foot (ft) from the surface during the growing season, or

   b. poorly drained or very poorly drained and have either:

      (i) water table equal to 0.0 ft during the growing season if textures are coarse sand, sand, or fine sand in all layers within 20 inches (in), or for other soils

      (ii) water table at less than or equal to 0.5 ft from the surface during the growing season if permeability is equal to or greater than 6.0 in/hour (h) in all layers within 20 in, or

      (iii) water table at less than or equal to 1.0 ft from the surface during the growing season if permeability is less than 6.0 in/h in any layer within 20 in, or

3. Soils that are frequently ponded for long duration (7 to 30 days) or very long duration (30 + days) during the growing season, or

4. Soils that are frequently flooded for long duration (7 to 30 days) or very long duration (30+ days) during the growing season.

Based on computer database searches for soils meeting above criterion (2), NRCS has developed hydric soils lists for many parts of the country, including Contra Costa County (NRCS 1978). Caution should be used when using these lists. Many soils on the lists have ranges in water table depths that allow them to be either hydric or nonhydric depending on landscape position and other site-specific factors. Accordingly, hydric soils lists are good ancillary tools to facilitate wetland determinations, but are not a substitute for on-site investigations. For the latter, NRCS (1995) recommends the uses of field indicators of hydric soils. The presence of one or more field indicators suggests processes associated with hydric soil formation have taken place. These indicators are particularly useful because they persist in soils during both wet and dry periods, and may remain even after changes in site conditions such as the elimination of wetland hydrology (NRCS 1995).

(c) Predominance of Wetland Vegetation

The 1987 manual states that the wetland vegetation conditions are met when the prevalent vegetation (i.e., more than 50% of vegetation cover or tree basal area) consists of macrophytes that are typically adapted to sites having wetland hydrologic

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and soil conditions (e.g., periodic or continuous inundation or soil saturation). Hydrophytic vegetation is defined as "plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content" (Cowardin et el. 1979). Hydrophytic vegetative species, due to morphological, physiological, and/or reproductive adaptation(s), have the ability to grow, effectively compete, reproduce, and/or persist in anaerobic soil conditions. Positive indicators of the presence of hydrophytic vegetation include:

1. more than 50% of the dominant species are rated as Obligate ("OBL"), Facultative Wet ("FACW"), or Facultative ("FAC") on lists of plant species that occur in wetlands (see Reed 1988 for California);

2. visual observations of plant species growing in sites of prolonged inundation or soil saturation; and

3. reports in the technical literature indicating the prevalent vegetation is commonly found in saturated soils.

Whether or not a site is dominated by hydrophytic vegetation is determined by consulting "National Lists of Plant Species that Occur in Wetlands," which are published by the U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI). Regional Interagency Review Panels develop the lists by determining species' estimated probability of occurrence in wetlands vs. non-wetlands. Classifications are made by unanimous agreement of the panel. NWI lists include plants that grow in a range of soil conditions from permanently wet to dry. Species are divided into the following "indicator categories:"

- "Obligate wetland" (OBL) species, which occur almost always in wetlands (estimated probability >99%);

- "Facultative wetland" (FACW) species, which usually occur in wetlands (estimated probability 67-99%), but are occasionally found in non-wetlands;

- "Facultative" (FAC) species, which are equally likely to occur in wetlands or non-wetlands (estimated probability 34-66%);

- "Facultative Upland" (FACU) species, which sometimes occur in wetlands (estimated probability 1-33%), but more often occur in non-wetlands; and

- "Obligate upland" (UPL) species, which occur in wetlands in other regions, but occur almost always in non-wetlands in the region specified (estimated probability >99%).

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Species that have an indicator status of OBL and FACW species (and some FAC species) are considered to be adapted for life in anaerobic soil conditions. It should be noted that indicator assignments are not based on the results of a statistical analysis of species occurrence. They are a best approximation of wetland affinity based on a synthesis of submitted review comments, published botanical literature, and field experience of the Panel members. If the Panel is unable to reach a unanimous decision on the status of a species, "no agreement" (NA) is recorded. If insufficient information exists to determine the status of a species, "no indicator" (NI) is recorded. Species that are not included in the NWI list are assigned a "not listed" (NL) designation.

The wetland indicator categories do not equate to degrees of wetness, but represent a range of potential occurrence. Based on the probabilities shown above, there is a probability that, while one would expect to find obligate, facultative wet, and facultative plants growing in wetlands, a probability also exists that obligate, and especially, facultative wet, and facultative species will occur in areas that do not exhibit wetland soil and/or hydrology conditions. Therefore, classification of a plant species to a specific category (OBL, FACW, FAC, and UPL) does not mean that the plant is always found in the associated habitat of preference. Many obligate wetland species occur in permanently or semi-permanently flooded wetlands, but a number of obligates also occur and/or are restricted to wetlands which are only temporarily or seasonally flooded. The obligate upland species include a diverse collection of plants which range from weedy species adapted to exist in a number of environmentally stressful or disturbed sites (including wetlands) to species in which a portion of the gene pool always occurs in wetlands. Both the weedy and ecotype representatives of the obligate upland category can occur in seasonally and semi permanently flooded wetlands (Reed, 1988). For these reasons, the 1987 Corps manual does not solely rely on the presence of hydrophytic vegetation to make wetland determinations.

1.4 General Site Description

The Faria Ranch, owned by the AJF-Faria Partnership, L.P., is a 450± acre ranch adjacent to the City limits of the City of San Ramon, California. A major portion of the Faria Ranch has been included in the City of San Ramon's General Plan, approved by the voters of the City of San Ramon on March 5, 2002. The Faria Ranch is an area of the General Plan indicated in the Northwest Specific Plan Area (the "Northwest Area") that is within the City of San Ramon's Urban Growth Boundary, and is within the City of San Ramon's Sphere of Influence, but is contiguous to the City outside the current City limits. Development may proceed as a Specific Plan or by way of the City's Planned Development (PD) District Guidelines. The area that includes that portion of the 450± acre Faria Ranch property that is in the Northwest Area is the 291 acre area that is the Study Area for this assessment.

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The project site is located north of an existing urbanized residential area of the City of San Ramon. The site is primarily annual grassland interspersed with oak woodland and several riparian corridors along ephemeral drainages. Elevations range from 530 to 999 feet msl.

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2.0 DELINEATION METHODOLOGY

HBG conducted initial investigations of the subject property in November 2002. Existing land forms, vegetation, hydrology, and soil conditions were evaluated to identify sites that would likely contain wetlands and other waters of the United States. An aerial photograph of the site taken by Air Photo USA and dated June 1, 2000, was obtained from Earth Scan. The digital photography was brought into GIS software and provided a base map for the analysis.

Detailed field investigations were conducted on November 18, 2002 to delineate the limits of Corps jurisdiction. The map of wetlands and waters of the U.S. was field verified by the Corps on August 18, 2005. A backpack-held, Trimble global positioning system (GPS) unit was used to map the wetland boundaries. Once field data collection was completed, the GPS data of the wetland boundaries were overlaid on the topographic map of the project site and the acreages within the wetland polygons were calculated.

Representative sites were selected for detailed analysis of wetland indicators using a transect-based sampling approach. Site selection was based on an examination of sites which would likely pond, flood, or saturate based on their geographic position, soil permeability, and drainage characteristics in relationship to well-drained upland sites (as determined by NRCS soils data). A total of 5 representative sample locations were analyzed during these investigations.

Based on data obtained in these investigations, the geographic extent of wetlands and other waters of the United States were delineated according to the criteria described in Section 1.3. Sites were further classified using the U.S. Fish and Wildlife Services' *Classification System for Wetland and Deepwater Habitats* (Cowardin et al. 1979). The following sections discuss hydrology, soil, and vegetation conditions observed at the study site during field investigations.

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3.0 TECHNICAL FINDINGS

3.1 Soil Conditions

A review of the Natural Resource Conservation Service (NRCS) Soil Survey map for Contra Costa County (NRCS 1978), indicated that soils on the site are almost entirely Los Osos clay loam (15 to 30% slopes, 30 to 50% slopes and 50 to 75% slopes). This soil series consists of well-drained soils underlain by soft fine-grained sandstone and shale. Permeability is slow. Soils in small areas at the eastern edge of the property are Cropley clay (2 to 5% slopes), Botella clay loam (2 to 9% slopes) and Diablo clay (9 to 15% slopes). Additional information on the hydrological characteristics of these soil types obtained from the NRCS Soil Survey are included in Attachment 4. Field investigations on the project site confirmed that the NRCS soils mapping is reasonably accurate throughout the project area.

Review of the national and local lists of hydric soils indicated that none of these soil series is considered a hydric soil. It is important to note that, although a soil for a particular site may be classified as a hydric soil by the NRCS listing, it can nevertheless fail to exhibit wetland soil characteristics if it has been drained to the extent that flooding, ponding, and or surface soil saturations no longer occur for extended time periods. The converse also is possible when a soil is not listed as hydric, but site drainage conditions bring about wetland soil characteristics.

As described above, a total of 5 soil pits were dug by shovel to a maximum depth of 12 inches at the same representative locations used for the evaluation of wetland hydrology and vegetation conditions. Attachment 3 contains field data sheets for each of these sites. The soils found on site were characterized with respect to indicators of wetland soil conditions using the approach described in the 1987 wetland delineation manual. Soils which were presently hydric were typically dark gray-brown (10YR 3/1) clay loams, some with faint redoximorphic features (7.5 YR 5/6 mottles). These soils were found associated with intermittent drainages and riverine habitats on the property, and with few a small depressions where saturation occurs. No other redoximorphic features or any other hydric soil indicators were observed. Attachments 4 and 5 identify indicators present in relation to soil series and land form.

3.2 Hydrology Conditions

The property has undergone human disturbance, primarily due to grazing and altered runoff conditions associated with development of unpaved access roads and culverts. Indicators of wetland hydrology were found associated with the intermittent drainages and riverine habitats present on the property and with the few small depressions where saturation occurs. The indicators were in the form of ponding and surface soil saturation, sediment deposits, water marks, and drainage patterns (Attachment 6). No indicators of wetland hydrology were found associated with any other landform on the property.

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3.3 Vegetation Conditions

A prevalence of wetland vegetation was found in several small low-lying depressions and other areas where vegetation consisted of species such as spiny cocklebur (*Xanthium spinosum*) and swamp timothy (*Crypsis schoenoides*). The on-site creeks and drainages are primarily unvegetated with the exception of a few isolated areas where species such as spiny cocklebur and rabbitfoot grass (*Polypogon monspeliensis)* are present.

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4.0 AREAS POTENTIALLY REGULATED BY THE CORPS

Based on the methods and criteria for delineating wetlands and other waters of the U.S., HBG has determined that 0.48 acres of wetlands and waters of the U.S. meeting Corps wetland criteria occur in the project study area (Attachment 8). This acreage is comprised of 0.22 acre of palustrine emergent seasonally flooded wetlands and 0.26 acres of riverine intermittent streambed associated with on-site creeks and drainages. All of these areas are potentially subject to Corps jurisdiction. The extent of these habitats is summarized in Attachments 7 and 8.

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5.0 AREAS POTENTIALLY EXEMPT FROM CORPS JURISDICTION

Based on the recent U.S. Supreme Court decision *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers,* some isolated wetlands may be disclaimed from Corps jurisdiction providing they meet the following criteria: (1) non-tidal, (2) non-navigable, (3) not hydrologically connected to navigable waters and not adjacent, and (4) not subject to foreign or interstate commerce. Areas meeting the regulatory definitions of wetlands on the site were reviewed to determine whether they could be disclaimed from Corps jurisdiction as isolated wetlands. No wetlands or waters of the U.S. in the study area met the criteria of isolated wetlands, as all wetlands and waters of the U.S. are either tributaries leading to navigable waters or are adjacent to such tributaries.

A number of exemptions from Clean Water Act regulations exist for areas that would otherwise qualify as waters of the United States. These exemptions fall into two basic categories: (1) discretionary, and (2) non-discretionary.

Discretionary Exemptions

As described in the preamble discussion of the Corps regulations in the November 13, 1986 *Federal Register*, certain areas which meet the technical definition of wetlands generally are not considered waters of the U.S. [33 CFR 328.3(a)]. Such areas include:

(a) Non-tidal drainage and irrigation ditches excavated on dryland;

(b) Artificially irrigated areas which would revert to upland if the irrigation ceased;

(c) Artificial lakes or ponds created by excavating and/or diking dryland to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing;

(d) Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dryland to retain water for primarily aesthetic reasons; and

(e) Water filled depressions created in dryland incidental to construction activity and pits excavated in dryland for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States.

It should be noted that the Corps and EPA reserve the right to determine that a particular waterbody within these categories is a water of the United States on a case-by-case basis.

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Non-Discretionary Exemptions

In addition to the discretionary exemptions described above, the Corps' regulations contain a non-discretionary exemption for waste treatment systems designed to meet the requirements of the Clean Water Act [33 CFR 328.3(a) (7)]. Such areas, which include treatment ponds and lagoons, are not considered waters of the U.S.

Discussion

Aquatic resources on the project site were examined with respect to the above exemptions from Clean Water Act regulations. Through this analysis, HBG determined that none of the wetlands meet existing exemption criteria.

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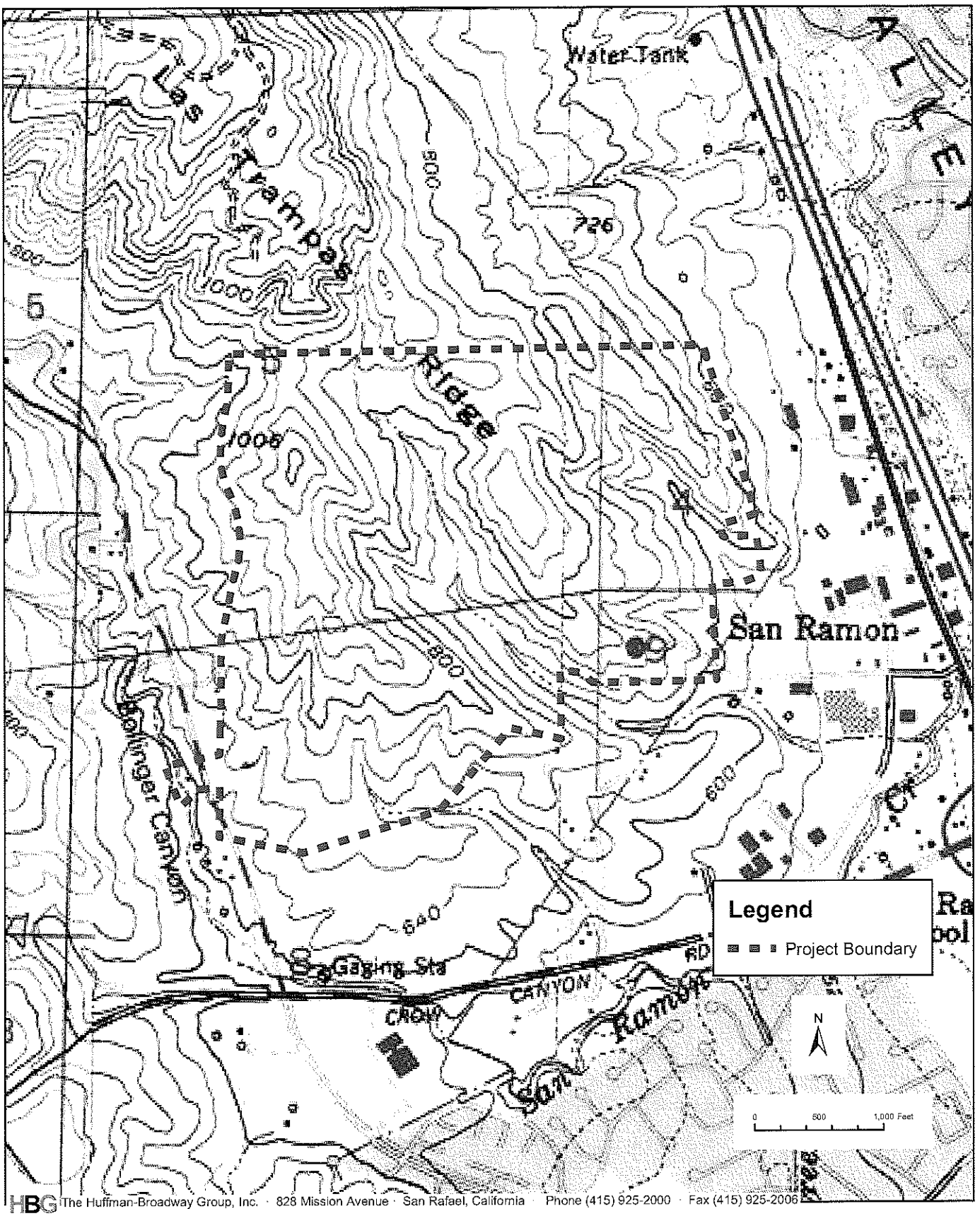
Attachment 1.

Location of the Project Site



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Attachment 1. Location of the Project Site,

Faria Ranch Project, San Ramon, CA.

Base Map Source: USGS 7.5 min quadrangles for Las Trampas Ridge (1993), and Diablo (1953, photorevised 1980)

Attachment 2.

Aerial Photograph of the Study Area

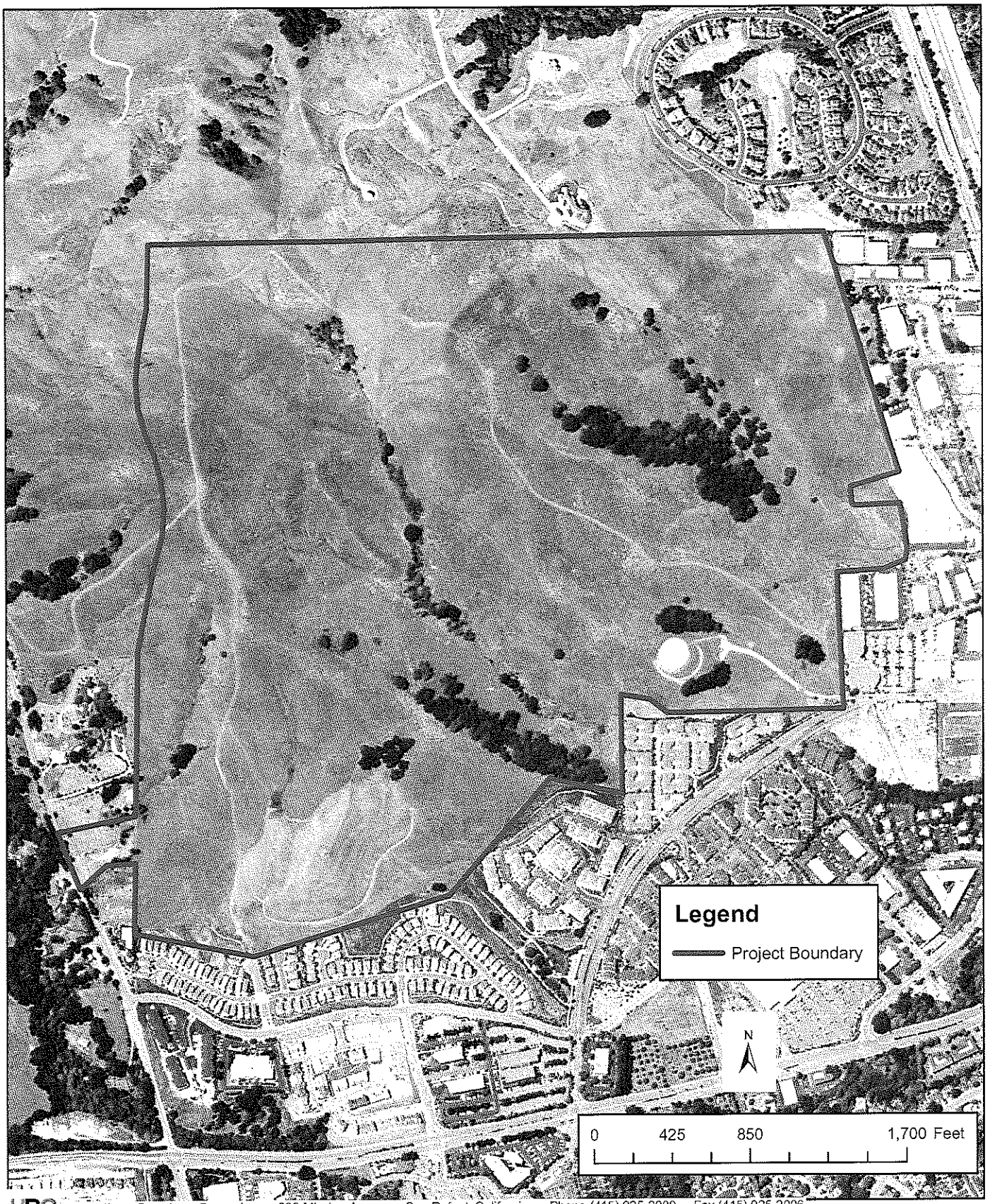

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Figure 2. Aerial Photograph of the Study Area,

Faria Ranch Project, San Ramon, CA.

Aerial Photography from AirPhotoUSA dated: June, 2000

Attachment 3.

Field Data Sheets

DATA FORM - ROUTINE WETLAND DETERMINATION
(Adapted From 1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: Pierce Ranch
Applicant/Owner: Claremont Homes
Investigator(s): [illegible]

Date: 11/19/02
City: San Ramon
State: CA

Do Normal Circumstances exist on the site? ✓ Yes ___ No
Is the site significantly disturbed (Atypical Situation)? ___ Yes ✓ No
Is the area a potential Problem Area? ___ Yes ✓ No
(If needed, explain answer on reverse or attach separate sheet.)

Community ID:
Transect ID: W Plot ID: 1

VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status	Dominant Plant Species	Strata (H,S,T or V)	Regional NWI Indicator Status
1. Polygonum monspeliensis	h	FACW+	9.		
2. Xanthium spinosum	h	FAC+	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Observations & Remarks:
1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-):herb 100 %; shrub ___ %; tree ___ %; vine ___ %
2. Assume presence of wetland vegetation? ___ Yes ✓ No; or,
3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: ___ Yes ✓ No
4. Taxonomic Reference(s): Jepson, 1993

HYDROLOGY

✓ Recorded Data (Attached):
___ Stream, Lake, or Tide Gauge
✓ Aerial Photographs: Dates: ___
___ Other
a. ___
b. ___
c. ___
Comment: ___
___ No Recorded Data Found

Current Field Observations with upper 12" of soil profile:
Depth of Surface Water: ___ (in.)
Depth to Free Water in Pit: ___ (in.)
Depth to Saturated Soil: ___ (in.)

___ Tidal Influence ✓ Non-Tidal Influence

Comment(s):

Corps Wetland Hydrology Indicators within upper 12" of soil profile:
Corps Primary Indicators (current conditions):
___ Inundated: ___ Flooded ___ Ponded
___ Saturated: ___ In Upper 12" of Soil Profile
Corps Primary Indicators (Historic conditions):
___ Water Marks
___ Drift Lines
___ Sediment Deposits
✓ Drainage Patterns in Wetlands
Corps Secondary Indicators (2 or more required; historic conditions):
___ Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: ___ Upper 12" of Soil Profile
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
Other, If Necessary (Explain)
a. ___ Landscape Position "Drains",
b. ___ Landscape Position "Ponds"
c. ___ Landscape Position "Saturates"

Comment(s):

Observations and Remarks:
1. *Filamentous or sheet forming algae present?* ___ *Yes* ✓ *No*
2. *Matted vegetation* ___ *Yes* ✓ *No*
3. *Surface Sediment with Bedding Planes* ___ *Yes* ✓ *No*
4. *Encrusted detritus* ___ *Yes* ✓ *No*
5. *Slope:* ✓ *0-2%; or* ___ *> 2%*
6. *Oxidized rhizospheres:* ___ *new roots only;* ___ *old roots only;* ___ *new and old roots, or* ✓ *none*
7. *Flooding:* ___ *none, flooding not probable;* ___ *rare, unlikely but possible under unusual weather conditions;* ___ *occasional, occurs on an average of once or less in 2 years, or* ✓ *frequent, occurs on an average of more than once in 2 years.*
8. *Continuous flooding duration:* ___ *None;* ___ *very brief, if < 2 days;* ___ *brief, if < 5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS; or* ✓ *very long, if > 12.5% GS*
9. *Ponding?* ___ *Yes* ✓ *No*
10. *Continuous ponding duration:* ✓ *None;* ___ *very brief, if < 2 days;* ___ *brief, < 5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS or:* ___ *very long, if > 12.5% GS*
11. *Saturation?* ✓ *Yes* ___ *No*
12. *Continuous duration of Saturation:* ___ *None;* ___ *very brief, if < 2 days;* ___ *brief, < 5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS; or* ✓ *very long, if > 12.5% GS*

Comment(s):

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SOILS

Map Unit Name (Series and Phase): Los Osos clay loam (50 to 75% slopes)

Taxonomy (Subgroup):

Drainage Class[1]: well-drained

Permeability[2]: slow

Run off[3]: rapid

Field Observations Confirm NRCS Mapping? ✓ Yes ___ No ___ N/A

Profile Description (Surface 0" to 12"):

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance[4]/ Contrast[5]		Texture[6]/ Concretions/ Structures[7]		
Surface (0) to 12	B	10YR3/1	—	—	—			
___ to ___								
___ to ___.								

Hydric Soil Indicators:

Historic: ___ Histosol
___ Histic Epipedon
___ Organic Streaking in Sandy Soils
___ Listed on National Hydric Soils List
___ Mottles Present (Redoximorphic features)

✓ Concretions (Redoximorphic Feature) at 6"
___ High Organic Content in Surface Layer in Sandy Soils
✓ Gleyed or Low-Chroma Colors (chroma ≤2)
___ Listed on Local Hydric Soils List
___ Redoximorphic Feature Along Dead Root Channel (Halo)
Other: ___

Comment(s):

Current: ___ Sulfidic Odor
___ Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions)

___ Aquic Moisture Regime (nearly free of dissolved oxygen periodically)
___ Peraquic Moisture Regime (near permanent)
___ Other

Comment(s):

Observations and Remarks:

1. *Smell:* ___ *Neutral;* ✓ *Slightly Fresh;* ___ *Freshly Plowed Field Smell; or* ___ *Sulfidic Odor*
2. *Site has been:* ___ *Irrigated;* ___ *Land Leveled;* ___ *Ditch Drained;* ___ *Tile Drained;* ___ *Pumped;* ___ *Graded to drain via slope*
3. *Soils Currently are:* ___ *Flooded;* ___ *Ponded;* ___ *Saturated*[8]
4. *Soils:* ✓ *do* ___ *do not, become continuously flooded or ponded, under normal conditions, for long (≥7 to 30 days) to very long durations; (>30 days) during the growing season;* ___ *Unknown*
5. *Soils:* ✓ *do* ___ *do not, become continuously saturated, under normal conditions, for 14 days or greater;* ___ unknown
6. Comment(s):

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? ✓ Yes ___ No
Wetland Hydrology Conditions Present? ✓ Yes ___ No
Hydric Soils Conditions Currently Present? ✓ Yes ___ No

Is this Sampling Point Within a Wetland? ✓ Yes ___ No

Signature: Terry Huffman

Remarks:

1. *Possible water of the U.S.?* ✓ *Yes* ___ *No (can be a water and not a wetland when vegetation is absent if bed and bank present).*
2. *Possibly exempt from Corps/EPA regulation?* ___ *Yes* ___ *No (If yes, check item(s) below).*
   (a) ___ *Non-tidal drainage and irrigation ditches excavated on dry land*
   (b) ___ *Artificial irrigated areas which would revert to upland if the irrigation ceased.*
   (c) ___ *Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.*
   (d) ___ *Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons.*
   (e) ___ *Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see CFR 328.3(a)).*

NOTES:

[1] *Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).*
[2] *Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.06 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inches), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches), or Variable (V).*
[3] *Runoff: Very slow (VS) Slow (S), Moderate (M), Rapid (R), or Variable (V).*
[4] *Mottle abundance: Few (F), Common (C), or Many (M).*
[5] *Mottle contrast: Faint (F), Distinct (D), or Prominent (P).*
[6] *Texture: Sand, loamy sand, sandy loam, loam , silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.*
[7] *Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.*
[8] *Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles, or hydric soil classification.*

DATA FORM - ROUTINE WETLAND DETERMINATION
(Adapted From 1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: Bonita Ranch
Applicant/Owner: Chesapeake Homes
Investigator(s): [illegible]

Date: 11/18/02
City: San Dimas
State: CA

Do Normal Circumstances exist on the site? ✓ Yes ___ No
Is the site significantly disturbed (Atypical Situation)? ___ Yes ✓ No
Is the area a potential Problem Area? ___ Yes ✓ No
(If needed, explain answer on reverse or attach separate sheet.)

Community ID:
Transect ID: W Plot ID: 2

VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status	Dominant Plant Species	Strata (H,S,T or V)	Regional NWI Indicator Status
1. Xanthium spinosum	h	FACU+	9.		
2. Grypsis schoenoides	h	OBL	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Observations & Remarks:
1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-):herb 100%; shrub____%; tree____%; vine____%
2. Assume presence of wetland vegetation? ___ Yes ✓ No; or,
3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: ___ Yes ✓ No
4. Taxonomic Reference(s): Jepson, 1993

HYDROLOGY

✓ Recorded Data (Attached):
___ Stream, Lake, or Tide Gauge
✓ Aerial Photographs: Dates: _____
___ Other
a. _____
b. _____
c. _____
Comment: _____
___ No Recorded Data Found

Current Field Observations with upper 12" of soil profile:
Depth of Surface Water: _____ (in.)
Depth to Free Water in Pit: _____ (in.)
Depth to Saturated Soil: _____ (in.)

___ Tidal Influence ✓ Non-Tidal Influence

Comment(s):

Corps Wetland Hydrology Indicators within upper 12" of soil profile:
Corps Primary Indicators (current conditions):
___ Inundated: ___ Flooded ___ Ponded
___ Saturated: ___ In Upper 12" of Soil Profile
Corps Primary Indicators (Historic conditions):
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Corps Secondary Indicators (2 or more required; historic conditions):
___ Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: ___ Upper 12" of Soil Profile
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
Other, If Necessary (Explain)
a. ___ Landscape Position "Drains"
b. ___ Landscape Position "Ponds"
c. ___ Landscape Position "Saturates"

Comment(s): hoofprints by cattle in mud

Observations and Remarks:
1. *Filamentous or sheet forming algae present?* ___ *Yes* ✓ *No*
2. *Matted vegetation* ___ *Yes* ✓ *No*
3. *Surface Sediment with Bedding Planes* ___ *Yes* ✓ *No*
4. *Encrusted detritus* ___ *Yes* ✓ *No*
5. *Slope:* ✓ *0-2%; or* ___ *> 2%*
6. *Oxidized rhizospheres:* ___ *new roots only;* ___ *old roots only;* ___ *new and old roots, or* ✓ *none*
7. *Flooding:* ✓ *none, flooding not probable;* ___ *rare, unlikely but possible under unusual weather conditions;* ___ *occasional, occurs on an average of once or less in 2 years, or* ___ *frequent, occurs on an average of more than once in 2 years.*
8. *Continuous flooding duration:* ✓ *None;* ___ *very brief, if < 2 days;* ___ *brief, if < 5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS; or* ___ *very long, if > 12.5% GS*
9. *Ponding?* ✓ *Yes* ___ *No*
10. *Continuous ponding duration:* ___ *None;* ___ *very brief, if < 2 days;* ___ *brief, < 5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS or;* ✓ *very long, if > 12.5% GS*
11. *Saturation?* ✓ *Yes* ___ *No*
12. *Continuous duration of Saturation:* ___ *None;* ___ *very brief, if < 2 days;* ___ *brief, < 5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS; or* ✓ *very long, if > 12.5% GS*

Comment(s):

SOILS

Map Unit Name (Series and Phase): Los Osos clay loam

Taxonomy (Subgroup): (50 to 75% slopes)

Drainage Class[1]: well-drained

Permeability[2]: slow

Run off[3]: rapid

Field Observations Confirm NRCS Mapping? ✓ Yes ___ No ___ N/A

Profile Description (Surface 0" to 12"):

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance[4]/	Contrast[5]	Texture[6]/ Concretions/ Structures[7].		
Surface (0) to 6	B	10YR 3/1	7.5YR 5/6	few	faint			
6 to 12	B	10YR 3/1	—	—	—			
___ to ___.								

Hydric Soil Indicators:

Historic:
- ___ Histosol
- ___ Histic Epipedon
- ___ Organic Streaking in Sandy Soils
- ___ Listed on National Hydric Soils List
- ✓ Mottles Present (Redoximorphic features)
- ___ Concretions (Redoximorphic Feature)
- ___ High Organic Content in Surface Layer in Sandy Soils
- ✓ Gleyed or Low-Chroma Colors (chroma ≤2)
- ___ Listed on Local Hydric Soils List
- ___ Redoximorphic Feature Along Dead Root Channel (Halo)

Other: ___

Comment(s):

Current:
- ___ Sulfidic Odor
- ___ Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions)
- ___ Aquic Moisture Regime (nearly free of dissolved oxygen periodically)
- ___ Peraquic Moisture Regime (near permanent)
- ___ Other

Comment(s):

Observations and Remarks:

1. *Smell:* ___ *Neutral;* ✓ *Slightly Fresh;* ___ *Freshly Plowed Field Smell; or* ___ *Sulfidic Odor*
2. *Site has been:* ___ *Irrigated;* ___ *Land Leveled;* ___ *Ditch Drained;* ___ *Tile Drained;* ___ *Pumped;* ___ *Graded to drain via slope*
3. *Soils Currently are:* ___ *Flooded;* ___ *Ponded;* ___ *Saturated*[8]
4. *Soils:* ✓ *do* ___ *do not, become continuously flooded or ponded, under normal conditions, for long (≥7 to 30 days) to very long durations; (>30 days) during the growing season;* ___ *Unknown*
5. *Soils:* ✓ *do* ___ *do not, become continuously saturated, under normal conditions, for 14 days or greater;* ___ unknown
6. Comment(s):

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? ✓ Yes ___ No

Wetland Hydrology Conditions Present? ✓ Yes ___ No

Hydric Soils Conditions Currently Present? ✓ Yes ___ No

Is this Sampling Point Within a Wetland? ✓ Yes ___ No

Signature: [signature]

Remarks:

1. *Possible water of the U.S.?* ✓ *Yes* ___ *No (can be a water and not a wetland when vegetation is absent if bed and bank present).*
2. *Possibly exempt from Corps/EPA regulation?* ___ *Yes* ___ *No (If yes, check item(s) below).*
   - *(a)* ___ *Non-tidal drainage and irrigation ditches excavated on dry land*
   - *(b)* ___ *Artificial irrigated areas which would revert to upland if the irrigation ceased.*
   - *(c)* ___ *Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.*
   - *(d)* ___ *Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons.*
   - *(e)* ___ *Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see CFR 328.3(a)).*

NOTES:

[1] *Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).*

[2] *Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.06 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inches), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches), or Variable (V).*

[3] *Runoff: Very slow (VS) Slow (S), Moderate (M), Rapid (R), or Variable (V).*

[4] *Mottle abundance: Few (F), Common (C), or Many (M).*

[5] *Mottle contrast: Faint (F), Distinct (D), or Prominent (P).*

[6] *Texture: Sand, loamy sand, sandy loam, loam , silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.*

[7] *Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.*

[8] *Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles, or hydric soil classification.*

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DATA FORM - ROUTINE WETLAND DETERMINATION
(Adapted From 1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: Farin Ranch
Applicant/Owner: Weyerhaeuser Homes
Investigator(s): Huffman / Deahi

Date: 11/18/22
City: Shelton
State: WA

Do Normal Circumstances exist on the site? ✓ Yes ___ No
Is the site significantly disturbed (Atypical Situation)? ___ Yes ✓ No
Is the area a potential Problem Area? ___ Yes ✓ No
(If needed, explain answer on reverse or attach separate sheet.)

Community ID:
Transect ID: 4 Plot ID: 1

VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status	Dominant Plant Species	Strata (H,S,T or V)	Regional NWI Indicator Status
1. Lolium perenne	h	FAC	9.		
2.			10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Observations & Remarks:
1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-):herb 100 %; shrub ___ %; tree ___ %; vine ___ %
2. Assume presence of wetland vegetation? ___ Yes ✓ No; or,
3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: ___ Yes ✓ No
4. Taxonomic Reference(s): Jepson, 1993

HYDROLOGY

✓ Recorded Data (Attached):
✓ Stream, Lake, or Tide Gauge
✓ Aerial Photographs: Dates: ___
___ Other
a. ___
b. ___
c. ___
Comment: ___
___ No Recorded Data Found

Current Field Observations with upper 12" of soil profile:
Depth of Surface Water: ___ (in.)
Depth to Free Water in Pit: ___ (in.)
Depth to Saturated Soil: ___ (in.)

___ Tidal Influence ___ Non-Tidal Influence

Comment(s):

Corps Wetland Hydrology Indicators within upper 12" of soil profile:
Corps Primary Indicators (current conditions):
___ Inundated: ___ Flooded ___ Ponded
___ Saturated: ___ In Upper 12" of Soil Profile
Corps Primary Indicators (Historic conditions):
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Corps Secondary Indicators (2 or more required; historic conditions):
___ Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: ___ Upper 12" of Soil Profile
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
Other, If Necessary (Explain)
a. ___ Landscape Position "Drains",
b. ___ Landscape Position "Ponds"
c. ___ Landscape Position "Saturates"

Comment(s): No hydrologic indicators

Observations and Remarks:
1. *Filamentous or sheet forming algae present?* ___ *Yes* ✓ *No*
2. *Matted vegetation* ___ *Yes* ✓ *No*
3. *Surface Sediment with Bedding Planes* ___ *Yes* ✓ *No*
4. *Encrusted detritus* ___ *Yes* ✓ *No*
5. *Slope:* ___ *0-2%; or* ✓ *> 2%*
6. *Oxidized rhizospheres:* ___ *new roots only;* ___ *old roots only;* ___ *new and old roots, or* ✓ *none*
7. *Flooding:* ✓ *none, flooding not probable;* ___ *rare, unlikely but possible under unusual weather conditions;* ___ *occasional, occurs on an average of once or less in 2 years, or* ___ *frequent, occurs on an average of more than once in 2 years.*
8. *Continuous flooding duration:* ✓ *None;* ___ *very brief, if < 2 days;* ___ *brief, if <5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS; or* ___ *very long, if >12.5% GS*
9. *Ponding?* ___ *Yes* ✓ *No*
10. *Continuous ponding duration:* ✓ *None;* ___ *very brief, if < 2 days;* ___ *brief, <5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS or;* ___ *very long, if >12.5% GS*
11. *Saturation?* ___ *Yes* ✓ *No*
12. *Continuous duration of Saturation:* ✓ *None;* ___ *very brief, if < 2 days;* ___ *brief, <5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS; or* ___ *very long, if > 12.5% GS*

Comment(s):

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SOILS

Map Unit Name (Series and Phase): Los Osos clay loam (50 to 75% slopes)

Taxonomy (Subgroup):

Drainage Class[1]: well drained

Permeability[2]: slow

Run off[3]: rapid

Field Observations Confirm NRCS Mapping? ✓ Yes ___ No ___ N/A

Profile Description (Surface 0" to 12"):

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance[4]/ Contrast[5]		Texture[6]/ Concretions/ Structures[7].		
Surface (0) to 12	B	10YR3/1	-	—	—			
___ to ___								
___ to ___.								

Hydric Soil Indicators:

Historic: ___ Histosol
___ Histic Epipedon
___ Organic Streaking in Sandy Soils
___ Listed on National Hydric Soils List
___ Mottles Present (Redoximorphic features)
___ Concretions (Redoximorphic Feature)
___ High Organic Content in Surface Layer in Sandy Soils
___ Gleyed or Low-Chroma Colors (chroma ≤2)
___ Listed on Local Hydric Soils List
___ Redoximorphic Feature Along Dead Root Channel (Halo)
Other: ___

Comment(s): No hydric soil indicators

Current: ___ Sulfidic Odor
___ Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions)
___ Aquic Moisture Regime (nearly free of dissolved oxygen periodically)
___ Peraquic Moisture Regime (near permanent)
___ Other

Comment(s):

Observations and Remarks:

1. *Smell:* ___ *Neutral;* ___ *Slightly Fresh;* ✓ *Freshly Plowed Field Smell; or* ___ *Sulfidic Odor*
2. *Site has been:* ___ *Irrigated;* ___ *Land Leveled;* ___ *Ditch Drained;* ___ *Tile Drained;* ___ *Pumped;* ___ *Graded to drain via slope*
3. *Soils Currently are:* ___ *Flooded;* ___ *Ponded;* ___ *Saturated*[8]
4. *Soils:* ___ *do* ✓ *do not, become continuously flooded or ponded, under normal conditions, for long (≥7 to 30 days) to very long durations; (>30 days) during the growing season;* ___ *Unknown*
5. *Soils:* ___ *do* ✓ *do not, become continuously saturated, under normal conditions, for 14 days or greater;* ___ unknown
6. Comment(s):

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? ✓ Yes ___ No
Wetland Hydrology Conditions Present? ___ Yes ✓ No
Hydric Soils Conditions Currently Present? ___ Yes ✓ No

Is this Sampling Point Within a Wetland? ___ Yes ✓ No

Signature: [signature]

Remarks:

1. *Possible water of the U.S.?* ___ *Yes* ✓ *No (can be a water and not a wetland when vegetation is absent if bed and bank present).*
2. *Possibly exempt from Corps/EPA regulation?* ___ *Yes* ___ *No (If yes, check item(s) below).*
   (a) ___ *Non-tidal drainage and irrigation ditches excavated on dry land*
   (b) ___ *Artificial irrigated areas which would revert to upland if the irrigation ceased.*
   (c) ___ *Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.*
   (d) ___ *Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons.*
   (e) ___ *Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see CFR 328.3(a)).*

NOTES:

[1] *Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).*

[2] *Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.06 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inches), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches), or Variable (V).*

[3] *Runoff: Very slow (VS) Slow (S), Moderate (M), Rapid (R), or Variable (V).*

[4] *Mottle abundance: Few (F), Common (C), or Many (M).*

[5] *Mottle contrast: Faint (F), Distinct (D), or Prominent (P).*

[6] *Texture: Sand, loamy sand, sandy loam, loam , silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.*

[7] *Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.*

[8] *Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles, or hydric soil classification.*

DATA FORM - ROUTINE WETLAND DETERMINATION
(Adapted From 1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: Ferris Ranch Applicant/Owner: Davenport Homes Investigator(s): Huffman, Hayes	Date: 11/18/92 City: San Bernardino State: CA
Do Normal Circumstances exist on the site? ✓ Yes ___ No Is the site significantly disturbed (Atypical Situation)? ___ Yes ✓ No Is the area a potential Problem Area? ___ Yes ✓ No (If needed, explain answer on reverse or attach separate sheet.)	Community ID: Transect ID: W Plot ID: 3

VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status	Dominant Plant Species	Strata (H,S,T or V)	Regional NWI Indicator Status
1. Xanthium spinosum	H	FACU+	9.		
2.			10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Observations & Remarks:
1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-):herb 100 %; shrub ____ %; tree ____ %; vine ____ %
2. Assume presence of wetland vegetation? ___ Yes ✓ No; or,
3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: ___ Yes ✓ No
4. Taxonomic Reference(s): Jepson, 1993

HYDROLOGY

✓ Recorded Data (Attached):
___ Stream, Lake, or Tide Gauge
✓ Aerial Photographs: Dates: ____
___ Other
a. ____
b. ____
c. ____
Comment: ____
___ No Recorded Data Found

Current Field Observations with upper 12" of soil profile:
Depth of Surface Water: ____ (in.)
Depth to Free Water in Pit: ____ (in.)
Depth to Saturated Soil: ____ (in.)
___ Tidal Influence ✓ Non-Tidal Influence
Comment(s):

Corps Wetland Hydrology Indicators within upper 12" of soil profile:
Corps Primary Indicators (current conditions):
___ Inundated: ___ Flooded ___ Ponded
___ Saturated: ___ In Upper 12" of Soil Profile
Corps Primary Indicators (Historic conditions):
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Corps Secondary Indicators (2 or more required; historic conditions):
___ Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: ___ Upper 12" of Soil Profile
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
Other, If Necessary (Explain)
a. ___ Landscape Position "Drains",
b. ___ Landscape Position "Ponds"
c. ___ Landscape Position "Saturates"
Comment(s): hoof prints by cattle in mud

Observations and Remarks:
1. *Filamentous or sheet forming algae present?* ___ *Yes* ✓ *No*
2. *Matted vegetation* ___ *Yes* ✓ *No*
3. *Surface Sediment with Bedding Planes* ___ *Yes* ✓ *No*
4. *Encrusted detritus* ___ *Yes* ✓ *No*
5. *Slope:* ✓ *0-2%; or* ___ *> 2%*
6. *Oxidized rhizospheres:* ___ *new roots only;* ___ *old roots only;* ___ *new and old roots, or* ✓ *none*
7. *Flooding:* ✓ *none, flooding not probable;* ___ *rare, unlikely but possible under unusual weather conditions;* ___ *occasional, occurs on an average of once or less in 2 years, or* ___ *frequent, occurs on an average of more than once in 2 years.*
8. *Continuous flooding duration:* ✓ *None;* ___ *very brief, if < 2 days;* ___ *brief, if <5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS; or* ___ *very long, if >12.5% GS*
9. *Ponding?* ✓ *Yes* ___ *No*
10. *Continuous ponding duration:* ___ *None;* ___ *very brief, if < 2 days;* ___ *brief, <5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS or;* ✓ *very long, if >12.5% GS*
11. *Saturation?* ✓ *Yes* ___ *No*
12. *Continuous duration of Saturation:* ___ *None;* ___ *very brief, if < 2 days;* ___ *brief, <5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS; or* ✓ *very long, if > 12.5% GS*

Comment(s):

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SOILS

Map Unit Name (Series and Phase): Los Osos clay loam (15 to 75% slopes)

Taxonomy (Subgroup):

Drainage Class[1]: well drained

Permeability[2]: slow

Run off[3]: rapid

Field Observations Confirm NRCS Mapping? Yes ✓ No N/A

Profile Description (Surface 0" to 12"):

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance[4]/ Contrast[5]		Texture[6]/ Concretions/ Structures[7]		
Surface (0) to 12	B	10YR3/1	—	—	—			
___ to ___								
___ to ___.								

Hydric Soil Indicators:

Historic:
- ___ Histosol
- ___ Histic Epipedon
- ___ Organic Streaking in Sandy Soils
- ___ Listed on National Hydric Soils List
- ___ Mottles Present (Redoximorphic features)
- ___ Concretions (Redoximorphic Feature)
- ✓ High Organic Content in Surface Layer in Sandy Soils
- ✓ Gleyed or Low-Chroma Colors (chroma ≤2)
- ___ Listed on Local Hydric Soils List
- ___ Redoximorphic Feature Along Dead Root Channel (Halo)

Other: ___

Comment(s):

Current:
- ___ Sulfidic Odor
- ___ Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions)
- ___ Aquic Moisture Regime (nearly free of dissolved oxygen periodically)
- ___ Peraquic Moisture Regime (near permanent)
- ___ Other

Comment(s):

Observations and Remarks:

1. *Smell:* ___ *Neutral;* ✓ *Slightly Fresh;* ___ *Freshly Plowed Field Smell; or* ___ *Sulfidic Odor*
2. *Site has been:* ___ *Irrigated;* ___ *Land Leveled;* ___ *Ditch Drained;* ___ *Tile Drained;* ___ *Pumped;* ___ *Graded to drain via slope*
3. *Soils Currently are:* ___ *Flooded;* ___ *Ponded;* ___ *Saturated*[8]
4. *Soils:* ✓ *do* ___ *do not, become continuously flooded or ponded, under normal conditions, for long (≥7 to 30 days) to very long durations; (>30 days) during the growing season;* ___ *Unknown*
5. *Soils:* ✓ *do* ___ *do not, become continuously saturated, under normal conditions, for 14 days or greater;* ___ unknown
6. Comment(s):

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? ✓ Yes ___ No

Wetland Hydrology Conditions Present? ✓ Yes ___ No

Hydric Soils Conditions Currently Present? ✓ Yes ___ No

Is this Sampling Point Within a Wetland? ✓ Yes ___ No

Signature: [signature]

Remarks:

1. *Possible water of the U.S.?* ✓ *Yes* ___ *No (can be a water and not a wetland when vegetation is absent if bed and bank present).*
2. *Possibly exempt from Corps/EPA regulation?* ___ *Yes* ___ *No (If yes, check item(s) below).*
   - *(a)* ___ *Non-tidal drainage and irrigation ditches excavated on dry land*
   - *(b)* ___ *Artificial irrigated areas which would revert to upland if the irrigation ceased.*
   - *(c)* ___ *Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.*
   - *(d)* ___ *Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons.*
   - *(e)* ___ *Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see CFR 328.3(a)).*

NOTES:

[1] *Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).*

[2] *Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.06 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inches), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches), or Variable (V).*

[3] *Runoff: Very slow (VS) Slow (S), Moderate (M), Rapid (R), or Variable (V).*

[4] *Mottle abundance: Few (F), Common (C), or Many (M).*

[5] *Mottle contrast: Faint (F), Distinct (D), or Prominent (P).*

[6] *Texture: Sand, loamy sand, sandy loam, loam , silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.*

[7] *Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.*

[8] *Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles, or hydric soil classification.*

DATA FORM - ROUTINE WETLAND DETERMINATION
(Adapted From 1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: Perris Ranch
Applicant/Owner: Tomecemant Homes
Investigator(s): [illegible]

Date: 11/18/92
City: San Bernardino
State: CA

Do Normal Circumstances exist on the site? ✓ Yes ___ No
Is the site significantly disturbed (Atypical Situation)? ___ Yes ✓ No
Is the area a potential Problem Area? ___ Yes ✓ No
(If needed, explain answer on reverse or attach separate sheet.)

Community ID:

Transect ID: W Plot ID: 4

VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status	Dominant Plant Species	Strata (H,S,T or V)	Regional NWI Indicator Status
1. Xanthium spinosum	H	FACU+	9.		
2.			10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Observations & Remarks:
1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-):herb 100%; shrub____%; tree____%; vine____%
2. Assume presence of wetland vegetation? ___ Yes ✓ No; or,
3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: ___ Yes ✓ No
4. Taxonomic Reference(s): Jepson, 1993

HYDROLOGY

✓ Recorded Data (Attached):
___ Stream, Lake, or Tide Gauge
✓ Aerial Photographs: Dates: _____
___ Other
a. _____
b. _____
c. _____
Comment: _____
___ No Recorded Data Found

Current Field Observations with upper 12" of soil profile:
Depth of Surface Water: _____ (in.)
Depth to Free Water in Pit: _____ (in.)
Depth to Saturated Soil: _____ (in.)
___ Tidal Influence ✓ Non-Tidal Influence
Comment(s):

Corps Wetland Hydrology Indicators within upper 12" of soil profile:
Corps Primary Indicators (current conditions):
___ Inundated: ___ Flooded ___ Ponded
___ Saturated: ___ In Upper 12" of Soil Profile
Corps Primary Indicators (Historic conditions):
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Corps Secondary Indicators (2 or more required; historic conditions):
___ Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: ___ Upper 12" of Soil Profile
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
Other, If Necessary (Explain)
a. ___ Landscape Position "Drains",
b. ___ Landscape Position "Ponds"
c. ___ Landscape Position "Saturates"
Comment(s): hoofprints by cattle in mud

Observations and Remarks:
1. *Filamentous or sheet forming algae present?* ___ *Yes* ✓ *No*
2. *Matted vegetation* ___ *Yes* ✓ *No*
3. *Surface Sediment with Bedding Planes* ___ *Yes* ✓ *No*
4. *Encrusted detritus* ___ *Yes* ✓ *No*
5. *Slope:* ✓ *0-2%; or* ___ *> 2%*
6. *Oxidized rhizospheres:* ___ *new roots only;* ___ *old roots only;* ___ *new and old roots, or* ✓ *none*
7. *Flooding:* ✓ *none, flooding not probable;* ___ *rare, unlikely but possible under unusual weather conditions;* ___ *occasional, occurs on an average of once or less in 2 years, or* ___ *frequent, occurs on an average of more than once in 2 years.*
8. *Continuous flooding duration:* ✓ *None;* ___ *very brief, if < 2 days;* ___ *brief, if <5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS; or* ___ *very long, if >12.5% GS*
9. *Ponding?* ✓ *Yes* ___ *No*
10. *Continuous ponding duration:* ___ *None;* ___ *very brief, if < 2 days;* ___ *brief, <5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS or;* ✓ *very long, if >12.5% GS*
11. *Saturation?* ✓ *Yes* ___ *No*
12. *Continuous duration of Saturation:* ___ *None;* ___ *very brief, if < 2 days;* ___ *brief, <5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS; or* ✓ *very long, if > 12.5% GS*

Comment(s):

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SOILS

Map Unit Name (Series and Phase): Los Osos clay loam (50 to 75% slope)

Taxonomy (Subgroup):

Drainage Class[1]: well-drained

Permeability[2]: slow

Run off[3]: rapid

Field Observations Confirm NRCS Mapping? ✓ Yes ___ No ___ N/A

Profile Description (Surface 0" to 12"):

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance[4]/	Contrast[5]	Texture[6]/	Concretions/	Structures[7].
Surface (0) to 12	B	10YR3/1	—	—	—			
___ to ___								
___ to ___.								

Hydric Soil Indicators:

Historic:
- ___ Histosol
- ___ Histic Epipedon
- ___ Organic Streaking in Sandy Soils
- ___ Listed on National Hydric Soils List
- ___ Mottles Present (Redoximorphic features)
- ___ Concretions (Redoximorphic Feature)
- ___ High Organic Content in Surface Layer in Sandy Soils
- ✓ Gleyed or Low-Chroma Colors (chroma ≤2)
- ___ Listed on Local Hydric Soils List
- ___ Redoximorphic Feature Along Dead Root Channel (Halo)

Other: ___

Comment(s):

Current:
- ___ Sulfidic Odor
- ___ Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions)
- ___ Aquic Moisture Regime (nearly free of dissolved oxygen periodically)
- ___ Peraquic Moisture Regime (near permanent)
- ___ Other

Comment(s):

Observations and Remarks:

1. *Smell:* ___ *Neutral;* ✓ *Slightly Fresh;* ___ *Freshly Plowed Field Smell; or* ___ *Sulfidic Odor*
2. *Site has been:* ___ *Irrigated;* ___ *Land Leveled;* ___ *Ditch Drained;* ___ *Tile Drained;* ___ *Pumped;* ___ *Graded to drain via slope*
3. *Soils Currently are:* ___ *Flooded;* ___ *Ponded;* ___ *Saturated*[8]
4. *Soils:* ✓ *do* ___ *do not, become continuously flooded or ponded, under normal conditions, for long (≥7 to 30 days) to very long durations; (>30 days) during the growing season;* ___ *Unknown*
5. *Soils:* ✓ *do* ___ *do not, become continuously saturated, under normal conditions, for 14 days or greater;* ___ unknown
6. Comment(s):

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? ✓ Yes ___ No

Wetland Hydrology Conditions Present? ✓ Yes ___ No

Hydric Soils Conditions Currently Present? ✓ Yes ___ No

Is this Sampling Point Within a Wetland? ✓ Yes ___ No

Signature: Terry Huffman

Remarks:

1. *Possible water of the U.S.?* ✓ *Yes* ___ *No (can be a water and not a wetland when vegetation is absent if bed and bank present).*
2. *Possibly exempt from Corps/EPA regulation?* ___ *Yes* ___ *No (If yes, check item(s) below).*
   - *(a)* ___ *Non-tidal drainage and irrigation ditches excavated on dry land*
   - *(b)* ___ *Artificial irrigated areas which would revert to upland if the irrigation ceased.*
   - *(c)* ___ *Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.*
   - *(d)* ___ *Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons.*
   - *(e)* ___ *Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see CFR 328.3(a)).*

NOTES:

[1] *Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).*

[2] *Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.06 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inches), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches), or Variable (V).*

[3] *Runoff: Very slow (VS) Slow (S), Moderate (M), Rapid (R), or Variable (V).*

[4] *Mottle abundance: Few (F), Common (C), or Many (M).*

[5] *Mottle contrast: Faint (F), Distinct (D), or Prominent (P).*

[6] *Texture: Sand, loamy sand, sandy loam, loam , silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.*

[7] *Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.*

[8] *Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles, or hydric soil classification.*

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DATA FORM - ROUTINE WETLAND DETERMINATION
(Adapted From 1987 Corps Methodology Wetlands Delineation Manual)

Project/Site: Florin Ranch
Applicant/Owner: Clarence + Thomas
Investigator(s): Huffman, Taylor

Date: 11/19/02
City: Huntington
State: CA

Do Normal Circumstances exist on the site? ✓ Yes ___ No
Is the site significantly disturbed (Atypical Situation)? ___ Yes ✓ No
Is the area a potential Problem Area? ___ Yes ✓ No
(If needed, explain answer on reverse or attach separate sheet.)

Community ID:
Transect ID: W Plot ID: 5

VEGETATION

Dominant Plant Species	Strata (H, S, T or V)	Regional NWI Indicator Status	Dominant Plant Species	Strata (H,S,T or V)	Regional NWI Indicator Status
1. Xanthium spinosum	H	FACU+	9.		
2.			10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Observations & Remarks:
1. Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-):herb 100 %; shrub ___ %; tree ___ %; vine ___ %
2. Assume presence of wetland vegetation? ___ Yes ✓ No; or,
3. Visually observed rooted emergent vegetation growing in flooded, ponded and/or saturated soils: ___ Yes ✓ No
4. Taxonomic Reference(s): Jepson, 1993

HYDROLOGY

✓ Recorded Data (Attached):
___ Stream, Lake, or Tide Gauge
✓ Aerial Photographs: Dates: ___
___ Other
a. ___
b. ___
c. ___
Comment: ___
___ No Recorded Data Found

Current Field Observations with upper 12" of soil profile:
Depth of Surface Water: ___ (in.)
Depth to Free Water in Pit: ___ (in.)
Depth to Saturated Soil: ___ (in.)
___ Tidal Influence ✓ Non-Tidal Influence
Comment(s):

Corps Wetland Hydrology Indicators within upper 12" of soil profile:
Corps Primary Indicators (current conditions):
___ Inundated: ___ Flooded ___ Ponded
___ Saturated: ___ In Upper 12" of Soil Profile
Corps Primary Indicators (Historic conditions):
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Corps Secondary Indicators (2 or more required; historic conditions):
___ Oxidized Root Channels (Living Roots with Oxidized Rhizospheres) in: ___ Upper 12" of Soil Profile
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
Other, If Necessary (Explain)
a. ___ Landscape Position "Drains",
b. ___ Landscape Position "Ponds"
c. ___ Landscape Position "Saturates"
Comment(s): hoofprints by cattle in mud

Observations and Remarks:
1. *Filamentous or sheet forming algae present?* ___ *Yes* ✓ *No*
2. *Matted vegetation* ___ *Yes* ✓ *No*
3. *Surface Sediment with Bedding Planes* ___ *Yes* ✓ *No*
4. *Encrusted detritus* ___ *Yes* ✓ *No*
5. *Slope:* ✓ *0-2%; or* ___ *> 2%*
6. *Oxidized rhizospheres:* ___ *new roots only;* ___ *old roots only;* ___ *new and old roots, or* ✓ *none*
7. *Flooding:* ✓ *none, flooding not probable;* ___ *rare, unlikely but possible under unusual weather conditions;* ___ *occasional, occurs on an average of once or less in 2 years, or* ___ *frequent, occurs on an average of more than once in 2 years.*
8. *Continuous flooding duration:* ✓ *None;* ___ *very brief, if < 2 days;* ___ *brief, if <5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS; or* ___ *very long, if >12.5% GS*
9. *Ponding?* ___ *Yes* ___ *No*
10. *Continuous ponding duration:* ___ *None;* ___ *very brief, if < 2 days;* ___ *brief, <5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS or;* ✓ *very long, if >12.5% GS*
11. *Saturation?* ___ *Yes* ___ *No*
12. *Continuous duration of Saturation:* ___ *None;* ___ *very brief, if < 2 days;* ___ *brief, <5% growing season (GS);* ___ *long, if ≥5% to 12.5% GS; or* ___ *very long, if > 12.5% GS*

Comment(s):

SOILS

Map Unit Name (Series and Phase): Log Dsos Clay Loam

Taxonomy (Subgroup):

Drainage Class[1]: well-drained

Permeability[2]: slow

Run off[3]: rapid

Field Observations Confirm NRCS Mapping? ✓ Yes ___ No ___ N/A

Profile Description (Surface 0" to 12"):

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance[4]/ Contrast[5]		Texture[6]/ Concretions/ Structures[7]		
Surface (0) to 12	B	10YR3/1	—	—	—			
___ to ___								
___ to ___.								

Hydric Soil Indicators:

Historic:
- ___ Histosol
- ___ Histic Epipedon
- ___ Organic Streaking in Sandy Soils
- ___ Listed on National Hydric Soils List
- ___ Mottles Present (Redoximorphic features)
- ___ Concretions (Redoximorphic Feature)
- ✓ High Organic Content in Surface Layer in Sandy Soils
- ✓ Gleyed or Low-Chroma Colors (chroma ≤2)
- ___ Listed on Local Hydric Soils List
- ___ Redoximorphic Feature Along Dead Root Channel (Halo)

Other: ___

Comment(s):

Current:
- ___ Sulfidic Odor
- ___ Reducing Conditions (Environment conducive to the removal of oxygen & chemical reduction of ions)
- ___ Aquic Moisture Regime (nearly free of dissolved oxygen periodically)
- ___ Peraquic Moisture Regime (near permanent)
- ___ Other

Comment(s):

Observations and Remarks:

1. *Smell:* ___ *Neutral;* ✓ *Slightly Fresh;* ___ *Freshly Plowed Field Smell; or* ___ *Sulfidic Odor*
2. *Site has been:* ___ *Irrigated;* ___ *Land Leveled;* ___ *Ditch Drained;* ___ *Tile Drained;* ___ *Pumped;* ___ *Graded to drain via slope*
3. *Soils Currently are:* ___ *Flooded;* ___ *Ponded;* ___ *Saturated*[8]
4. *Soils:* ✓ *do* ___ *do not, become continuously flooded or ponded, under normal conditions, for long (≥7 to 30 days) to very long durations; (>30 days) during the growing season;* ___ *Unknown*
5. *Soils:* ✓ *do* ___ *do not, become continuously saturated, under normal conditions, for 14 days or greater;* ___ unknown
6. Comment(s):

WETLAND DETERMINATION

Hydrophytic Vegetation Conditions Present? ✓ Yes ___ No

Wetland Hydrology Conditions Present? ✓ Yes ___ No

Hydric Soils Conditions Currently Present? ✓ Yes ___ No

Is this Sampling Point Within a Wetland? ✓ Yes ___ No

Signature: Terry Huffman

Remarks:

1. *Possible water of the U.S.?* ✓ *Yes* ___ *No (can be a water and not a wetland when vegetation is absent if bed and bank present).*
2. *Possibly exempt from Corps/EPA regulation?* ___ *Yes* ___ *No (If yes, check item(s) below).*
   - *(a)* ___ *Non-tidal drainage and irrigation ditches excavated on dry land*
   - *(b)* ___ *Artificial irrigated areas which would revert to upland if the irrigation ceased.*
   - *(c)* ___ *Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.*
   - *(d)* ___ *Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic reasons.*
   - *(e)* ___ *Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States (see CFR 328.3(a)).*

NOTES:

[1] *Drainage class: Excessively drained (ED), Somewhat excessively drained (SED), Well drained (WD), Moderately well drained (MWD), Somewhat poorly drained (SPD), Poorly drained (PD), Very poorly drained (VPD), or Variable (V).*

[2] *Permeability: Very slow (VS-less than 0.06 inch), slow (S-0.06 to 0.20 inch), moderately slow (MS-0.2 to 0.6 inch), moderate (M-0.6 to 2.0 inches), moderately rapid (MR-2.0 to 6.0 inches), rapid (R-6.0 to 20 inches), very rapid (VR-more than 20 inches), or Variable (V).*

[3] *Runoff: Very slow (VS) Slow (S), Moderate (M), Rapid (R), or Variable (V).*

[4] *Mottle abundance: Few (F), Common (C), or Many (M).*

[5] *Mottle contrast: Faint (F), Distinct (D), or Prominent (P).*

[6] *Texture: Sand, loamy sand, sandy loam, loam , silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.*

[7] *Structure: Platy (laminated), prismatic (vertical axis of aggregates longer than horizontal), columnar (prisms with rounded tops), blocky (angular or subangular), or granular.*

[8] *Reliance on visual observation of flooding, or ponding is required, or the use of indicators other than factors such as soil color, the presence of mottles, or hydric soil classification.*

DRAFT

Attachment 4. **Hydrologic Characteristics of Soil Types Found During On-Site Investigations and Review of NRCS Soils Survey Data**

Indicator Observed	Los Osos clay loam (15 to 30% slopes)	Los Osos clay loam (30 to 50% slopes)	Los Osos clay loam (50 to 75% slopes)	Cropley clay (2 to 5% slopes)	Botella clay loam (2 to 9% slopes)	Diablo clay (9 to 15% slopes)
Map Unit Symbol	LhE	LhF	LhG	CkB	BaC	DdD
Land Form	Drainages	Drainages	Drainages	Drainages	Drainages	Drainages
Slope	15 to 30%	30 to 50%	50 to 75%	2 to 5%	2 to 9%	9-15%
Groundwater (depth to surface)[2]	Water table not within the depth of observation, which is normally a depth of 32 inches unless limited by bedrock	Water table not within the depth of observation, which is normally a depth of 32 inches unless limited by bedrock	Water table not within the depth of observation, which is normally a depth of 32 inches unless limited by bedrock	Water table not within the depth of observation, which is normally a depth of 60 inches unless limited by bedrock	Water table not within the depth of observation, which is normally a depth of 68 inches unless limited by bedrock	Water table not within the depth of observation, which is normally a depth of 42 inches unless limited by bedrock
Flooding[1]						
Duration[1]						
Drainage Class[2]	Well drained	Well drained	Well drained	Moderately well drained	Moderately well drained	Well drained
Permeability[2]	Slow	Slow	Slow	Slow	Moderately Slow	Slow
Runoff[2]	Medium	Medium to Rapid	Rapid	Slow	Slow	Slow to Medium

[1]Information is from field survey data sheets.
[2]From 1977 NRCS Soil Survey for Contra Costa County

DRAFT

Attachment 5. Wetland Soil Indicators Found During On-Site Investigations[1]

Indicator Observed	Los Osos clay loam (15 to 30% slopes)	Los Osos clay loam (30 to 50% slopes)	Los Osos clay loam (50 to 75% slopes)	Cropley clay (2 to 5% slopes)	Botella clay loam (2 to 9% slopes)	Diablo clay (9 to 15% slopes)
Map Unit Symbol	LhE	LhF	LhG	CkB	BaC	DdD
Land Form	Drainages	Drainages	Depressions and Drainages	Drainages	Drainages	Drainages
Aquic Moisture Regime						
Gleyed or Low-Chroma Colors			X			
Redoximorphic Features (mottles)						

[1]Data taken from field data sheets.

DRAFT

Attachment 6. Wetland Hydrology Indicators Found During On-Site Investigations[1]

Indicator Observed		Los Osos clay loam (15 to 30% slopes)	Los Osos clay loam (30 to 50% slopes)	Los Osos clay loam (50 to 75% slopes)	Cropley clay (2 to 5% slopes)	Botella clay loam (2 to 9% slopes)	Diablo clay (9 to 15% slopes)
Map Unit Symbol		LhE	LhF	LhG	CkB	BaC	DdD
Land Form		Drainages	Drainages	Depressions and Drainages	Drainages	Drainages	Drainages
Inundated/Ponded[2&3]							
Saturated in Upper 12 inches[3]			X	X			
Water Marks							
Drift Lines							
Sediment Deposits			X	X			
Oxidized Rhizospheres	Old Roots						
	Young Roots						

[1] Data taken from field data sheets.
[2] Aerial and on-site photographs.
[3] Sufficient to meet criteria defined in Corps 1987 Wetland Delineation Methodology and subsequent official guidance.

Attachment 7.

Map Showing Wetlands and Other Waters of the U.S.
in the Project Study Area

HBG The Huffman-Broadway Group, Inc. · 828 Mission Avenue · San Rafael, California · Phone (415) 925-2000 · Fax (415) 925-2006

Figure 7. Wetlands and Other Waters Potentially Subject to Corps Jurisdiction

Faria Ranch Project, San Ramon, CA.

Attachment 8. Table Showing Wetlands and Other Waters of the U.S. on the Project Study Area by NWI Habitat Type

Land Form	National Wetlands Inventory Habitat Type	ACRES	
		Areas Technically Meeting Wetlands And Other Waters Of The U.S. Criteria	Wetlands Potentially Subject to Corps Regulation
Depressions	Palustrine emergent wetlands	0.22	0.22
Drainages	Riverine intermittent streambed	0.26	0.26
	TOTAL	**0.48**	**0.48**

Appendix G

Correspondence from Jane M. Hicks, United States Army Corps of Engineers, to Robert Perrera, The Huffman-Broadway Group, Inc., amending Faria Preserve wetlands delineation

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DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
333 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94105-2197

APR 2 4 2006

Regulatory Branch

SUBJECT: File Number 29678S

Mr. Robert Perrera
The Huffman-Broadway Group, Inc.
700 Larkspur Landing Circle, Suite 100
Larkspur, California 94939

Dear Mr. Perrera:

Thank you for your February 20, 2006 submittal on behalf of Claremont Homes modifying the extent of Corps of Engineers jurisdiction at the Faria Ranch, Contra Costa County, California. In addition to the wetland and water features on the delineation map accepted by the Corps on 12/22/05, a 0.01 acre palustrine emergent seasonally flooded wetland was discovered on the southwest corner of the property during a site visit you conducted with Tyson Eckerle of my staff on February 9, 2006.

Enclosed is a map that incorporates this revision to show the extent and location of Corps of Engineers jurisdiction based on a site visits performed by our staff on August 18, 2005 and February 9, 2006. We have based this jurisdictional delineation on the current conditions on the site. A change in those conditions may also change the extent of our jurisdiction. This jurisdictional delineation will expire in five years from the date of this letter. However, if there has been a change in circumstances that affects the extent of Corps jurisdiction, a revision may be completed before that date.

All proposed discharges of dredged or fill material into waters of the United States must be authorized by the Corps of Engineers pursuant to Section 404 of the Clean Water Act (CWA) (33 U.S.C. Section 1344). Waters of the United States generally include tidal waters, lakes, ponds, rivers, streams (including intermittent streams), and wetlands.

Your proposed activity appears to be within our jurisdiction and a permit may be required for your project. Application for Corps authorization should be made to this office using the application form in the enclosed pamphlet. To avoid delays it is essential that you enter the file number at the top of this letter into Item No. 1 of the application. The application must include plans showing the location, extent and character of the proposed activity, prepared in accordance with the requirements contained in this pamphlet. You should note, in planning your project, that upon receipt of a properly completed application and plans, it may be necessary to advertise the proposed work by issuing a Public Notice for a period of 30 days.

You are advised that the Corps has established an Administrative Appeal Process, as described in 33 C.F.R. Part 331 (65 Fed. Reg. 16,486; March 28, 2000), and outlined in the enclosed flowchart and "Notification of Administrative Appeal Options, Process, and Request for Appeal" form (NAO-RFA). If you do not intend to accept the approved jurisdictional determination, you may elect to provide new information to the District Engineer for reconsideration or submit a completed NAO-RFA form to the Division Engineer to initiate the appeal process. You will relinquish all rights to appeal, unless the Corps receives new information or a completed NAO-RFA form within sixty (60) days of the date of the NAO-RFA.

Should you have any questions regarding this matter, please contact Tyson Eckerle of our Regulatory Branch at 415-977-8462 or by email: Tyson.S.Eckerle@usace.army.mil. Please address all correspondence to the Regulatory Branch and refer to the File Number at the head of this letter.

Sincerely,

Jane M. Hicks
Chief, Regulatory Branch

Enclosures

Copy Furnished:

Claremont Homes, Inc.
Fremont, CA

HBG The Huffman-Broadway Group, Inc. · 700 Larkspur Landing Circle, Suite 100 · Larkspur, California · Phone (415) 925-2000 · Fax (415) 925-2006

Attachment 7. Map Showing Wetlands and Other Waters of the U.S. in the Project Study Area.
Faria Ranch Project, San Ramon, CA.

Appendix H

Alquist Priolo Zone Peer Review

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Treadwell&Rollo

5 July 2006
Project 3767.01

Mr. Joshua Hohn
EDAW
150 Chestnut Street
San Francisco, California 94111

Subject: Alquist Priolo Zone Peer Review
Northwest Specific Plan for City of San Ramon
Faria Preserve
San Ramon, California

Dear Mr. Hohn:

The attached letter prepared by Gilpin Geosciences, Inc. (GGI) presents the peer review comments on the Earth Systems Consultants report "*Supplemental Fault Investigation Fault A/Calaveras Fault Western Traces The Faria Preserve San Ramon, Contra Costa County, California*" dated October 2005. This review completes our scope of work that was presented in our proposal dated 21 May 2003. We have previously submitted comments on the general geological characterization of the site and the geotechnical elements of the proposed development. This review completes the review by addressing the recommendations for fault rupture hazards on the site posed by the Calaveras fault.

Sincerely yours,

TREADWELL & ROLLO, INC.

Linda H. Liang
Senior Engineer

FOR Hadi J. Yap, Ph.D.
Principal

Treadwell & Rollo, Inc. *Environmental & Geotechnical Consultants*
501 14th Street, Third Floor, Oakland, CA 94612
Telephone (510) 874-4500 Facsimile (510) 874-4507

Gilpin Geosciences, Inc
Earthquake & Engineering Geology

July 3, 2006
3767.01.01

Linda Liang
Treadwell & Rollo, Inc.
501 14th Street, Suite 300
Oakland, CA 94612

Subject: **Alquist Priolo Zone Peer Review**
Faria Preserve
San Ramon, California

Dear Linda:

INTRODUCTION

We are pleased to present the results of our Alquist Priolo Earthquake Fault Hazard Zone Peer Review for the Faria Ranch planned development in San Ramon, California. This letter provides our comments regarding the Supplemental Fault Investigation Fault A/Calaveras Fault Western Traces The Faria Preserve San Ramon, Contra Costa County, California dated October 2005, prepared by Earth Systems Consultants Northern California (ESCNC). We have previously issued memoranda regarding our findings and recommendations dated 20 May 2004 and 15 February 2005. These memoranda were incorporated in letters prepared by Treadwell & Rollo, Inc. dated 29 June 2004 and 21 April 2005.

The purpose of our peer review was to assess geologic hazards as they related to feasibility and planning of the proposed development. We also contributed to your review and assessment of the preliminary geotechnical engineering issues.

In order to conduct our review we visited the Faria Ranch site to review trench exposures and logging on 7 occasions from May to October 2005. The days we visited corresponded to trench explorations of T7, T7A, and 7C on 1, 20, 25 May, and 9 June, Trench explorations T8A, T8B, and T8C on 11 July, and trench exploration of T9 on 29 September and 10 October. We met with Mr. Gary Piscke, Project Geologist with Earth Systems Consultants Northern California who was responsible for the excavation and trench logging.

3228 Silverado Trail St. Helena, CA 94574 tel: (707) 968-9408 fax: (707) 257-8543

BACKGROUND

The Calaveras fault is one of the major right-lateral strike-slip faults in California. It has been mapped from Hollister on the southeast to San Ramon on the northwest, a distance of 140 km. It is an active fault as defined by historic creep, seismicity, and well-defined fault-related topographic features, and was zoned under the Alquist Priolo Earthquake Hazards Zone in 1974. The fault forms a major structural boundary between the San Francisco Bay structural depression and the Diablo Range (Page, 1982)

The fault trace north of San Ramon is not well-defined, largely obscured by massive landsliding and complex geologic structure. The northern portion of the Calaveras fault has exhibited little contemporary seismicity (Oppenheimer and Lindh, 1992; Oppenheimer and Macgregor-Scott, 1992). Only one historic earthquake has occurred in 1861 a magnitude 5.6 event that ruptured along approximately 13 km of the San Ramon Valley near the town of San Ramon (Toppozada and others, 1981). There is evidence of five or six surface rupture events within the past 2,500 years as determined by paleoseismicity studies along the fault trace near Sunol Valley (Kelson, and others, 1999).

CONCLUSIONS AND RECOMMENDATIONS

We have performed our review of the Faria Ranch Project based on observations of exposures in trenches, and on the reports submitted. Our concerns regarding the rupture potential of the Calaveras fault are focused on the complex nature of the trace across the site. We observed numerous near vertical shears in the trenches that appeared to us as related to hillslope movement rather than tectonic or seismogenic surface rupture. Nevertheless, although the active trace of the fault is constrained within the well developed northwest trending valley, the implication of sympathetic slip on subsidiary structures such as Fault A, as well as the potential for generating landslides from the strong earthquake shaking emphasizes the need for a careful consideration of the recommended setbacks, and the effective implementation of those recommendations.

The location of the Lots 67 through 74 presumably will require slope reconstruction. The keyway or drainage elements of this structure, earth buttress or wall, should be located outside of the set back zone. Since this is a critical part of the infrastructure of the development of those lots we believe it is important to accurately locate the active fault traces on the Site Plan, Figure 2. We have the following comments regarding the location of the traces and set back zone:

1. As promised in ESCNC's 10 May 2005 Response to Treadwell & Rollo Peer Review Letter dated 21 April 2005, the trench excavation performed as part of the ENGEO (1978;1983) reports south of the subject site, that investigated the Calveras fault, was not included on their updated map. In addition, the pertinent trench log(s) from that report should be included as an attachment or appendix to ESCNC's response to our comments.
2. The Figure 2 Site Plan key lacks the clear differentiation of the CDMG (1982) trace and the active trace defined by ESCNC.
3. Figure 2 does not accurately depict the location of the fault traces logged in trench T-1-2002, nor in trench T-3-2002.
4. Figure 2 does not accurately depict the 50 feet wide setback along the western edge of the zone. This should be measured and shown correctly, including depiction of the logged fault traces from trenches T-2 and T-3. We found errors in the fault trace locations that would increase the set back distance on the western limits of the set back zone.
5. After more precise plotting of the fault traces and establishing the western set back limit, the location of the 86 unit Parcel D structure should be reassessed.
6. Because the set back distance is critical on the slope below lots 67 through 74,we recommend that if the western limit of the set back zone (after checking for errors noted above) does not overlap with the eastern ends of trenches T-7 and T-9, then the western limit should be extended to coincide with the eastern ends of T-7 and T-9.

We have only minor comments regarding the text and graphics of the report.

7. Trench log for T-7 should be reviewed and updated to reflect interpretations stated in the report, rather than what appears to be multiple interpretations that were formulated early in the field investigation. The limits of the landslide deposit should be clearly shown, and the discrepancy between faulting and landslide shears should be resolved.

Regarding the set back zone width for Fault A:

8. We recommend that the set back zone for Fault A be widened to 25 feet on either side because of the highly variable nature of the fault, the widely spaced trenches where it is exposed, and the proposed very deep cuts for the site grading. If during grading the fault trace can be more precisely located and its activity well defined, a supplemental report could justify further restriction of the set back zone width.

Because of the massive grading proposed for this project we believe it is critical to maintain a full time geologist on the site during grading. During the grading the Fault A feature should be mapped, and if necessary exploratory excavations should be performed to precisely locate the trace on the as-built plans. At the time of the grading the set back zone location and width should be considered with respect to the planned lot improvements. Likewise the geologist on site should map the landslide deposits along the western edge of the Calaveras set back zone to more precisely locate the disturbed deposits, but also to assess the character of the shearing logged in the trenches T-7 and T-9. These features should be shown on the as-built plans and any changes in the nature of the shearing that might indicate that they are related to active features of the Calveras fault should be addressed. Any changes made during grading to the precise location of active fault related features, or the accompanying set back zone need to be updated on the development plans, and location of the residential units.

LIMITATIONS

Our services have been performed in accordance with generally accepted principles and practices of the geological profession. This warranty is in lieu of all other warranties, either expressed or implied. In addition, the preliminary conclusions and recommendations presented in this report are professional opinions based on the indicated project criteria and data described in this report. They are intended only for the purpose, site location and project indicated.

We trust that this provides you with the information you need. If you have any questions, please call.

Sincerely,

GILPIN GEOSCIENCES, INC.

Lou M. Gilpin, PhD
Engineering Geologist 1518

Attachments: References

REFERENCES

California division of Mines and Geology, 1981, Fault Evaluation Report FER 110, For Calaveras, Peasanton, and Sherrburne Hills Faults in Diablo quadrangle.l

Earth Systems Consultants Northern California, 2005, Supplemental Fault Investigation FaultA/Calveras Fault Western Traces: report prepared for CCSR, San Ramon, California, 15 p.3 Figures and 2 Appendices, dated October 2005.

Earth Systems Consultants Northern California, 2005, Reponse to Treadwell and Rollo Peer Review letter dated 21 April 2005: Letter prepared for Claremont Homes, Inc., Fremont, California, 8 p., dated 10 May 2005.

ENGEO, 1983, Parcel off Old Crow Canyon Road San Ramon, California Assessor's Parcel No. 208-260-011 Addendum to Aquist Priolo Exploration (CDMG No. AP879): report prepared for Peter Jensen, 22 p, figures.

ENGEO, 1978, Parcel off Old Crow Canyon Road San Ramon, California Fault Investigation: letter prepared for Peter Jensen, 2 p, figures.

Kelson, K.I., Tolhurst, J., and Manaker, D., 1999, Earthquakes on the Calveras Fault: Fact or Fiction? The Geology, Seismiology and Paleoseismology of the Calveras Fault: in California Division of Mines and geology Special Publication 119, p. 160-175

Oppenheimer, D.H., and Lindh, A.G., 1992, The potential for earthquake rupture of the northern Calvaeras Fault, California:California Division of Mines and geology, Special Publication 113, 233-240.

Oppenheimer, D.H., and Macgregor-Scott, N., 1992, The seismotectonics of the eastern San Francisco Bay region: California Division of Mines and geolgy Special Publication 113, p. 11-16.

Page B.M., 1982, The Calaveras Fault zone of California, an active plate boundary element: Proceedings, Conference on Earthquake hazards in the Eastern San Francisco Bay Area: California Division of Mines and Geology Special Publication 62, 175-184p.

Toppozada, T.R., Real, C.R., and Parke, L., 1981, Preparationi of isoseismal maps and summaries of reported effects for pre-1900 California earthquakes: California Division of Mines and Geology, Open File report 81-11, 182 p.

Treadwell & Rollo, 2005, Peer Review Report "Geologic Hazards Evaluation and Preliminary Geotechnical Engineering Study" Faria Preserve San Ramon, California: letter prepared for EDAW, San Francisco, 5 p. dated 21 April 2005.

Appendix I

AM Peak and PM Peak Traffic Volumes and Counts

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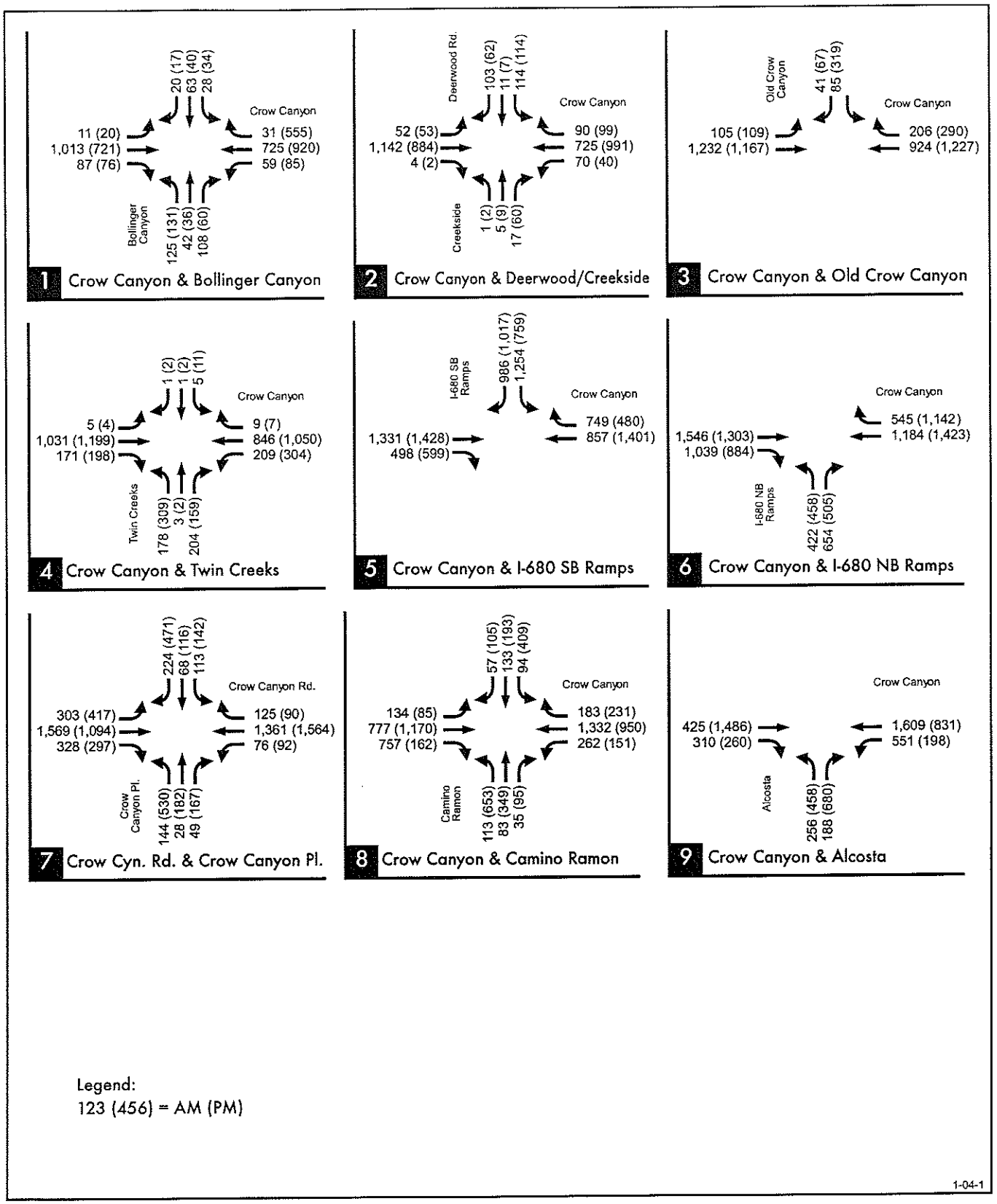
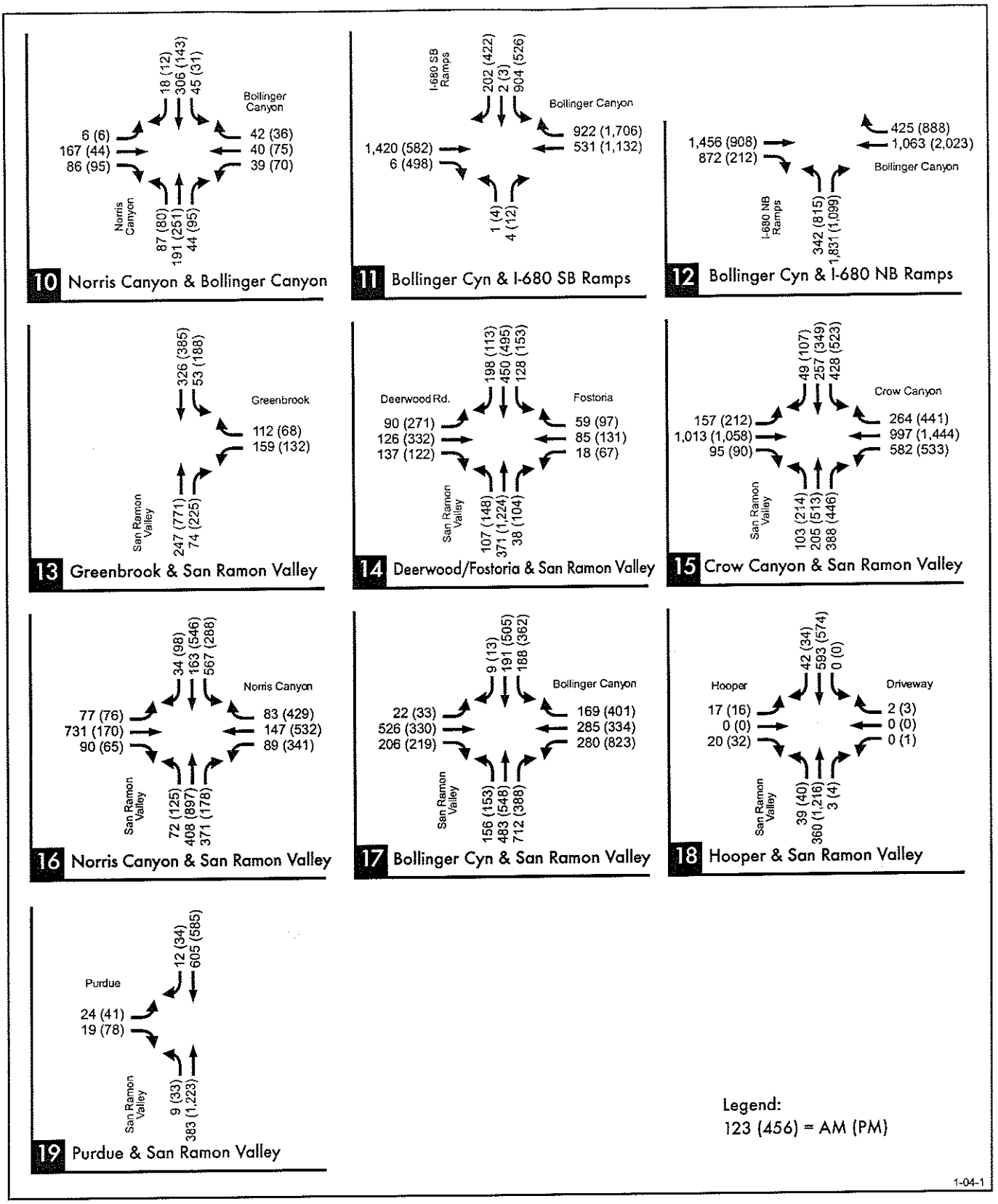


City of San Ramon
Crow Canyon Specific Plan EIR

Figure 4 - Existing
Peak Hour Volumes

Kimley-Horn
and Associates, Inc.



City of San Ramon
Crow Canyon Specific Plan EIR

Figure 4 - Existing
Peak Hour Volumes

Kimley-Horn
and Associates, Inc.

PHA Transportation Consultants
2711 Stuart Street Berkeley, CA 94705
(510) 848-9233

File Name : 1am
Site Code : 00000001
Start Date : 10/30/2002
Page No : 1

Crow Canyon/Bollionger Canyon - San Ramon

Groups Printed- Unshifted

	From North			From East			From South			From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00 AM	8	6	5	6	196	10	22	6	26	23	132	3	443
07:15 AM	9	3	7	4	211	10	10	3	29	21	193	2	502
07:30 AM	5	11	5	8	222	10	21	7	28	21	212	0	550
07:45 AM	4	31	7	8	164	19	27	4	30	19	254	5	572
Total	26	51	24	26	793	49	80	20	113	84	791	10	2067
08:00 AM	4	10	5	8	164	18	36	16	40	26	309	4	640
08:15 AM	7	11	11	7	175	12	24	15	27	21	238	2	550
08:30 AM	4	9	9	14	175	14	22	14	17	12	218	0	508
08:45 AM	6	10	10	7	136	9	24	13	21	15	203	2	456
Total	21	40	35	36	650	53	106	58	105	74	968	8	2154
Grand Total	47	91	59	62	1443	102	186	78	218	158	1759	18	4221
Apprch %	23.9	46.2	29.9	3.9	89.8	6.3	38.6	16.2	45.2	8.2	90.9	0.9	
Total %	1.1	2.2	1.4	1.5	34.2	2.4	4.4	1.8	5.2	3.7	41.7	0.4	

	From North				From East				From South				From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:30 AM																
Volume	20	63	28	111	31	725	59	815	108	42	125	275	87	1013	11	1111	2312
Percent	18.0	56.8	25.2		3.8	89.0	7.2		39.3	15.3	45.5		7.8	91.2	1.0		
08:00 Volume	4	10	5	19	8	164	18	190	36	16	40	92	26	309	4	339	640
Peak Factor																	0.903
High Int.	07:45 AM				07:30 AM				08:00 AM				08:00 AM				
Volume	4	31	7	42	8	222	10	240	36	16	40	92	26	309	4	339	
Peak Factor				0.661				0.849				0.747				0.819	

PHA Transportation Consultants
2711 Stuart Street Berkeley, CA 94705
(510) 848-9233

File Name : 1pm
Site Code : 00000000
Start Date : 10/30/2002
Page No : 1

Crow Canyon/Bollinger - San Ramon

Groups Printed- Unshifted

	From North			From East			From South			From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
04:00 PM	4	5	10	17	157	11	12	8	14	20	177	13	448
04:15 PM	3	4	8	6	174	10	13	9	17	12	169	6	431
04:30 PM	3	18	8	6	187	19	12	8	30	14	160	4	469
04:45 PM	3	7	4	11	210	21	12	5	35	14	175	2	499
Total	13	34	30	40	728	61	49	30	96	60	681	25	1847
05:00 PM	5	11	8	9	248	26	16	4	43	19	172	7	568
05:15 PM	2	12	7	14	224	19	14	8	39	16	199	3	557
05:30 PM	6	10	9	21	197	21	16	17	19	21	196	6	539
05:45 PM	4	7	10	11	251	19	14	7	30	20	154	4	531
Total	17	40	34	55	920	85	60	36	131	76	721	20	2195
Grand Total	30	74	64	95	1648	146	109	66	227	136	1402	45	4042
Apprch %	17.9	44.0	38.1	5.0	87.2	7.7	27.1	16.4	56.5	8.6	88.6	2.8	
Total %	0.7	1.8	1.6	2.4	40.8	3.6	2.7	1.6	5.6	3.4	34.7	1.1	

	From North				From East				From South				From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	17	40	34	91	55	920	85	1060	60	36	131	227	76	721	20	817	2195
Percent	18.7	44.0	37.4		5.2	86.8	8.0		26.4	15.9	57.7		9.3	88.2	2.4		
05:00 Volume	5	11	8	24	9	248	26	283	16	4	43	63	19	172	7	198	568
Peak Factor																	0.966
High Int.	05:30 PM				05:00 PM				05:00 PM				05:30 PM				
Volume	6	10	9	25	9	248	26	283	16	4	43	63	21	196	6	223	
Peak Factor				0.910				0.936				0.901				0.916	

PHA Transportation Consultants
2711 Stuart Street Berkeley, CA 94705
(510) 848-9233

File Name : 2am
Site Code : 00000002
Start Date : 10/30/2002
Page No : 1

Crwo Canyon/Twin Creek - San Ramon

Groups Printed- Unshifted

	From North			From East			From South			From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00 AM	0	0	0	0	203	26	37	0	17	26	187	0	496
07:15 AM	0	0	0	0	228	30	40	2	27	31	220	0	578
07:30 AM	0	0	0	2	239	34	48	0	46	39	238	0	646
07:45 AM	0	0	0	3	238	52	50	1	45	60	256	2	707
Total	0	0	0	5	908	142	175	3	135	156	901	2	2427
08:00 AM	0	1	0	0	239	44	48	6	38	46	297	1	720
08:15 AM	0	0	1	2	308	44	25	0	40	37	264	3	724
08:30 AM	0	0	1	4	268	54	46	0	45	28	242	1	689
08:45 AM	0	0	2	4	295	52	50	1	41	38	251	1	735
Total	0	1	4	10	1110	194	169	7	164	149	1054	6	2868
Grand Total	0	1	4	15	2018	336	344	10	299	305	1955	8	5295
Apprch %	0.0	20.0	80.0	0.6	85.2	14.2	52.7	1.5	45.8	13.4	86.2	0.4	
Total %	0.0	0.0	0.1	0.3	38.1	6.3	6.5	0.2	5.6	5.8	36.9	0.2	

	From North				From East				From South				From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	08:00 AM																
Volume	0	1	4	5	10	1110	194	1314	169	7	164	340	149	1054	6	1209	2868
Percent	0.0	20.0	80.0		0.8	84.5	14.8		49.7	2.1	48.2		12.3	87.2	0.5		
08:45 Volume	0	0	2	2	4	295	52	351	50	1	41	92	38	251	1	290	735
Peak Factor																	0.976
High Int.	08:45 AM				08:15 AM				08:00 AM				08:00 AM				
Volume	0	0	2	2	2	308	44	354	48	6	38	92	46	297	1	344	
Peak Factor				0.625				0.928				0.924				0.879	

PHA Transportation Consultants
2711 Stuart Street Berkeley, CA 94705
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File Name : 2pm
Site Code : 00000002
Start Date : 10/30/2002
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Crow Canyon/Twin Creek - San Ramon

Groups Printed- Unshifted

	From North			From East			From South			From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
04:00 PM	0	1	1	6	269	76	38	1	58	37	277	0	764
04:15 PM	0	0	3	0	232	70	40	1	54	40	264	1	705
04:30 PM	0	0	3	2	270	67	40	0	44	34	285	0	745
04:45 PM	1	1	1	0	297	76	52	0	67	35	280	0	810
Total	1	2	8	8	1068	289	170	2	223	146	1106	1	3024
05:00 PM	0	1	2	0	245	76	24	0	72	31	304	3	758
05:15 PM	0	0	1	1	290	82	48	0	74	36	280	0	812
05:30 PM	0	0	1	1	297	68	45	0	42	49	279	1	783
05:45 PM	2	0	2	0	261	78	33	1	55	33	261	2	728
Total	2	1	6	2	1093	304	150	1	243	149	1124	6	3081
Grand Total	3	3	14	10	2161	593	320	3	466	295	2230	7	6105
Apprch %	15.0	15.0	70.0	0.4	78.2	21.5	40.6	0.4	59.1	11.7	88.1	0.3	
Total %	0.0	0.0	0.2	0.2	35.4	9.7	5.2	0.0	7.6	4.8	36.5	0.1	

	From North				From East				From South				From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM																
Volume	1	2	5	8	2	1129	302	1433	169	0	255	424	151	1143	4	1298	3163
Percent	12.5	25.0	62.5		0.1	78.8	21.1		39.9	0.0	60.1		11.6	88.1	0.3		
05:15 Volume	0	0	1	1	1	290	82	373	48	0	74	122	36	280	0	316	812
Peak Factor																	0.974
High Int.	04:45 PM				04:45 PM				05:15 PM				05:00 PM				
Volume	1	1	1	3	0	297	76	373	48	0	74	122	31	304	3	338	
Peak Factor				0.667				0.960				0.869				0.960	

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File Name : 3am
Site Code : 00000003
Start Date : 10/15/2002
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Crwo Canyon/San Ramon Valley - San Ramon

Groups Printed- Unshifted

	From North				From East				From South				From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	RTOR	Right	Thru	Left	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	12	29	52	0	53	220	91	0	24	17	12	26	21	170	11	0	738
07:15 AM	7	43	65	0	51	244	137	0	27	19	8	10	16	241	24	0	892
07:30 AM	5	36	72	0	58	252	139	0	57	41	17	13	18	279	20	0	1007
07:45 AM	11	49	80	0	69	231	140	2	38	36	33	9	23	260	31	0	1012
Total	35	157	269	0	231	947	507	2	146	113	70	58	78	950	86	0	3649
08:00 AM	13	42	84	0	65	254	153	0	73	52	17	5	19	256	33	0	1066
08:15 AM	12	59	47	0	68	281	126	0	38	45	14	6	23	299	30	0	1048
08:30 AM	15	66	60	0	54	275	157	0	54	58	26	5	14	245	25	0	1054
08:45 AM	13	54	82	0	68	292	171	0	37	43	35	4	26	237	29	0	1091
Total	53	221	273	0	255	1102	607	0	202	198	92	20	82	1037	117	0	4259
Grand Total	88	378	542	0	486	2049	1114	2	348	311	162	78	160	1987	203	0	7908
Apprch %	8.7	37.5	53.8	0.0	13.3	56.1	30.5	0.1	38.7	34.6	18.0	8.7	6.8	84.6	8.6	0.0	
Total %	1.1	4.8	6.9	0.0	6.1	25.9	14.1	0.0	4.4	3.9	2.0	1.0	2.0	25.1	2.6	0.0	

	From North					From East					From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Intersection	08:00 AM																				
Volume	53	221	273	0	547	255	1102	607	0	1964	202	198	92	20	512	82	1037	117	0	1236	4259
Percent	9.7	40.4	49.9	0.0		13.0	56.1	30.9	0.0		39.5	38.7	18.0	3.9		6.6	83.9	9.5	0.0		
08:45 Volume	13	54	82	0	149	68	292	171	0	531	37	43	35	4	119	26	237	29	0	292	1091
Peak Factor																					0.976
High Int.	08:45 AM					08:45 AM					08:00 AM					08:15 AM					
Volume	13	54	82	0	149	68	292	171	0	531	73	52	17	5	147	23	299	30	0	352	
Peak Factor					0.918					0.925					0.871					0.878	

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File Name : 3pm
Site Code : 00000003
Start Date : 10/15/2002
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Crow Canyon/San Ramon Valley - San Ramon

Groups Printed- 1 - Unshifted

	From North			From East			From South				From West					
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	RTOR	Right	Thru	Left	Exclu. Total	Inclu. Total	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
04:00 PM	29	60	79	96	238	155	99	63	43	8	25	278	40	8	1205	1213
04:15 PM	27	63	68	113	239	104	77	103	24	13	27	244	60	13	1149	1162
04:30 PM	41	72	104	115	294	138	116	96	38	13	24	265	52	13	1355	1368
04:45 PM	42	107	91	113	294	135	105	108	39	5	23	208	44	5	1309	1314
Total	139	302	342	437	1065	532	397	370	144	39	99	995	196	39	5018	5057
05:00 PM	48	66	104	109	315	152	132	111	33	7	29	335	60	7	1494	1501
05:15 PM	39	83	96	102	274	120	115	144	60	4	28	309	73	4	1443	1447
05:30 PM	43	80	88	107	303	136	123	111	41	6	30	260	51	6	1373	1379
05:45 PM	38	82	77	80	263	140	109	100	33	7	30	326	58	7	1336	1343
Total	168	311	365	398	1155	548	479	466	167	24	117	1230	242	24	5646	5670
Grand Total	307	613	707	835	2220	1080	876	836	311	63	216	2225	438	63	10664	10727
Apprch %	18.9	37.7	43.5	20.2	53.7	26.1	43.3	41.3	15.4		7.5	77.3	15.2			
Total %	2.9	5.7	6.6	7.8	20.8	10.1	8.2	7.8	2.9		2.0	20.9	4.1	0.6	99.4	

	From North				From East				From South				From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	168	311	365	844	398	1155	548	2101	479	466	167	1112	117	1230	242	1589	5646
Percent	19.9	36.8	43.2		18.9	55.0	26.1		43.1	41.9	15.0		7.4	77.4	15.2		
05:00 Volume	48	66	104	218	109	315	152	576	132	111	33	276	29	335	60	424	1494
Peak Factor																	0.945
High Int.	05:00 PM				05:00 PM				05:15 PM				05:00 PM				
Volume	48	66	104	218	109	315	152	576	115	144	60	319	29	335	60	424	
Peak Factor				0.968				0.912				0.871				0.937	

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File Name : 4am
Site Code : 00000004
Start Date : 10/15/2002
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I-680 SB off-ramp/~~Crwd~~ Crow Canyon - San Ramon

Groups Printed- Unshifted

	From North				From East				From South				From West				Int. Total
Start Time	Right	Thru	Left	RTOR	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	154	0	247	64	80	148	0	0	0	0	0	0	110	189	0	0	992
07:15 AM	209	0	307	78	122	151	0	0	0	0	0	0	88	267	0	0	1222
07:30 AM	202	0	341	76	145	164	0	0	0	0	0	0	119	280	0	0	1327
07:45 AM	199	0	373	69	188	175	0	0	0	0	0	0	141	233	0	0	1378
Total	764	0	1268	287	535	638	0	0	0	0	0	0	458	969	0	0	4919
08:00 AM	186	0	348	75	216	214	0	0	0	0	0	0	150	294	0	0	1483
08:15 AM	194	0	358	94	200	210	0	0	0	0	0	0	133	266	0	0	1455
08:30 AM	200	0	328	60	175	238	0	0	0	0	0	0	119	262	0	0	1382
08:45 AM	213	0	275	69	158	251	0	0	0	0	0	0	101	256	0	0	1323
Total	793	0	1309	298	749	913	0	0	0	0	0	0	503	1078	0	0	5643
Grand Total	1557	0	2577	585	1284	1551	0	0	0	0	0	0	961	2047	0	0	10562
Apprch %	33.0	0.0	54.6	12.4	45.3	54.7	0.0	0.0	0.0	0.0	0.0	0.0	31.9	68.1	0.0	0.0	
Total %	14.7	0.0	24.4	5.5	12.2	14.7	0.0	0.0	0.0	0.0	0.0	0.0	9.1	19.4	0.0	0.0	

	From North					From East					From South					From West					Int. Total
Start Time	Right	Thru	Left	RT OR	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Intersection	07:45 AM																				
Volume	779	0	1407	298	2484	779	837	0	0	1616	0	0	0	0	0	543	1055	0	0	1598	5698
Percent	31.4	0.0	56.6	12.0		48.2	51.8	0.0	0.0		0.0	0.0	0.0	0.0		34.0	66.0	0.0	0.0		
08:00 Volume	186	0	348	75	609	216	214	0	0	430	0	0	0	0	0	150	294	0	0	444	1483
Peak Factor																					0.961
High Int.	08:15 AM					08:00 AM					6:45:00 AM					08:00 AM					
Volume	194	0	358	94	646	216	214	0	0	430	0	0	0	0	0	150	294	0	0	444	
Peak Factor					0.961					0.940										0.900	

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File Name : 4pm
Site Code : 00000004
Start Date : 10/15/2002
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I-680 SB off-ramp/Crow Canyon - San Ramon

Groups Printed- Unshifted

	From North				From East				From South				From West				Int. Total
Start Time	Right	Thru	Left	RTOR	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	167	0	174	72	125	258	0	0	0	0	0	0	137	327	0	0	1260
04:15 PM	189	0	153	54	131	325	0	0	0	0	0	0	145	298	0	0	1295
04:30 PM	212	0	198	66	210	294	0	0	0	0	0	0	171	293	0	0	1444
04:45 PM	253	0	173	53	237	263	0	0	0	0	0	0	185	268	0	0	1432
Total	821	0	698	245	703	1140	0	0	0	0	0	0	638	1186	0	0	5431
05:00 PM	203	0	195	58	271	245	0	0	0	0	0	0	214	294	0	0	1480
05:15 PM	229	0	158	66	254	306	0	0	0	0	0	0	266	271	0	0	1550
05:30 PM	207	0	191	97	277	240	0	0	0	0	0	0	218	277	0	0	1507
05:45 PM	202	0	171	75	226	236	0	0	0	0	0	0	201	318	0	0	1429
Total	841	0	715	296	1028	1027	0	0	0	0	0	0	899	1160	0	0	5966
Grand Total	1662	0	1413	541	1731	2167	0	0	0	0	0	0	1537	2346	0	0	11397
Apprch %	46.0	0.0	39.1	15.0	44.4	55.6	0.0	0.0	0.0	0.0	0.0	0.0	39.6	60.4	0.0	0.0	
Total %	14.6	0.0	12.4	4.7	15.2	19.0	0.0	0.0	0.0	0.0	0.0	0.0	13.5	20.6	0.0	0.0	

	From North					From East					From South					From West					Int. Total
Start Time	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	892	0	717	274	1883	1039	1054	0	0	2093	0	0	0	0	0	883	1110	0	0	1993	5969
Percent	47.4	0.0	38.1	14.6		49.6	50.4	0.0	0.0		0.0	0.0	0.0	0.0		44.3	55.7	0.0	0.0		
05:15 Volume	229	0	158	66	453	254	306	0	0	560	0	0	0	0	0	266	271	0	0	537	1550
Peak Factor																					0.963
High Int.	05:30 PM					05:15 PM					3:45:00 PM					05:15 PM					
Volume	207	0	191	97	495	254	306	0	0	560	0	0	0	0	0	266	271	0	0	537	
Peak Factor					0.951					0.934										0.928	

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File Name : 5am
Site Code : 00000005
Start Date : 10/15/2002
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1-680 NB off-ramp/Bollinger Canyon - San Ramon

Groups Printed- Unshifted

	From North			From East			From South				From West					
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	RTOR	Right	Thru	Left	Exclu. Total	Inclu. Total	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
07:00 AM	0	0	0	120	182	0	60	0	60	32	181	272	0	32	875	907
07:15 AM	0	0	0	115	251	0	76	0	49	31	223	298	0	31	1012	1043
07:30 AM	0	0	0	152	247	0	130	0	83	32	248	344	0	32	1204	1236
07:45 AM	0	0	0	116	278	0	149	0	92	13	224	413	0	13	1272	1285
Total	0	0	0	503	958	0	415	0	284	08	876	1327	0	108	4363	4471
08:00 AM	0	0	0	122	285	0	198	0	165	12	195	471	0	12	1436	1448
08:15 AM	0	0	0	140	269	0	172	0	154	17	212	429	0	17	1376	1393
08:30 AM	0	0	0	133	273	0	213	0	133	12	177	441	0	12	1370	1382
08:45 AM	0	0	0	114	247	0	183	0	170	19	135	416	0	19	1265	1284
Total	0	0	0	509	1074	0	766	0	622	60	719	1757	0	60	5447	5507
Grand Total	0	0	0	1012	2032	0	1181	0	906	168	1595	3084	0	168	9810	9978
Apprch %	0.0	0.0	0.0	33.2	66.8	0.0	56.6	0.0	43.4		34.1	65.9	0.0			
Total %	0.0	0.0	0.0	10.3	20.7	0.0	12.0	0.0	9.2		16.3	31.4	0.0	1.7	98.3	

	From North				From East				From South				From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:45 AM																
Volume	0	0	0	0	511	1105	0	1616	732	0	544	1276	808	1754	0	2562	5454
Percent	0.0	0.0	0.0		31.6	68.4	0.0		57.4	0.0	42.6		31.5	68.5	0.0		
08:00 Volume	0	0	0	0	122	285	0	407	198	0	165	363	195	471	0	666	1436
Peak Factor																	0.950
High Int.	6:45:00 AM				08:15 AM				08:00 AM				08:00 AM				
Volume	0	0	0	0	140	269	0	409	198	0	165	363	195	471	0	666	
Peak Factor								0.988				0.879				0.962	

PHA Transportation Consultants
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File Name : 6pm
Site Code : 00000005
Start Date : 10/15/2002
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I-680 NB off-ramp/Bollinger Canyon - San Ramon

Groups Printed- Unshifted

	From North			From East			From South				From West					
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	RTOR	Right	Thru	Left	Exclu. Total	Inclu. Total	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
04:00 PM	0	0	0	242	261	0	108	0	132	32	185	303	0	32	1231	1263
04:15 PM	0	0	0	255	288	0	141	0	161	37	137	319	0	37	1301	1338
04:30 PM	0	0	0	228	369	0	132	0	179	37	144	359	0	37	1411	1448
04:45 PM	0	0	0	231	354	0	166	0	172	30	113	348	0	30	1384	1414
Total	0	0	0	956	1272	0	547	0	644	136	579	1329	0	136	5327	5463
05:00 PM	0	0	0	240	383	0	166	0	173	33	105	386	0	33	1453	1486
05:15 PM	0	0	0	281	401	0	197	0	169	25	84	377	0	25	1509	1534
05:30 PM	0	0	0	250	354	0	189	0	143	40	87	382	0	40	1405	1445
05:45 PM	0	0	0	240	313	0	141	0	129	21	122	339	0	21	1284	1305
Total	0	0	0	1011	1451	0	693	0	614	119	398	1484	0	119	5651	5770
Grand Total	0	0	0	1967	2723	0	1240	0	1258	255	977	2813	0	255	10978	11233
Apprch %	0.0	0.0	0.0	41.9	58.1	0.0	49.6	0.0	50.4		25.8	74.2	0.0			
Total %	0.0	0.0	0.0	17.9	24.8	0.0	11.3	0.0	11.5		8.9	25.6	0.0	2.3	97.7	

	From North				From East				From South				From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	0	0	0	0	980	1507	0	2487	661	0	693	1354	446	1470	0	1916	5757
Percent	0.0	0.0	0.0		39.4	60.6	0.0		48.8	0.0	51.2		23.3	76.7	0.0		
05:15 Volume	0	0	0	0	281	401	0	682	197	0	169	366	84	377	0	461	1509
Peak Factor																	0.954
High Int.	3:45:00 PM				05:15 PM				05:15 PM				04:30 PM				
Volume	0	0	0	0	281	401	0	682	197	0	169	366	144	359	0	503	
Peak Factor								0.912				0.925				0.952	

PHA Transportation Consultants
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File Name : 6am
Site Code : 00000006
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Crwo Canyon/Crwo Canyon Pl. - San Ramon

Groups Printed- Unshifted

	From North				From East			From South			From West					
Start Time	Right	Thru	Left	RTOR	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Exclu. Total	Inclu. Total	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
07:00 AM	17	6	9	34	12	237	6	4	8	15	49	257	36	34	656	690
07:15 AM	9	9	16	39	23	257	5	7	6	18	71	308	60	39	789	828
07:30 AM	23	16	17	51	35	325	5	8	8	19	72	342	53	51	923	974
07:45 AM	15	16	31	40	30	294	11	18	7	35	82	433	80	40	1052	1092
Total	64	47	73	164	100	1113	27	37	29	87	274	1340	229	164	3420	3584
08:00 AM	10	15	26	34	32	331	18	6	8	17	82	380	62	34	987	1021
08:15 AM	27	23	31	26	31	324	19	14	5	40	97	397	84	26	1092	1118
08:30 AM	24	14	25	28	32	312	28	11	8	29	67	359	77	28	986	1014
08:45 AM	7	15	13	30	33	288	20	7	8	30	87	366	65	30	939	969
Total	68	67	95	118	128	1255	85	38	29	116	333	1502	288	118	4004	4122
Grand Total	132	114	168	282	228	2368	112	75	58	203	607	2842	517	282	7424	7706
Apprch %	31.9	27.5	40.6		8.4	87.4	4.1	22.3	17.3	60.4	15.3	71.7	13.0			
Total %	1.8	1.5	2.3		3.1	31.9	1.5	1.0	0.8	2.7	8.2	38.3	7.0	3.7	96.3	

	From North				From East				From South				From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:45 AM																
Volume	76	68	113	257	125	1261	76	1462	49	28	121	198	328	1569	303	2200	4117
Percent	29.6	26.5	44.0		8.5	86.3	5.2		24.7	14.1	61.1		14.9	71.3	13.8		
08:15 Volume	27	23	31	81	31	324	19	374	14	5	40	59	97	397	84	578	1092
Peak Factor																	0.943
High Int.	08:15 AM				08:00 AM				07:45 AM				07:45 AM				
Volume	27	23	31	81	32	331	18	381	18	7	35	60	82	433	80	595	
Peak Factor				0.793				0.959				0.825				0.924	

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File Name : 6pm
Site Code : 00000006
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Crow Canyon/Crow Canyon Pl. - San Ramon

Groups Printed- 1 - Unshifted

	From North				From East			From South			From West			Exclu.	Inclu.	Int.
Start Time	Right	Thru	Left	RTOR	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total	Total	Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
04:00 PM	44	31	28	23	20	357	28	15	40	104	51	216	90	23	1024	1047
04:15 PM	38	32	36	33	17	386	23	25	44	105	79	230	117	33	1132	1165
04:30 PM	57	28	31	31	24	378	22	38	27	110	67	257	127	31	1166	1197
04:45 PM	53	32	35	38	20	372	23	41	37	113	77	271	105	38	1179	1217
Total	192	123	130	125	81	1493	96	119	148	432	274	974	439	125	4501	4626
05:00 PM	64	23	26	59	23	337	16	39	36	117	69	279	82	59	1111	1170
05:15 PM	67	37	48	65	21	431	28	47	58	144	78	269	115	65	1343	1408
05:30 PM	57	24	33	48	26	365	25	40	51	136	73	248	105	48	1183	1231
05:45 PM	51	32	32	60	21	350	17	42	36	106	87	263	95	60	1132	1192
Total	239	116	139	232	91	1483	86	168	181	503	307	1059	397	232	4769	5001
Grand Total	431	239	269	357	172	2976	182	287	329	935	581	2033	836	357	9270	9627
Apprch %	45.9	25.5	28.6		5.2	89.4	5.5	18.5	21.2	60.3	16.8	58.9	24.2			
Total %	4.6	2.6	2.9		1.9	32.1	2.0	3.1	3.5	10.1	6.3	21.9	9.0	3.7	96.3	

	From North				From East				From South				From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM																
Volume	241	116	142	499	90	1505	92	1687	167	182	510	859	297	1067	407	1771	4816
Percent	48.3	23.2	28.5		5.3	89.2	5.5		19.4	21.2	59.4		16.8	60.2	23.0		
05:15 Volume	67	37	48	152	21	431	28	480	47	58	144	249	78	269	115	462	1343
Peak Factor																	0.897
High Int.	05:15 PM				05:15 PM				05:15 PM				05:15 PM				
Volume	67	37	48	152	21	431	28	480	47	58	144	249	78	269	115	462	
Peak Factor				0.821				0.879				0.862				0.958	

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File Name : 7am
Site Code : 00000007
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Crow Canyon/Camino Ramon - San Ramon

Groups Printed- Unshifted

	From North			From East			From South			From West				
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	RTOR	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	10	16	10	14	277	28	5	10	19	128	96	25	16	654
07:15 AM	12	16	15	20	312	60	9	9	20	122	128	29	48	800
07:30 AM	9	33	22	29	332	67	5	8	22	151	163	29	28	898
07:45 AM	13	43	32	33	335	83	8	12	24	170	182	31	62	1028
Total	44	108	79	96	1256	238	27	39	85	571	569	114	154	3380
08:00 AM	14	40	24	39	361	37	19	28	26	166	188	34	39	1015
08:15 AM	12	27	18	50	331	74	3	20	34	132	220	33	36	990
08:30 AM	18	23	20	61	305	68	5	23	29	128	187	36	24	927
08:45 AM	13	36	24	38	237	55	11	15	23	136	196	40	19	843
Total	57	126	86	188	1234	234	38	86	112	562	791	143	118	3775
Grand Total	101	234	165	284	2490	472	65	125	197	1133	1360	257	272	7155
Apprch %	20.2	46.8	33.0	8.7	76.7	14.5	16.8	32.3	50.9	37.5	45.0	8.5	9.0	
Total %	1.4	3.3	2.3	4.0	34.8	6.6	0.9	1.7	2.8	15.8	19.0	3.6	3.8	

	From North				From East				From South				From West					
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																		
Intersection	07:45 AM																	
Volume	57	133	94	284	183	1332	262	1777	35	83	113	231	596	777	134	161	1668	3960
Percent	20.1	46.8	33.1		10.3	75.0	14.7		15.2	35.9	48.9		35.7	46.6	8.0	9.7		
07:45 Volume	13	43	32	88	33	335	83	451	8	12	24	44	170	182	31	62	445	1028
Peak Factor																		0.963
High Int.	07:45 AM				08:15 AM				08:00 AM				07:45 AM					
Volume	13	43	32	88	50	331	74	455	19	28	26	73	170	182	31	62	445	
Peak Factor				0.807				0.976				0.791					0.937	

PHA Transportation Consultants
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File Name : 7pm
Site Code : 00000007
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Crow Canyon/Camino Ramon - San Ramon

Groups Printed- Unshifted

	From North			From East			From South			From West				
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	RTOR	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	19	36	64	53	203	39	19	65	193	33	202	36	12	974
04:15 PM	32	51	79	70	194	28	24	61	136	15	238	28	18	974
04:30 PM	27	45	101	62	238	38	22	77	156	17	280	16	16	1095
04:45 PM	23	45	98	76	231	40	31	88	152	24	315	18	10	1151
Total	101	177	342	261	866	145	96	291	637	89	1035	98	56	4194
05:00 PM	26	52	109	45	239	36	18	96	199	26	280	21	15	1162
05:15 PM	29	51	101	48	242	37	24	88	146	30	295	30	24	1145
05:30 PM	27	44	92	56	229	40	18	93	157	20	260	43	16	1095
05:45 PM	21	45	84	50	218	51	27	65	115	14	258	43	11	1002
Total	103	192	386	199	928	164	87	342	617	90	1093	137	66	4404
Grand Total	204	369	728	460	1794	309	183	633	1254	179	2128	235	122	8598
Apprch %	15.7	28.4	56.0	17.9	70.0	12.1	8.8	30.6	60.6	6.7	79.9	8.8	4.6	
Total %	2.4	4.3	8.5	5.4	20.9	3.6	2.1	7.4	14.6	2.1	24.7	2.7	1.4	

	From North				From East				From South				From West					
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	RTOR	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																		
Intersection	04:30 PM																	
Volume	105	193	409	707	231	950	151	1332	95	349	653	1097	97	117 0	85	65	1417	4553
Percent	14.9	27.3	57.9		17.3	71.3	11.3		8.7	31.8	59.5		6.8	82.6	6.0	4.6		
05:00 Volume	26	52	109	187	45	239	36	320	18	96	199	313	26	280	21	15	342	1162
Peak Factor																		0.980
High Int.	05:00 PM				04:45 PM				05:00 PM				05:15 PM					
Volume	26	52	109	187	76	231	40	347	18	96	199	313	30	295	30	24	379	
Peak Factor				0.945				0.960				0.876					0.935	

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File Name : 8am
Site Code : 00000008
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Crow Canyon/Alcosta - San Ramon

Groups Printed- Unshifted

	From North			From East			From South			From West			Int. Total
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	0	0	0	3	246	72	12	0	17	40	64	0	454
07:15 AM	0	0	0	0	276	84	12	0	37	43	58	0	510
07:30 AM	0	0	0	0	326	81	21	0	57	59	85	0	629
07:45 AM	0	0	0	0	369	92	29	0	51	67	86	0	694
Total	0	0	0	3	1217	329	74	0	162	209	293	0	2287
08:00 AM	0	0	0	0	330	151	44	0	52	97	92	0	766
08:15 AM	0	0	0	0	364	140	69	0	53	83	96	0	805
08:30 AM	0	0	0	0	350	133	40	0	51	88	113	0	775
08:45 AM	0	0	0	0	283	108	18	0	64	84	109	0	666
Total	0	0	0	0	1327	532	171	0	220	352	410	0	3012
Grand Total	0	0	0	3	2544	861	245	0	382	561	703	0	5299
Apprch %	0.0	0.0	0.0	0.1	74.6	25.3	39.1	0.0	60.9	44.4	55.6	0.0	
Total %	0.0	0.0	0.0	0.1	48.0	16.2	4.6	0.0	7.2	10.6	13.3	0.0	

	From North				From East				From South				From West				Int. Total
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:45 AM																
Volume	0	0	0	0	0	1413	516	1929	182	0	207	389	335	387	0	722	3040
Percent	0.0	0.0	0.0		0.0	73.3	26.7		46.8	0.0	53.2		46.4	53.6	0.0		
08:15 Volume	0	0	0	0	0	364	140	504	69	0	53	122	83	96	0	179	805
Peak Factor																	0.944
High Int.	6:45:00 AM				08:15 AM				08:15 AM				08:30 AM				
Volume	0	0	0	0	0	364	140	504	69	0	53	122	88	113	0	201	
Peak Factor								0.957				0.797				0.898	

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File Name : 8pm
Site Code : 00000008
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Crow Canyon/Alcosta - Sna Ramon

Groups Printed- Unshifted

	From North			From East			From South			From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	0	0	0	0	210	51	87	0	80	101	240	0	769
04:15 PM	0	0	0	0	184	63	98	0	89	65	264	0	763
04:30 PM	0	0	0	0	198	54	114	0	123	79	304	0	872
04:45 PM	0	0	0	0	185	52	140	0	121	74	295	0	867
Total	0	0	0	0	777	220	439	0	413	319	1103	0	3271
05:00 PM	0	0	0	0	172	46	117	0	121	73	355	0	884
05:15 PM	0	0	0	0	193	51	189	0	134	66	362	0	995
05:30 PM	0	0	0	0	181	46	127	0	84	49	339	0	826
05:45 PM	0	0	0	0	172	44	154	0	86	52	396	0	904
Total	0	0	0	0	718	187	587	0	425	240	1452	0	3609
Grand Total	0	0	0	0	1495	407	1026	0	838	559	2555	0	6880
Apprch %	0.0	0.0	0.0	0.0	78.6	21.4	55.0	0.0	45.0	18.0	82.0	0.0	
Total %	0.0	0.0	0.0	0.0	21.7	5.9	14.9	0.0	12.2	8.1	37.1	0.0	

	From North				From East				From South				From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	0	0	0	0	0	748	203	951	560	0	499	1059	292	1316	0	1608	3618
Percent	0.0	0.0	0.0		0.0	78.7	21.3		52.9	0.0	47.1		18.2	81.8	0.0		
05:15 Volume	0	0	0	0	0	193	51	244	189	0	134	323	66	362	0	428	995
Peak Factor																	0.909
High Int.	3:45:00 PM				04:30 PM				05:15 PM				05:00 PM				
Volume	0	0	0	0	0	198	54	252	189	0	134	323	73	355	0	428	
Peak Factor								0.943				0.820				0.939	

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File Name : 10am
Site Code : 00000010
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San Ramon Valley/Norris Canyon - San Ramon

Groups Printed- Unshifted

	From North			From East			From South			From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00 AM	5	24	93	2	14	14	27	41	6	11	57	21	315
07:15 AM	6	28	106	6	20	14	38	69	12	21	82	32	434
07:30 AM	5	33	102	8	13	7	59	55	8	15	106	15	426
07:45 AM	6	33	156	21	25	16	111	87	15	27	252	19	768
Total	22	118	457	37	72	51	235	252	41	74	497	87	1943
08:00 AM	9	42	160	20	63	38	115	95	16	30	250	27	865
08:15 AM	11	37	144	18	37	16	91	98	20	12	154	18	656
08:30 AM	8	51	107	24	22	19	54	128	21	21	75	13	543
08:45 AM	12	56	100	6	15	29	41	67	16	11	104	25	482
Total	40	186	511	68	137	102	301	388	73	74	583	83	2546
Grand Total	62	304	968	105	209	153	536	640	114	148	1080	170	4489
Apprch %	4.6	22.8	72.6	22.5	44.8	32.8	41.6	49.6	8.8	10.6	77.3	12.2	
Total %	1.4	6.8	21.6	2.3	4.7	3.4	11.9	14.3	2.5	3.3	24.1	3.8	

	From North				From East				From South				From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:45 AM																
Volume	34	163	567	764	83	147	89	319	371	408	72	851	90	731	77	898	2832
Percent	4.5	21.3	74.2		26.0	46.1	27.9		43.6	47.9	8.5		10.0	81.4	8.6		
08:00 Volume	9	42	160	211	20	63	38	121	115	95	16	226	30	250	27	307	865
Peak Factor																	0.818
High Int.	08:00 AM				08:00 AM				08:00 AM				08:00 AM				
Volume	9	42	160	211	20	63	38	121	115	95	16	226	30	250	27	307	
Peak Factor				0.905				0.659				0.941				0.731	

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File Name : 10pm
Site Code : 00000010
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Sna Ramon Valley/Norris Canyon - San Ramon

Groups Printed- Unshifted

	From North			From East			From South			From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
04:00 PM	14	76	58	40	68	55	25	125	16	14	45	21	557
04:15 PM	23	112	58	44	83	36	27	138	29	16	43	11	620
04:30 PM	21	117	42	89	113	72	43	162	13	13	50	24	759
04:45 PM	22	114	55	111	120	74	40	193	22	12	36	24	823
Total	80	419	213	284	384	237	135	618	80	55	174	80	2759
05:00 PM	27	142	87	116	163	93	39	212	27	18	56	22	1002
05:15 PM	23	157	69	148	168	121	47	229	36	18	40	32	1088
05:30 PM	23	132	67	87	116	68	40	198	31	13	34	13	822
05:45 PM	25	115	65	78	85	59	52	258	31	16	40	9	833
Total	98	546	288	429	532	341	178	897	125	65	170	76	3745
Grand Total	178	965	501	713	916	578	313	1515	205	120	344	156	6504
Apprch %	10.8	58.7	30.5	32.3	41.5	26.2	15.4	74.5	10.1	19.4	55.5	25.2	
Total %	2.7	14.8	7.7	11.0	14.1	8.9	4.8	23.3	3.2	1.8	5.3	2.4	

	From North				From East				From South				From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	98	546	288	932	429	532	341	1302	178	897	125	1200	65	170	76	311	3745
Percent	10.5	58.6	30.9		32.9	40.9	26.2		14.8	74.8	10.4		20.9	54.7	24.4		
05:15 Volume	23	157	69	249	148	168	121	437	47	229	36	312	18	40	32	90	1088
Peak Factor																	0.861
High Int.	05:00 PM				05:15 PM				05:45 PM				05:00 PM				
Volume	27	142	87	256	148	168	121	437	52	258	31	341	18	56	22	96	
Peak Factor				0.910				0.745				0.880				0.810	

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File Name : 14am
Site Code : 00000014
Start Date : 10/17/2002
Page No : 1

Bollinger Canyon/San Ramon Valley - San Ramon

Groups Printed- Unshifted

	From North			From East			From South				From West					
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	RTOR	Right	Thru	Left	Exclu. Total	Inclu. Total	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
07:00 AM	1	35	30	13	42	44	56	45	14	38	23	84	2	38	389	427
07:15 AM	3	28	31	19	35	52	106	60	21	23	21	78	3	23	457	480
07:30 AM	2	26	29	30	55	47	120	46	28	17	24	115	3	17	525	542
07:45 AM	4	45	41	40	66	58	104	119	26	48	37	106	4	48	650	698
Total	10	134	131	102	198	201	386	270	89	126	105	383	12	126	2021	2147
08:00 AM	0	65	38	44	85	81	111	110	51	62	94	110	2	62	791	853
08:15 AM	3	39	36	46	71	77	91	149	51	57	54	134	9	57	760	817
08:30 AM	2	42	41	31	63	64	102	105	28	57	21	96	7	57	602	659
08:45 AM	2	35	36	46	49	53	69	79	28	62	26	88	5	62	516	578
Total	7	181	151	167	268	275	373	443	158	238	195	428	23	238	2669	2907
Grand Total	17	315	282	269	466	476	759	713	247	364	300	811	35	364	4690	5054
Apprch %	2.8	51.3	45.9	22.2	38.5	39.3	44.2	41.5	14.4		26.2	70.8	3.1			
Total %	0.4	6.7	6.0	5.7	9.9	10.1	16.2	15.2	5.3		6.4	17.3	0.7	7.2	92.8	

	From North				From East				From South				From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:45 AM																
Volume	9	191	156	356	161	285	280	726	408	483	156	1047	206	446	22	674	2803
Percent	2.5	53.7	43.8		22.2	39.3	38.6		39.0	46.1	14.9		30.6	66.2	3.3		
08:00 Volume	0	65	38	103	44	85	81	210	111	110	51	272	94	110	2	206	791
Peak Factor																	0.886
High Int.	08:00 AM				08:00 AM				08:15 AM				08:00 AM				
Volume	0	65	38	103	44	85	81	210	91	149	51	291	94	110	2	206	
Peak Factor				0.864				0.864				0.899				0.818	

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File Name : 14pm
Site Code : 00000014
Start Date : 10/17/2002
Page No : 1

Bollinger Canyon/San Ramon Valley - San Ramon

Groups Printed- Unshifted

	From North			From East			From South				From West					
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	RTOR	Right	Thru	Left	Exclu. Total	Inclu. Total	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
04:00 PM	3	79	60	35	92	142	38	92	25	36	31	67	3	36	667	703
04:15 PM	1	85	61	36	128	166	31	78	25	35	27	90	3	35	731	766
04:30 PM	2	115	68	56	135	171	44	72	18	36	28	78	3	36	790	826
04:45 PM	1	96	70	64	130	193	27	86	21	49	35	86	4	49	813	862
Total	7	375	259	191	485	672	140	328	89	156	121	321	13	156	3001	3157
05:00 PM	2	113	105	90	109	166	58	111	38	57	48	98	8	57	946	1003
05:15 PM	3	141	95	101	72	227	39	114	38	28	65	77	6	28	978	1006
05:30 PM	4	110	82	109	65	211	54	150	42	45	54	79	9	45	969	1014
05:45 PM	4	141	70	101	88	219	54	173	35	43	52	67	10	43	1014	1057
Total	13	505	352	401	334	823	205	548	153	173	219	321	33	173	3907	4080
Grand Total	20	880	611	592	819	1495	345	876	242	329	340	642	46	329	6908	7237
Apprch %	1.3	58.2	40.4	20.4	28.2	51.4	23.6	59.9	16.5		33.1	62.5	4.5			
Total %	0.3	12.7	8.8	8.6	11.9	21.6	5.0	12.7	3.5		4.9	9.3	0.7	4.5	95.5	

	From North				From East				From South				From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	13	505	352	870	401	334	823	1558	205	548	153	906	219	321	33	573	3907
Percent	1.5	58.0	40.5		25.7	21.4	52.8		22.6	60.5	16.9		38.2	56.0	5.8		
05:45 Volume	4	141	70	215	101	88	219	408	54	173	35	262	52	67	10	129	1014
Peak Factor																	0.963
High Int.	05:15 PM				05:45 PM				05:45 PM				05:00 PM				
Volume	3	141	95	239	101	88	219	408	54	173	35	262	48	98	8	154	
Peak Factor				0.910				0.955				0.865				0.930	

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File Name : 15am
Site Code : 00000015
Start Date : 10/16/2002
Page No : 1

I-680 SB off-ramp/Bollinger Canyon - San Ramon

Groups Printed- Unshifted

	From North				From East				P&R Lot From South				From West				
Start Time	Right	Thru	Left	RTOR	Right	Thru	Left	Peds	Right	Thru	Left	Peds	To 680	Thru	Left	To P&R	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	26	0	248	11	122	57	0	0	0	0	0	0	68	165	0	2	699
07:15 AM	22	2	267	13	151	85	0	0	3	0	3	0	80	232	0	2	860
07:30 AM	23	0	272	15	182	97	0	0	0	0	0	0	72	219	0	0	880
07:45 AM	22	0	242	29	210	120	0	0	3	0	0	0	118	244	0	3	991
Total	93	2	1029	68	665	359	0	0	6	0	3	0	338	860	0	7	3430
08:00 AM	36	2	259	23	218	165	0	0	0	0	0	0	97	269	0	2	1071
08:15 AM	30	0	203	21	239	132	0	0	0	0	1	0	95	279	0	1	1001
08:30 AM	31	0	200	10	255	114	0	0	1	0	0	0	87	231	0	0	929
08:45 AM	40	1	202	7	248	100	0	0	0	0	0	0	60	261	0	0	919
Total	137	3	864	61	960	511	0	0	1	0	1	0	339	1040	0	3	3920
Grand Total	230	5	1893	129	1625	870	0	0	7	0	4	0	677	1900	0	10	7350
Apprch %	10.2	0.2	83.9	5.7	65.1	34.9	0.0	0.0	63.6	0.0	36.4	0.0	26.2	73.4	0.0	0.4	
Total %	3.1	0.1	25.8	1.8	22.1	11.8	0.0	0.0	0.1	0.0	0.1	0.0	9.2	25.9	0.0	0.1	

	From North					From East					P&R Lot From South					From West					
Start Time	Right	Thru	Left	RT OR	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	To 680	Thru	Left	To P&R	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Intersection	07:45 AM																				
Volume	119	2	904	83	1108	922	531	0	0	1453	4	0	1	0	5	397	1023	0	6	1426	3992
Percent	10.7	0.2	81.6	7.5		63.5	36.5	0.0	0.0		80.0	0.0	20.0	0.0		27.8	71.7	0.0	0.4		
08:00 Volume	36	2	259	23	320	218	165	0	0	383	0	0	0	0	0	97	269	0	2	368	1071
Peak Factor																					0.932
High Int.	08:00 AM					08:00 AM					07:45 AM					08:15 AM					
Volume	36	2	259	23	320	218	165	0	0	383	3	0	0	0	3	95	279	0	1	375	
Peak Factor					0.866					0.948					0.417					0.951	

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File Name : 15pm
Site Code : 00000015
Start Date : 10/17/2002
Page No : 1

I-680 SB off-ramp/Bollinger Canyon - San Ramon

Groups Printed- Unshifted

	From North				From East			From P&R lot From South			From West				
Start Time	Right	Thru	Left	RTOR	Right	Thru	Left	Right	Thru	Left	To 680	Thru	Left	To P&R	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	50	0	128	35	220	188	0	0	0	0	77	125	0	0	823
04:15 PM	76	0	147	18	255	221	0	0	0	1	77	136	0	0	931
04:30 PM	87	0	114	24	284	241	0	1	0	1	95	150	0	2	999
04:45 PM	84	1	124	22	323	282	0	2	0	1	99	132	0	1	1071
Total	297	1	513	99	1082	932	0	3	0	3	348	543	0	3	3824
05:00 PM	86	1	116	21	366	259	0	4	0	4	112	163	0	1	1133
05:15 PM	90	2	139	13	422	274	0	2	0	0	151	144	0	2	1239
05:30 PM	77	0	136	17	446	291	0	4	0	0	132	126	0	1	1230
05:45 PM	100	0	135	18	451	298	0	2	0	0	98	149	0	1	1252
Total	353	3	526	69	1685	1122	0	12	0	4	493	582	0	5	4854
Grand Total	650	4	1039	168	2767	2054	0	15	0	7	841	1125	0	8	8678
Apprch %	34.9	0.2	55.8	9.0	57.4	42.6	0.0	68.2	0.0	31.8	42.6	57.0	0.0	0.4	
Total %	7.5	0.0	12.0	1.9	31.9	23.7	0.0	0.2	0.0	0.1	9.7	13.0	0.0	0.1	

	From North					From East				From P&R lot From South				From West					
Start Time	Right	Thru	Left	RT OR	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	To 680	Thru	Left	To P&R	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																			
Intersection	05:00 PM																		
Volume	353	3	526	69	951	1685	1122	0	2807	12	0	4	16	493	582	0	5	1080	4854
Percent	37.1	0.3	55.3	7.3		60.0	40.0	0.0		75.0	0.0	25.0		45.6	53.9	0.0	0.5		
05:45 Volume	100	0	135	18	253	451	298	0	749	2	0	0	2	98	149	0	1	248	1252
Peak Factor																			0.969
High Int.	05:45 PM					05:45 PM				05:00 PM				05:15 PM					
Volume	100	0	135	18	253	451	298	0	749	4	0	4	8	151	144	0	2	297	
Peak Factor					0.940				0.937				0.500					0.909	

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File Name : 16am
Site Code : 00000016
Start Date : 10/17/2002
Page No : 1

I-680 NB off-ramp/Bollinger Canyon - San Ramon

Groups Printed- Unshifted

	From North			From East			From South				From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	RTOR	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	0	0	0	95	183	0	281	0	35	29	128	274	0	1025
07:15 AM	0	0	0	78	204	0	275	0	38	43	185	294	0	1117
07:30 AM	0	0	0	101	226	0	366	0	68	44	218	350	0	1373
07:45 AM	0	0	0	115	261	0	406	0	95	28	188	322	0	1415
Total	0	0	0	389	874	0	1328	0	236	144	719	1240	0	4930
08:00 AM	0	0	0	120	281	0	499	0	96	28	201	333	0	1558
08:15 AM	0	0	0	89	295	0	421	0	83	39	187	321	0	1435
08:30 AM	0	0	0	52	274	0	447	0	56	40	116	340	0	1325
08:45 AM	0	0	0	44	260	0	473	0	81	39	138	330	0	1365
Total	0	0	0	305	1110	0	1840	0	316	146	642	1324	0	5683
Grand Total	0	0	0	694	1984	0	3168	0	552	290	1361	2564	0	10613
Apprch %	0.0	0.0	0.0	25.9	74.1	0.0	79.0	0.0	13.8	7.2	34.7	65.3	0.0	
Total %	0.0	0.0	0.0	6.5	18.7	0.0	29.9	0.0	5.2	2.7	12.8	24.2	0.0	

	From North				From East				From South					From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																		
Intersection	07:30 AM																	
Volume	0	0	0	0	425	1063	0	1488	1692	0	342	139	2173	794	1326	0	2120	5781
Percent	0.0	0.0	0.0		28.6	71.4	0.0		77.9	0.0	15.7	6.4		37.5	62.5	0.0		
08:00 Volume	0	0	0	0	120	281	0	401	499	0	96	28	623	201	333	0	534	1558
Peak Factor																		0.928
High Int.	6:45:00 AM				08:00 AM				08:00 AM					07:30 AM				
Volume	0	0	0	0	120	281	0	401	499	0	96	28	623	218	350	0	568	
Peak Factor								0.928					0.872				0.933	

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File Name : 16pm
Site Code : 00000016
Start Date : 10/17/2002
Page No : 1

I-680 NB off-ramp/Bollinger Canyon - San Ramon

Groups Printed- Unshifted

	From North			From East			From South				From West			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	RTOR	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	0	0	0	288	365	0	102	0	95	71	70	191	0	1182
04:15 PM	0	0	0	291	403	0	131	0	103	56	61	230	0	1275
04:30 PM	0	0	0	307	420	0	121	0	124	65	58	226	0	1321
04:45 PM	0	0	0	255	440	0	132	0	123	71	51	207	0	1279
Total	0	0	0	1141	1628	0	486	0	445	263	240	854	0	5057
05:00 PM	0	0	0	288	481	0	183	0	202	90	44	240	0	1528
05:15 PM	0	0	0	224	526	0	204	0	206	85	58	225	0	1528
05:30 PM	0	0	0	201	515	0	190	0	232	77	41	223	0	1479
05:45 PM	0	0	0	175	501	0	203	0	175	67	66	210	0	1397
Total	0	0	0	888	2023	0	780	0	815	319	209	898	0	5932
Grand Total	0	0	0	2029	3651	0	1266	0	1260	582	449	1752	0	10989
Apprch %	0.0	0.0	0.0	35.7	64.3	0.0	40.7	0.0	40.5	18.7	20.4	79.6	0.0	
Total %	0.0	0.0	0.0	18.5	33.2	0.0	11.5	0.0	11.5	5.3	4.1	15.9	0.0	

	From North				From East				From South					From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	RTOR	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																		
Intersection	05:00 PM																	
Volume	0	0	0	0	888	2023	0	2911	780	0	815	319	1914	209	898	0	1107	5932
Percent	0.0	0.0	0.0		30.5	69.5	0.0		40.8	0.0	42.6	16.7		18.9	81.1	0.0		
05:15 Volume	0	0	0	0	224	526	0	750	204	0	206	85	495	58	225	0	283	1528
Peak Factor																		0.971
High Int.	3:45:00 PM				05:00 PM				05:30 PM					05:00 PM				
Volume	0	0	0	0	288	481	0	769	190	0	232	77	499	44	240	0	284	
Peak Factor								0.946					0.959				0.974	

Appendix J

AM Peak and PM Peak Intersection Level of Service Analysis Results

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Intersection LOS Analysis Results

AM Peak Hour

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/08/03

INTERSECTION 1 San Ramon Valley/Greenbrook Dr. San Ramon, CA
Count Date Time Peak Hour AM

CCTA METHOD 3-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                        0  326   53
                        |   |    |
                 ^      |   |    |        ^
                 |     <---  v   --->      | Split? Y
LEFT      0 ---  0.0   0.0  2.0  1.0   1.1 ---  112  RIGHT
                                                      STREET NAME:
THRU      0 ---> 0.0  (NO. OF LANES)   0.0<---    0  THRU  Greenbrook Dr.

RIGHT     0 ---  0.0   0.0  2.1  1.1   1.1 ---  159  LEFT
                 |     <---   ^   --->      |
                 v        |   |    |        v
  N                       |   |    |                      SIG WARRANTS:
W + E                     0  247   74                        Urb=N, Rur=Y
  S                    LEFT THRU RIGHT Split? N
```

STREET NAME: San Ramon Valley

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	74	74	1720	0.0430	
	THRU (T)	247	247	3440	0.0718	
	T + R		321	3440	0.0933	0.0933
SB	THRU (T)	326	326	3440	0.0948	
	LEFT (L)	53	53	1720	0.0308	0.0308
WB	RIGHT (R)	112	112	1720	0.0651	
	LEFT (L)	159	159	1720	0.0924	
	T + R + L		271	1720	0.1576	0.1576

TOTAL VOLUME-TO-CAPACITY RATIO: 0.28
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN1,VOL=EXV1AM,CAP=

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Kimley-Horn & Associates, Inc.*	Intersection	*Hooper & San Ramon Valley*
Agency/Co.	*San Ramon, CA*	Jurisdiction	
Date Performed	*12/08/03*	Analysis Year	*Existing*
Analysis Time Period	*AM Peak*	Project ID	*Northwest Specific Plan*

East/West Street: *Hooper Drive*	North/South Street: *San Ramon Valley Boulevard*
Intersection Orientation: *North-South*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*39*	*360*	*3*	*0*	*593*	*42*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*1.00*	*0.86*	*0.86*
Hourly Flow Rate, HFR	*46*	*428*	*3*	*0*	*689*	*48*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*	*TR*		*T*	*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*2*	*17*	*0*	*20*
Peak-Hour Factor, PHF	*0.25*	*0.25*	*0.25*	*0.71*	*0.71*	*0.71*
Hourly Flow Rate, HFR	*0*	*0*	*8*	*23*	*0*	*28*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*			*LTR*			*LTR*	
v (vph)	*46*			*8*			*51*	
C (m) (vph)	*865*			*789*			*297*	
v/c	*0.05*			*0.01*			*0.17*	
95% queue length	*0.17*			*0.03*			*0.62*	
Control Delay	*9.4*			*9.6*			*19.6*	
LOS	*A*			*A*			*C*	
Approach Delay	--	--	*9.6*			*19.6*		
Approach LOS	--	--	*A*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Kimley-Horn & Associates, Inc.*	Intersection	*Purdue & San Ramon Valley*
Agency/Co.	*San Ramon, CA*	Jurisdiction	
Date Performed	*12/08/03*	Analysis Year	*Existing*
Analysis Time Period	*AM Peak*	Project ID	*Northwest Specific Plan*

East/West Street: *Purdue Road*	North/South Street: *San Ramon Valley Boulevard*
Intersection Orientation: *North-South*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*9*	*383*	*0*	*0*	*605*	*12*
Peak-Hour Factor, PHF	*0.75*	*0.76*	*0.84*	*1.00*	*0.87*	*0.87*
Hourly Flow Rate, HFR	*12*	*503*	*0*	*0*	*695*	*13*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*1*	*0*	*2*	*0*
Configuration	*L*	*T*	*R*		*T*	*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*24*	*0*	*19*
Peak-Hour Factor, PHF	*0.25*	*0.25*	*0.25*	*0.67*	*0.67*	*0.67*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*35*	*0*	*28*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LTR*	
v (vph)	*12*						*63*	
C (m) (vph)	*887*						*338*	
v/c	*0.01*						*0.19*	
95% queue length	*0.04*						*0.68*	
Control Delay	*9.1*						*18.1*	
LOS	*A*						*C*	
Approach Delay	--	--				*18.1*		
Approach LOS	--	--				*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Kimley-Horn & Associates, Inc.*
Agency/Co.	*San Ramon, CA*
Date Performed	*12/8/2003*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*Purdue & Omega*
Jurisdiction	
Analysis Year	*Existing*
Project ID	*Northwest Specific Plan*

East/West Street: *Purdue Road*	North/South Street: *Omega Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*27*	*20*	*23*	*58*	*0*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*27*	*20*	*23*	*58*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*11*	*0*	*10*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*11*	*0*	*10*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*0*	*2*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (vph)	*0*	*23*		*21*			*0*	
C (m) (vph)	*1546*	*1560*		*912*			*0*	
v/c	*0.00*	*0.01*		*0.02*				
95% queue length	*0.00*	*0.04*		*0.07*				
Control Delay	*7.3*	*7.3*		*9.0*				
LOS	*A*	*A*		*A*			*F*	
Approach Delay	--	--	*9.0*					
Approach LOS	--	--	*A*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Kimley-Horn & Associates, Inc.*	Intersection	*Deerwood & Bollinger Canyon*
Agency/Co.	*San Ramon, CA*	Jurisdiction	
Date Performed	*12/8/2003*	Analysis Year	*Existing*
Analysis Time Period	*AM Peak*	Project ID	*Northwest Specific Plan*

East/West Street: *Deerwood Drive*	North/South Street: *Bollinger Canyon Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*80*	*34*	*13*	*47*	*0*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*80*	*34*	*13*	*47*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*41*	*0*	*21*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*41*	*0*	*21*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*0*	*2*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (vph)		*13*		*62*				
C (m) (vph)		*1475*		*859*				
v/c		*0.01*		*0.07*				
95% queue length		*0.03*		*0.23*				
Control Delay		*7.5*		*9.5*				
LOS		*A*		*A*				
Approach Delay	--	--	*9.5*					
Approach LOS	--	--	*A*					

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ALL-WAY STOP CONTROL ANALYSIS

General Information		Site Information	
Analyst	Kimley-Horn & Associates, Inc.	Intersection	Deerwood Dr & Deerwood Rd
Agency/Co.	San Ramon, CA	Jurisdiction	
Date Performed	12/8/2003	Analysis Year	Existing
Analysis Time Period	AM Peak	Project ID	Northwest Specific Plan

East/West Street: Deerwood Drive | North/South Street: Deerwood Road

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	42	7	48	3	0	4
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	12	59	0	4	195	49
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LT	R
PHF	1.00		1.00		1.00		1.00	1.00
Flow Rate	97		7		71		199	49
% Heavy Vehicles	0		0		0		0	0
No. Lanes	1		1		1		2	
Geometry Group	2		2		4a		5	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.4		0.4		0.2		0.0	0.0
Prop. Right-Turns	0.5		0.6		0.0		0.0	1.0
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	0.0
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	4.43		4.43		4.43		4.43	4.43

Departure Headway and Service Time

hd, initial value	3.20		3.20		3.20		3.20	3.20
x, initial	0.09		0.01		0.06		0.18	0.04
hd, final value	4.43		4.43		4.43		4.43	4.43
x, final value	0.12		0.01		0.09		0.27	0.06
Move-up time, m	2.0		2.0		2.0		2.3	
Service Time	2.4		2.4		2.4		2.4	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	347		257		321		449	299
Delay	8.03		7.54		8.00		9.24	7.16
LOS	A		A		A		A	A
Approach: Delay	8.03		7.54		8.00		8.83	
LOS	A		A		A		A	
Intersection Delay	8.48							
Intersection LOS	A							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	Kimley-Horn & Associates, Inc.
Agency/Co.	San Ramon, CA
Date Performed	12/8/2003
Analysis Time Period	AM Peak

Site Information

Intersection	Deerwood & Old Crow Canyon
Jurisdiction	
Analysis Year	Existing
Project ID	Northwest Specific Plan

East/West Street: Deerwood Road

North/South Street: Old Crow Canyon Road

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	86	201	42	86	154	42
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	2	47	40	42	13	10
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	L	TR	LTR		LTR	
PHF	1.00	1.00	1.00	1.00	1.00		1.00	
Flow Rate	86	243	86	196	89		65	
% Heavy Vehicles	0	0	0	0	0		0	
No. Lanes	2		2		1		1	
Geometry Group	5		5		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	1.0	0.0	0.0		0.6	
Prop. Right-Turns	0.0	0.2	0.0	0.2	0.4		0.2	
Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	5.43	5.43	5.43	5.43	5.43		5.43	

Departure Headway and Service Time

hd, initial value	3.20	3.20	3.20	3.20	3.20		3.20	
x, initial	0.08	0.22	0.08	0.17	0.08		0.06	
hd, final value	5.43	5.43	5.43	5.43	5.43		5.43	
x, final value	0.13	0.35	0.13	0.28	0.13		0.10	
Move-up time, m	2.3		2.3		2.0		2.0	
Service Time	3.1	2.8	3.1	2.8	3.1	2.8	3.1	2.8

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	336	493	336	446	339		315	
Delay	8.93	10.50	8.99	9.83	8.88		9.08	
LOS	A	B	A	A	A		A	
Approach: Delay	10.09		9.57		8.88		9.08	
LOS	B		A		A		A	
Intersection Delay	9.67							
Intersection LOS	A							

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Condition: Northwest Specific Plan 12/08/03

INTERSECTION 8 San Ramon Valley/Deerwood Rd. San Ramon, CA
Count Date Time Peak Hour AM

```
CCTA METHOD          RIGHT THRU LEFT                          6-PHASE SIGNAL
-----------            198  450  128
                         |    |    |
              ^          |    |    |          ^
              |        <---   v   --->        | Split? N
LEFT    90 ---  1.0    1.0  2.0  1.0    1.0 ---    59  RIGHT
                                                          STREET NAME:
THRU   126 ---> 2.1   (NO. OF LANES)    2.0<---    85  THRU  Deerwood Rd.

RIGHT  137 ---  1.1    1.0  2.0  1.0    1.0 ---    18  LEFT
              |        <---   ^   --->        |
              v          |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                   107  371   38                         Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N
```

STREET NAME: San Ramon Valley

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	38	20 *	1650	0.0121	
	THRU (T)	371	371	3300	0.1124	
	LEFT (L)	107	107	1650	0.0648	0.0648
SB	RIGHT (R)	198	108 *	1650	0.0655	
	THRU (T)	450	450	3300	0.1364	0.1364
	LEFT (L)	128	128	1650	0.0776	
EB	RIGHT (R)	137	137	1650	0.0830	0.0830
	THRU (T)	126	126	3300	0.0382	
	LEFT (L)	90	90	1650	0.0545	
	T + R		263	3300	0.0797	
WB	RIGHT (R)	59	0 *	1650	0.0000	
	THRU (T)	85	85	3300	0.0258	
	LEFT (L)	18	18	1650	0.0109	0.0109

TOTAL VOLUME-TO-CAPACITY RATIO: 0.30
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=EXLN8,VOL=EXV8AM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/08/03

INTERSECTION 9 Bollinger Canyon/Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour AM

CCTA METHOD 6-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                       20   63   28
                        |    |    |
                 ^      |    |    |          ^
                 |     <---   v   --->       | Split? N
LEFT     11 ---  1.0   1.1  1.1  1.0   1.0 ---   31  RIGHT
                                                      STREET NAME:
THRU   1013 ---> 2.0  (NO. OF LANES)   2.0<---  725  THRU  Crow Canyon Rd.

RIGHT    87 ---  1.0   1.0  1.0  1.0   1.0 ---   59  LEFT
                 |     <---   ^   --->       |
                 v        |    |    |        v
  N                       |    |    |                    SIG WARRANTS:
W + E                    125   42  108                      Urb=Y, Rur=Y
  S                     LEFT THRU RIGHT Split? N
```

STREET NAME: Bollinger Canyon

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	108	49 *	1650	0.0297	
	THRU (T)	42	42	1650	0.0255	
	LEFT (L)	125	125	1650	0.0758	0.0758
SB	RIGHT (R)	20	20	1650	0.0121	
	THRU (T)	63	63	1650	0.0382	
	LEFT (L)	28	28	1650	0.0170	
	T + R		83	1650	0.0503	0.0503
EB	RIGHT (R)	87	0 *	1650	0.0000	
	THRU (T)	1013	1013	3300	0.3070	0.3070
	LEFT (L)	11	11	1650	0.0067	
WB	RIGHT (R)	31	3 *	1650	0.0018	
	THRU (T)	725	725	3300	0.2197	
	LEFT (L)	59	59	1650	0.0358	0.0358

TOTAL VOLUME-TO-CAPACITY RATIO: 0.47
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN9,VOL=EXV9AM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/11/03

INTERSECTION 10 Porter Rd./Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour AM

CCTA METHOD 4-PHASE SIGNAL

```
                 RIGHT THRU LEFT
                    23    7   45
                     |    |    |
                     |    |    |
                <---     v    --->
LEFT    23 ---  1.0   1.0  1.1  2.1   1.1 ---   41  RIGHT
                                                      STREET NAME:
THRU  1128 ---> 3.1  (NO. OF LANES)   3.1<---  818  THRU  Crow Canyon Rd.

RIGHT    7 ---  1.1   1.0  1.1  1.1   1.0 ---    9  LEFT
                <---     ^    --->
                     |    |    |
                     |    |    |
                     6    0   33                        SIG WARRANTS:
                LEFT THRU RIGHT Split? Y                 Urb=N, Rur=N
```

STREET NAME: Porter Rd.

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	33	33	1650	0.0200	0.0200
	THRU (T)	0	0	1650	0.0000	
	LEFT (L)	6	6	1650	0.0036	
	T + R		33	1650	0.0200	
SB	RIGHT (R)	23	0 *	1650	0.0000	
	THRU (T)	7	7	1650	0.0042	
	LEFT (L)	45	45	3000	0.0150	
	T + L		52	3000	0.0173	0.0173
EB	RIGHT (R)	7	7	1650	0.0042	
	THRU (T)	1128	1128	4950	0.2279	
	LEFT (L)	23	23	1650	0.0139	
	T + R		1135	4950	0.2293	0.2293
WB	RIGHT (R)	41	41	1650	0.0248	
	THRU (T)	818	818	4950	0.1653	
	LEFT (L)	9	9	1650	0.0055	0.0055
	T + R		859	4950	0.1735	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.27
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN10,VOL=EXV10AM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/08/03

INTERSECTION 11 Deerwood Rd./Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour AM

CCTA METHOD 4-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                      103   11  114
                       |    |    |
                 ^     |    |    |          ^
                 |    <---   v   --->       | Split? N
LEFT     52 ---  1.0   1.1  1.1  1.0   1.1 ---   90  RIGHT
                                                      STREET NAME:
THRU   1142 ---> 3.1  (NO. OF LANES)   3.1<---  725  THRU  Crow Canyon Rd.

RIGHT     4 ---  1.1   1.0  1.1  1.1   1.0 ---   70  LEFT
                 |    <---   ^   --->       |
                 v       |    |    |        v
  N                      |    |    |                     SIG WARRANTS:
W + E                    1    5   17                       Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

                STREET NAME: Deerwood Rd.
```

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	17	17	1650	0.0103	
	THRU (T)	5	5	1650	0.0030	
	LEFT (L)	1	1	1650	0.0006	
	T + R		22	1650	0.0133	0.0133
SB	RIGHT (R)	103	103	1650	0.0624	
	THRU (T)	11	11	1650	0.0067	
	LEFT (L)	114	114	1650	0.0691	0.0691
	T + R		114	1650	0.0691	
EB	RIGHT (R)	4	4	1650	0.0024	
	THRU (T)	1142	1142	4950	0.2307	
	LEFT (L)	52	52	1650	0.0315	
	T + R		1146	4950	0.2315	0.2315
WB	RIGHT (R)	90	90	1650	0.0545	
	THRU (T)	725	725	4950	0.1465	
	LEFT (L)	70	70	1650	0.0424	0.0424
	T + R		815	4950	0.1646	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.36
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN11,VOL=EXV11AM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/08/03

INTERSECTION 12 Old Crow Canyon/Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour AM

CCTA METHOD 3-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                       41    0   85
                        |    |    |
                 ^      |    |    |          ^
                 |     <---   v   --->       | Split? N
LEFT    105 ---  1.0    1.0  0.0  2.0   1.1 ---  206  RIGHT
                                                       STREET NAME:
THRU   1232 ---> 3.0  (NO. OF LANES)   3.1<---  924  THRU  Crow Canyon Rd.

RIGHT     0 ---  0.0    0.0  0.0  0.0   0.0 ---    0  LEFT
                 |     <---   ^   --->       |
                 v            |    |          v
  N                           |    |                     SIG WARRANTS:
W + E                         0    0    0                  Urb=N, Rur=Y
  S                       LEFT THRU RIGHT Split? Y
```

STREET NAME: Old Crow Canyon

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB	RIGHT (R)	41	0 *	1720	0.0000	
	LEFT (L)	85	85	3127	0.0272	0.0272
EB	THRU (T)	1232	1232	5160	0.2388	
	LEFT (L)	105	105	1720	0.0610	0.0610
WB	RIGHT (R)	206	206	1720	0.1198	
	THRU (T)	924	924	5160	0.1791	
	T + R		1130	5160	0.2190	0.2190

TOTAL VOLUME-TO-CAPACITY RATIO: 0.31
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN12,VOL=EXV12AM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/11/03

INTERSECTION 13 Twin Creeks Rd./Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour AM

CCTA METHOD 5-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                      1    1    5
                      |    |    |
                 ^    |    |    |          ^
                 |   <---  v   --->        | Split? N
LEFT      5 ---  1.0   1.1  1.1  1.1   1.1 ---    9  RIGHT
                                                     STREET NAME:
THRU   1031 ---> 3.1  (NO. OF LANES)   3.1<---  846  THRU  Crow Canyon Rd.

RIGHT   171 ---  1.1   1.1  1.1  1.0   1.0 ---  209  LEFT
                 |   <---   ^   --->        |
                 v         |    |          v
  N                        |    |                        SIG WARRANTS:
W + E                     178   3  204                     Urb=Y, Rur=Y
  S                      LEFT THRU RIGHT Split? Y
```

STREET NAME: Twin Creeks Rd.

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	204	0 *	1650	0.0000	
	THRU (T)	3	3	1650	0.0018	
	LEFT (L)	178	178	1650	0.1079	
	T + L		181	1650	0.1097	0.1097
SB	RIGHT (R)	1	1	1650	0.0006	
	THRU (T)	1	1	1650	0.0006	
	LEFT (L)	5	5	1650	0.0030	
	T + R		2	1650	0.0012	
	T + L		6	1650	0.0036	
	T + R + L		7	1650	0.0042	0.0042
EB	RIGHT (R)	171	171	1650	0.1036	
	THRU (T)	1031	1031	4950	0.2083	
	LEFT (L)	5	5	1650	0.0030	
	T + R		1202	4950	0.2428	0.2428
WB	RIGHT (R)	9	9	1650	0.0055	
	THRU (T)	846	846	4950	0.1709	
	LEFT (L)	209	209	1650	0.1267	0.1267
	T + R		855	4950	0.1727	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.48
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN13,VOL=EXV13AM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/08/03

INTERSECTION 14 San Ramon Valley/Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour AM

```
CCTA METHOD          RIGHT THRU LEFT                          6-PHASE SIGNAL
-----------             49  257  428
                         |    |    |
              ^          |    |    |          ^
              |        <---   v   --->        | Split? N
LEFT   157 ---  2.0   1.0  2.0  2.0   1.0 ---  264  RIGHT
                                                          STREET NAME:
THRU  1013 ---> 3.0  (NO. OF LANES)   3.0<---  997  THRU  Crow Canyon Rd.

RIGHT   95 ---  1.0   2.0  2.0  1.0   2.0 ---  582  LEFT
              |        <---   ^   --->        |
              v          |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                   103  205  388                       Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                STREET NAME: San Ramon Valley
```

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	388	68 *	1650	0.0412	
	THRU (T)	205	205	3300	0.0621	0.0621
	LEFT (L)	103	103	3000	0.0343	
SB	RIGHT (R)	49	0 *	1650	0.0000	
	THRU (T)	257	257	3300	0.0779	
	LEFT (L)	428	428	3000	0.1427	0.1427
EB	RIGHT (R)	95	38 *	1650	0.0230	
	THRU (T)	1013	1013	4950	0.2046	0.2046
	LEFT (L)	157	157	3000	0.0523	
WB	RIGHT (R)	264	29 *	1650	0.0176	
	THRU (T)	997	997	4950	0.2014	
	LEFT (L)	582	582	3000	0.1940	0.1940

TOTAL VOLUME-TO-CAPACITY RATIO: 0.60
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN14,VOL=EXV14AM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/11/03

INTERSECTION 15 I-680 SB Ramps/Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour AM

```
CCTA METHOD          RIGHT THRU LEFT                          2-PHASE SIGNAL
-----------            986    0 1254
                         |    |    |
              ^          |    |    |          ^
              |        <---   v   --->        | Split? N
LEFT      0 ---  0.0    2.0  0.0  2.0    1.9 ---  749  RIGHT
                                                          STREET NAME:
THRU   1331 ---> 3.0  (NO. OF LANES)    3.0<---  857  THRU  Crow Canyon Rd.

RIGHT   498 ---  1.9    0.0  0.0  0.0    0.0 ---    0  LEFT
              |        <---   ^   --->        |
              v          |    |    |          v
  N                      |    |    |                       SIG WARRANTS:
W + E                    0    0    0                         Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y
```

STREET NAME: I-680 SB Ramps

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB	RIGHT (R)	986	986	3273	0.3013	
	LEFT (L)	1254	1254	3273	0.3831	0.3831
EB	RIGHT (R)	498	498	1800	0.2767	
	THRU (T)	1331	1331	5400	0.2465	0.2465
WB	RIGHT (R)	749	749	1800	0.4161	
	THRU (T)	857	857	5400	0.1587	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.63
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN15,VOL=EXV15AM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/11/03

INTERSECTION 16 I-680 NB Ramps/Crow Canyon Rd. San Ramon, CA

Count Date Time Peak Hour AM

CCTA METHOD 2-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                        0    0    0
                        |    |    |
                 ^      |    |    |          ^
                 |    <---  v   --->         | Split? N
LEFT      0 ---  0.0   0.0  0.0  0.0   2.1 ---  545  RIGHT
                                                        STREET NAME:
THRU   1546 ---> 3.0  (NO. OF LANES)   4.1<--- 1184  THRU  Crow Canyon Rd.

RIGHT 1039 ---  1.9   2.1  0.0  2.1   0.0 ---    0  LEFT
                 |    <---   ^   --->        |
                 v         |    |    |       v
  N                        |    |    |                    SIG WARRANTS:
W + E                     422   0   654                     Urb=Y, Rur=Y
  S                     LEFT THRU RIGHT Split? Y
```

STREET NAME: I-680 NB Ramps

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	654	654	3273	0.1998	
	LEFT (L)	422	422	3273	0.1289	
	T + R + L		1076	4746	0.2267	0.2267
EB	RIGHT (R)	1039	1039	1800	0.5772	
	THRU (T)	1546	1546	5400	0.2863	0.2863
WB	RIGHT (R)	545	545	3273	0.1665	
	THRU (T)	1184	1184	7200	0.1644	
	T + R		1729	8673	0.1994	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.51

INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=EXLN16,VOL=EXV16AM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/08/03

INTERSECTION 17 Crow Canyon Pl./Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour AM

```
CCTA METHOD          RIGHT THRU LEFT                          6-PHASE SIGNAL
-----------            224   68  113
                         |    |    |
              ^          |    |    |          ^
              |        <---   v   --->        | Split? N
LEFT   303 ---  2.0    1.0  1.0  1.0   1.1 ---  125  RIGHT
                                                          STREET NAME:
THRU  1569 ---> 3.0   (NO. OF LANES)   4.1<--- 1361  THRU  Crow Canyon Rd.

RIGHT  328 ---  1.0    2.1  2.2  1.1   1.0 ---   76  LEFT
              |        <---   ^   --->       |
              v          |    |    |         v
  N                      |    |    |                     SIG WARRANTS:
W + E                   144   28   49                       Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? Y

                STREET NAME: Crow Canyon Pl.
```

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	49	49	1650	0.0297	
	THRU (T)	28	28	3300	0.0085	
	LEFT (L)	144	144	3000	0.0480	0.0480
	T + R		77	3300	0.0233	
	T + L		172	4650	0.0370	
	T + R + L		221	4650	0.0475	
SB	RIGHT (R)	224	57 *	1650	0.0345	
	THRU (T)	68	68	1650	0.0412	
	LEFT (L)	113	113	1650	0.0685	0.0685
EB	RIGHT (R)	328	249 *	1650	0.1509	
	THRU (T)	1569	1569	4950	0.3170	0.3170
	LEFT (L)	303	303	3000	0.1010	
WB	RIGHT (R)	125	125	1650	0.0758	
	THRU (T)	1361	1361	6600	0.2062	
	LEFT (L)	76	76	1650	0.0461	0.0461
	T + R		1486	6600	0.2252	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.48
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN17,VOL=EXV17AM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/08/03

INTERSECTION 18 Camino Ramon/Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour AM

```
CCTA METHOD          RIGHT THRU LEFT                          6-PHASE SIGNAL
-----------             57  133   94
                         |    |    |
              ^          |    |    |          ^
              |        <---   v   --->        | Split? N
LEFT   134 ---  1.0   1.1  2.1  1.0   1.1 ---  183  RIGHT
                                                            STREET NAME:
THRU   777 ---> 3.0  (NO. OF LANES)   4.1<--- 1332  THRU   Crow Canyon Rd.

RIGHT  757 ---  1.0   2.0  1.0  1.0   1.0 ---  262  LEFT
              |        <---   ^   --->        |
              v          |    |    |          v
  N                      |    |    |                       SIG WARRANTS:
W + E                   113   83   35                         Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? Y

                STREET NAME: Camino Ramon
```

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	35	0 *	1650	0.0000	
	THRU (T)	83	83	1650	0.0503	0.0503
	LEFT (L)	113	113	3000	0.0377	
SB	RIGHT (R)	57	57	1650	0.0345	
	THRU (T)	133	133	3300	0.0403	
	LEFT (L)	94	94	1650	0.0570	
	T + R		190	3300	0.0576	0.0576
EB	RIGHT (R)	757	695 *	1650	0.4212	0.4212
	THRU (T)	777	777	4950	0.1570	
	LEFT (L)	134	134	1650	0.0812	
WB	RIGHT (R)	183	183	1650	0.1109	
	THRU (T)	1332	1332	6600	0.2018	
	LEFT (L)	262	262	1650	0.1588	0.1588
	T + R		1515	6600	0.2295	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.69
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED

INT=EXLN18,VOL=EXV18AM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/08/03

INTERSECTION 19 Alcosta Blvd./Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour AM

CCTA METHOD 3-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                        0    0    0
                        |    |    |
                <---    v    --->
LEFT      0 ---  0.0   0.0  0.0  0.0   0.0 ---    0  RIGHT
                                                     STREET NAME:
THRU    425 ---> 3.0  (NO. OF LANES)   3.0<--- 1609  THRU  Crow Canyon Rd.

RIGHT   310 ---  1.0   2.0  0.0  1.0   2.0 ---  551  LEFT
                <---    ^    --->
                        |    |    |
  N                                                  SIG WARRANTS:
W + E                  256    0  188                   Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y
```

STREET NAME: Alcosta Blvd.

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	188	0 *	1720	0.0000	
	LEFT (L)	256	256	3127	0.0819	0.0819
EB	RIGHT (R)	310	169 *	1720	0.0983	
	THRU (T)	425	425	5160	0.0824	
WB	THRU (T)	1609	1609	5160	0.3118	0.3118
	LEFT (L)	551	551	3127	0.1762	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.39
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN19,VOL=EXV19AM,CAP=

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	Kimley-Horn & Associates, Inc.
Agency/Co.	San Ramon, CA
Date Performed	12/08/03
Analysis Time Period	AM Peak

Site Information

Intersection	Norris Canyon & Bollinger
Jurisdiction	
Analysis Year	Existing
Project ID	Northwest Specific Plan

East/West Street: Norris Canyon Road

North/South Street: Bollinger Canyon Road

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	6	167	86	39	40	42
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	87	191	44	45	306	18
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		L	TR	L	TR
PHF	0.90		0.46		0.83	0.83	0.84	0.84
Flow Rate	286		261		104	283	53	385
% Heavy Vehicles	2		2		2	2	2	2
No. Lanes	1		1		2		2	
Geometry Group	2		2		5		5	
Duration, T	1.00							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.0		0.3		1.0	0.0	1.0	0.0
Prop. Right-Turns	0.3		0.3		0.0	0.2	0.0	0.1
Prop. Heavy Vehicle	0.0		0.0		0.0	0.0	0.0	0.0
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	7.26		7.26		7.26	7.26	7.26	7.26

Departure Headway and Service Time

hd, initial value	3.20		3.20		3.20	3.20	3.20	3.20
x, initial	0.25		0.23		0.09	0.25	0.05	0.34
hd, final value	7.26		7.26		7.26	7.26	7.26	7.26
x, final value	0.58		0.54		0.23	0.60	0.11	0.80
Move-up time, m	2.0		2.0		2.3		2.3	
Service Time	5.3		5.3		5.3		5.3	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	454		440		354	447	303	467
Delay	20.00		18.83		12.97	21.39	11.44	38.43
LOS	C		C		B	C	B	E
Approach: Delay	20.00		18.83		19.13		35.17	
LOS	C		C		C		E	
Intersection Delay	24.37							
Intersection LOS	C							

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Condition: Northwest Specific Plan 12/08/03

INTERSECTION 21 San Ramon Valley/Norris Canyon San Ramon, CA
Count Date Time Peak Hour AM

```
CCTA METHOD          RIGHT THRU LEFT                          6-PHASE SIGNAL
-----------             34  163  567
                         |    |    |
              ^          |    |    |          ^
              |        <---   v   --->        | Split? N
LEFT    77 ---  1.0   1.1  2.1  2.0   1.0 ---   83  RIGHT
                                                          STREET NAME:
THRU   731 ---> 2.1  (NO. OF LANES)   1.0<---  147  THRU  Norris Canyon

RIGHT   90 ---  1.1   1.0  2.1  1.1   1.0 ---   89  LEFT
              |        <---   ^   --->        |
              v          |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                   72  408  371                       Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

                 STREET NAME: San Ramon Valley
```

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	371	371	1650	0.2248	
	THRU (T)	408	408	3300	0.1236	
	LEFT (L)	72	72	1650	0.0436	
	T + R		779	3300	0.2361	0.2361
SB	RIGHT (R)	34	34	1650	0.0206	
	THRU (T)	163	163	3300	0.0494	
	LEFT (L)	567	567	3000	0.1890	0.1890
	T + R		197	3300	0.0597	
EB	RIGHT (R)	90	90	1650	0.0545	
	THRU (T)	731	731	3300	0.2215	
	LEFT (L)	77	77	1650	0.0467	
	T + R		821	3300	0.2488	0.2488
WB	RIGHT (R)	83	0 *	1650	0.0000	
	THRU (T)	147	147	1650	0.0891	
	LEFT (L)	89	89	1650	0.0539	0.0539

TOTAL VOLUME-TO-CAPACITY RATIO: 0.73
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN21,VOL=EXV21AM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/11/03

INTERSECTION 22 San Ramon Valley/Bollinger Canyon San Ramon, CA
Count Date Time Peak Hour AM

```
CCTA METHOD          RIGHT THRU LEFT                          6-PHASE SIGNAL
-----------              9  191  188
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT    22 ---  1.0    1.1  2.1  2.0   1.0 ---  169  RIGHT
                                                          STREET NAME:
THRU   526 ---> 2.1   (NO. OF LANES)   2.0<---  285  THRU  Bollinger Canyon

RIGHT  206 ---  1.1    2.0  2.1  1.1   2.0 ---  280  LEFT
             |         <---   ^   --->       |
             v           |    |    |          v
  N                      |    |    |                      SIG WARRANTS:
W + E                   156  483  712                        Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N
```

STREET NAME: San Ramon Valley

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	712	712	1650	0.4315	0.4315
	THRU (T)	483	483	3300	0.1464	
	LEFT (L)	156	156	3000	0.0520	
	T + R		1195	3300	0.3621	
SB	RIGHT (R)	9	9	1650	0.0055	
	THRU (T)	191	191	3300	0.0579	
	LEFT (L)	188	188	3000	0.0627	0.0627
	T + R		200	3300	0.0606	
EB	RIGHT (R)	206	206	1650	0.1248	
	THRU (T)	526	526	3300	0.1594	
	LEFT (L)	22	22	1650	0.0133	
	T + R		732	3300	0.2218	0.2218
WB	RIGHT (R)	169	66 *	1650	0.0400	
	THRU (T)	285	285	3300	0.0864	
	LEFT (L)	280	280	3000	0.0933	0.0933

TOTAL VOLUME-TO-CAPACITY RATIO: 0.81
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN22,VOL=EXV22AM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/11/03

INTERSECTION 23 I-680 SB Ramps/Bollinger Canyon San Ramon, CA
Count Date Time Peak Hour AM

```
CCTA METHOD          RIGHT THRU LEFT                          4-PHASE SIGNAL
-----------            202    2  904
                         |    |    |
              ^          |    |    |          ^
              |        <---   v   --->        | Split? N
LEFT     0 ---  0.0    2.0  1.1  2.1    1.9 ---   922  RIGHT
                                                          STREET NAME:
THRU  1420 ---> 4.1  (NO. OF LANES)    3.0<---   531  THRU  Bollinger Canyon

RIGHT    6 ---  1.1    1.1  0.0  1.1    0.0 ---     0  LEFT
              |        <---   ^   --->        |
              v          |    |    |          v
  N                      |    |    |                       SIG WARRANTS:
W + E                    1    0    4                         Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? Y
```

STREET NAME: I-680 SB Ramps

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	4	4	1650	0.0024	
	LEFT (L)	1	1	1650	0.0006	
	T + R + L		5	1650	0.0030	0.0030
SB	RIGHT (R)	202	202	3000	0.0673	
	THRU (T)	2	2	1650	0.0012	
	LEFT (L)	904	904	3000	0.3013	
	T + L		906	3000	0.3020	0.3020
EB	RIGHT (R)	6	6	1650	0.0036	
	THRU (T)	1420	1420	6600	0.2152	
	T + R		1426	6600	0.2161	0.2161
WB	RIGHT (R)	922	922	1650	0.5588	
	THRU (T)	531	531	4950	0.1073	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.52
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN23,VOL=EXV23AM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/11/03

INTERSECTION 24 I-680 NB Ramps/Bollinger Canyon San Ramon, CA
Count Date Time Peak Hour AM

```
CCTA METHOD          RIGHT THRU LEFT                          2-PHASE SIGNAL
-----------              0    0    0
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT     0 ---  0.0    0.0  0.0  0.0    2.1 ---  425  RIGHT
                                                          STREET NAME:
THRU  1456 ---> 3.0   (NO. OF LANES)    3.1<--- 1063  THRU  Bollinger Canyon

RIGHT  872 ---  1.9    1.0  0.0  2.0    0.0 ---    0  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                   342    0 1831                         Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y
```

STREET NAME: I-680 NB Ramps

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	1831	1831	3273	0.5594	0.5594
	LEFT (L)	342	342	1800	0.1900	
EB	RIGHT (R)	872	872	1800	0.4844	
	THRU (T)	1456	1456	5400	0.2696	0.2696
WB	RIGHT (R)	425	425	3273	0.1299	
	THRU (T)	1063	1063	5400	0.1969	
	T + R		1488	6873	0.2165	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.83
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN24,VOL=EXV24AM,CAP=

Intersection LOS Analysis Results

PM Peak Hour

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/11/03

INTERSECTION 1 San Ramon Valley/Greenbrook Dr. San Ramon, CA
Count Date Time Peak Hour PM

CCTA METHOD 3-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                        0  385  188
                        |   |   |
            ^           |   |   |          ^
            |         <---  v   --->       | Split? Y
LEFT     0 ---  0.0   0.0  2.0  1.0   1.1 ---   68  RIGHT
                                                      STREET NAME:
THRU     0 ---> 0.0  (NO. OF LANES)   0.0<---    0  THRU  Greenbrook Dr.

RIGHT    0 ---  0.0   0.0  2.1  1.1   1.1 ---  132  LEFT
            |         <---   ^   --->      |
            v           |   |   |          v
  N                     |   |   |                       SIG WARRANTS:
W + E                   0  771  225                        Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N
```

STREET NAME: San Ramon Valley

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	225	225	1720	0.1308	
	THRU (T)	771	771	3440	0.2241	
	T + R		996	3440	0.2895	0.2895
SB	THRU (T)	385	385	3440	0.1119	
	LEFT (L)	188	188	1720	0.1093	0.1093
WB	RIGHT (R)	68	68	1720	0.0395	
	LEFT (L)	132	132	1720	0.0767	
	T + R + L		200	1720	0.1163	0.1163

TOTAL VOLUME-TO-CAPACITY RATIO: 0.52
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED

INT=EXLN1,VOL=EXV1PM,CAP=

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Kimley-Horn & Associates, Inc.*	Intersection	*Hooper & San Ramon Valley*
Agency/Co.	*San Ramon, CA*	Jurisdiction	
Date Performed	*12/08/03*	Analysis Year	*Existing*
Analysis Time Period	*PM Peak*	Project ID	*Northwest Specific Plan*

East/West Street: *Hooper Drive*	North/South Street: *San Ramon Valley Boulevard*
Intersection Orientation: *North-South*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*40*	*1216*	*4*	*0*	*574*	*34*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*1.00*	*0.93*	*0.93*
Hourly Flow Rate, HFR	*44*	*1351*	*4*	*0*	*617*	*36*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*0*	*0*	*2*	*0*
Configuration	*L*	*T*	*TR*		*T*	*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*1*	*0*	*3*	*16*	*0*	*32*
Peak-Hour Factor, PHF	*0.33*	*0.33*	*0.33*	*0.75*	*0.75*	*0.75*
Hourly Flow Rate, HFR	*3*	*0*	*9*	*21*	*0*	*42*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*			*LTR*			*LTR*	
v (vph)	*44*			*12*			*63*	
C (m) (vph)	*930*			*145*			*220*	
v/c	*0.05*			*0.08*			*0.29*	
95% queue length	*0.15*			*0.27*			*1.19*	
Control Delay	*9.1*			*32.1*			*27.9*	
LOS	*A*			*D*			*D*	
Approach Delay	--	--	*32.1*			*27.9*		
Approach LOS	--	--	*D*			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Kimley-Horn & Associates, Inc.*	Intersection	*Purdue & San Ramon Valley*
Agency/Co.	*San Ramon, CA*	Jurisdiction	
Date Performed	*12/08/03*	Analysis Year	*Existing*
Analysis Time Period	*PM Peak*	Project ID	*Northwest Specific Plan*

East/West Street: *Purdue Road*	North/South Street: *San Ramon Valley Boulevard*
Intersection Orientation: *North-South*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*33*	*1223*	*0*	*0*	*585*	*34*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.84*	*1.00*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*36*	*1343*	*0*	*0*	*664*	*0*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*2*	*1*	*0*	*2*	*0*
Configuration	*L*	*T*	*R*	*LT*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*41*	*0*	*78*
Peak-Hour Factor, PHF	*0.25*	*0.25*	*0.25*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*46*	*0*	*88*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LT*					*LTR*	
v (vph)	*36*	*0*					*134*	
C (m) (vph)	*921*	*520*					*268*	
v/c	*0.04*	*0.00*					*0.50*	
95% queue length	*0.12*	*0.00*					*2.88*	
Control Delay	*9.1*	*11.9*					*31.7*	
LOS	*A*	*B*					*D*	
Approach Delay	--	--				*31.7*		
Approach LOS	--	--				*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*Kimley-Horn & Associates, Inc.*
Agency/Co.	*San Ramon, CA*
Date Performed	*12/8/2003*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*Purdue & Omega*
Jurisdiction	
Analysis Year	*Existing*
Project ID	*Northwest Specific Plan*

East/West Street: *Purdue Road*	North/South Street: *Omega Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*25*	*70*	*49*	*25*	*0*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*25*	*70*	*49*	*25*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*44*	*0*	*23*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*44*	*0*	*23*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*0*	*2*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (vph)	*0*	*49*		*67*			*0*	
C (m) (vph)	*1589*	*1499*		*829*			*0*	
v/c	*0.00*	*0.03*		*0.08*				
95% queue length	*0.00*	*0.10*		*0.26*				
Control Delay	*7.3*	*7.5*		*9.7*				
LOS	*A*	*A*		*A*			*F*	
Approach Delay	--	--	*9.7*					
Approach LOS	--	--	*A*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Kimley-Horn & Associates, Inc.*	Intersection	*Deerwood & Bollinger Canyon*
Agency/Co.	*San Ramon, CA*	Jurisdiction	
Date Performed	*12/8/2003*	Analysis Year	*Existing*
Analysis Time Period	*PM Peak*	Project ID	*Northwest Specific Plan*

East/West Street: *Deerwood Drive*	North/South Street: *Bollinger Canyon Road*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*42*	*30*	*14*	*44*	*0*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*0*	*42*	*30*	*14*	*44*	*0*
Percent Heavy Vehicles	*2*	*--*	*--*	*2*	*--*	*--*
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*29*	*0*	*9*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*29*	*0*	*9*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*0*	*2*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (vph)		*14*		*38*				
C (m) (vph)		*1528*		*890*				
v/c		*0.01*		*0.04*				
95% queue length		*0.03*		*0.13*				
Control Delay		*7.4*		*9.2*				
LOS		*A*		*A*				
Approach Delay	--	--	*9.2*					
Approach LOS	--	--	*A*					

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ALL-WAY STOP CONTROL ANALYSIS

General Information		Site Information	
Analyst	Kimley-Horn & Associates, Inc.	Intersection	Deerwood Dr & Deerwood Rd
Agency/Co.	San Ramon, CA	Jurisdiction	
Date Performed	12/8/2003	Analysis Year	Existing
Analysis Time Period	PM Peak	Project ID	Northwest Specific Plan

East/West Street: Deerwood Drive | North/South Street: Deerwood Road

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	60	2	19	0	7	21
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	24	152	11	6	91	46
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LT	R
PHF	1.00		1.00		1.00		1.00	1.00
Flow Rate	81		28		187		97	46
% Heavy Vehicles	0		0		0		0	0
No. Lanes	1		1		1		2	
Geometry Group	2		2		4a		5	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.7		0.0		0.1		0.1	0.0
Prop. Right-Turns	0.2		0.8		0.1		0.0	1.0
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	0.0
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	4.69		4.69		4.69		4.69	4.69

Departure Headway and Service Time

hd, initial value	3.20		3.20		3.20		3.20	3.20
x, initial	0.07		0.02		0.17		0.09	0.04
hd, final value	4.69		4.69		4.69		4.69	4.69
x, final value	0.11		0.03		0.23		0.13	0.06
Move-up time, m	2.0		2.0		2.0		2.3	
Service Time	2.7		2.7		2.7		2.7	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	331		278		437		347	296
Delay	8.24		7.45		8.73		8.38	7.26
LOS	A		A		A		A	A
Approach: Delay	8.24		7.45		8.73		8.02	
LOS	A		A		A		A	
Intersection Delay	8.33							
Intersection LOS	A							

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ALL-WAY STOP CONTROL ANALYSIS

General Information		Site Information	
Analyst	Kimley-Horn & Associates, Inc.	Intersection	Deerwood & Old Crow Canyon
Agency/Co.	San Ramon, CA	Jurisdiction	
Date Performed	12/8/2003	Analysis Year	Existing
Analysis Time Period	PM Peak	Project ID	Northwest Specific Plan

East/West Street: Deerwood Road | North/South Street: Old Crow Canyon Road

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	25	329	30	169	192	31
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	15	39	264	132	33	18
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	L	TR	LTR		LTR	
PHF	1.00	1.00	1.00	1.00	1.00		1.00	
Flow Rate	25	359	169	223	318		183	
% Heavy Vehicles	0	0	0	0	0		0	
No. Lanes	2		2		1		1	
Geometry Group	5		5		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	1.0	0.0	0.0		0.7	
Prop. Right-Turns	0.0	0.1	0.0	0.1	0.8		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	7.22	7.22	7.22	7.22	7.22		7.22	

Departure Headway and Service Time

hd, initial value	3.20	3.20	3.20	3.20	3.20		3.20	
x, initial	0.02	0.32	0.15	0.20	0.28		0.16	
hd, final value	7.22	7.22	7.22	7.22	7.22		7.22	
x, final value	0.05	0.69	0.34	0.43	0.55		0.36	
Move-up time, m	2.3		2.3		2.0		2.0	
Service Time	4.9	4.7	4.9	4.7	4.9	4.7	4.9	4.7

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	275	498	419	473	533		433	
Delay	10.30	23.99	13.70	14.90	16.69		14.24	
LOS	B	C	B	B	C		B	
Approach: Delay	23.10		14.38		16.69		14.24	
LOS	C		B		C		B	
Intersection Delay	17.56							
Intersection LOS	C							

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CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/08/03

INTERSECTION 8 San Ramon Valley/Deerwood Rd. San Ramon, CA
Count Date Time Peak Hour PM

```
CCTA METHOD          RIGHT THRU LEFT                          6-PHASE SIGNAL
-----------            113  495  153
                         |    |    |
              ^          |    |    |          ^
              |        <---   v   --->        | Split? N
LEFT   271 ---  1.0    1.0  2.0  1.0    1.0 ---   97  RIGHT
                                                          STREET NAME:
THRU   332 ---> 2.1   (NO. OF LANES)    2.0<---  131  THRU  Deerwood Rd.

RIGHT  122 ---  1.1    1.0  2.0  1.0    1.0 ---   67  LEFT
              |        <---   ^   --->        |
              v          |    |    |          v
  N                      |    |    |                       SIG WARRANTS:
W + E                  148 1224  104                         Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

                 STREET NAME: San Ramon Valley
```

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	104	37 *	1650	0.0224	
	THRU (T)	1224	1224	3300	0.3709	0.3709
	LEFT (L)	148	148	1650	0.0897	
SB	RIGHT (R)	113	0 *	1650	0.0000	
	THRU (T)	495	495	3300	0.1500	
	LEFT (L)	153	153	1650	0.0927	0.0927
EB	RIGHT (R)	122	122	1650	0.0739	
	THRU (T)	332	332	3300	0.1006	
	LEFT (L)	271	271	1650	0.1642	0.1642
	T + R		454	3300	0.1376	
WB	RIGHT (R)	97	0 *	1650	0.0000	
	THRU (T)	131	131	3300	0.0397	0.0397
	LEFT (L)	67	67	1650	0.0406	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.67
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN8,VOL=EXV8PM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/08/03

INTERSECTION 9 Bollinger Canyon/Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour PM

```
CCTA METHOD          RIGHT THRU LEFT                          6-PHASE SIGNAL
-----------             17   40   34
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT    20 ---  1.0    1.1  1.1  1.0   1.0 ---  555  RIGHT
                                                          STREET NAME:
THRU   721 ---> 2.0   (NO. OF LANES)   2.0<---  920  THRU  Crow Canyon Rd.

RIGHT   76 ---  1.0    1.0  1.0  1.0   1.0 ---   85  LEFT
             |         <---   ^   --->        |
             v                |    |          v
  N                           |    |                      SIG WARRANTS:
W + E                       131   36   60                    Urb=Y, Rur=Y
  S                       LEFT THRU RIGHT Split? N
```

STREET NAME: Bollinger Canyon

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	60	0 *	1650	0.0000	
	THRU (T)	36	36	1650	0.0218	
	LEFT (L)	131	131	1650	0.0794	0.0794
SB	RIGHT (R)	17	17	1650	0.0103	
	THRU (T)	40	40	1650	0.0242	
	LEFT (L)	34	34	1650	0.0206	
	T + R		57	1650	0.0345	0.0345
EB	RIGHT (R)	76	0 *	1650	0.0000	
	THRU (T)	721	721	3300	0.2185	
	LEFT (L)	20	20	1650	0.0121	0.0121
WB	RIGHT (R)	555	521 *	1650	0.3158	0.3158
	THRU (T)	920	920	3300	0.2788	
	LEFT (L)	85	85	1650	0.0515	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.44
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN9,VOL=EXV9PM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/11/03

INTERSECTION 10 Porter Rd./Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour PM

```
CCTA METHOD          RIGHT THRU LEFT                          4-PHASE SIGNAL
-----------             24    4   14
                         |    |    |
              ^          |    |    |          ^
              |        <---   v   --->        | Split? N
LEFT    14 ---  1.0    1.0  1.1  2.1    1.1 ---    0  RIGHT
                                                        STREET NAME:
THRU   902 ---> 3.1   (NO. OF LANES)    3.1<--- 1017  THRU  Crow Canyon Rd.

RIGHT   11 ---  1.1    1.0  1.1  1.1    1.0 ---   28  LEFT
              |        <---   ^   --->        |
              v          |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                   51    5   28                          Urb=N, Rur=N
  S                   LEFT THRU RIGHT Split? Y
```

STREET NAME: Porter Rd.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	28	28	1650	0.0170	
	THRU (T)	5	5	1650	0.0030	
	LEFT (L)	51	51	1650	0.0309	0.0309
	T + R		33	1650	0.0200	
SB	RIGHT (R)	24	10 *	1650	0.0061	0.0061
	THRU (T)	4	4	1650	0.0024	
	LEFT (L)	14	14	3000	0.0047	
	T + L		18	3000	0.0060	
EB	RIGHT (R)	11	11	1650	0.0067	
	THRU (T)	902	902	4950	0.1822	
	LEFT (L)	14	14	1650	0.0085	0.0085
	T + R		913	4950	0.1844	
WB	RIGHT (R)	0	0	1650	0.0000	
	THRU (T)	1017	1017	4950	0.2055	0.2055
	LEFT (L)	28	28	1650	0.0170	
	T + R		1017	4950	0.2055	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.25
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN10,VOL=EXV10PM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/08/03

INTERSECTION 11 Deerwood Rd./Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour PM

```
CCTA METHOD          RIGHT THRU LEFT                          4-PHASE SIGNAL
-----------             62    7  114
                         |    |    |
              ^          |    |    |          ^
              |        <---   v   --->        | Split? N
LEFT    53 ---  1.0   1.1  1.1  1.0   1.1 ---   99  RIGHT
                                                          STREET NAME:
THRU   884 ---> 3.1  (NO. OF LANES)   3.1<---  991  THRU  Crow Canyon Rd.

RIGHT    2 ---  1.1   1.0  1.1  1.1   1.0 ---   40  LEFT
              |        <---   ^   --->        |
              v          |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                    2    9   60                       Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

                STREET NAME: Deerwood Rd.
```

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	60	60	1650	0.0364	
	THRU (T)	9	9	1650	0.0055	
	LEFT (L)	2	2	1650	0.0012	
	T + R		69	1650	0.0418	0.0418
SB	RIGHT (R)	62	62	1650	0.0376	
	THRU (T)	7	7	1650	0.0042	
	LEFT (L)	114	114	1650	0.0691	0.0691
	T + R		69	1650	0.0418	
EB	RIGHT (R)	2	2	1650	0.0012	
	THRU (T)	884	884	4950	0.1786	
	LEFT (L)	53	53	1650	0.0321	0.0321
	T + R		886	4950	0.1790	
WB	RIGHT (R)	99	99	1650	0.0600	
	THRU (T)	991	991	4950	0.2002	
	LEFT (L)	40	40	1650	0.0242	
	T + R		1090	4950	0.2202	0.2202

TOTAL VOLUME-TO-CAPACITY RATIO: 0.36
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN11,VOL=EXV11PM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/08/03

INTERSECTION 12 Old Crow Canyon/Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour PM

```
CCTA METHOD          RIGHT THRU LEFT                          3-PHASE SIGNAL
-----------             67    0  319
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT   109 ---  1.0    1.0  0.0  2.0    1.1 ---  290  RIGHT
                                                          STREET NAME:
THRU  1167 ---> 3.0   (NO. OF LANES)    3.1<--- 1227  THRU  Crow Canyon Rd.

RIGHT    0 ---  0.0    0.0  0.0  0.0    0.0 ---    0  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                       SIG WARRANTS:
W + E                    0    0    0                         Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y
```

STREET NAME: Old Crow Canyon

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB	RIGHT (R)	67	0 *	1720	0.0000	
	LEFT (L)	319	319	3127	0.1020	0.1020
EB	THRU (T)	1167	1167	5160	0.2262	
	LEFT (L)	109	109	1720	0.0634	0.0634
WB	RIGHT (R)	290	290	1720	0.1686	
	THRU (T)	1227	1227	5160	0.2378	
	T + R		1517	5160	0.2940	0.2940

TOTAL VOLUME-TO-CAPACITY RATIO: 0.46
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN12,VOL=EXV12PM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/11/03

INTERSECTION 13 Twin Creeks Rd./Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour PM

```
CCTA METHOD          RIGHT THRU LEFT                          5-PHASE SIGNAL
-----------              2    2   11
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT     4 ---  1.0    1.1  1.1  1.1   1.1 ---     7  RIGHT
                                                          STREET NAME:
THRU  1199 ---> 3.1  (NO. OF LANES)   3.1<--- 1050  THRU  Crow Canyon Rd.

RIGHT  198 ---  1.1    1.1  1.1  1.0   1.0 ---   304  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                  309    2  159                       Urb=Y, Rur=Y
  S                  LEFT THRU RIGHT Split? Y

                STREET NAME: Twin Creeks Rd.
```

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	159	0 *	1650	0.0000	
	THRU (T)	2	2	1650	0.0012	
	LEFT (L)	309	309	1650	0.1873	
	T + L		311	1650	0.1885	0.1885
SB	RIGHT (R)	2	2	1650	0.0012	
	THRU (T)	2	2	1650	0.0012	
	LEFT (L)	11	11	1650	0.0067	
	T + R		4	1650	0.0024	
	T + L		13	1650	0.0079	
	T + R + L		15	1650	0.0091	0.0091
EB	RIGHT (R)	198	198	1650	0.1200	
	THRU (T)	1199	1199	4950	0.2422	
	LEFT (L)	4	4	1650	0.0024	
	T + R		1397	4950	0.2822	0.2822
WB	RIGHT (R)	7	7	1650	0.0042	
	THRU (T)	1050	1050	4950	0.2121	
	LEFT (L)	304	304	1650	0.1842	0.1842
	T + R		1057	4950	0.2135	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.66
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN13,VOL=EXV13PM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/08/03

INTERSECTION 14 San Ramon Valley/Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour PM

```
CCTA METHOD          RIGHT THRU LEFT                          6-PHASE SIGNAL
-----------            107  349  523
                         |    |    |
              ^          |    |    |          ^
              |        <---   v   --->        | Split? N
LEFT   212 ---  2.0    1.0  2.0  2.0   1.0 ---  441  RIGHT
                                                            STREET NAME:
THRU  1058 ---> 3.0   (NO. OF LANES)   3.0<--- 1444  THRU   Crow Canyon Rd.

RIGHT   90 ---  1.0    2.0  2.0  1.0   2.0 ---  533  LEFT
              |        <---   ^   --->        |
              v          |    |    |          v
  N                      |    |    |                       SIG WARRANTS:
W + E                   214  513  446                         Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                STREET NAME: San Ramon Valley
```

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*		CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	446	153	*	1650	0.0927	
	THRU (T)	513	513		3300	0.1555	0.1555
	LEFT (L)	214	214		3000	0.0713	
SB	RIGHT (R)	107	0	*	1650	0.0000	
	THRU (T)	349	349		3300	0.1058	
	LEFT (L)	523	523		3000	0.1743	0.1743
EB	RIGHT (R)	90	0	*	1650	0.0000	
	THRU (T)	1058	1058		4950	0.2137	0.2137
	LEFT (L)	212	212		3000	0.0707	
WB	RIGHT (R)	441	153	*	1650	0.0927	
	THRU (T)	1444	1444		4950	0.2917	
	LEFT (L)	533	533		3000	0.1777	0.1777

TOTAL VOLUME-TO-CAPACITY RATIO: 0.72
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN14,VOL=EXV14PM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/11/03

INTERSECTION 15 I-680 SB Ramps/Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour PM

```
CCTA METHOD          RIGHT THRU LEFT                          2-PHASE SIGNAL
-----------           1017    0  759
                         |    |    |
              ^          |    |    |          ^
              |       <---   v   --->         | Split? N
LEFT     0 ---  0.0    2.0  0.0  2.0    1.9 ---  480  RIGHT
                                                          STREET NAME:
THRU  1428 ---> 3.0   (NO. OF LANES)    3.0<--- 1401  THRU  Crow Canyon Rd.

RIGHT  599 ---  1.9    0.0  0.0  0.0    0.0 ---    0  LEFT
              |       <---   ^   --->         |
              v          |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                    0    0    0                          Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y
```

STREET NAME: I-680 SB Ramps

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
SB RIGHT (R)	1017	1017	3273	0.3107	0.3107
LEFT (L)	759	759	3273	0.2319	
EB RIGHT (R)	599	599	1800	0.3328	
THRU (T)	1428	1428	5400	0.2644	0.2644
WB RIGHT (R)	480	480	1800	0.2667	
THRU (T)	1401	1401	5400	0.2594	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.58
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN15,VOL=EXV15PM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/11/03

INTERSECTION 16 I-680 NB Ramps/Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour PM

```
CCTA METHOD          RIGHT THRU LEFT                          2-PHASE SIGNAL
-----------              0    0    0
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT      0 ---  0.0    0.0  0.0  0.0   2.1 --- 1142  RIGHT
                                                          STREET NAME:
THRU   1303 ---> 3.0   (NO. OF LANES)   4.1<--- 1423  THRU  Crow Canyon Rd.

RIGHT   884 ---  1.9    2.1  0.0  2.1   0.0 ---    0  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                       SIG WARRANTS:
W + E                   458    0  505                         Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y
```

STREET NAME: I-680 NB Ramps

MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB RIGHT (R)	505	505	3273	0.1543	
LEFT (L)	458	458	3273	0.1399	
T + R + L		963	4746	0.2029	0.2029
EB RIGHT (R)	884	884	1800	0.4911	
THRU (T)	1303	1303	5400	0.2413	
WB RIGHT (R)	1142	1142	3273	0.3489	0.3489
THRU (T)	1423	1423	7200	0.1976	
T + R		2565	8673	0.2957	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.55
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN16,VOL=EXV16PM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/08/03

INTERSECTION 17 Crow Canyon Pl./Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour PM

```
CCTA METHOD          RIGHT THRU LEFT                          6-PHASE SIGNAL
-----------            471  116  142
                         |    |    |
              ^          |    |    |          ^
              |        <---   v   --->        | Split? N
LEFT   417 ---  2.0    1.0  1.0  1.0    1.1 ---    90  RIGHT
                                                        STREET NAME:
THRU  1094 ---> 3.0   (NO. OF LANES)    4.1<--- 1564  THRU  Crow Canyon Rd.

RIGHT  297 ---  1.0    2.1  2.2  1.1    1.0 ---    92  LEFT
              |        <---   ^   --->        |
              v          |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                  530  182  167                          Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y
```

STREET NAME: Crow Canyon Pl.

	MOVEMENT	ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	167	167	1650	0.1012	
	THRU (T)	182	182	3300	0.0552	
	LEFT (L)	530	530	3000	0.1767	
	T + R		349	3300	0.1058	
	T + L		712	4650	0.1531	
	T + R + L		879	4650	0.1890	0.1890
SB	RIGHT (R)	471	242 *	1650	0.1467	0.1467
	THRU (T)	116	116	1650	0.0703	
	LEFT (L)	142	142	1650	0.0861	
EB	RIGHT (R)	297	6 *	1650	0.0036	
	THRU (T)	1094	1094	4950	0.2210	
	LEFT (L)	417	417	3000	0.1390	0.1390
WB	RIGHT (R)	90	90	1650	0.0545	
	THRU (T)	1564	1564	6600	0.2370	
	LEFT (L)	92	92	1650	0.0558	
	T + R		1654	6600	0.2506	0.2506

TOTAL VOLUME-TO-CAPACITY RATIO: 0.73
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN17,VOL=EXV17PM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/08/03

INTERSECTION 18 Camino Ramon/Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour PM

CCTA METHOD 6-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                      105  193  409
                       |    |    |
                 ^     |    |    |          ^
                 |    <---   v   --->        | Split? N
LEFT     85 ---  1.0   1.1  2.1  1.0   1.1 ---  231  RIGHT
                                                        STREET NAME:
THRU   1170 ---> 3.0  (NO. OF LANES)   4.1<---  950  THRU  Crow Canyon Rd.

RIGHT   162 ---  1.0   2.0  1.0  1.0   1.0 ---  151  LEFT
                 |    <---   ^   --->        |
                 v       |    |    |         v
  N                      |    |    |                     SIG WARRANTS:
W + E                   653  349   95                       Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? Y
```

STREET NAME: Camino Ramon

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	95	0 *	1650	0.0000	
	THRU (T)	349	349	1650	0.2115	
	LEFT (L)	653	653	3000	0.2177	0.2177
SB	RIGHT (R)	105	105	1650	0.0636	
	THRU (T)	193	193	3300	0.0585	
	LEFT (L)	409	409	1650	0.2479	0.2479
	T + R		298	3300	0.0903	
EB	RIGHT (R)	162	0 *	1650	0.0000	
	THRU (T)	1170	1170	4950	0.2364	0.2364
	LEFT (L)	85	85	1650	0.0515	
WB	RIGHT (R)	231	231	1650	0.1400	
	THRU (T)	950	950	6600	0.1439	
	LEFT (L)	151	151	1650	0.0915	0.0915
	T + R		1181	6600	0.1789	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.79
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN18,VOL=EXV18PM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/08/03

INTERSECTION 19 Alcosta Blvd./Crow Canyon Rd. San Ramon, CA
Count Date Time Peak Hour PM

```
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------              0    0    0
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT     0 ---  0.0    0.0  0.0  0.0   0.0 ---     0  RIGHT
                                                        STREET NAME:
THRU  1486 ---> 3.0  (NO. OF LANES)   3.0<---   831  THRU  Crow Canyon Rd.

RIGHT  260 ---  1.0    2.0  0.0  1.0   2.0 ---   198  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                      SIG WARRANTS:
W + E                   458    0  680                        Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y
```

STREET NAME: Alcosta Blvd.

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	680	571 *	1720	0.3320	0.3320
	LEFT (L)	458	458	3127	0.1465	
EB	RIGHT (R)	260	8 *	1720	0.0047	
	THRU (T)	1486	1486	5160	0.2880	0.2880
WB	THRU (T)	831	831	5160	0.1610	
	LEFT (L)	198	198	3127	0.0633	0.0633

TOTAL VOLUME-TO-CAPACITY RATIO: 0.68
INTERSECTION LEVEL OF SERVICE: B

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN19,VOL=EXV19PM,CAP=

ALL-WAY STOP CONTROL ANALYSIS

General Information		Site Information	
Analyst	Kimley-Horn & Associates, Inc.	Intersection	Norris Canyon & Bollinger
Agency/Co.	San Ramon, CA	Jurisdiction	
Date Performed	12/08/03	Analysis Year	Existing
Analysis Time Period	PM Peak	Project ID	Northwest Specific Plan

East/West Street: Norris Canyon Road | North/South Street: Bollinger Canyon Road

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	6	44	95	70	75	36
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	80	251	95	31	143	12
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		L	TR	L	TR
PHF	0.82		0.82		0.90	0.90	0.83	0.83
Flow Rate	175		219		88	383	37	186
% Heavy Vehicles	2		2		2	2	2	2
No. Lanes	1		1		2		2	
Geometry Group	2		2		5		5	
Duration, T	1.00							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.0		0.4		1.0	0.0	1.0	0.0
Prop. Right-Turns	0.7		0.2		0.0	0.3	0.0	0.1
Prop. Heavy Vehicle	0.0		0.0		0.0	0.0	0.0	0.0
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	5.93		5.93		5.93	5.93	5.93	5.93

Departure Headway and Service Time

hd, initial value	3.20		3.20		3.20	3.20	3.20	3.20
x, initial	0.16		0.19		0.08	0.34	0.03	0.17
hd, final value	5.93		5.93		5.93	5.93	5.93	5.93
x, final value	0.29		0.37		0.16	0.64	0.07	0.34
Move-up time, m	2.0		2.0		2.3		2.3	
Service Time	3.9		3.9		3.9		3.9	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	425		469		338	582	287	436
Delay	11.33		12.80		10.25	19.16	9.95	12.47
LOS	B		B		B	C	A	B
Approach: Delay	11.33		12.80		17.49		12.05	
LOS	B		B		C		B	
Intersection Delay	14.44							
Intersection LOS	B							

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CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/08/03

INTERSECTION 21 San Ramon Valley/Norris Canyon San Ramon, CA
Count Date Time Peak Hour PM

CCTA METHOD 6-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                       98  546  288
                        |    |    |
                        <---  v   --->
LEFT    76 ---  1.0   1.1  2.1  2.0   1.0 ---  429  RIGHT
                                                      STREET NAME:
THRU   170 ---> 2.1  (NO. OF LANES)   1.0<---  532  THRU  Norris Canyon

RIGHT   65 ---  1.1   1.0  2.1  1.1   1.0 ---  341  LEFT
                        <---  ^   --->
                        |    |    |
                        v                                 SIG WARRANTS:
  N                                                         Urb=Y, Rur=Y
W + E                  125  897  178
  S                   LEFT THRU RIGHT Split? N
```

STREET NAME: San Ramon Valley

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	178	178	1650	0.1079	
	THRU (T)	897	897	3300	0.2718	
	LEFT (L)	125	125	1650	0.0758	
	T + R		1075	3300	0.3258	0.3258
SB	RIGHT (R)	98	98	1650	0.0594	
	THRU (T)	546	546	3300	0.1655	
	LEFT (L)	288	288	3000	0.0960	0.0960
	T + R		644	3300	0.1952	
EB	RIGHT (R)	65	65	1650	0.0394	
	THRU (T)	170	170	3300	0.0515	
	LEFT (L)	76	76	1650	0.0461	0.0461
	T + R		235	3300	0.0712	
WB	RIGHT (R)	429	271 *	1650	0.1642	
	THRU (T)	532	532	1650	0.3224	0.3224
	LEFT (L)	341	341	1650	0.2067	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.79
INTERSECTION LEVEL OF SERVICE: C

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN21,VOL=EXV21PM,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/08/03

INTERSECTION 22 San Ramon Valley/Bollinger Canyon San Ramon, CA
Count Date Time Peak Hour

CCTA METHOD 6-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                       13  505  362
                        |    |    |
                 ^      |    |    |          ^
                 |     <---   v   --->       | Split? N
LEFT     33 ---  1.0   1.1  2.1  2.0   1.0 ---  401  RIGHT
                                                        STREET NAME:
THRU    330 ---> 2.1  (NO. OF LANES)   2.0<---  334  THRU  Bollinger Canyon

RIGHT   219 ---  1.1   2.0  2.1  1.1   2.0 ---  823  LEFT
                 |     <---   ^   --->       |
                 v        |    |    |        v
  N                       |    |    |                     SIG WARRANTS:
W + E                    153  548  388                       Urb=Y, Rur=Y
  S                     LEFT THRU RIGHT Split? N
```

STREET NAME: San Ramon Valley

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	388	388	1650	0.2352	
	THRU (T)	548	548	3300	0.1661	
	LEFT (L)	153	153	3000	0.0510	
	T + R		936	3300	0.2836	0.2836
SB	RIGHT (R)	13	13	1650	0.0079	
	THRU (T)	505	505	3300	0.1530	
	LEFT (L)	362	362	3000	0.1207	0.1207
	T + R		518	3300	0.1570	
EB	RIGHT (R)	219	219	1650	0.1327	
	THRU (T)	330	330	3300	0.1000	
	LEFT (L)	33	33	1650	0.0200	
	T + R		549	3300	0.1664	0.1664
WB	RIGHT (R)	401	202 *	1650	0.1224	
	THRU (T)	334	334	3300	0.1012	
	LEFT (L)	823	823	3000	0.2743	0.2743

TOTAL VOLUME-TO-CAPACITY RATIO: 0.85
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN22,VOL=EXV22PM,CAP=

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==================================================================
Condition: Northwest Specific Plan                          12/11/03
==================================================================
INTERSECTION    23 I-680 SB Ramps/Bollinger Canyon   San Ramon, CA
Count Date                   Time                 Peak Hour PM
------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                      4-PHASE SIGNAL
-----------            422    3  526
                         |    |    |
              ^          |    |    |          ^
              |        <---   v   --->        | Split? N
LEFT     0 ---  0.0    2.0  1.1  2.1   1.9 --- 1706  RIGHT
                                                        STREET NAME:
THRU   582 ---> 4.1  (NO. OF LANES)   3.0<--- 1132  THRU  Bollinger Canyon

RIGHT  498 ---  1.1    1.1  0.0  1.1   0.0 ---    0  LEFT
              |        <---   ^   --->       |
              v          |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                    4    0   12                       Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y

                STREET NAME: I-680 SB Ramps
==================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
------------------------------------------------------------------
NB  RIGHT (R)      12          12       1650     0.0073
    LEFT (L)        4           4       1650     0.0024
    T + R + L                  16       1650     0.0097     0.0097
------------------------------------------------------------------
SB  RIGHT (R)     422         422       3000     0.1407
    THRU (T)        3           3       1650     0.0018
    LEFT (L)      526         526       3000     0.1753
    T + L                     529       3000     0.1763     0.1763
------------------------------------------------------------------
EB  RIGHT (R)     498         498       1650     0.3018     0.3018
    THRU (T)      582         582       6600     0.0882
    T + R                    1080       6600     0.1636
------------------------------------------------------------------
WB  RIGHT (R)    1706        1706       1650     1.0339 **
    THRU (T)     1132        1132       4950     0.2287
==================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.49
     INTERSECTION LEVEL OF SERVICE:                             A
==================================================================
* ADJUSTED FOR RIGHT TURN ON RED     ** APPROACHING OR EXCEEDING CAPACITY
INT=EXLN23,VOL=EXV23PM,CAP=
```

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: Northwest Specific Plan 12/11/03

INTERSECTION 24 I-680 NB Ramps/Bollinger Canyon San Ramon, CA
Count Date Time Peak Hour PM

CCTA METHOD 2-PHASE SIGNAL

```
                    RIGHT THRU LEFT
                       0    0    0
                       |    |    |
            ^          |    |    |          ^
            |        <---  v   --->        | Split? N
LEFT      0 ---  0.0   0.0  0.0  0.0   2.1 ---  888  RIGHT
                                                      STREET NAME:
THRU    908 ---> 3.0  (NO. OF LANES)   3.1<--- 2023  THRU  Bollinger Canyon

RIGHT   212 ---  1.9   1.0  0.0  2.0   0.0 ---    0  LEFT
            |        <---   ^   --->       |
            v          |    |    |         v
  N                    |    |    |                      SIG WARRANTS:
W + E                 815    0 1099                       Urb=Y, Rur=Y
  S                  LEFT THRU RIGHT Split? Y
```

STREET NAME: I-680 NB Ramps

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	1099	1099	3273	0.3358	
	LEFT (L)	815	815	1800	0.4528	0.4528
EB	RIGHT (R)	212	212	1800	0.1178	
	THRU (T)	908	908	5400	0.1681	
WB	RIGHT (R)	888	888	3273	0.2713	
	THRU (T)	2023	2023	5400	0.3746	
	T + R		2911	6873	0.4235	0.4235

TOTAL VOLUME-TO-CAPACITY RATIO: 0.88
INTERSECTION LEVEL OF SERVICE: D

* ADJUSTED FOR RIGHT TURN ON RED
INT=EXLN24,VOL=EXV24PM,CAP=

Appendix K

Water Supply Assessment

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EBMUD

AGENDA NO. _____
MEETING DATE October 12, 2004

TITLE **WATER SUPPLY ASSESSMENT FOR THE NORTHWEST SPECIFIC PLAN AREA**

☒MOTION _____ ☐ RESOLUTION _____ ☐ ORDINANCE _____

RECOMMENDED ACTION

Approve the Water Supply Assessment (WSA) requested by the City of San Ramon (City) for the Northwest Specific Plan Area, pursuant to California Water Code, Sections 10910-10915.

SUMMARY

The Northwest Specific Plan Area is situated outside the current City limits, within the City's Sphere of Influence and planning area boundaries. The Northwest Specific Plan Area is located in southern Contra Costa County, west of Interstate 680, and immediately north of the City and south of the Town of Danville, as shown in Attachment A. The 354-acre plan area includes up to 830 residential units, community parks, a house of worship, and an education use site.

The Northwest Specific Plan Area is outside the current District service area, but inside the Ultimate Service Boundary (USB), and parts of it are outside the Urban Limit Line (ULL). Because of this mixture of designations, staff reviewed District policies regarding annexations and provision of water service:

- Policy 3.01 covers annexations and states that annexations shall be within the USB and that the District will oppose any that are outside the USB (with very limited exceptions). The Northwest Specific Plan Area is consistent with Policy 3.01.
- Policy 3.05 says that the USB defines territory within which the District has planned to provide water service for both existing and future customers and that the District will not extend water service outside the USB if it would adversely affect customers. Since the Northwest Specific Plan Area is within the USB, provision of water service and annexation is consistent with Policy 3.05.
- Policy 3.08 addresses annexations outside the ULL and states that it is to be applied consistent with and in furtherance of Policy 3.01. Since Policy 3.01 provides for annexation of properties inside the USB, the Policy 3.08 requirement for extra measures regarding annexations are not necessary.

Annexation into the District's current service area will be required, which will occur after the project completes several land use and service provider approval steps in the City and with the Contra Costa County Local Agency Formation Commission before it becomes eligible for water service.

Funds Available FY:		Budget Code:
DEPARTMENT SUBMITTING Engineering & Construction	DEPARTMENT MANAGER or DIRECTOR Marilyn L. Miller	APPROVED General Manager

Submit original and two copies to the Secretary's Office by Noon on Friday two weeks before the Board meeting.
(List one item only. Attach background material if required)

There is no current water demand for the existing land uses within the Northwest Specific Plan Area as it is currently open space. The estimated water demand for the proposed plan area is 345,000 gallons per day. Land use demand factors applied regionally over time account for this type of development within the District's USB; therefore, these additional demands are accounted for in the District's Urban Water Management Plan (UWMP). Approval of the assessment by the Board of Directors is required prior to its submittal to the City. The assessment is described in the attached letter (Attachment B) and, upon Board approval, will be sent to the City.

DISCUSSION

On July 29, 2004, the City submitted a formal request for consultation between the District and the City regarding water service to the Northwest Specific Plan Area, pursuant to California Water Code, Sections 10910-10915. The project, for which an Environmental Impact Report is being prepared, meets the threshold requirement for an assessment of water supply availability based on the amount of water this project would require (greater than the amount required by a 500 dwelling unit project). The City is required to consult with the public water supplier to determine whether the water demand associated with the proposed project was included in its last UWMP, and to assess whether its 20-year water supply (available during normal, single-dry and multiple-dry water years) will meet the water demand associated with the proposed project. The District has prepared a WSA in response to the City's request.

The 2000 UWMP concludes that the District has, and will have, adequate water supplies to serve existing and projected demand within the USB during normal and wet years, but that deficits are projected for drought years. The District's Water Supply Management Plan includes up to a 25 percent water conservation requirement in a severe drought. The project will be subject to the same drought restriction as all District customers.

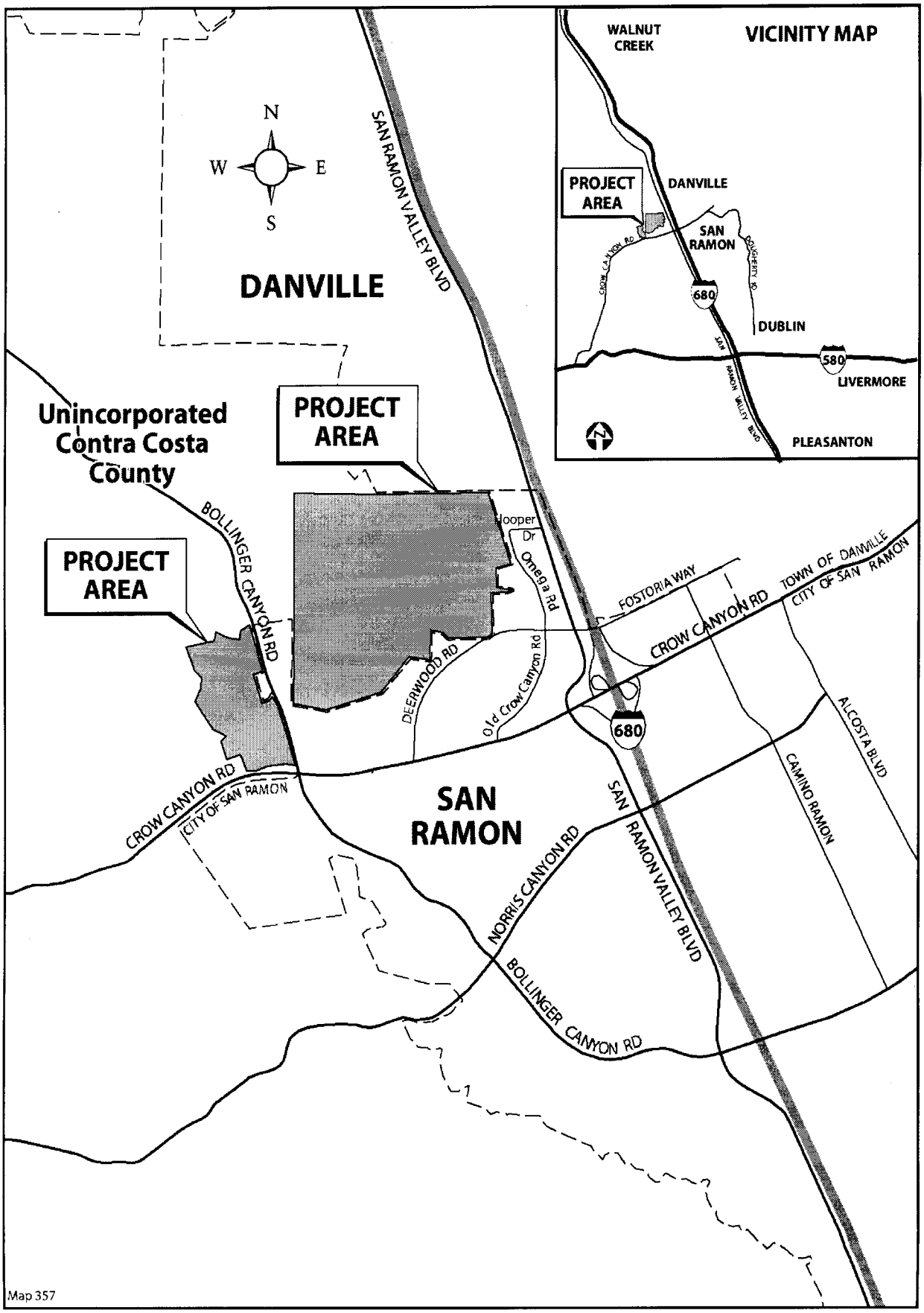
The WSA points out that the City Municipal Code already includes requirements for water-efficient landscapes and also requests a meeting to discuss water conservation opportunities in the project area. A key objective of this discussion will be to explore timely opportunities to maximize conservation via early consideration of the District's conservation programs and State and Federal best management practices applicable to the project.

The Northwest Specific Plan Area is located outside the District's recycled water project service area.

ALTERNATIVE

Do not submit a response – This alternative is not recommended. This assessment has been prepared pursuant to California Water Code, Sections 10910-10915. It is consistent with the law and the District's past WSAs.

Attachments: A. Map – Northwest Specific Plan Area
B. District's Response to July 29, 2004 Water Supply Area Assessment Request


VICINITY MAP
WALNUT CREEK
PROJECT AREA
DANVILLE
SAN RAMON
DUBLIN
LIVERMORE
PLEASANTON
680
580
N
W
E
S
DANVILLE
SAN RAMON VALLEY BLVD
Unincorporated Contra Costa County
PROJECT AREA
PROJECT AREA
BOLLINGER CANYON RD
Hooper Dr
Omega Rd
FOSTORIA WAY
TOWN OF DANVILLE
CITY OF SAN RAMON
CROW CANYON RD
DEERWOOD RD
Old Crow Canyon Rd
680
ALCOSTA BLVD
CAMINO RAMON
CROW CANYON RD
CITY OF SAN RAMON
SAN RAMON
NORRIS CANYON RD
SAN RAMON VALLEY BLVD
BOLLINGER CANYON RD
Map 357

Draft
ATTACHMENT B

October 14, 2004

Debbie Chamberlain, Senior Planner
City of San Ramon Planning
2222 Camino Ramon
San Ramon, CA 94583

Dear Ms. Chamberlain:

RE: Water Supply Assessment – Northwest Specific Plan Area

This letter responds to your request of July 29, 2004 for water agency consultation concerning the Northwest Specific Plan Area (Enclosure 1). The East Bay Municipal Utility District (EBMUD) appreciates the opportunity to provide this response.

Pursuant to Sections 10910-10915 (SB-610) of the California Water Code, the project meets the threshold requirement for an assessment of water supply availability based on the amount of water this project would require, which would be greater than the amount required by a 500 dwelling unit project.

Please note that this assessment addresses the issue of water supply only and is not a guarantee of service, and future water service is subject to rates and regulations in effect at the time.

Project Demand

The water demands for the Northwest Specific Plan Area are accounted for in EBMUD's water demand projections as published in EBMUD's 2000 Urban Water Management Plan (UWMP/Enclosure 2). EBMUD's water demand projections account for anticipated future water demands within EBMUD's service boundaries and for variations in demand-attributed changes in development patterns. There is no current water demand for the existing land uses in the Northwest Specific Plan Area. The projected demand, based on the projected water consumption by the applicant for the project area, is estimated to be 345,000 gallons per day and is consistent with EBMUD's demand projections that indicate densification of these types of land uses.

Project Area

The Northwest Specific Plan Area is situated outside the current San Ramon City limits, within the City's Sphere of Influence and planning area boundaries. The Northwest Specific

Plan Area is located in southern Contra Costa County, west of Interstate 680, and immediately south of the Town of Danville. The 354-acre plan area includes up to 830 residential units, community parks, a house of worship, and an education use site.

EBMUD Water Demand Projections

The water consumption of EBMUD customers has remained relatively level in recent years in spite of population and account growth. Between 1987 and the present, consumption has ranged from a high of approximately 220 million gallons per day (mgd) in 1987 to a low of 170 mgd in 1989. Based on extensive forecasting in EBMUD's Water Supply Management Program (WSMP) and recent land use based demand forecasting, the WSMP forecast for 2020 water demand of 277 mgd can be reduced to 229 mgd with successful water recycling and conservation programs that are in place. The Northwest Specific Plan Area will not change the EBMUD 2020 demand projection.

EBMUD Water Supply and Water Rights

EBMUD has water rights and facilities to divert up to a maximum of 325 mgd from the Mokelumne River, subject to the availability of Mokelumne River runoff and the prior water rights of other users. EBMUD's position in the hierarchy of Mokelumne River water users is determined by a variety of agreements between Mokelumne River water right holders, the appropriative water rights permits and licenses that have been issued by the State, pre-1914 rights and riparian rights. Conditions that restrict EBMUD's ability to use its 325 mgd entitlement include:

- Upstream water use by prior right holders.
- Downstream water use by riparian and senior appropriators and other downstream obligations, including protection of public trust resources.
- Drought, or less than normal rainfall for more than a year.
- Emergency outage.

During periods of drought, runoff from the Mokelumne River is insufficient to supply the 325 mgd entitlement. EBMUD studies indicate that, with its current water supply and the water demands expected in 2020, deficiencies in supply of up to 67 percent could occur during droughts.

EBMUD UWMP

The UWMP, adopted by the Board of Directors in Resolution No. 33242-01, includes planning level analyses at the County- and EBMUD-wide levels for existing and projected water demand. A summary of EBMUD's demand and supply projections in five-year

increments is provided in a table (Enclosure 3) from the UWMP. The data reflects the latest actual and forecast values.

EBMUD's evaluation of water supply availability accounts for the diversions of both upstream and downstream water right holders and fishery releases. Fishery releases are based on the requirements of a 1998 Joint Settlement Agreement (JSA) between EBMUD and State and Federal wildlife agencies. The JSA requires EBMUD to make minimum flow releases from its reservoirs to the lower Mokelumne River to benefit the fishery. As this water is released downriver, it is, therefore, not available for use by EBMUD's customers.

The available supply shown in the table (Enclosure 3) in years 1, 2 and 3 of a multiple-year drought was determined by EBMUD's hydrologic model with the following assumptions:

- EBMUD Drought Planning Sequence is used for 1976, 1977 and 1978.
- Total system storage is depleted by the end of the third year of the drought.
- The diversions by Amador and Calaveras Counties upstream of Pardee Reservoir increase over time.
- Releases are made to meet the requirements of senior downstream water right holders and fishery releases are made according to the JSA.

As discussed under the Drought Management Program section in Chapter 3 of the UWMP, EBMUD's system storage generally allows it to continue serving its customers during dry-year events. EBMUD imposes rationing based on the projected storage at the end of September. By imposing rationing in the first dry year of potential drought, EBMUD attempts to minimize rationing in subsequent years if a drought persists while continuing to meet its current and subsequent-year fishery flow release requirements and obligations to downstream agencies. Table 3-1 in the UWMP summarizes the guidelines for consumer water reduction goals based on system storage.

In the table (Enclosure 3), a "Single Dry" year (or Year 1 of "Multiple Dry Years") is determined to be a year that EBMUD would implement Drought Management Program elements at the "moderate" stage with the goal of achieving between 0 to 15 percent reduction in customer demand. Year 2 of Multiple Dry Years is determined to be a year that EBMUD would implement Drought Management Program elements at the "severe" stage with the goal of achieving 15 to 25 percent reduction in customer demand. In Year 3 of the multiple-year drought, deficiencies from about 48 percent in year 2005 to about 67 percent in year 2020 are forecast to occur. Therefore, a supplemental supply is needed, which is defined by EBMUD as the additional amount of water necessary to limit customer deficiency to 25 percent in a multiple-year drought while continuing to meet the requirements of senior downstream water right holders and the provisions of the 1998 JSA.

Supplemental Water Supply and Demand Management

The goals of meeting projected water needs and increased water reliability rely on three components: supplemental supply, water conservation and recycled water.

Chapter 2 of the UWMP describes EBMUD's supplemental water supply project alternatives to meet its long-term water demand. To address the need for a supplemental water supply during droughts, EBMUD signed a contract in 1970 with the Federal government for a supplemental supply from the Central Valley Project (CVP). In 2001, EBMUD certified the environmental documentation amending its CVP contract 14-06-200-5183A, reducing EBMUD's contract from 150,000 acre-feet (AF)/year to an annual entitlement not to exceed 133,000 AF. In 2002, EBMUD signed a Memorandum of Agreement with the City of Sacramento, the County of Sacramento and the U.S. Bureau of Reclamation to study a joint regional water project on the Sacramento River near Freeport. The Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) of the Freeport Regional Water Project identifies several regulatory permits and approvals required for the implementation of the project alternatives. These are listed in Table 2-6 of the Freeport Regional Water Project Draft EIR/EIS, July 2003.

Chapter 2 of the UWMP also describes other supplemental water projects, including the development of groundwater storage within EBMUD's service area. EBMUD is studying the environmental impacts of these proposed projects. Specific capital outlay and financing information for these projects are included in EBMUD's FY02-03 Capital Improvement Program and Five-Year Plan. The Freeport project would also allow for a future groundwater conjunctive use component and, along with the proposed local groundwater projects, emergency interties and planned water recycling and conservation efforts, would ensure a reliable water supply to meet projected demands for current and future EBMUD customers within the current service area. Without a supplemental water supply source, continued conservation efforts and further use of recycled water, deficiencies in supply are projected as noted above.

The Northwest Specific Plan Area presents an opportunity to incorporate many water conservation measures. EBMUD requests that the conditions of approval for the implementation of the Northwest Specific Plan Area have a requirement that the project comply with the City of San Ramon's Landscape Ordinance No. 218. EBMUD also requests the opportunity to meet with staff to discuss water conservation programs and best management practices applicable to the project area. A key objective of this discussion will be to explore timely opportunities to expand conservation via early consideration of EBMUD's conservation programs and best management practices applicable to the project.

Annexation into the District's current service area will be required, which will occur after the project completes several land use and service provider approval steps in the City and with

the Contra Costa County Local Agency Formation Commission before it becomes eligible for water service.

The project sponsor should contact David J. Rehnstrom, Senior Civil Engineer, at (510) 287-1365 for further information.

Sincerely,

WILLIAM R. KIRKPATRICK
Manager of Water Distribution Planning Division

WRK:DJR:sb
i:\SEC\10-12-04 Board Agenda Items\E&C WSA Northwest Specific Plan Area Attach B EC WSA Northwest Specific Plan Area.doc

Enclosures:
1. Letter of Request for Water Supply Assessment dated July 29, 2004
2. EBMUD's 2000 Urban Water Management Plan Area
3. EBMUD's Projected Demand and Available Supply Table

cc: Board of Directors w/o Enclosure 2

Enclosure 1

CITY OF SAN RAMON

2222 CAMINO RAMON
P.O. BOX 5148
SAN RAMON, CALIFORNIA 94583
PHONE: (925) 973-2500
WEB SITE: www.sanramon.ca.gov

RECEIVED
JUL 30 2004
WATER SERVICE PLANNING

July 29, 2004

William R. Kirkpatrick
Manager of Water Distribution Planning
East Bay Municipal Utility District
375 Eleventh Street
Oakland, CA 94607

Re: Request for Water Supply Assessment for San Ramon's Northwest Specific Plan Area

Dear Mr. Kirkpatrick:

I write to request that EBMUD prepare a Water Supply Assessment pursuant to Section 15083.5 of the California Environmental Quality Act Guidelines and Section 10910-10915 of the California Water Code for the Northwest Specific Plan Area (NWSP) in San Ramon.

Below is a summary of the uses currently anticipated for the NWSP Area and estimates of the landscape acreages corresponding to various uses. While I understand from your letter that, upon receipt of this request, you will be contacting the developer for information regarding water demand, the City hopes these figures and estimates will be of help in starting the WSA process.

Residential Uses
Neighborhood A: 200 Single Family Detached Homes (on minimum 5,500 square foot lots), 129 of which will have second units of approx. 400-500 sq. ft.
Neighborhood B: 200 Single Family Detached Homes (with density of approximately 12.1 units/acre)
Neighborhood C: 300 Multi-Family Units
Neighborhood D: 86 Attached Senior Housing Units
Neighborhood E: Up to 44 Large Lot (approx. ½ acre) Single Family Detached Homes

Other Uses
Community Parks (13.2 acres)
House of Worship (approx. 100,000 sq. ft. on 6.1 acres)
Educational Use Site (25,000 sq. ft. on 1.6 acres)

Estimated Landscape Acreages (excluding Community Parks, which are already identified above)
Neighborhood A = 3.44 total landscaped acres
Neighborhood B = 3.52 total landscaped acres
Neighborhoods C & D = 2.88 total landscaped acres
House of Worship = 1.53 acres
Educational Use Site = 0.52 acres

There are an additional 80 acres of graded open space or wildlife/riparian space areas that will require irrigation for three to five years to establish trees and other initial landscaping, but will be designed not to require water once established. Also, additional information regarding the landscape acreages for medians, rights of way, and Neighborhood E is being collected by the project sponsors and will be available once the WSA process is underway.

The City and the Developers are working on estimated water demand calculations for each of the uses and landscape acreages identified above and will forward them to EBMUD once complete. If you need any additional information from the City of San Ramon, please don't hesitate to contact me.

Sincerely,

Debbie Chamberlain

Debbie Chamberlain
Senior Planner

C04.092

PROJECTED DEMAND AND AVAILABLE SUPPLY
EAST BAY MUNICIPAL UTILITY DISTRICT

(million gallons per day - mgd)

	2000	2005	2010	2015	2020
Customer Demand[1]	230	242	257	267	277
Adjusted for Conservation[2]	(8)	(14)	(20)	(27)	(34)
Adjusted for Recycled Water[3]	(6)	(9)	(11)	(12)	(14)
Planning Level of Demand	216	219	226	228	229
Available Supply & Need for Supplemental Supply					
Normal Year	>216	>219	>226	>228	>229
Supplemental Supply Need	*0*	*0*	*0*	*0*	*0*
Single Dry Year (Multiple Dry Years - Year 1) Moderate Stage (approximately 7% deficiency)[4]	200	203	210	212	213
Supplemental Supply Need	*0*	*0*	*0*	*0*	*0*
Multiple Dry Years - Year 2 Severe Stage (approximately 25% deficiency)[4]	162	164	169	171	172
Supplemental Supply Need	*0*	*0*	*0*	*0*	*0*
Multiple Dry Years - Year 3					
Available Supply	125	114	95	84	77
Deficiency	42%	48%	58%	63%	67%
Supplemental Supply Need[5] (to limit deficiency to 25%)	*87*	*102*	*128*	*142*	*154*

1. *Demand taken from the 2000 Demand Study.*
2. *Conservation water savings goals from the WCMP 1999 Annual Report, 2 mgd in 1999 and 34 mgd for year 2020, linearly interpolated into five-year increments.*
3. *Chapter 5 of UWMP.*
   Note: Conservation and Reclamation savings reported are those attributed to programs which are a part of the 1993 WSMP. Reference Chapter 6 of UWMP.
4. *Drought conditions per Table 3-1, UWMP.*
5. *The supplemental supply need is calculated from modeling studies and is the amount of water needed to limit customer deficiency to 25 percent and to implement all provisions of the 1998 Joint Settlement Agreement.*